United States District Court,
N.D. California.

**COLLABORATION PROPERTIES, INC., a Nevada Corporation,**
Plaintiff.
v.
**TANDBERG ASA, and Tandberg, Inc., a Delaware Corporation,**
Defendants.

No. C 05-01940 MHP

**June 23, 2006.**

George M. Newcombe, Harrison J. Frahn, IV, Jeffrey E. Ostrow, Simpson, Thacher & Bartlett LLP, Palo Alto, CA, Jeremy S. Pitcock, Melissa A. Ganz, Noah M. Leibowitz, Simpson, Thacher & Bartlett LLP, New York, NY, for Plaintiff.

I. Neel Chatterjee, Bas De Blank, Chester Wren-Ming Day, Rory Bens, Theresa Ann Sutton, William L. Anthony, Jr., Orrick, Herrington & Sutcliffe LLP, Menlo Park, CA, for Defendants.

***MEMORANDUM & ORDER***

MARILYN HALL PATEL**, District Judge.**

Plaintiff Collaboration Properties, Inc. ("CPI") filed this action against defendants Tandberg ASA and Tandberg, Inc. (collectively, "Tandberg"), alleging infringement of U.S. Patent Nos. 5,867,654 (the "'654 patent"), 5,896,500 (the "'500 patent") and 6,212,547 (the "'547 patent"). The asserted patents relate generally to videoconferencing hardware and software. Now before the court are the parties' proposed claim constructions. Having considered the parties' arguments and submissions, and for the reasons set forth below, the court enters the following memorandum and order.

***BACKGROUND*** FN1

FN1. Unless otherwise noted, background facts are taken from the patents at issue and from the declarations accompanying the parties' claim construction briefs.

Tandberg distributes and sells teleconferencing products, including videoconferencing hardware and software. CPI is a patent holding company; CPI is also the wholly owned subsidiary of Avistar Communications Corp., which competes with Tandberg. CPI owns the three patents at issue in this lawsuit.

The three asserted patents derive from the same original application, Ser. No. 131,523, filed October 1, 1993. The specifications for all three patents are identical in all relevant respects, unless otherwise noted.

For convenience, the court will use column and line numbers from the specification of the ' 654 patent, hereinafter referred to as the "Specification" or "Spec.," for citations in this order.

The asserted patents cover, generally, a multimedia communication and collaboration system. The disclosed invention combines voice and video conferencing with the ability to exchange data and other media types between geographically dispersed locations. Users of the system interact with each other via "collaborative multimedia workstations," or CMWs, which facilitate the exchange of audio, video and data.

The Specification distinguishes the claimed invention from prior art videoconferencing and collaboration systems in a number of respects. First, the Specification describes the invention as a "desktop" teleconferencing system which can be located at individual work areas and does not require the use of special-purpose videoconferencing centers. Spec. at 2:11-15, 1:13-18 ("Principal among the invention's goals is to replicate in a desktop environment, to the maximum extent possible, the full range, level and intensity of interpersonal communication and information sharing which would occur if all the participants were together in the same room at the same time.").

Second, the Specification distinguishes prior art videoconferencing systems which seek to achieve data sharing capability by "augment[ing] ... videoconferencing systems with limited 'video mail' facilities." Id. at 2:18-19. Rather than "add computing capabilities to a videoconferencing system," the Specification explains that the invention "adds multimedia and collaboration capabilities to the user's existing computer system." Id. at 2:27-30.

Finally, the Specification distinguishes prior art desktop videoconferencing systems which offer only low-quality video as a result of inadequate network bandwidth. Id. at 2:34-54. The preferred embodiment of the invention addresses the bandwidth requirements through use of a separate, dedicated real-time audio and video network. Id. at 3:27-31.

The parties have identified eleven terms for construction, taken from the three patents.

***LEGAL STANDARD***

Under Markman v. Westview Instruments, Inc., 517 U.S. 370, 389-90 (1996), the court construes the scope and meaning of disputed patent claims as a matter of law. The first step of this analysis requires the court to consider the words of the claims. Teleflex, Inc. v. Ficosca N. Am., 299 F.3d 1313, 1324 (Fed.Cir.2002). According to the Federal Circuit, the court must "indulge a 'heavy presumption' that a claim term carries its ordinary and customary meaning." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed.Cir.2002). To determine the ordinary meaning of a disputed term, the court may review a variety of sources, including the claims themselves, other intrinsic evidence including the written description and prosecution history, and dictionaries and treatises. Teleflex, 299 F.3d at 1325. The court must conduct this inquiry not from the perspective of a lay observer, but rather "from the standpoint of a person of ordinary skill in the relevant art." *Id*. (citing Zelinski v. Brunswick Corp., 185 F.3d 1311, 1316 (Fed.Cir.1999)).

Among the sources of intrinsic evidence, the specification is "the single best guide to the meaning of a disputed term." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996). By expressly defining terms in the specification, an inventor may "choose[ ] to be his or her own lexicographer," thereby limiting the meaning of the disputed term to the definition provided in the specification. Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 990 (Fed.Cir.1999). In addition,"[e]ven when guidance is not

provided in explicit definitional format, "the specification may define claim terms 'by implication' such that the meaning may be 'found in or ascertained by a reading of the patent documents.' " *Irdeto Access, Inc. v. Echostar Satellite Corp.,* 38 3 F.3d 1295, 1300 (Fed.Cir.2004) (quoting Bell Atl. Network Servs., Inc v. Covad Commc'ns Group, Inc., 262 F.3d 1258, 1268 (Fed.Cir.2001)). "The specification may also assist in resolving ambiguity where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone." Teleflex, 299 F.3d at 1325. At the same time, the Federal Circuit has cautioned that the written description "should never trump the clear meaning of the claim terms." Comark Commc's, Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed.Cir.1998) (citations omitted); *see also* Tate Access Floors, Inc. v. Maxess Techs., Inc., 222 F.3d 958, 966 (Fed.Cir.2000) ("Although claims must be read in light of the specification of which they are part, ... it is improper to read limitations from the written description into a claim....").

Likewise, the prosecution history may demonstrate that the patentee intended to deviate from a term's ordinary and accustomed meaning. Teleflex, 299 F.3d at 1326. "Arguments and amendments made during the prosecution of a patent application and other aspects of the prosecution history, as well as the specification and other claims, must be examined to determine the meaning of terms in the claims." Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed.Cir.), *cert. denied,* 516 U.S. 987 (1995). "In particular, 'the prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance.' " Teleflex, 299 F.3d at 1326 (quoting Standard Oil Co. v. American Cyanamid Co., 774 F.2d 448, 452 (Fed.Cir.1985)).

Dictionary definitions and other objective reference materials available at the time that the patent was issued may also provide evidence of the ordinary meaning of a claim. Phillips v. AWH Corp., 415 F.3d 1303, 1322 (Fed.Cir.2005) (en banc); Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed.Cir.2002). A dictionary "has the value of being an unbiased source, accessible to the public in advance of litigation." Phillips, 415 F.3d at 1322 (internal quotation omitted). Thus, district courts "are free to consult such resources at any time in order to better understand the underlying technology and may also rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents." Vitronics, 90 F.3d at 1584 n. 6. A court should be cautious, however, not to place too much reliance on dictionaries, as the resulting construction may be too broad. Phillips, 415 F.3d at 1321.

Federal Circuit decisions take a less favorable view of other forms of extrinsic evidence, such as expert testimony and prior art not cited in the specification or the prosecution history, noting that "claims should preferably be interpreted without recourse to extrinsic evidence, other than perhaps dictionaries or reference books, and that expert testimony should be received only for the purpose of educating the judge." EMI Group N. Am., Inc. v. Intel Corp., 157 F.3d 887, 892 (Fed.Cir.1998), *cert. denied,* 526 U.S. 1112 (1999). Although "extrinsic evidence in general, and expert testimony in particular, may be used ... to help the court come to a proper understanding of the claims[,] it may not be used to vary or contradict the claim language.... Indeed, where the patent documents are unambiguous, expert testimony regarding the meaning of a claim is entitled to no weight." Vitronics, 90 F.3d at 1584.

The Federal Circuit recently revisited the basic approach to claim construction in *Phillips,* which provides at least two pieces of additional guidance. First, the Federal Circuit rejected a line of cases suggesting that claim interpretation must begin with a dictionary definition of the disputed terms. Phillips, 415 F.3d at 1320-21. Second, the Federal Circuit emphasized that claim terms must be interpreted in light of their

context, especially the language used in other claims and the specification. *See* id. at 1321. Taken as a whole, *Phillips* appears to signal a small retreat from formalism and bright-line rules in claim construction. As a result, the court will focus primarily on the intrinsic record before it. Cases cited by the parties in support of fixed "rules" of claim construction will accordingly be given somewhat less weight.

***DISCUSSION***

The following chart summarizes the court's construction of the disputed terms. The full analysis supporting each construction is below.

| Term | Construction |
|---|---|
| "workstation" | "a position including a device or group of devices, which are equipped with capabilities for computer data processing in combination with audio and video interaction, and which are based upon or include a conventional desktop or portable computer." |
| "path" | "a route or course" |
| "AV path" | "a route or course over which audio and/or video (commonly abbreviated 'AV') information travels for real-time delivery" |
| "data path" | "a route or course over which information represented in a form suitable for processing by computer can travel, but such information does not include AV signals" |
| "second path" | "the AV path" |
| "conferencing control" | "hardware and / or software at each workstation which is used to initiate and facilitate videoconferencing, data conferencing, and other collaborative sessions" |
| "central control manager" | "hardware and / or software that is separate from the conferencing control and that is capable of establishing and managing video and data connections for multiple workstations" |
| "group of collaboration types" | "a group of types of collaboration, such as telephone, videophone, email, snapshot sharing, application sharing, computer-integrated telephony, and computer-integrated fax" |
| "TV quality" | "generally of the same quality as television (at the time the patent was filed)" |
| "a call state, being at least one of the group consisting of active and hold states" | "a call state, which is 'active,' 'hold,' or both 'active' and 'hold' simultaneously" |
| "a plurality of communication ports, each supporting at least one of the group of switch connections consisting of video in, video out, audio in and audio out" | "at least two communication ports in the video conferencing communication ports, each system (at least one for each AV device), each port supporting one supporting at least one of the or more of audio in, audio out, video in and video out connections group of switch connections to an analog or digital AV switch, which may be physical or consisting of video in, video logical" |

**I. " *workstation* "**

The term "workstation" appears in the claims of the '654 and '547 patents. Claim 11 from the '547 patent is representative:

11. A teleconferencing system, for conducting a teleconference among a plurality of users, comprising:

(a) a plurality of **workstations**

(i) each associated with at least one user,

(ii) each **workstation** including

(1) a video display device, and

(2) associated audio reproduction capabilities;

(b) audio and video (AV) capture capabilities configured to capture

(i) video images and

(ii) spoken audio

(iii) of a **workstation** user; and

(c) at least one unshielded twisted pair of wires defining

(i) a UTP data path

(1) along which data can be shared

(2) among the **workstations,** and

(ii) a UTP AV path,

(1) along which AV signals

a. representing user video images and audio

b. can be transported among the **workstations,**

wherein the system is configured to

(i) interactively display images

(1) based on the shared data,

(2) on at least two of the video display devices, and

(ii) reproduce video images and spoken audio

(1) based on the AV signals,

(2) on at least one of the video display devices.

'547 patent at 42:52-43:11.

CPI argues that "workstation" should be construed to mean "a position for an operator or user that is equipped with capabilities for computer data processing in combination with audio and video interaction." Tandberg argues that "workstation" should be construed to mean "a general purpose computer." At oral argument, CPI acknowledged that the "position" in its proposed construction must contain one or more devices. The parties' constructions thus differ in only one respect: whether the device or group of devices must include a general purpose computer.

The claims themselves place certain requirements on the workstation. Claims 1 and 8 of the '654 patent require that the workstation have "first and second monitors." Id. at 41:38-40; *see* id. at 42:34-41. Claims 1 and 8 also require that the workstation have "AV capture capabilities." Finally, both claims require that the workstation be "configured to control ... the reproduction of images, based on the data signals, on the first monitor" and "the reproduction of participant video images, based on the AV signals, on the second monitor." Id. at 41:49-55, 42:42-50. Similarly, claim 11 of the ' 547 patent requires a workstation which includes "a video display device" and "audio reproduction capabilities." '547 patent at 42:54-58. In addition, the workstation must be able to share data with other workstations, and must be "configured to ... interactively display images ... based on the shared data" and to "reproduce video images and spoken audio ... based on the AV signals ... on at least one of the video display devices." Id. at 42:64-43:11. Taken together, the claims suggest that a workstation must at a minimum have the abilities to process AV signals, to process data, and to control the processing and reproduction of the AV signals and data.

Other than the specific physical components listed above, the claims do not expressly limit the type of system that can be used to implement the required capabilities. Tandberg's argument that the workstation must consist of a "general purpose computer" is therefore based on uses of the word "workstation" and descriptions of the CMW in the specification.

Tandberg argues that the specification expressly defines "workstation" to be a general purpose computer. Column 2, lines 34-37 states that "audio and video capture and processing capabilities have recently been integrated into desktop and portable personal computers and workstations (hereinafter generically referred to as 'workstations')." Although the cited passage purports to establish a uniform meaning of "workstation," the Specification and claims continue to use the word "workstation" in two different senses.

In the first sense, "workstation" refers to a particular type of high-performance computer, most commonly running some variant of UNIX. *See* Spec. at 14:63-15:1 ("Currently available personal computers (e.g., an Apple Macintosh or an IBM-compatible PC, desktop or laptop) and workstations (e.g., a Sun SPARCstation) can be adapted to work with the present invention."); id. at 15:33-41 (describing certain AV-enabled computers, including "Silicon Graphics' Indy workstations."). For purposes of clarity, the court will use the phrase "UNIX workstation" to indicate the narrower sense.

In the second, broader sense, "workstation" refers to the CMW, which includes AV capabilities above and beyond what were found in contemporaneous computers and UNIX workstations. Although the Specification is somewhat clumsy in its use of a single word to describe two different concepts, certain

passages make clear that the CMW "workstation" is broader in its functionality than the UNIX workstation on which it may be based. For example, the sentence "[t]he currently available personal computers and workstations serve as a base workstation platform" uses both senses of the word workstation; a UNIX workstation may serve as the platform on which the multimedia-enabled CMW is based. Id. at 15:11-12. "The addition of certain audio and video I/O devices to the standard components of the base platform ... enables the CMW to generate and receive real-time audio and video signals." Id. at 15:12-19. Tandberg's argument that the word "workstation" as used in the claims is strictly synonymous with "desktop and portable personal computers and workstations" as used in the Specification is therefore incorrect.

The proper question is whether the "base workstation platform" upon which the CMW is based can be anything other than a desktop computer or workstation. Under CPI's construction, any device with "capabilities for computer data processing" could serve as the base platform.

The statements distinguishing the invention from the prior art in the Summary of the Invention preclude CPI's broad construction. As Tandberg notes, "[s]tatements that describe the invention as a whole, rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term." C.R. Bard v. United States Surgical Corp., 388 F.3d 858, 864 (Fed.Cir.2004). In *C.R. Bard,* the Federal Circuit relied on language in the Abstract and Summary of the Invention in concluding that the claimed prosthesis was required to have "a pleated surface." *Id*. at 863-64. The Abstract stated that the "implantable prosthesis includ[es] a pleated surface." *Id*. at 864. The Summary of Invention also stated that "[t]he implant includes a pleated surface." *Id*. Because the patentee consistently stated that the invention had a pleated surface, the Federal Circuit found that the claim term was limited. *Id*.

Although the court does not embrace a categorical rule that statements made in the Abstract, Summary of the Invention and Background of the Invention necessarily limit claim scope, the statements at issue here are particularly significant because they distinguish the patented invention from the prior art:

It has been proposed to extend traditional videoconferencing capabilities from conference centers, where groups of participants must assemble in the same room, to the desktop, where individual participants may remain in their office or home. Such a system is disclosed in U.S. Pat. No. 4,710,917 to Tompkins et al. for Video Conferencing Network issued on Dec. 1, 1987. It has also been proposed to augment such video conferencing systems with limited "video mail" facilities. However, such dedicated videoconferencing systems (and extensions thereof) do not effectively leverage the investment in existing embedded information infrastructures-**such as desktop personal computers and workstations, local area network (LAN) and wide area network (WAN) environments, building wiring, etc.**-to facilitate interactive sharing of data in the form of text, images, charts, graphs, recorded video, screen displays and the like. **That is, they attempt to add computing capabilities to a videoconferencing system, rather than adding multimedia and collaborative capabilities to the user's existing computer system.** Thus, while such systems may be useful in limited contexts, they do not provide the capabilities required for maximally effective collaboration, and are not cost-effective.

Spec. at 2:12-33 (emphasis added). This language unambiguously disclaims systems which do not "add[ ] multimedia and collaborative capabilities to the user's existing computer system." *See also id*. at 3:53-57 ("The present invention thus provides a distributed multimedia collaboration environment that ... leverages ('snaps on to') existing computing and network infrastructure to the maximum extent possible.").

The invention disclosed in U.S. Pat. No. 4,710,917 (the "'917 patent"), which is cited and distinguished in

the passage quoted above, illustrates the way in which CPI's construction is overbroad. The '917 patent covers "a video conferencing network for providing video, audio and data communication between remotely disposed video terminals." '917 patent at 2:54-56. Each video terminal ("MATE") contains a Central Processing Unit ("CPU") for data processing as well as equipment for recording and displaying audio and video data. Id. at 6:62-65, 5:26-34. The MATE described in the '917 patent is thus "a position for an operator or user that is equipped with capabilities for computer data processing in combination with audio and video interaction," which falls squarely within CPI's broad proposed construction.

At oral argument, CPI noted that the invention of the '917 patent differs from the claimed invention in other respects, including the lack of data conferencing capabilities. The Specification, however, distinguishes the invention of the '917 patent on the grounds that it is a "dedicated video conferencing system" that "does not effectively leverage the investment in existing embedded information infrastructures," and on the grounds that it "attempt[s] to add computing capabilities to a videoconferencing system." Spec. at 2:19-33. This language serves as an express disclaimer of dedicated videoconferencing systems with added data processing capabilities.

A passage from the lengthy "remote expert" scenario at the end of the Specification also strongly supports this construction, as it refers to the "invention" rather than any preferred embodiment:

It should be noted that the above scenario involves many state-of-the-art desktop tools (e.g., video and information feeds, information filtering and voice recognition) that can be leveraged by our Expert during videoconferencing, data conferencing and other collaborative activities provided by the present invention-because *this invention, instead of providing a dedicated videoconferencing system, provides a desktop multimedia collaboration system that integrates into the Expert's existing workstation/LAN/WAN environment*.

Id. at 41:18-26 (emphasis added).

The Specification's discussion of the outer limits of what might be viewed as a workstation further supports a narrower construction than CPI proposes. As already discussed, the CMW consists of a base workstation platform, augmented with audio and video capabilities. The capabilities can be added in a variety of ways. At one extreme, the capabilities can be completely incorporated into the base platform: "Add-on box itself can be implemented as an add-in card to the base platform 100. Connections to the audio and video I/O devices ... can be implemented internally (e.g. via the system bus) rather than through an external RS-232 or SCSI peripheral port." Spec. at 16:17-22. At the other extreme, "Side Mount unit 850 can become virtually a standalone device that does not require a separate computer for services using only audio and video. This also provides a way of supplementing a network of full-feature workstations with a few low-cost additional 'audio video intercoms' ..." Id. at 18:9-14. This second passage is notable because it defines the outer limits of a workstation; a device which "does not require a separate computer" is referred to as an "intercom" rather than a "full-feature workstation." Consequently, the court finds that "workstation" means "a position including a device or group of devices, which are equipped with capabilities for computer data processing in combination with audio and video interaction, and which are based upon or include a conventional desktop or portable computer."

**II. "*AV path*" / "*data path*" / "*second path*" / "*path*"**

The parties request construction of three different types of "paths," as well as resolution of a global issue

pertaining to all "paths" in the asserted claims. The three disputed uses of the term "path" appear in Claim 1 of the ' 654 patent:

1. A teleconferencing system for conducting a teleconference among a plurality of participants, comprising:

(a) a plurality of workstations, each workstation having first and second monitors and in communication with audio and video (AV) capture capabilities;

(b) a **data path** in communication with the plurality of workstations, over which data can be shared among the plurality of participants; and

(c) an **AV path** in communication with the plurality of workstations, along which AV signals, representing video images and spoken audio of the participants, can be carried;

wherein, the system is configured to reproduce images, based on data signals shared along the **data path,** on at least two first monitors so as to permit participants associated with the workstations having the two first monitors to interactively share the reproduced images and reproduce participant video images, based on AV signals carried along the **second path,** on at least two second monitors.

'654 patent at 41:36-55.

**A. " *path* "**

Tandberg argues that each type of claimed path must be "defined" or specified before data or AV signals are transmitted. Tandberg argues that the claim language compels this finding. For example, claim 15 states that the data conferencing control establishes "communications with the central control manager *to set up requested data paths* along a second network over which the data conference can be conducted." '654 patent at 44:3-9. According to Tandberg, once the central control manager has "set up" the path (which occurs before transmission takes place), the path has been defined.

This argument depends on the meaning of "set up." For Tandberg's argument to be valid, "set up" must mean "define." The phrase "set up," however, encompasses other meanings, such as "establish" or "make ready." *See, e.g.,* Webster's Third New International Dictionary of the English Language Unabridged 2079 (1993) ("to put (a machine) in readiness or adjustment"); Random House Unabridged Dictionary 1751 (2d ed.1993) ("to be assembled *or made ready for use")* (emphasis added). Moreover, as discussed below, Tandberg's narrow construction would exclude all of the embodiments disclosed in the specification, which unquestionably make use of opportunistic routing and do not require predefined paths.

Tandberg next points to Figure 4 of the patent, which depicts different routes that an AV signal may take through the Wide Area Network ("WAN"). The portion of the Specification corresponding to Figure 4 states that "[t]he system also provides optimal routes for audio/video signals through the WAN. For example, in Figure 4, location A can take either a direct route to location D via path 47, or a two hop route through location C via paths 48 and 49." Spec. at 10:55-59. The fact that data can take one of two routes, however, says nothing about whether the choice of route is predetermined. Indeed, Tandberg observed at argument that in packet-switched networks such as those described in the Specification, the route through the WAN could change during the middle of a transmission, depending on network load and other factors. The routing of each packet through a packet-switched network is individually determined and can change to adapt to

changing network conditions. See Spec. at 10:63-66 ("In a more complex network, several multi-hop routes are typically available, in which case the routing system handles the decision making, which for example can be based on network loading considerations.").

Tandberg's remaining arguments in support of its contention that all paths must be predefined relate to a different question-whether the AV and data paths must lie on physically separate wires. The court considers these arguments below. The fact that signals may travel on different wires, however, is not determinative of whether the path for each signal individually is predefined. The court will therefore not limit the claim terms as Tandberg requests, and construes "path" to mean "a route or course."

**B. "*AV path*"**

CPI argues that the "AV path" should be construed to mean "a route or course over which audio and/or video (commonly abbreviated 'AV') information travels for real-time delivery." Tandberg does not expressly offer a construction of "AV path," but suggests in its papers that the AV path must be physically separate from the data path.

In an earlier litigation involving the '654 and '547 patents, Judge Chesney of this district has already construed the terms "AV path" and "data path" and rejected the very argument which Tandberg advances in this case. *Collaboration Props., Inc. v. Polycom, Inc.,* No. C 02-04591, slip op. at 27 (N.D.Cal. Mar. 23, 2004). The *Polycom* court reviewed the intrinsic record and concluded that the claimed inventions cover both the preferred embodiment, in which AV and data signals travel over two separate physical paths, and alternate embodiments in which the AV and data signals travel on the same wire through the use of multiplexing. Id. at 26. With respect to arguments already presented to the *Polycom* court, this court has not been given a compelling reason to revisit them. *See, e.g.,* id. at 25 (noting that "claim 29 of the '547 patent requires the data path and AV path to be on a single set of wires."). This court further notes that the AV and data paths may pass through a common "switch"; a physically separate AV switch is not required. The Specification makes clear that in an all-digital implementation, "a common switching vehicle (e.g.ATM) could be used)." Spec. at 7:16-18. The court therefore adopts the *Polycom* court's finding, as augmented above, that the AV and data signals may travel on logically separate "paths," via multiplexing, while traveling over the same physical wires and while being routed through the same switching mechanism.

Tandberg offers several additional arguments not discussed by the *Polycom* court. First, Tandberg argues that CPI conceded during prosecution that AV and data signals are transmitted along two different network paths. The examiner rejected certain claims for indefiniteness because "applicant should clarify the nature of the associations as claimed in respective claims where the word 'associated' is used This is especially true where there are two different network paths and two monitors in the system." Day Dec., Exh. F para. 20. According to Tandberg, CPI did not dispute the examiner's characterization, and cannot now allege that AV and data signals may travel along the same path. This argument is unavailing because, among other reasons, the examiner's observation that there are two "paths" says nothing about whether the two paths must travel on two separate physical wires. As the *Polycom* court noted, claim 29 of the ' 547 patent expressly covers two logical "paths" on the same physical wire: "A method for conducting a teleconference ... over at least one unshielded twisted pair of wires defining *both a UTP data path and a UTP AV path*." '547 patent at 45:1-4 (emphasis added).

Second, Tandberg argues that CPI conceded that physical separation is required in response to another rejection by the PTO, in which the examiner challenged claims in which data and video were displayed on

two separate monitors. In response to the rejection, CPI identified Figure 18B of the patent, which shows separate physical connections from the AV and data networks. As CPI points out, however, the examiner was concerned with the narrow question of how the display could be split between two monitors, and not the broader question of whether AV and data signals could travel along the same physical wire at some point. *See* Supplemental Frahn Dec ., Exh. 1(a) at 4-5.

Third, Tandberg argues that CPI limited the scope of the invention in the ' 654 patent in response to a restriction requirement which compelled CPI to choose between inventions with two physical paths and inventions with one physical path. The restriction which the examiner imposed divides the claims into two groups: a group "drawn to a teleconferencing system having two networks and two monitors" and a group "drawn to a teleconferencing apparatus having a unitary housing." Id. at 2. The '654 patent issued from the first group.

Tandberg's reliance on this portion of the prosecution history is misplaced. As an initial matter, it is not clear from this restriction what the salient difference between the two groups is. The description of the second group suggests that the important distinction is the number of monitors-requiring a "unitary housing" as opposed to "two monitors." The second group is not limited to a single network. Also, as CPI points out, the applicants submitted amended claims in response to the examiner's rejection in which they eliminated the requirement of a first and second network. Id., Exh. 1(b) at 2. The final claims on the '654 patent issued in substantially the same form. Finally, to the extent the restriction requires two separate "networks," it does not require that the networks make use of separate physical wires.

Fourth, Tandberg argues that the multiplexing embodiment, in which data and AV signals travel over the same wire, is not enabled, and therefore should not be included within the claims. As CPI points out, however, it is now clearly established law that claims should not be construed to preserve validity unless they are truly ambiguous in all other respects. *See* Phillips, 415 F.3d at 1327 ("we have limited the maxim [that claims should be construed to preserve their validity] to cases in which 'the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous.' "). Here, in particular, claim 29 of the '547 clearly requires that both paths travel along the same physical wire. LizardTech, Inc. v. Earth Resource Mapping, Inc., 424 F.3d 1336 (Fed.Cir.2005), *reh'g en banc denied,* 433 F.3d 1373 (Fed.Cir.2006), cited by Tandberg, is not to the contrary. The *LizardTech* court invalidated a patent for lack of enablement rather than revise the claim construction to exclude the non-enabled subject matter. *Id*. at 1346-47 ("Therefore, we affirm the district court's judgment that claims 21-25 and 27-28 are invalid for failure to satisfy the requirements of section 112."). Tandberg has the burden of proving lack of enablement at a later date, by clear and convincing evidence.

Finally, Tandberg argues that the *Polycom* claim construction is inconsistent in that it provides both for paths that are physically separate and paths that are not. The *Polycom* court only noted, however, that certain claims expressly require varying degrees of physical separation while others do not. Nothing about this holding is inconsistent.

The court therefore adopts the *Polycom* construction; "AV path" means "a route or course over which audio and/or video (commonly abbreviated 'AV') information travels for real-time delivery."

**C. " *data path* "**

Tandberg offers the same arguments with respect to "data path." Having rejected them, the court adopts the

*Polycom* construction: "a route or course over which information represented in a form suitable for processing by computer can travel, but such information does not include AV signals."

**D. " *second path* "**

CPI proposes that "second path" should be defined as "contextual in meaning. For example, as used in Claim 1 of the '654 patent, 'second path' refers to an AV path." Tandberg does not offer a different opposing construction, other that as already explored *supra*. While the meaning of the phrase "second path" may indeed be contextual, depending on its antecedent basis, for purposes of Claim 1 of the '654 patent "second path" refers to "the AV path."

**III. "*conferencing control*" / "*central control manager*"**

The phrases "conferencing control" and "central control manager" appear in claim 15 of the '654 patent:

15. A method of conducting a teleconference among a plurality of participants, comprising the steps of:

(a) initiating a video conference, from one of a plurality of workstations, using a video **conferencing control** included within each of the plurality of workstations, the video **conferencing control** establishing communication with a **central control manager** to set up AV paths along a first network over which the video conference can be conducted;

(b) capturing video images and spoken audio of the participants for transmission in the form of AV signals over the AV paths during the video conference;

(c) reproducing the video images and spoken audio on at least one first monitor, positioned near each workstation, from the AV signals received over the AV paths during the video conference;

(d) initiating a data conference, during the video conference, using a data **conferencing control** included within each of the plurality of workstations, the data **conferencing control** establishing communication with the **central control manager** to set up requested data paths along a second network over which the data conference can be conducted; and

(e) sharing data, among the plurality of participants, during the data conference, such that data received over the data paths is displayed on at least one second monitor included within each workstation.

'654 patent at 43:20-44:23. As the two terms are related to each other, the court will construe them together.

**A. "*conferencing control*"**

CPI proposes that the phrase "conferencing control" should be construed to mean "video or data conferencing software and/or hardware at a workstation." Tandberg proposes that the phrase should be construed to mean "software executed by the workstation that initiates all collaborative sessions by setting up appropriate services and paths via the central control manager." The parties' constructions differ in two respects. First, Tandberg's construction requires that the conferencing control set up all services and paths via the central control manager. Second, CPI's construction allows the conferencing control to be made up of hardware and/or software, while Tandberg's construction requires that the control be made up exclusively of software.

The phrase "conferencing control" does not appear anywhere in the specification of the patent. The parties agree, however, that the element in the preferred embodiment corresponding to the conferencing control is the Collaboration Initiator. See Spec. at 18:51-52 ("The central component of the Collaborative Multimedia Workstation software is the Collaboration Initiator 161.").

Tandberg argues that CPI's proposed construction is too vague because it says nothing about what the conferencing control does. Without some further restriction, "video conferencing software and/or hardware" might encompass any part of the workstation that is involved in a videoconference: the keyboard, the monitor, the camera, the CPU, and the operating system, as well as any special-purpose software or hardware associated exclusively with videoconferencing. CPI's construction is indeed too broad because it fails to account for the claim language. The phrase "conferencing control" has two elements. First, the term relates to "conferencing"-both videoconferencing and data conferencing. Second, the term encompasses the notion of "control." The surrounding claim language indicates that the control, at a minimum, must include setting up video and data conferences. *See* id. at 43:25-28 ("the videoconferencing control establishing communication with a central control manager *to set up AV paths* along a first network over which the video conference can be conducted") (emphasis added); id. at 44:5-9 ("the data conferencing control establishing communication with the central control manager *to set up requested data paths* along a second network over which the data conference can be conducted") (emphasis added). Moreover, "control" has broader meaning than "initiation"; the conferencing control is used to facilitate as well as initiate calls. See Spec. at 18:35-41 ("[conference control] Software 160 allows the user to initiate and manage (in conjunction with the server software) videoconferencing, data conferencing, multimedia mail and other collaborative sessions."). The court therefore finds that the conferencing control must be able to "control"-i.e., initiate and facilitate-video and data conferences.

Tandberg is also correct in arguing that the "conferencing control" must "set[ ] up appropriate services and paths via the central control manager." The claim language already expressly includes this limitation, however, and adding it to the definition of "conferencing control" would be redundant. See '654 patent at 43:25-28, 44:5-9.

Turning to whether the control may consist of hardware or software, the specification clearly indicates that videoconferencing functionality may be implemented in hardware as well as software. See Spec. at 18:5-8 ("Given the proximity of Side Mount device 850 to the user, and the direct access to audio/video I/O within that device, various additional controls 820 can be provided at the user's touch (all well within the capabilities of those skilled in the art)." The "Side Mount" device is, in the preferred embodiment, a piece of additional hardware which is connected to a desktop computer or workstation. Id. at Fig 18B. Limiting the phrase "conferencing control" to software would exclude this disclosed embodiment, which is disfavored unless the claims present a compelling reason to do so.

Finally, the court notes that the hardware and software comprising the conferencing control must be present at each workstation. '654 patent at 43:23-24.

The court therefore construes the phrase "conferencing control" to mean "hardware and / or software at each workstation which is used to initiate and facilitate videoconferencing, data conferencing, and other collaborative sessions."

**B. "*central control manager*"**

CPI argues that the phrase "central control manager" should be construed to mean "software and/or hardware that establishes and manages connections for a video conference." Tandberg argues that the phrase should be construed to mean "A special purpose computer which manages the audio and video switching circuitry, the state of the call, and selectively establishes connections between physical ports on different workstations." The parties' constructions differ in three respects. First, Tandberg's construction requires that the central control manager be a "special purpose computer." Second, Tandberg's construction requires that the control manager manage "audio and video switching circuitry"-a physical AV switch. Third, Tandberg's construction requires that the central control manager establish connections between physical ports on different workstations.

The phrase "central control manager" does not appear at any point in the specification. The parties agree, however, that the corresponding element of the preferred embodiment is the Audio Video Network Manager, or AVNM. See Spec. at 18:54-57 ("When the Collaboration Initiator is started, it exchanges initial configuration information with the Audio Video Network Manager (AVNM) 60 (shown in FIG. 3) through Data Network 902.").

**1.** ***Special Purpose Computer***

The basis of Tandberg's argument that the "central control manager" is a special purpose computer is somewhat unclear. Tandberg notes that the AVNM in the preferred embodiment consists of software running on the MLAN server, and then cites WMS Gaming, Inc. v. International Game Technology, 184 F.3d 1339, 1348 (Fed.Cir.1999) for the proposition that "[a] general purpose computer, or microprocessor, programmed to carry out an algorithm creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software" (internal quotations omitted). In *WMS Gaming,* the Federal Circuit found that the district court had improperly construed a means-plus-function claim element more broadly than the structure disclosed in the specification. *Id*. In correcting the district court, the Federal Circuit limited the invention to the disclosed embodiment-a computer programmed to run the claimed algorithm. *Id*. at 1349 ("the structure disclosed for the 'means for assigning' limitation of claim 1 of the Telnaes patent is a microprocessor programmed to perform the algorithm illustrated in Figure 6.").

CPI does not dispute that, to the extent the central control manager includes software, the software must run on a computer. Indeed, CPI's proposed construction recites as much structure as the construction adopted in *WMS Gaming*-computer hardware and software configured to perform the steps of establishing and managing connections for a video conference. Labeling such hardware and software a "special purpose computer" does not aid in understanding the claims.

**2.** ***Audio and Video Switching Circuitry***

As discussed *supra* in the context of "AV path," the claimed invention is not limited to analog AV networks with physical AV switches. Digital AV signals may be transmitted jointly with the data over a packet-switched network, in which case there is no need for dedicated audio and video switching circuitry. Tandberg's proposed construction is therefore too narrow.

**3.** ***Connections Between Physical Ports***

For the same reason, the claim does not require that the central control manager establish actual connections between physical ports on two or more workstations. In the case of digital AV signals transmitted over a

packet-switched network, Tandberg does not argue that the physical connection to the workstation will change during the course of initiating and connecting a videoconference call. The connection between the workstations is purely logical. Also, as the *Polycom* court noted, one of the disclosed embodiments allows for a wireless connection to a workstation. See Spec. at 38:49-67. Tandberg's proposed construction is therefore too narrow.

CPI's construction is too broad in two senses, however. First, the central control manager must be able to manage connections for both video and data conferences. '654 patent at 44:5-9 ("the data conferencing control establishing communication with the central control manager to set up requested data paths along a second network over which the data conference can be conducted").

Second, the control manager must be "central." Tandberg argues that the word "central" requires that the central control manager reside computer which is physically separate from the workstations. CPI counters that the central control manager can be logically distinct and "central"-brokering communications among multiple workstations-without residing on a physically separate machine. The court agrees that nothing in the claim language requires the central control manager to be physically separate, but agrees with CPI's apparent concession that it must be distinct in some way from the conferencing control, which is separately recited in the claim. In addition, claim 15 requires that a single central control manager have the capability of coordination communications among multiple workstations: claim 15 recites a plurality of workstations, each with a conferencing control, but only a single central control manager to set up paths among them. '654 patent at 43:20-28.

The court therefore construes the phrase "central control manager" to mean "hardware and/ or software that is distinct from the conferencing control and that is capable of establishing and managing video and data connections for multiple workstations."

**IV. "*group of collaboration types*"**

The phrase "group of collaboration types" appears in two dependent claims of the '547 patent. Claim 19 is representative:

19. The system of claim 11, wherein the system is configured:

(a) to allow a first user

(i) to use a first graphical user interface

(ii) to select a user

(iii) from a plurality of users; and

(b) to allow the first user

(i) to use a second graphical user interface

(ii) to select a collaboration type

(iii) from a **group of collaboration types;** and

(c) to respond

(i) by establishing communication

(ii) of the selected collaboration type

(iii) from the first user

(iv) to the selected user.

'547 patent at 43:44-59.

CPI argues that the phrase "group of collaboration types" should be construed to mean "types of collaboration, such as telephone, videophone, email, snapshot sharing, application sharing, computer-integrated telephony, and computer-integrated fax." Tandberg argues that the phrase should be construed to mean "a group of methods by which information is synchronously and asynchronously shared between workstations." The parties' constructions differ in one respect: Tandberg's construction requires that the group contain both synchronous and asynchronous methods of sharing information. Synchronous methods, such as videoconferencing and data conferencing, involve the sharing of information in real time. Asynchronous methods, such as multimedia mail, involve the sharing of information that can be stored locally and retrieved at some later time.

In support of its contention that the group must include both synchronous and asynchronous collaboration types, Tandberg relies on the lists of possible collaboration types in the specification. According to Tandberg, the fact that the lists always include both synchronous and asynchronous collaboration types means that a CMW must be capable of both. Although the specification consistently uses the same list of possible collaboration types, and describes embodiments in which the CMW supports both synchronous and asynchronous collaboration types, nowhere does the specification support Tandberg's position that each CMW must support each collaboration type.

Other portions of the specification weigh against such a narrow reading. Before a CMW is permitted to place calls to other CMWs on the network, it must "register the collaborative services [it] provide[s] with the Service Server." Spec. at 20:66-21:1. "Examples of these services indicate [sic: include] 'video call', 'snapshot sharing', 'conference' and 'video file sharing.' " Id. at 21:1-3. A CMW need not include every possible collaborative service in its group of registered services. For instance, the specification provides an example of a "portable laptop implementation" of the CMW which is capable of participating in "voice and data communications," as well as "remote control of mail or presentation playback," but not the videoconferencing features provided through add-on videoconferencing hardware. Id. at 18:16-31. The specification expressly provides for the flexibility to register a limited number of collaboration types, and includes at least one example of a CMW that has less than the full complement of synchronous and asynchronous collaboration capabilities.

The court therefore adopts CPI's construction. The phrase "group of collaboration types" means "a group of types of collaboration, such as telephone, videophone, email, snapshot sharing, application sharing, computer-integrated telephony, and computer-integrated fax."

**V. "*TV quality*"**

The phrase "TV quality" appears in dependent claims of the '547 patent, and is used to indicate the quality of video images displayed by the claimed invention. *See, e.g.,* '547 patent at 45:48-49 ("reproducing the video images ... at TV quality"). The parties disagree as to whether the Specification defines TV quality as a particular resolution in pixels, color depth, and number of frames per second, "30 frames per second at 640pixels per frame and the equivalent of 24 bits of color per pixel with accompanying high-fidelity audio (typically between 7 and 15 KHz)," or whether the phrase should be read more broadly as "generally of the same quality as television (at the time the patent was filed)."

The portion of the Specification cited by Tandberg states that

[i]n the preferred embodiment, it has been found particularly advantageous to provide the above-described video at standard NTSC-quality TV performance (i.e., 30 frames per second at 640.times .480 pixels per frame and the equivalent of 24 bits of color per pixel) with accompanying high-fidelity audio (typically between 7 and 15 KHz).

Spec. at 6:48-53. The problem with Tandberg's reliance on this passage, however, is that it expressly limits its applicability to the preferred embodiment. It would be erroneous to limit the claim language as Tandberg suggests.

Tandberg also offers excerpts from the file history to show that CPI disclaimed other levels of image and audio quality during prosecution. The excerpts, however, are either taken from the prosecution of different claims from those at issue here or do not support Tandberg's proposed standard. For example, Tandberg's excerpt from the prosecution of U.S. Patent No. 6,898,620 recites a standard of 25 Hz rather than 30 Hz, and mentions several alternate standards for TV quality-NTSC, PAL, and SECAM. Tandberg does not argue that all of these standards conform to its proposed limitation. Moreover, CPI points out that the "TV quality" limitation was added as part of a broadening amendment, replacing the language "greater than 20 frames per second." It would be anomalous to construe the claim more narrowly than it was drafted prior to being broadened.

Finally, Tandberg once again argues that CPI's construction is too vague, and would result in rejection under section 112. Tandberg must raise its validity argument in a motion for summary judgment or at trial.

The court therefore adopts CPI's construction. "TV quality" is construed to mean "generally of the same quality as television (at the time the patent was filed)."

**VI. "*a call state, being at least one of the group consisting of active and hold states*" / "*a plurality of communication ports, each supporting at least one of the group of switch connections consisting of video in, video out, audio in and audio out*"**

The two disputed phrases from the '500 patent are interrelated, and must be construed together. Claim 1 of the '500 patent is representative of the use of both phrases.

1. A teleconferencing system comprising:

(a) a plurality of AV devices, each capable of

(i) originating and reproducing

(1) user related audio and video signals;

**(b) a plurality of communications ports, each supporting**

(i) at least one of the group of switch connections consisting of

(1) video in, video out, audio in and audio out; and

(c) at least one communication path,

(i) arranged for transport

(1) of audio and video signals,

wherein the system is configured to

(i) to control a communication connection

(1) between two of the AV devices,

(2) over the communication path,

(ii) by creating,

(1) as a result of a call request,

(2) at least a first call handle,

i. associated with one of the two AV devices and,

thereafter,

(3) at least a second call handle,

i. associated with the other AV device,

(4) each call handle defining,

i. for its respective AV device,

ii. **a call state, being at least one of the group consisting of active and hold states;** and

iii. the port switch connections involved in the communications connection.

'500 patent at 41:51-42:11 (emphasis added).

The claims of the '500 patent relate generally to the mechanics of placing and connecting a videoconference call between two AV devices (CMWs) using the invention described in the Specification. The description of the preferred embodiment illustrates the general process for how a videoconference call is connected.

First, before a CMW can participate in a videoconference call, it must connect to the AVNM and register the types of collaborative services it provides-such as videoconferencing or data sharing-in a central directory, or "service server." Spec. at 20:66-21:1. During registration, the CMW can specify "the audio/video ports physically connected to the particular CMW into which the user is logged in." Id. at 21:18-19. Based on the information provided by the CMW, the AVNM creates a data record called a "port abstraction, wherein each port represents an addressable bidirectional audio/video channel." Id. at 20:42-44.

In the preferred embodiment, a CMW has four physical connections to the AV switch: video in, video out, audio in, and audio out. Id . at 20:35-41. A CMW need not make all four of these connections available in its port abstraction, however. Instead,

[c]lient programs can specify which of the 4 physical connections on its ports should be switched. This allows client programs to establish unidirectional calls (e.g., by specifying that only the port's input connections should be switched and not the port's output connections) and audio-only or video-only calls (by specifying audio connections only or video connections only).

Id. at 20:57-63. Moreover, not all devices participating in a conference must support all four connections:

The system architecture also accommodates the situation in which the user's desktop computing and/or communications equipment provides varying levels of media-handling capability. For example, a collaboration session-whether real-time or asynchronous-may include participants whose equipment provides capabilities ranging from audio only (a telephone) or data only (a personal computer with a modem) to a full complement of real-time, high-fidelity audio and full-motion video, and high-speed data network facilities.

Id. at 3:38-46.

When a user initiates a videoconference from a CMW, the caller's CMW sends a call request to the AVNM, specifying the address of the callee's CMW. The AVNM then looks up the callee in the service database. Id. at 22:3-17. If the callee has registered a videoconference service, the AVNM proceeds to create two "call handle" records, and associates one call handle with each CMW's port abstraction. Id. at 22:54-61. The call handle records include information about the state of the call. Id. 23:11-20. If a CMW is connected to a call, the call handle will have an "active" state. Id. If a CMW places a call on hold, the associated call handle will be changed to a "hold" state. Id. A CMW has a separate call handle for each videoconference call it engages in, and can have multiple call handles at any one time. Id . at 23:7-10 ("Each port can have an arbitrary number of callhandles bound to it, but typically only one of these callhandles can be active at the same time."). For example, if a CMW is connected to one videoconference and has two more videoconferences on hold, the CMW will have a total of three call handles associated with its port abstraction.

Based on this overall understanding of how a call is placed in the preferred embodiment, the court now turns

to the construction of the disputed terms.

**A. "*a call state, being at least one of the group consisting of active and hold states*"**

CPI argues that the phrase "a call state, being at least one of the group consisting of active and hold states" should be construed to mean "the call state of the call handle must have at least one of two possible states; active (in a call) or on hold (connected but not transferring images or sound)." Tandberg argues that the phrase should be construed as follows:

*Call State:* the status of both audio and video connections indicating whether each connection is active or hold.

*Active State:* a call state in which information is exchanged over a dedicated physical connection between the caller and the callee.

*Hold State:* a call state permitting the caller to answer incoming calls or initiate new calls without releasing a previous call.

The parties' proposed constructions differ in two respects. First, the parties dispute whether a call state must have the ability to be simultaneously "active" and "hold," or whether the state may be either "active" or "hold" individually. Second, the parties dispute whether an "active" call is one where information is exchanged over a dedicated physical connection. The court has already concluded, in the context of construing "AV path," *supra,* that calls need not be connected over a dedicated physical connection.

Turning to whether the call state must be able to simultaneously be active and hold, the phrase "configured to" in claim 1 indicates that the following elements are a recitation of the claimed system's capabilities. FN2 Claim 1 thus requires that the system have the functionality of creating a call handle which defines "a call state, being *at least* one of the group consisting of active and hold states." A system with the capability of creating a call handle with a call state of "active" would fall within the literal scope of the claim, as would a system with the capability of creating a call handle with a call state of simultaneously "active" and "hold." The phrase "at least" is most reasonably understood as broadening the claim to include systems with call states being simultaneously "active" and "hold," as well as either individually, rather than requiring the call state to be simultaneously "active" and "hold." The court's construction is consistent with the Specification, which clearly contemplates that the call state will toggle between "active" and "hold," but will not be both simultaneously. *See* Spec. at 23:11-20. The phrase "a call state, being at least one of the group consisting of active and hold states" is therefore construed to mean "a call state, which is 'active,' 'hold,' or both 'active' and 'hold' simultaneously."

FN2. The court takes up the meaning of "configured to" in more detail in its order denying Tandberg's motion for summary judgment of invalidity under 35 U.S.C. section 112.

**B. "*a plurality of communication ports, each supporting at least one of the group of switch connections consisting of video in, video out, audio in and audio out*"**

The phrase "a plurality of communication ports, each supporting at least one of the group of switch connections consisting of video in, video out, audio in and audio out" appears only in the claims of the '500 patent, and is highlighted above. CPI argues that the phrase should be construed to mean "There are at least

two communication ports in the video conferencing system (at least one for each AV device), and that at least one port at each AV device supports at least one of audio in, audio out and video in and video out." Tandberg argues that the phrase should be construed as follows:

A plurality of access points for entry or exit of audio and video signals to or from a communication device, each access point connected to at least one of an audio in, audio out, video in, and video out switch that may be individually opened or closed.

*Switch Connections:* audio in, audio out, video in, and video out circuits that may be individually opened or closed.

*Communications Port:* A set of access points for entry or exit of audio and video signals to or from a communication device.

The parties' constructions differ in two respects. First, Tandberg argues that the phrase requires that each communication port must be capable of all four modes of communication-audio in, audio out, video in, and video out. Second, Tandberg argues that each of the four modes of communication must be capable of being individually switched.

**1.** ***Modes of Communication***

The claim language precludes Tandberg's proposed construction, as the claims only require that each port support "at least one of the group of connections consisting of ... video in, video out, audio in and audio out." ' 500 patent at 41:56-58. This language is identical in structure to the phrase "a call state, being *at least* one of the group consisting of active and hold states," which the court has just construed. A port supporting "video in" alone thus falls under the scope of the claim, as does a port simultaneously supporting "video in" and "video out."

This construction is completely consistent with the use of the word "port" in the Specification. The Specification uses the word "port" in two different senses. The first sense is a physical connection to a device, such as a CMW. See Spec. at 15:61-64 ("camera 500 and microphone 600 capture and transmit outgoing video and audio signals into ports 801 and 802, respectively, of Add-on box 800."); id. at 15:64-65 ("Incoming video and audio signals (from another videoconference participant) are received across AV network 901 through Audio/Video I/O port 805."). Physical ports may support only a single type and direction of data, *see* port 801 of Figure 18A, or they may combine multiple types and directions of data, *see* port 805 of Figure 18B.

The second sense is a logical "port"-a data structure used by the AVNM to initiate and manage connections between devices. *See* id. at 20:41-44 ("For each device on the network, the AVNM combines these four connections into a port abstraction, wherein each port represents an addressable bidirectional audio/video channel."). There is not a one-to-one correspondence between inputs and outputs in a port abstraction and physical inputs and outputs in the system. Id. at 20:45-48 ("Different ports may share the same physical connections on the switch. For example, a conference bridge may typically have four ports (for 2.times.2 mosaicing) that share the same video-out connection."). Also, each port abstraction in the preferred embodiment is not required to have all four connection types: "Not all devices need both video and audio connections at a port. For example, a TV tuner port needs only incoming audio/video connections." Id. at 20:48-51. Finally, as discussed above, workstations participating in a videoconference need not support all

four connection types. Id. at 3:38-46.

CPI's construction is flawed, however, in that it requires that only "at least one port at each AV device supports at least one of audio in, audio out and video in and video out." The claims require that "each" port support at least one of audio in, audio out and video in and video out.

**2.** ***Individually Switched***

The claim language does not require that each connection be individually switched. The claim language is "switch connection," not "switched connection." A "switch connection" is a connection to a switch, either digital or analog. *See* Spec. at 7:13-18 ("Further, as the current preferred embodiment uses analog networking for audio and video, it also physically separates the real-time and asynchronous switching vehicles and, in particular, assumes an analog audio/video switch. In the future, a common switching vehicle (e.g., ATM) could be used."); id. at 8:49-50 ("A/V Switching Circuitry 30 (whether digital or analog as in the preferred embodiment) provides common audio/video switching for CMWs").

The court therefore accepts CPI's construction, with the modification set forth above, and construes the phrase "a plurality of communication ports, each supporting at least one of the group of switch connections consisting of video in, video out, audio in and audio out" to mean "at least two communication ports in the video conferencing system (at least one for each AV device), each port supporting at least one of audio in, audio out and video in and video out connections to an analog or digital AV switch."

***CONCLUSION***

For the foregoing reasons, the court construes the disputed terms as set forth above.

IT IS SO ORDERED.

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