United States District Court,
N.D. California.

LEVEL ONE COMMUNICATIONS, INC., a California Corporation,
Plaintiff.
v.
SEEQ TECHNOLOGY, INC., a Delaware Corporation,
Defendant.

No. C 95-4254 MHP

Nov. 12, 1997.

Patentee brought action for infringement of patents pertaining to electronic circuitry used to transmit and receive information over different communications media and among different computers on common network. Following submission of memoranda regarding claim construction, the District Court, Patel, Chief Judge, construed patent terms and held that one claim of one patent was not a means-plus-function claim.

Patent claims construed.

5,249,183, 5,267,269. Construed.

John E. Gartman, Frank E. Scherkenbach, Howard G. Pollack, Fish & Richardson, Menlo Park, CA, for Plaintiff.

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MEMORANDUM AND ORDER

PATEL**, Chief Judge.**

On November 28, 1995, plaintiff Level One Communications, Inc., brought this action against defendant Seeq Corporation, Inc., alleging infringement of U.S. Patent No. 5,249,183 ("the '183 patent") and U.S. Patent No. 5,267,269 ("the '269 patent"). Both patents pertain to the electronic circuitry used to transmit and receive information over different communications media and among different computers on a common network. Defendant timely answered, asserting numerous affirmative defenses, and counterclaimed seeking a declaratory judgment of patent invalidity and non-infringement. Now before the court are the parties' memoranda regarding claim construction of the disputed patent terms.

Having considered the parties' arguments and submissions, and for the reasons set forth below, the court

enters the following memorandum and order.

BACKGROUND

The '183 Patent

Plaintiff Level One is the sole assignee of the '183 patent, which issued on September 28, 1993, and is entitled "Interfacing Unit for Local Area Networks." The '183 patent concerns circuitry which allows a computer in a "local area network" ("LAN") to communicate over two different kinds of media, either a twisted pair wire or a coaxial cable, by means of a "media attachment unit"("MAU"). The MAU is connected to the computer through an attachment unit interface ("AUI"). The MAU connects to the AUI at its AUI port and to the twisted pair wire at its twisted pair port. Plaintiff claims that the novelty of the '183 patent lies in the ability of a single MAU to automatically select either media depending on whether the twisted pair link is active. Plaintiff. Mem. at 1-2. Plaintiff asserts that Seeq makes and sells products known as "AutoDUPLEX CMOS Ethernet Interface Adapters" which are covered by the '183 patent.

The parties dispute a number of terms in independent claims 6 and 12 of the '183 patent. Claim 6 states in its entirety:

A local area network (LAN), a media attachment unit for interfacing an attachment unit interface to a twisted pair link, the media attachment unit comprising: a) an AUI port having data out, data in, and collision presence circuit coupling said attachment unit interface to said media attachment unit; b) a twisted pair port having data out, data in, and collision presence circuits for coupling said twisted pair link to said media attachment unit; and c) auto-engage means, coupled to said twisted pair link and responsive to inactivity on said twisted pair link, for putting said AUI port data in and said AUI port collision presence circuits into high impedance condition, thereby disabling communication between said attachment unit interface and said twisted pair link, said auto-engage means further comprises means for monitoring said twisted pair link for a link integrity test pulse or a valid data pulse, and means for identifying inactivity on said twisted pair link when neither said link integrity test pulse or valid data pulse are present for a predetermined time.

'183 Patent at 7:28-8:3.

Claim 12 states:

A 10Base-T MAU comprising an AUI port in accordance with proposed standards of IEEE supplement (P802.31/D10) for LANs, and an auto-engage means, responsive to activity on a twisted pair link, for engaging said AUI port to an AUI wherein said auto-engage means further comprises means for monitoring said twisted pair link for a link integrity test pulse or a valid data, and means for identifying inactivity on said twisted pair link when neither said link integrity test pulse or valid data pulse are present for a predetermined time.

'183 Patent at 8:35-45.

The prosecution history of the '183 patent includes an Office Action with a mailing date of September 8, 1992. Guy Decl., Ex. B. In response to the examiner's rejection of the proposed patent claims as unpatentable over the prior art, the patent was amended on January 11, 1993, and allowed on March 23, 1993. Pl. Opp'n, App. B & C.

The '269 Patent

Level One is also the sole assignee of the '269 patent, which issued on November 30, 1993. The '269 patent concerns the digital predistortion and prefiltering of data sent between computers in a common LAN. Predistortion is necessary in order to compensate for the natural distortion that occurs as signals are transmitted over a wire, making the received signals relatively free from distortion. According to plaintiff, the '269 patent is unique in that a single chip performs the predistortion and prefiltering and does so digitally. Pl. Mem. at 2.

The parties dispute terms contained in claims 1 and 8 of the '269 patent. Claim 1 reads:

A data communication system employing transmit equalization comprising: a) a sequencer for receiving data in a non-return to zero format and providing a mode select output for selecting one of a plurality of data patterns and a step select output for selecting one of a plurality of time segments in response thereto; b) memory for storing data representing a plurality of predetermined waveforms; c) a multiplexer having a first input coupled to step select output, a second input coupled to the mode select output, in input bus coupled to the memory and an output bus for providing data representing a select waveform from the memory in response to the step and mode select outputs; d) a latch having an input coupled to the output bus and an output for de-skewing the data representing the select waveform; e) a differential digital to analog converter having an input coupled to an output of the latch and providing a differential analog current output proportional to the select waveform; and f) driver means including low pass filter means having a differential input coupled to the current output for impressing an analog voltage onto a transmission line.

'269 Patent at 6:49-7:4. And Claim 8 reads:

A method for transmit equalization comprising the steps of: a) receiving input data in a non-return to zero format and providing multiplexer control signals in response thereto; b) storing output data representing a plurality of predetermined waveforms; c) multiplexing the output I data representing one of the predetermined waveforms into a bus; d) de-skewingthe output I data on the bus; e) converting the output data on the bus into a differential analog signal; and f) impressing the analog signal onto a transmission line.

'296 Patent at 8:8-21.

In the first Office Action of the '269 Patent, dated September 18, 1992, the examiner rejected the claims because he found they lacked an adequate written description of the invention. Guy Decl., Ex. E. The application for the '269 patent was amended and the examiner's rejection addressed on December 21, 1992. Guy Decl., Ex. F. The patent was allowed on March 18, 1993. Pl. Opp'n, App. D.

Both patents at issue in this action incorporate by reference Standard 802.3 for LANs as set forth by the Institute of Electrical and Electronic Engineers ("IEEE"). Guy Decl., Exhs. G, H & I. In addition, the parties previously submitted briefs to this court on the issue of claim construction. Based on the fact that at that time the parties could not agree on which terms were actually in dispute, the court ordered them to meet and confer and if necessary to engage in mediation. The parties met with mediator Lynn Pasahow and the court is in receipt of his letter to counsel for both sides summarizing the agreements reached on a number of terms and the disagreements still outstanding. Pl. Mem., App. F.

LEGAL STANDARD

[1] [2] [3] [4] [5] Under Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed.Cir.1995), aff'd. 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996), the court "has the power and obligation to construe as a matter of law the meaning of language used in the patent claim." The meaning of claims is ascertained from consideration of three sources: the claim language, the patent specification, and the prosecution history. *Id.;* see Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576 (Fed.Cir.1996). In construing the meaning of claim language, the court should look first at the claims themselves, then use the specifications to aid in defining the terms used in the claims, and finally, turn to the prosecution history if necessary. Id. at 1582. Ordinarily this intrinsic evidence should be sufficient to resolve any ambiguities and determine the meaning of the disputed claims. Id. at 1583. Only when it is not may the court use extrinsic evidence and then only to aid the court in "coming to the proper understanding of the claims; it may not be used to vary or contradict the claim language." Id. at 1584. While courts may rely on experts and other extrinsic evidence to help it gain a basic understanding of the technology, expert testimony going to the proper construction of a disputed claim is to be eschewed and used only in the rarest circumstances. Id. at 1585. When reference to extrinsic evidence is necessary, the Federal Circuit in *Vitronics* showed a clear preference for dictionaries and prior art documents over expert opinion. *Id*.

A. ***Means-Plus-Function Claims***

[6] [7] [8] A means-plus-function claim is allowed by the Patent Act:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. s. 112, para. 6. The Federal Circuit has not explicitly resolved how its *Markman* holding affects interpretation of means-plus-function claims. An accused device literally infringes a claim written in means-plus-function form when the device "perform[s] the identical function required by the limitation and ... incorporate[s] the structure disclosed in the specification, or its substantial structural equivalent, as the means for performing that function." Intellicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1388-89 (Fed.Cir.1992); *see also* Texas Instruments, Inc. v. United States Int'l Trade Comm'n, 805 F.2d 1558, 1562 (Fed.Cir.1986), *reh'g denied,* 846 F.2d 1369 (Fed.Cir.1988). According to case law not overruled by *Markman,* courts must interpret the language of means-plus-function claims as a matter of law. In re Hayes Microcomputer Prods., Inc. Patent Litigation, 982 F.2d 1527, 1541 (Fed.Cir.1992). However, although the determination of equivalents is usually a question for the jury, the trial court should grant summary judgment "in any case where no reasonable fact finder could find equivalence." Sage Products, Inc. v. Devon Industries, Inc., 126 F.3d 1420, 1997 WL 578762, (Fed.Cir. Sept.18, 1997); *see also* Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co., --- U.S. ----, ----, 117 S.Ct. 1040, 1053-54, 137 L.Ed.2d 146 (1997) ("Where the evidence is such that no reasonable jury could determine two elements to be equivalent, district courts are obliged to grant partial or complete summary judgment."); In re Donaldson Co., Inc., 16 F.3d 1189, 1193-95 (Fed.Cir.1994).

B. ***Burdens of Proof***

[9] [10] [11] With respect to burdens of proof on claim construction, this court has determined that since claim construction is a question of law reviewed de novo, it makes no sense to apply burdens of proof.

Northern Telecom Ltd. v. Samsung Electronics Co., Ltd., 1996 WL 532122 at n. 11 (N.D.Cal. Sept.16, 1996). "Claim construction is the first part of a two-part analysis in an action for infringement, the second part being the determination of whether the accused device or method infringes the claims at issue. The party claiming that its patent has been infringed ordinarily carries the burden of proof. Wilson Sporting Goods v. David Geoffrey & Assoc., 904 F.2d 677, 685 (Fed.Cir.), *cert. denied,* 498 U.S. 992, 111 S.Ct. 537, 112 L.Ed.2d 547 (1990). However, only the second part is tried to a jury or finder of fact. The claim construction is determined as a matter of law, Markman, 517 U.S. at 392, 116 S.Ct. at 1396, and matters of law generally are not subject to traditional burdens of proof." *Id.*

DISCUSSION

I. ***The*** '183 Patent

The parties dispute the meaning of six terms within Claim 6: 1) "media attachment unit," 2) "attachment unit interface," 3) "AUI port," 4) "twisted pair port," 5) "auto-engage means," and 6) "high impedance condition." The terms at issue in Claim 12 are among those disputed in Claim 6 and the parties disagree about whether their meaning is the same in both claims.

A. ***Claim 6***

1. ***Media Attachment Unit***

Level One argues that the MAU should be construed precisely as it reads in the language of Claim 6, subject to no additional limitations. Seeq contends that the court must define the relationship of the MAU to other parts of the circuit and then determine all of its elements. In order to do so, Seeq proposes that the court incorporate into the definition of MAU language from the claim's preamble and from the specification. Defendant argues that the preamble defines the relationship of the MAU to the attachment unit interface ("AUI") and the twisted pair link, namely, that the MAU provides an interface between the two, FN1 which further limits the MAU in Claim 6 to a twisted pair MAU. In support of this interpretation defendant relies on Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620 (Fed.Cir.1995), in which the court found that a preamble gave meaning to the invention and could properly be considered in defining claim terms. In addition, Seeq maintains that the definition of MAU should include a long list of elements recited in the summary of the invention, including means for detecting and correcting reverse polarity, means for internally predistorting data to fit a 10Base-T jitter template of the twisted pair link and jabber control means. Seeq offers no apparent rationale for incorporating this detailed description.

FN1. The parties agreed during the mediation session that " 'interfacing' refers to a shared boundary between two systems, or between parts of systems, through which information is conveyed." Plaintiff. Mem., App.F at 4. However, that agreement appears to have given rise to another dispute: whether the MAU must share a boundary with the AUI and twisted pair link. The claim preamble uses the word "interface" but the claim speaks only of "coupling." The parties have agreed that interface refers to a shared boundary. "Couple" should be given its ordinary meaning of to link or join. Random House College Dictionary. It also seems as if that linkage could be either direct or indirect. In any event, the court finds no reason to read the preamble as a further limitation in this instance. Even if the two terms have significant differences in meanings, the claim language consistently uses "coupling" and appears to do so with relative clarity.

In *Bell,* the Federal Circuit found that preamble construction "presents no deeper mystery than the broader task of claim construction, of which it is but a part." *Id*. at 621. FN2 In other words, the preamble has the meaning and importance that the claims suggest for it. A patent claim can completely define the subject matter of the invention or it can expressly or implicitly use the preamble as a limitation. As *Bell* itself makes plain, nothing in its holding contradicts the imperative of courts to look first to claim language and then to construe it in light of the specification. *Id*. at 620.

FN2. Given that the mystery of claim construction is rather deep indeed, this is faint encouragement.

[12] The MAU recited in Claim 6 is not specifically defined as a twisted pair (or 10Base-T) MAU. However, the preamble to Claim 6 states its purpose as "interfacing an attachment unit interface to a twisted pair link". '183 Patent at 7:29-30. Of greater significance, the MAU of Claim 6 includes a twisted pair port. Moreover, the rest of the specification indicates that the disclosed invention concerns a 10Base-T MAU. The abstract begins, "A local area network (LAN) having a 10Base-T media Attachment unit (MAU) is disclosed.... " '183 Patent, Abstract. Likewise, the first line of the summary reads, "A 10Base-T (twisted pair) media attachment unit is disclosed...." '183 Patent at 2:6-7. Read in the context of the specification as well as the rest of Claim 6, the MAU in Claim 6 is a 10Base-T MAU. Nor does the court have to read the preamble to Claim 6 as a limitation on the claim in order to reach this conclusion. Beyond this construction of MAU, the court declines Seeq's invitation to further elaborate the relationship of the MAU to other elements of the claim.

Finally, Seeq's effort to incorporate wholesale a large portion of the specification into the construction of MAU seems to be a rather bald attempt to impermissibly broaden the scope of the claim, particularly when many of the elements enumerated in the specification which Seeq believes expressly define the MAU in Claim 6 are already contained in dependent Claims 9 and 11. Narrow claims should not be read to limit broader ones. D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1574 (Fed.Cir.1985); *see also* Transmatic, v. Gulton Indus., Inc., 53 F.3d 1270, 1277 (Fed.Cir.1995).

Accordingly, the court construes the MAU of Claim 6 to be a 10Base-T MAU comprising an AUI port, a twisted pair port and an auto-engage means, each of these as defined in Claim 6 and as further construed below.

2. ***Attachment Unit Interface***

The AUI mentioned in the preamble of Claim 6 is not part of the claim nor defined by it. It simply gives context to the claimed MAU. Both parties agree that its definition should come from the IEEE 802 .3 Standard. The disagreement stems from how much of the 802.3 Standard should be used.

Level One proposes using the one-line description of an AUI found in the "Definitions" section of the 802.3 Standard, which reads: "In a local area network, the interface between the medium attachment unit and the data terminal equipment within a data station." Guy Decl., Ex. H at s. 7.1.1.

In addition to the above definition Seeq suggests adding the phrase, "The AUI interfaces three data sources, data out (DO), data in (DI) and collision presence (CP)." Seeq derives this language from the "Description of the Preferred Embodiment" and from the language of claim 6 itself. '183 Patent at 3:35-40. Seeq would also incorporate the description of the AUI from the section of the 802.3 Standard entitled, "Functional

Description of Interchange Circuits," which states that "[t]he AUI consists of either three or four differential signal circuits, power, and ground. Two of the circuits carry encoded data and two carry encoded control information. Circuits DO (Data Out) and CO (Control Out) are sourced by the DTE, and circuits DI (Data In) and CI (Control In) are sourced by the MAU. The interface also provides for power transfer from the DTE to the MAU. The CO circuit is optional." Guy Decl., Ex. H at s. 7.5.1.

[13] Given that the patent does not even claim an AUI, it seems unnecessary and imprudent to construe the preamble term beyond the basic definition in the 802.3 Standard. This functional description of an AUI is not necessary to understanding the disclosed MAU. In fact, neither is it necessary to understanding the AUI itself; if it were, it would be incorporated into the Standard's own definition. For the same reasons, the court is not inclined to incorporate the unattributed phrase Seeq proposes. Accordingly, the court construes AUI as defined by the 802.3 Standard: In a local area network, the interface between the medium attachment unit and the data terminal equipment within a data station.

3. ***AUI Port***

The language of Claim 6 defines an AUI port simply as "having data out, data in, and collision presence circuits for coupling said attachment unit interface to said media attachment unit." '183 Patent at 7:31-33. Level One proposes that the court adopt a construction of AUI port that defines it as "the portion of the media attachment unit (MAU) that (1) allows the communication of data between the AUI and MAU on "data out," "data in" and "collision presence" circuits and (2) may be placed in a "high impedance condition." Level One would also add to its definition that the DO, DI and CI circuits can encompass the AUI transmit-receiver, the AUI receiver-driver, the collision driver or any equivalent structure.

Seeq protests that Level One's proposed definition is purely functional and, more importantly, runs contrary to the plain language of the claim by covering "covering structures in which the AUI and the twisted pair MAU are not distinct devices." Instead, Seeq suggests that the definition include the relevant language of the claim and a description of the AUI port in the preferred embodiment which comprises an AUI transmit-receiver, an AUI receiver-driver and a collision driver. '183 patent at 3:58-64. In addition, Seeq would incorporate the definitions of data in circuit, data out circuit and collision presence found in the 802.3 Standard.

[14] While it seems evident that each party is attempting to expand or contract the scope of the claim to suit its purposes, the court fails to see the ambiguity in the language of the claim itself. First, although Seeq stresses that Level One's proposed construction fails to include the fact that the circuits of the AUI port "couple" the AUI to the MAU, it does not appear necessary for the definition of the AUI port to explicitly clarify whether the MAU and the AUI are two distinct devices. Rather, what sorts of configurations of a MAU might ingringe this element is a question for a jury.

On the other hand, Level One correctly argues that Seeq's proposed construction incorporates limitations from the preferred embodiment that are not present in or necessary to the claim language. *See* Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed.Cir.1988). There is no indication that data in circuit, data out circuit or collision presence are terms that need to be each fully defined in order to construe "AUI port." As Seeq itself states, "the language of the IEEE 802.3 standard is not the language of the claim and cannot be used to broaden the claim beyond its plain meaning." Defendant. Opp'n at 5. Nor can it be used to narrow the claim beyond its plain meaning. The parties seem to agree that the data in circuit transfers signals to the AUI from the MAU, the data out circuit transfers signals to the MAU from the AUI and the

collision presence detects the simultaneous transmission of data in both direction.

Accordingly, the court rejects both proffered definitions and construes AUI port just as it is defined in Claim 6, as having data out, data in, and collision presence circuits for coupling said attachment unit interface to said media attachment unit.

4. *Twisted Pair Port*

Claim 6 defines the twisted pair port as "having data out, data in, and collision presence circuits for coupling said twisted pair link to said media attachment unit." '183 Patent at 7:34-36. These are the same circuits that the AUI port is defined as having. However, in the specification and in the figures of the patent, the twisted pair link transmits and receives data through the twisted pair port over differential paths TPI and TPO. '183 Patent at 3:65-8:2; fig. 2. The AUI transmits and receives data through the AUI port over differential paths DO and DI. '183 Patent at 3:58-62; fig. 2.

[15] Seeq argues that the language of Claim 6 is fatally indefinite with respect to the definition of twisted pair port and separately moves for partial summary judgment on this issue. According to defendant, the claim language and the specification are irreconcilable because the former requires the twisted pair port to have DO and DI circuits and the latter claims that it has TPO and TPI circuits and these circuits are incompatible, which is why a MAU is necessary to translate the signals from each to the other. Such a reading leads to an absurd result: read in isolation, Seeq's construction would preclude the need for a MAU as the twisted pair link could transmit and receive signals directly to and from the AUI over the same circuits. However, just because claim language could suggest an absurd result if read literally does not mean the claim is fatally indefinite. In fact, courts should not read claims in isolation but "in view of the specification, of which they are a part." Markman, 52 F.3d at 979.

Level One contends that the claim language refers to the signals being carried between the twisted pair link and the AUI rather than the specific types of circuits used and that the TPO circuit "corresponds" to the DO circuit, the TPI circuit corresponds to the DI circuit and the collisions detector 76 corresponds to the CI. Plaintiff also contends that the 802.3 Standard supports this reading of the circuitry.

[16] Read in light of the specification, the court concludes that the claim language describing the twisted pair port is not indefinite and that one of ordinary skill in the art would understand the scope of the twisted pair port. First, the preferred embodiment describes a twisted pair port "comprising a TP-receiver 42 for transferring data from twisted pair link 24 over differential path (TPI+, TPI-) 44 to AUI 26 and a TP-driver 46 for shaping and transferring data pulses from AUI 26 to twisted pair link 24 over differential path (TPO+, TPO-) 48." '183 Patent at 3:65-4:2. The preferred embodiment also describes "a collision detector circuit 76 for detecting simultaneous activity on twisted pair link 24". '183 Patent at 4:24-25. Next, Figure 2, in conjunction with the specification, teaches that data from DO passes from the AUI transmit-receiver to the 11' driver of the twisted pair port and is transmitted to the twisted pair link over TPO paths. '183 Patent at fig. 2; 4:29-31. Similarly, data from the twisted pair link travels over TPI and ultimately is passed through DI circuits. '183 Patent at fig.2; 4:54-59. The collision detector detects collisions on the twisted pair link and reports them through the collision driver over CI. '183 Patent at 5:23-28. Finally, the 802.3 Standard's discussion of the signal circuits suggests that one of ordinary skill in the art could understand the claim language as encompassing the circuitry described in the specification. In its section entitled, "MAU Functional Specifications," the 802.3 Standard states that the "MAU provides the means by which signals on the three AUI signal circuits to and from the DTE or repeater and their associated interlay messages are

coupled to the twisted pair link segment." Guy Decl., Ex. G at s. 14.2. Even though the MAU performs this function by transferring data from one type of circuit to another, the Standard does not suggest that this is incompatible with the notion that the AUI signal circuits perform a coupling function for signals going to and coming from the twisted pair link. Indeed, it suggests that "coupling" between two circuits may occur even where it is indirect and there are intermediate processes that facilitate that coupling.

Accordingly, the court construes the language of Claim 6 describing the twisted pair port as having data out, data in, and collision presence circuits and as encompassing a twisted pair port comprising a TP driver, a TP receiver and a collision detector for transferring data between the twisted pair link and the AUI.

5. ***Auto-Engage Means***

[17] [18] The parties agree that the auto-engage means of Claim 6 is written in means-plus-function format and that therefore the court must construe the means language in light of the corresponding structures disclosed in the specification. *See* In re Donaldson, 16 F.3d at 1193-95. "The plain and unambiguous meaning of paragraph six is that one construing means-plus-function languagein a claim must look to the specification and interpret that language in light of the corresponding structure, material, or acts described therein...." Id. at 1193. However, while a patentee must disclose some structure for all means recited in the claims, it need not disclose every means for implementing the function in question. In re Hayes, 982 F.2d at 1535.

Seeq argues that the auto-engage means portion of Claim 6 lacks structure in the specification. Defendant argues that the only discussion of the auto-engage means in the specification is purely functional. *See* '183 Patent at 5:57-6:10.

Level One contends that the specification adequately discloses structures for performing the claimed functions, which are monitoring and disengaging. Specifically, plaintiff suggests that the squelch circuit 78 and the link integrity circuit 62 monitor the twisted pair link for inactivity. FN3 '183 Patent at 4:54-61, 5:46-54. In addition, plaintiff states that the disengaging function is performed by the MAU which isolates its AUI port by putting the DI and CI circuits in high impedance condition. '183 Patent at 2:31-37.

FN3. During mediation, the parties reached agreement that "means for monitoring" and "means for identifying inactivity" correspond to the structure illustrated in Figure 2 as "Link Integrity 62" and "Squelch 78". Pl.'s. Mem., App.F at 4.

The court agrees with the stipulation of the parties that the means for monitoring and means for identifying inactivity correspond to the structures link integrity 62 and squelch 78. Less clear is the structure that "puts" the AUI port DI and CI circuits in high impedance condition. The description of the preferred embodiment lists a number of structures and their functions, which together perform the work of the MAU. Of particular note are the LED driver array 54 having a plurality of outputs for indicating that the status of link integrity, collision, receive, transmit, jabber, and reverse polarity; a link integrity test circuit 62 for detecting inactivity on the twisted pair link; a mode select circuit 66 for selecting operating modes; and a signal quality error test circuit 70, among others. It appears that these structures, working together and in response to the monitoring of link activity, perform the work of alerting the AUI port when to engage or disengage. It appears initially from the specification that the AUI port itself is the structure that corresponds to the means for putting its DI and CI circuits into the high impedance condition.

Level One proposes that the court adopt the following construction of auto-engage means: "The structure disclosed in the specification and any equivalent structure that: (1) monitors a twisted pair link for link integrity test pulses or valid data pulses; (2) puts the DI and CI circuits of the twisted pair MAU's AUI port into high impedance condition when neither pulse is present on the twisted pair for a predetermined time; and (3) takes the AUI port out of a high impedance condition when either pulse is detected on the twisted pair." Plaintiff. Mem. at 11. As defendant protests, this construction still fails to identify the corresponding structures and defines the structures by their functions.

[19] The court agrees with Seeq that the most illuminating discussion of the auto-engage means states:

MAU 22 is configured to automatically engage its AUI port when (LEDL) of LED driver array 56 is connected to (MD0) of mode select input 68 and MDI of mode select input 68 is set to a logical one. LEDL of LED array 56 goes high when link integrity circuit 62 signals a link failure causing MD0 of mode select input 68 to go high. The AUI port of MAU 22 is isolated from commonly connected DI and CI circuits of AUI 26 by forcing it into a high impedance state when MD0 and MD1 are asserted high. The AUI port engages when link integrity circuit 62 does not indicate a link failure (LEDL is low). Alternately stated, the AUI port of MAU 22 is only active when link integrity circuit 62 detects data or link integrity test pulses on twisted pair link 24. In response to a link failure (LEDL is high), AUI port paths (DI+, DI-) 36 and (CI+, CI-) 40 advance into a high impedance state and activity on (DO+, DO68F) 32 is ignored by MAU 22. Detection of activity on twisted pair link 24 continues even though MAU 22 is disengaged from AUI 26. If activity resumes on twisted pair link 24, MAU 22 re-engages its AUI port by enabling the DO, DI and CI circuits.

'183 Patent 5 :57-6 :10. However, contrary to Seeq's contention, the discussion is not only functional. According to the court's reading of the specification quoted above, it is the AUI port itself that engages and disengages automatically, hence the "auto-engage means," in response to information from the link integrity circuit as indicated by the level of LEDL of the LED array 56 and the mode select input 68. For example, when MD0 and MD1 are asserted high the AUI port "is isolated from commonly connected DI and CI circuits of AUI 26 by forcing it to a high impedance state". While the specification is far from a model of clarity, it seems that the AUI port forces its DI and CI circuits into a high impedance state. Though the antecedent of "it" is ambiguous, the rest of the specification suggests that "it" refers to the DI and CI circuits. In the same passage, the specification states that "the AUI port paths (DI+, DI-) 36 and (CI+, CI-) 40 advance into a high impedance state" in response to a link failure and that if activity resumes, "MAU 22 re-engages its AUI port by enabling the DO, DI, and CI circuits." Furthermore, as noted above, the patent need only disclose some structure for all means recited in the claims and not all means for the functions in question. In re Hayes, 982 F.2d at 1535.

Accordingly, apart from the structures to which the parties stipulate that correspond to monitoring and identifying inactivity, the court identifies the LED array 56, the mode select input 68, the link integrity circuit 62, the squelch circuit 78, and the AUI port itself, with particular emphasis on the AUI receiver-driver 36, as the structures that correspond to the means "for putting said AUI port data in and said AUI port collision presence circuits into a high impedance condition".

6. *High Impedance Condition*

The parties generally agree that the term impedance is well-known to those with ordinary skill in the art,

and refers to the resistance in an electrical circuit to the flow of a current. Both parties also agree that in the context of the '183 patent, the impedance is sufficiently high to disable communication between the AUI and the twisted pair link. The only disagreement between the parties with respect to this term is whether it can include an automatic switch.

Seeq, citing to the first Office Action, relies on the examiner's conclusion that an automatic switch would have been obvious from the prior art. During the Office Action, the examiner stated:

It would have been obvious to use the automated selector of Strecker et al in place of the jumper as it is well known that manual switches may be replaced by automate switches.... The high impedance state would have been obvious as the selector switch of Strecker et al connects either one bus or the other, hence, the inactive bus is disconnected from the receive processing circuit is in a high impedance state.

Guy Decl., Ex. B at 3.

[20] However, Seeq fails to account for the amendment submitted by applicants discussing the invention in light of the prior art. Nor does Seeq address the fact that the amended patent application was subsequently allowed. As Level One points out, in response to the rejection by the examiner, applicants submitted that none of the prior art enabled a computer to communicate over both an Ethernet bus and a twisted pair link; rather it taught how to mediate access to the Ethernet bus to prevent monopolization of it. Plaintiff. Opp'n, App. B at 8. Applicants further noted that

switches are not interchangeable, but instead, must be designed to appropriately interface the circuits that one desires to join. The Applicants' 10Base-T MAU not only provides interface signal conditioning between the AUI and the twisted pair links but also provides jabber control and collision avoidance circuitry. Thus, the Applicants' invention allows data terminal equipment to communication with other data terminal equipment via an Ethernet bus or alternatively over a twisted pair link.

Applicants point out that Strecker does not disclose means for interfacing an attachment unit interface to a twisted pair media.

Plaintiff. Opp'n, App. B at 7. Seeq's argument that the term high impedance condition cannot include in its scope an automatic switch is based on an incomplete account of the prosecution history and is therefore unpersuasive. Seeq is correct, however, that the '183 patent is directed only to a twisted pair MAU and not a coaxial MAU and that it does not encompass a switch that operates on both MAUs. Yet the claimed invention could encompass an automatic switch that controlled the twisted pair MAU alone. Based on this court's reading of the prosecution history the term does not preclude use of an automatic switch directed to a twisted pair MAU.

Accordingly, high impedance condition is construed to mean an impedance sufficient to disable communication between the AUI and the twisted pair link.

B. *Claim 12*

As stated in the mediation report, the only dispute as to Claim 12 is whether the 10Base-T MAU claimed there must meet the requirements of the proposed standards of IEEE supplement (P802.31/D10) for LANs. FN4 Plaintiff. Mem., App. F at 4. The claim discloses a "10Base-T MAU comprising an AUI port in

accordance with proposed standards of IEEE supplement (P802.31/D10) for LANs.... " '183 Patent at 8:35-37.

FN4. The parties also renew the arguments with respect to "auto-engage means" that were raised in their discussion of the term in Claim 6. The court construes that term to be the same in all relevant respects to the term in Claim 6 and interprets it accordingly.

Seeq urges the court to interpret the claim such that the MAU must meet the referenced IEEE standards, and Level One argues that only the AUI port claims to be in accordance with those standards.

[21] Viewing the claim in isolation, the court would agree with plaintiff's reading that only the AUI port claims to be in accordance with IEEE proposed standards. However, the specification, beginning with the second line of the abstract, states that the disclosed 10Base-T MAU will "meet[ ] or exceeds [ ]" the proposed standards of the IEEE supplement (P802.31/D10) for LANs. See also '183 Patent at 2:17-19. Accordingly, the court concludes that both the MAU and the AUI port of Claim 12 must meet the referenced IEEE standards. FN5

FN5. This construction of MAU holds true for the MAU disclosed in Claim 6 as well. This does not mean though, as defendant would have it, that any discussion of a twisted pair MAU in the proposed standard is automatically incorporated into the definition of the term.

II. ***The*** '269 Patent

The '269 patent concerns the problem of data distortion in communication systems having "lossy" transmission media. Because the distortion from such media is predictable, data signals can be predistorted and prefiltered prior to transmission to compensate for the distortion. This preconditioning is known as transmit equalization, and is accomplished by matching the data received with predetermined equalized waveforms. Data is received in a non-return to zero ("NRZ") format and the circuitry of the '269 patent reads the digital signals in two adjacent data bits and classifies the bits into seven possible categories (0/0, 0/1, 1/0, 1/1, link test, idle or idle extension) using a sequencer. The sequencer uses a mode select output to select from memory the equivalent of the signal portion "as predistorted and filtered Manchester encoded data. Predetermined waveforms in memory are representative of the analog waveform produced when predistorted digital Manchester encoded data is passed through a high order transmit filter." '269 Patent, Abstract. The sequencer uses its step select output to regulate the time segments of the data. In other words, the type of waveform is the mode and each sample of that waveform (expressed over a number of time segments) is a step. The selected waveforms are then output from the memory and passed through the multiplexer in the form and order dictated by the mode select and step select control signals. The data is then converted into analog form and sent to the network over a transmission line.

A. ***Claim 1***

The parties dispute the meaning of the following terms: "sequencer," "mode select output," "step select output," "plurality of predetermined waveforms," "multiplexer," "differential input" and "transmission line."

1. ***Sequencer***

Defendant claims that the term sequencer has no common meaning in the telecommunications field and that because the use of the term in Claim 1 does not specify what is necessary to a sequencer, Seeq proposes that the term be construed to include the column-length description of the sequencer found in the specification. Level One asserts that sequencer does have a common meaning in the field, and cites to the IEEE Dictionary, which apparently defines it as a device that sequences the items in a set. Plaintiff contends that consistent with this common definition, the sequencer in Claim 1 ensures that the multiplexer outputs waveform data in a sequence that represents a desired waveform. Level One proposes the following construction: "The sequencer described in the specification and any equivalent device that utilizes digital logic, a clocking function, and the input NRZ data to generate a unique set of 'mode' and 'step' select signals for controlling the selection of data representing a waveform from memory by a multiplexer."

[22] Neither of the proposed definitions is satisfactory. Seeq's would improperly incorporate the entire description of the preferred embodiment into the claim as a limitation. *See* Laitram, 863 F.2d at 865 ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations."). The court is unwilling to treat detailed descriptions as definitions. Furthermore, while it is axiomatic that patentees can choose to be their own lexicographers, they are only assumed to do so when the special definition is clearly stated in the patent specification or file history. Vitronics, 90 F.3d at 1582; Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1578 (Fed.Cir.1996) (unless the inventor gives it a special meaning, a technical term is interpreted to have the meaning given by persons with skill in the relevant art).

[23] However, Level One's construction is also distressingly unrelated to the claim language and, with the exception of mentioning the utilization of digital logic and a clocking function, loosely restates the claim language. Seeq objects to Level One's definition on the grounds that it is functional rather than structural. Yet Seeq cites no authority for the proposition that all claims must be defined structurally. Absent defendant's desire to incorporate the preferred embodiment into the claim, the court cannot see what about the term is ambiguous. The sequencer indeed sequences data through its mode select and step select outputs, which are addressed below. Accordingly, the court believes that the claim language is plain enough for someone skilled in the art and that it defines a sequencer as a device that performs certain tasks, namely "receiving data in a non-return to zero format and providing a mode select output for selecting one of a plurality of data patterns and a step select output for selecting one of a plurality of time segments in response thereto". '269 Patent at 6:51-53.

2. ***Mode Select Output and Step Select Output***

Seeq bases its objections to the above terms on the examiner's conclusion that the terms were vague and indefinite and it was not properly disclosed how they functioned. Guy Decl., Ex. E at 2-3. In response to the first Office Action, applicants pointed to descriptions of the mode select output and step select output in the specification to show that the terms were adequately supported. Seeq now proposes to use part of applicants' response in the construction of these terms. Guy Decl., Ex. F at 3-4. Specifically, Seeq asks the court to construe mode select output as "the output from F/F array 80 in Figure 5 of the '260 Patent, which is one of seven mutually exclusive signals for selecting one of seven data patterns stored in memory." And step select output would read: "In Figure 5 of the '269 Patent, one of N outputs from barrel shifter 53 coupled to multiplexer 44 (shown in Fig. 3) for sequencing (stepping) it through N steps synchronously clocked by a master clock."

[24] [25] Level One objects that the response to the examiner was meant merely to point out the description

of the mode select and step select outputs that already existed in the specification rather than redefine the terms according to those descriptions. This court agrees. It should be noted that the examiner did not ask that the claims be amended to include these descriptions and the patent was subsequently allowed. Accordingly, for the same reasons given above with respect to the sequencer element, the court will not import limitations found in the preferred embodiment into an otherwise understandable claim. The mode select output is for selecting one of a plurality of data patterns and the step select output is for selecting one of a plurality of time segments in response to that pattern.

3. ***Plurality of Predetermined Waveforms***

Again, Seeq proposes augmenting the definition of "a plurality of predetermined waveforms" with a description taken directly from the preferred embodiment, specifically from column 4, lines 8-18, and adding to it that the "six predetermined waveforms are illustrated in Figures 7A and 7B of the '269 Patent (where the seventh pattern, "idle," is zero)." Level One objects that what is stored in memory is data that "represents" a plurality of predetermined waveforms and how the data represents the waveforms may vary. Therefore, the term cannot be limited to the example shown in Figure 7B which happens to show the data patterns in seven time segments as four-bit data words.

Level One is correct that the predetermined waveforms are "representative" rather than actual. The specification repeatedly refers to them as such. '269 Patent at Abstract, 4:8-16. The specification also specifically notes that the applicants found that a value of N equal to seven provided sufficient temporal resolution, '269 Patent at 4:25-28, but suggests that other values could readily be substituted.

Apart from the dispute over whether the predetermined waveforms are representative or as depicted in Figures 7A and 7B, it is not clear that the parties disagree. The section of the preferred embodiment cited by Seeq consistently refers to the predetermined waveforms as "representative of a desirous output response by a hypothetical transmit filter when excited with predistorted Manchester encoded data." '269 Patent at 4:9-11. While Level One appears to have no objection to this description and it is useful to understanding the term at issue, the court is not inclined to import it into the definition of "a plurality of predetermined waveforms." The court rejects defendant's theory of claim construction, which would incorporate any description of a given claim term in the specification into the claim itself. As the court has already noted in this order, it is not the purpose of a *Markman* hearing to seek to strategically limit a patent's claims under the guise of a genuine dispute as to meaning. While claims are read in light of the specification, "it does not follow that limitations from the specification may be read into the claims...." Sjolund v. Musland, 847 F.2d 1573, 1581 (Fed.Cir.1988); *accord* E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed.Cir.1988) ("It is entirely proper to use the specification to interpret what the patentee meant by a word or a phrase in the claim. But this is not to be confused with adding an extraneous limitation appearing in the specification, which is improper.") (citations omitted); *see also* Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1303 (Fed.Cir.1997).

[26] Both parties seem to understand that predetermined waveforms are simply representative waveforms set in advance to compensate for known transmission distortion. Therefore, the court adopts that construction.

4. ***Multiplexer***

[27] It appears that the parties no longer substantively disagree on the meaning of multiplexer and therefore the court construes it as they do, as "having inputs coupled to the step select output, mode select output, and the memory, and an output bus for providing channeled data from the memory, representing a selected

waveform in response to the step and mode select outputs."

5. ***Differential Input and Transmission Line***

[28] The last element of Claim 1 reads "driver means including low pass filter means having a differential input coupled to the current output for impressing an analog voltage onto a transmission line." '269 Patent at 7:1-4. With respect to the differential output, the parties' now appear to agree that the term refers to the driver means and not the low pass filter means, thus the court accepts that construction.

[29] The parties do dispute what transmission line includes. Seeq contends that it should be interpreted to include "any alternative transmission media which exhibit lossy characteristics, including twisted pair wire or radio frequency." Level One asserts that a transmission line refers to communication over a physical connection such as a line, a wire or a cable and that ether is not a lossy media. The court agrees that even though distortion may occur with radio transmission, the term transmission line suggests a physical media and it does not logically apply to radio frequency. While the '269 patent states that it "relates generally to problems in data communication systems having a lossy transmission media," '269 Patent at 1:7-9, it more specifically addresses "[c]onventional transmission lines, such as twisted-pair cable" later in the specification. '269 Patent at 1:29-30. Accordingly, the court construes transmission line to encompass lossy physical media, such as lines, wire and cable.

B. ***Claim 8***

The principal dispute over Claim 8 is whether or not it should be read as a mean-plus-function claim. Claim 8 reads:

A method for transmit equalization comprising the steps of: a) receiving input data in a non-return to zero format and providing multiplexer control signals in response thereto; b) storing output data representing a plurality of predetermined waveforms; c) multiplexing the output data representing one of the predetermined waveforms into a bus; d) de-skewing the output data on the bus; e) converting the output data on the bus into a differential analog signal; and f) impressing the analog signal onto a transmission line.

'296 Patent at 8:8-21.

Seeq argues that it should be read as a mean-plus-function claim because the claim is drafted as a series of steps for performing a function, i.e. transmit equalization, without recital of their corresponding structures. Seeq further requests the court to identify the structures for "providing multiplexer control signals," "multiplexing" and "de-skewing."

Level One argues that despite the word "steps" in the claim preamble, Claim 8 is a method claim written as a procession of functions that must be interpreted to cover all means for performing the functions recited in the claim. Plaintiff, citing Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580 (Fed.Cir.1996), contends that the "step" language is not determinative of whether section 112(6) applies. Plaintiff also points to the fact that the Patent Office did not read Claim 8 as a means-plus-function claim and argues that this is relevant because the Federal Circuit has concluded that section 112(6) applies equally to prosecution and litigation. In re Alappat, 33 F.3d 1526, 1540 (Fed.Cir.1994).

The Federal Circuit has recently addressed the considerations relevant to applying section 112(6). In Cole v. Kimberly-Clark Corp., 102 F.3d 524, 530-31 (Fed.Cir.1996), the court noted that traditional "means"

language does not automatically make an element a means-plus-function element and that conversely, lack of such language does not prevent an element from being construed as a means-plus-function element. Id. at 531. Instead, a court must decide on an "element-by-element basis" based upon the patent and the prosecution history whether section 112(6) applies. *Id*. In order to invoke section 112(6), "the alleged means-plus-function claim element must not recite a definite structure which performs the described function." *Id*. In Cole, the court affirmed a district court's conclusion that "perforation means ... for tearing" was not a means-plus-function element under section 112(6) because despite the fact that the drafter of the patent "was clearly enamored of the word 'means' " the claim described the structure that performed the tearing function, namely the perforation. *Id*. at 530-31.

In *Greenberg,* the Federal Circuit noted that it is generally clear when drafters intend to invoke section 112(6) by their use of the standard language "means for" or "step for". 91 F.3d at 1583. In that case the claim involved a "detent mechanism defining the conjointrotation of said shafts" which was not in conventional means-plus-function language. In reversing the district court's conclusion that it was a means-plus-function element, the court stated that "the fact that a particular mechanism-here 'detent mechanism'-is defined in functional terms is not sufficient to convert a claim element containing that term into a 'means for performing a specified function' within the meaning of section 112(6)." *Id*.

[30] Claim 8 is not written as a means-plus-function claim, nor does the word "steps" in the preamble make it so; such a reading would make every process claim into a means-plus-function claim by definition. Rather, it is written as a standard process or method claim. *See, e.g.,* Environmental Designs Ltd. v. Union Oil Co. of California, 713 F.2d 693, 694 (Fed.Cir.1983). Whether it should also be read as a means-plus-function claim depends on whether it adequately recites the structures for the functions it describes. Contrary to Level One's contention, whether the patent examiner analyzed the claim under section 112(6) is not determinative, particularly since the '269 patent issued before the Federal Circuit conclusively held that application of section 112(6) was part of the patent determination made by the PTO. In re Donaldson, 16 F.3d at 1193-95.

[31] [32] Reviewing Claim 8 on an element-by-element basis, the court concludes that Claim 8 is not a means-plus-function claim. Each of the functions recited as part of the claimed method have a corresponding structure that is evident from the language of Claim 8 itself or from Claim 1. First, it is clear from the patent and Claim 1 that the sequencer "provid[es] multiplexer control signals" in the form of mode select and step select outputs.FN6 '269 Patent at 6:51-53. Second, "multiplexing" clearly corresponds to the multiplexer construed above. *See* Greenberg, 91 F.3d at 1583 ("Many devices take their name from the functions they perform."). Lastly, Claim 1 makes it evident that the latch performs the "de-skewing" function. '269 Patent at 6:62-64 ("a latch having an input coupled to the output bus and an output for de-skewing the data representing the select waveform").

FN6. It seems as if Level One's chief objection to defining the mode select and step select control signals as the structures relevant to element (a) of Claim 8 is that it doesn't clearly include their equivalents. However, equivalence is a question of infringement and as such is a factual issue for the jury. Hilton Davis Chem. Co. v. Warner-Jenkinson Co., Inc., 62 F.3d 1512, 1520-21 (Fed.Cir.1995), rev'd on other grounds, 520 U.S. 17, ----, 117 S.Ct. 1040, 1053-54, 137 L.Ed.2d 146 (1997) (declining to address the question).

CONCLUSION

For the aforementioned reasons, the court construes the disputed terms of the '183 Patent and the '269 Patent as set forth above.

IT IS SO ORDERED.

N.D.Cal.,1997.
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