IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

FUJITSU LIMITED, Plaintiff, v. TELLABS OPERATIONS, INC. and TELLABS, INC., Defendants.	)	
TELLABS OPERATIONS, INC. Plaintiff, v. FUJITSU LIMITED and FUJITSU NETWORK COMMUNICATIONS, INC., Defendants.	)	Nos. 08 C 3379 & 09 C 4530 Consolidated for Discovery
FUJITSU LIMITED, Counter Claimant, v. TELLABS OPERATIONS, INC., TELLABS, INC., and TELLABS NORTH AMERICA, INC., Counter Defendants.	)	

MEMORANDUM OPINION AND ORDER

JAMES F. HOLDERMAN, Chief Judge:

On January 29, 2008, Fujitsu Limited filed a complaint against Tellabs, Inc. and Tellabs Operations, Inc. in the United States District Court for the Eastern District of Texas ("Texas

Action") alleging infringement of U.S. Patent Nos. 5,526,163 ("'163 Patent"); 5,521,737 ("'737 Patent"); 5,386,418 ("'418 Patent"); and 6,487,686 ("'686 Patent").[1] (Case No. 09-4530, Dkt. No. 1, Fujitsu's Compl. ¶¶ 1, 12-35.) Tellabs Operations, Inc. then filed suit against Fujitsu Limited and Fujitsu Network Communications, Inc. (collectively "Fujitsu") in the United States District Court for the Northern District of Illinois ("Illinois Action") on June 11, 2008, alleging infringement of U.S. Patent No. 7,369,772 ("'772 Patent"). (Case No. 08-3379, Dkt. No. 1, Tellabs's Compl. ¶ 1.) Both Fujitsu Limited and Fujitsu Network Communications, Inc. filed their amended answers, affirmative defenses, and counterclaims in the Illinois Action on April 1, 2009. (Dkt. Nos. 119, 120.) In its counterclaims, Fujitsu Limited alleged that Tellabs Operations, Inc., Tellabs, Inc., and Tellabs North America (collectively "Tellabs") infringed two additional patents assigned to Fujitsu Limited: U.S. Patent Nos. 7,227,681 ("'681 Patent") and 5,533,006 ("'006 Patent"). (Dkt. No. 119.)

On May 13, 2009, this court issued its preliminary claim constructions of certain disputed claim terms in the '772, '681, and '006 Patents. The Texas Action subsequently was transferred to the Northern District of Illinois on July 29, 2009, and the two cases were consolidated for purposes of discovery. (Case No. 08-3379, Dkt. No. 202.) After the cases were consolidated, this court held a technology tutorial related to the general technology underlying the six patents-in-suit, including the '006 Patent.

The parties identified additional claim terms for the court to construe and filed briefs related to those proposed constructions. Tellabs also filed two motions for summary judgment: Tellabs's "Motion for Summary Judgment of Invalidity Based on Indefiniteness of All Asserted

[1] Fujitsu Limited's claim for infringement of the '686 Patent was dismissed on November 4, 2010. (*See* Case No. 09-4530, Dkt. No. 249.)

Claims (1 and 6-9) of U.S. Patent No. 5,386,418" (Case No. 09-4530, Dkt. No. 165) and its "Motion for Summary Judgment of Invalidity Based on Indefiniteness of All Claims of U.S. Patent 5,533,006" (Case No. 08-3379, Dkt. No. 305). Fujitsu then filed its "Motion for Summary Judgment for Judicial Correction of 'And' to 'A' in Claim 1 of U.S. Patent 5,386,418" (Case No. 09-4530, Dkt. No. 202). On November 30 and December 1, 2, 3, and 7, 2010, the court held a *Markman* hearing, during which the parties' counsel addressed the respective claim construction positions as well as the pending motions for summary judgment.

For the reasons explained below, Tellabs's "Motion for Summary Judgment of Invalidity Based on Indefiniteness of All Claims of U.S. Patent 5,533,006" (Case No. 08-3379, Dkt. No. 305), is granted. In a separate opinion issue today, this court has denied Tellabs's "Motion for Summary Judgment of Invalidity Based on Indefiniteness of All Asserted Claims (1 and 6-9) of U.S. Patent No. 5,386,418," and granted Fujitsu's "Motion for Summary Judgment for Judicial Correction of 'And' to 'A' in Claim 1 of U.S. Patent 5,386,418." The claim constructions for the '418, '163, '737, '681, and '772 Patents remain under advisement.

BACKGROUND

I. '006 Patent

The application for the '006 Patent was filed with the U.S. Patent and Trademark Office ("PTO") on February 14, 1994, and claims priority from a related foreign application filed on September 13, 1993. The patent issued to Fujitsu Limited on July 2, 1996, and is titled "Control System for a Ring Type Network System." The '006 Patent discloses a method for arranging a synchronous optical network, i.e., a SONET network, that allows the network to transmit data to users despite a problem in the network. (*See* '006 Patent, col.1 ll.5-15; col.2 ll.45-61.)

In a SONET network, nodes drop and pass-through signals to other nodes within the network. (*Id.* at col.1 ll.13-45.) Prior art nodes in the SONET network would transmit data on a first optical fiber and also send a redundant copy of that data on a second optical fiber. (*See* 2/23/10 Tutorial Hr'g Tr. 352:20-353:14 ("So node C is receiving, in principle, two copies of the same signal, and the point is to select one.").) If the first optical fiber is cut or otherwise interrupted, an alarm signal ("AI signal") is generated. ('006 Patent, col.1 l.60-col.2 l.4.) The controlling unit for the node receiving the data detects the AI signal and "switches the connection of the reception path R to the normally functioning side . . . opposite to the side . . . from which the AI signal is received." (*Id.* at col.1 ll.60-64.) Consequently, despite a failure in the network, a data recipient can still receive the data from the second optical fiber carrying the redundant data. (*Id.* at col.2 ll.2-4.)

SONET networks use time division multiplexing ("TDM") to place multiple data paths on a single optical fiber. (2/23/10 Tutorial Hr'g Tr. 313:25-316:18.) In the SONET network, the TDM multiplexer organizes customer data into frames; each frame is a matrix having exactly 810 elements arranged in 90 columns and 9 rows. (*Id.* at 315:11-25; 330:17-22.) The first three columns of each SONET frame contain "overhead" which includes "framing bytes" used to manage the network. (*Id.* at 329:18-25; Fujitsu's Tutorial Slides at 15-18 (attached as Ex. C-1 to Case No. 08-3379, Dkt. No. 327 ("Fujitsu's Opp.").) The remaining 87 columns are referred to as the "synchronous payload envelop" and consist of an additional column of overhead ("path overhead") and up to 86 columns of data for the customer. (2/23/10 Tutorial Hr'g Tr. 332:24-333:2.)

As was known in the prior art, human technicians program the nodes in the SONET network to perform cross connections to forward incoming signals to the correct outputs. (*Id.* at

353:24-354:16.) For those paths in the network that are intentionally not being used to transmit customer data, the node transmits an unequipped code signal, i.e., SONET's standardized UNEQ signal, to indicate that the path is unused. ('006 Patent, col.2 ll.5-8.) Based on SONET standards, the UNEQ signal is always contained in the C2 byte of the frame, which is the third byte of the path overhead. (2/23/10 Tutorial Hr'g Tr. 333:2-11.) An UNEQ signal is transmitted when the C2 byte contains the value "00000000." (*Id.*)

Human technicians can incorrectly program the cross connections in the node to designate a certain path as being intentionally unused even though the path actually is carrying customer data. (*Id.* at 354:17-24; '006 Patent, col.2 ll.15-27.) In that situation, the downstream node receives the UNEQ signal and treats the path as an intentionally unused path, forwarding the UNEQ signal but not any customer data carried on the path. ('006 Patent, col.2 ll.15-27.) The receiving node, therefore, does not receive the data. (*Id.*)

According to the '006 Patent, the prior art controlling units would "recognize that the path via which the UNEQ signal is received is a path which [did] not require a cross connection with other nodes" and would "not control the path switching units . . . when the UNEQ signal [was] received." ('006 Patent, col.2 ll.10-14.) As a result, if the UNEQ signal was erroneously transmitted, the customer data was lost because, unlike an AI signal, the UNEQ signal did not trigger a path switch to a second optical fiber carrying redundant data. (*Id.*; 2/23/10 Tutorial Hr'g Tr. 354:17-357:2.)

The invention disclosed in the '006 Patent purports to improve on the prior art by presenting a system to control path switching when an UNEQ signal is received. ('006 Patent, col. 3 ll.14-33.) According to the '006 Patent, an "object of the present invention is to provide a node . . . which . . . can continue to communicate, when a transmission path is interrupted, with

another node located on the opposite side to the interrupted transmission path" and additionally "provide a node . . . which . . . can communicate, if there is an erroneous setting of a cross connection in one of the other nodes provided in the optical system, with another node located on the opposite side to that of the node having the erroneous setting of the cross connection." (*Id.* at col.2 ll.50-61.)

Independent claim 1 of the '006 Patent recites:

> A node provided in a ring type network having a plurality of nodes coupled to each other via ring type transmission path means having signal receiving paths and signal transmitting paths for respectively receiving and transmitting multiplexed signals in mutually opposite directions between said nodes, the node comprising:
>
> cross connecting means, coupled to said ring type transmission path means, for cross connecting the paths of the ring type transmission path means by dropping signals in time slots of the node and passing through signals in time slots of other nodes of the network;
>
> path switching means, coupled to said cross connecting means, for switching only signal receiving paths of said ring type transmission path means to connect the node to one of two signal receiving paths from which said node is to receive a signal; said two signal receiving paths transmitting signals in two mutually opposite directions; and
>
> *controlling means, coupled to said path switching means, for controlling a switching operation of said path switching means to connect the node to one of the two signal receiving paths in response to at least one unequipment code signal received via another of said two signal receiving paths from an arbitrary node coupled to said node and indicating an unused path which is not cross-connected in said arbitrary node*.

(*Id.* at col.6 l.44-col.7 l.2.)

Independent claims 5, 6, and 11 all contain a similar "controlling means" claim element. ('006 Patent, col.7 ll.37-44; col.8 ll.40-48; col.9 ll.26-34.) Claims 5 and 11 additionally recite in pertinent part:

said controlling means also controlling switching of said path switching means to connect the node to one of the two signal receiving paths in response to an alarm indication signal received via said another of said two signal receiving paths from another arbitrary node coupled to said node and indicating a connection failure between said node and said one arbitrary node coupled to said node, *wherein said controlling means comprises*:

a first alarm indication signal detecting means, coupled to said cross connecting means, for detecting a first alarm indication signal received from a first signal receiving path of said two signal receiving paths and outputting a first detection result signal;

a first unequipment code signal detecting means, coupled to said cross connecting means, for detecting a first unequipment code signal received from said first signal receiving path and outputting a second detection result signal;

a second alarm indication signal detecting means, coupled to said cross-connecting means, for detecting a second alarm indication signal received from a second signal receiving path of said two signal receiving paths and outputting a third detection result signal;

a second unequipment code signal detecting means, coupled to said cross-connecting means, for detecting a second unequipment code signal received from said second signal receiving path and outputting a fourth detection result signal; and

a determining means, coupled to said first and second alarm indication signal detecting means and to said first and second unequipment signal detecting means, for comparing the first and third detection result signals received from said first and second alarm indication signal detecting means and the second and fourth detection result signals received from said first and second unequipment code signal detecting means, respectively, and for controlling the switching of said path switching means based on the comparison.

('006 Patent, col.7 l.45-col.8 l.17; col.9 l.26-col.10 l.36 (emphasis added).)

II. Person of Ordinary Skill in the Art

The parties were unable to reach an agreement as to the level of skill required to be a person of ordinary skill in the art with respect to the '006 Patent. Having reviewed the parties' submissions, the court finds that a person of ordinary skill in the art at the time of the invention–in this case, 1993–had (1) at least four years of experience in systems engineering for

synchronous optical networks (including network design) and network equipment, or (2) a bachelor's degree in either systems engineering or electrical engineering and at least two years of experience either (a) in systems engineering for synchronous optical networks (including network design) and network equipment or (b) researching or designing components for synchronous optical network rings and ring type networks using electrical signal transmission paths. Under this definition, the court finds that both Dr. John Eaves (Fujitsu's expert witness) and Dr. Andrew Singer (Tellabs's expert witness) qualify as persons of ordinary skill in the art. (*See* Eaves Decl. ¶¶ 3-10 (attached as Ex. B to Fujitsu's Opp.); Singer Resume (attached at Ex. I to Case No. 09-4530, Dkt. No. 93); Singer Dep. 25:17-27:13 (attached as Ex. G. to Case No. 09-4530, Dkt. No. 272.)

Tellabs has moved for summary judgment of invalidity, arguing that the '006 Patent is invalid for indefiniteness. Specifically, Tellabs identifies three claim elements appearing in all the independent claims of the '006 Patent which it contends are indefinite under § 112, paragraph 2: "controlling means," "cross connecting means," and "path switching means." Tellabs additionally argues that the claim elements "[first/second] alarm indication signal detecting means," "[first/second] UNEQ signal detecting means" and "determining means" appearing in independent claims 5 and 11 are invalid under § 112, paragraph 6. Because the court finds that the "controlling means" element is indefinite, the court limits its analysis to that claim term.

In its preliminary construction, the court construed the claimed function of the "controlling means" element to be "to control the switching operation of the path switching means to connect the node to one of the two signal receiving paths in response to at least one unequipment code signal received via another of said two signal receiving paths from an

arbitrary node coupled to said node and indicating an unused path which is not cross-connected in said arbitrary node." (Case No. 08-3379, Dkt. No. 145 at 35-36.) The court, however, was unable to identify the structure corresponding to that claimed function from the intrinsic evidence, and the parties have presented extrinsic evidence, including expert declarations, to the court to assist in this undertaking. Tellabs's expert, Dr. Andrew Singer, also testified on this issue during the technology tutorial on February 23, 2010. (2/23/10 Tutorial Hr'g Tr. 401-44.)

LEGAL STANDARD

Under Federal Rule of Civil Procedure 56(a), summary judgment is appropriate "if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a).

Title 35 U.S.C. § 112 provides that "[t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." § 112, paragraph 2. When a claim is written in means-plus-function form, "the written description must clearly link or associate structure to the claimed function" to satisfy the definiteness requirement of § 112, paragraph 2. *Telcordia Techs., Inc. v. Cisco Sys., Inc.*, 612 F.3d 1365, 1376 (Fed. Cir. 2010); *see also* 35 U.S.C. § 112 ¶ 6 ("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.").

"A determination of claim indefiniteness is a legal conclusion that is drawn from the court's performance of its duty as a construer of patent claims." *Telcordia*, 612 F.3d at 1376 (quoting *Personalized Media Commc'ns, L.L.C. v. Int'l Trade Comm'n*, 161 F.3d 696, 705 (Fed.

Cir. 1998)). The court must consider "[w]hether the written description adequately sets forth the structure corresponding to the claimed function," viewing the specification "from the perspective of a person skilled in the art." *Id.* Moreover, "[a]ny fact critical to a holding on indefiniteness . . . must be proven by the challenger by clear and convincing evidence." *Intel Corp. v. VIA Techs., Inc.*, 319 F.3d 1357, 1366 (Fed. Cir. 2003). Thus, when moving for invalidity based on § 112, paragraph 6, the moving party must prove "by clear and convincing evidence[] that the specification lacks adequate disclosure of structure to be understood by one skilled in the art as able to perform the recited functions." *Id.*

Assessing whether a means-plus-function claim element is indefinite involves a two-step analysis: "1) the court must first identify the function of the limitation; and 2) the court must then look to the specification and identify the corresponding structure for that function." *Biomedino, L.L.C. v. Waters Techs. Corp.*, 490 F.3d 946, 950 (Fed. Cir. 2007). If the specification does not disclose the corresponding structure, "the claim will be found invalid as indefinite." *Id.*

ANALYSIS

The parties do not dispute that "controlling means" is a means-plus-function claim term subject to § 112, paragraph 6. Tellabs argues that the "controlling means" element is indefinite under § 112, paragraph 2 because the '006 Patent fails to disclose adequate structure corresponding to that claim term but instead describes "controlling means" using "only black boxes, functional language, and abstractions." (Tellabs's Mot. 8-15.) Fujitsu, on the other hand, argues that the '006 Patent discloses processors running algorithms, detectors, and/or comparators as the structures corresponding to the "controlling means" elements in claims 1, 5, 6, and 11. (Fujitsu's Opp. viii.)

I. "Controlling Means" Function

As the first step in the means-plus-function indefiniteness inquiry, the court must identify the claimed function corresponding to the "controlling means" limitation. *Biomedino*, 490 F.3d 946 at 950. As discussed above, this court previously construed the function associated with "controlling means" in independent claims 1, 5, 6, and 11 to be "to control the switching operation of the path switching means to connect the node to one of the two signal receiving paths in response to at least one unequipment code signal received via another of said two signal receiving paths from an arbitrary node coupled to said node and indicating an unused path which is not cross-connected in said arbitrary node." (Case No. 08-3379, Dkt. No. 145 at 35-36.) Tellabs agrees that this function is correct. Fujitsu, however, argues that the claimed function instead should be "for controlling a switching operation of said path switching means to connect the node to one of the two signal receiving paths in response to at least one unequipment code signal received via another of said two signal receiving paths" (*see* Fujitsu's Opp. viii), but has not explained why the court should alter its previous construction of the "controlling means" function.

Nevertheless, based on the parties' presentations to the court, both Tellabs and Fujitsu appear to agree that the "controlling means" recited in all independent claims 1, 5, 6, and 11 at least performs the function of "controlling a switching operation of said path switching means . . . in response to at least one unequipment code signal." (*See* Case No. 09-4530, Dkt. No. 269 ("Fujitsu's '006 Patent Rebuttal Presentation") at Slide 25; Dkt. 260 ("Tellabs's '006 Patent Presentation") at Slide 68.)

Whether that recited function necessarily requires that the "controlling means" performs a determining function based on a comparison of more than one UNEQ signal detection result

remains in dispute. According to Tellabs, the specification's only embodiment of the claimed invention discloses a controlling unit that includes a determining section and two UNEQ signal detecting sections. As a result, the "controlling means" must perform a determining function based on a comparison of the results of two UNEQ signal detecting sections. (*See* Case No. 08-3370, Dkt. No. 333 ("Tellabs's Reply") at 19.) Fujitsu, however, contends that because claims 1 and 6—unlike claims 5 and 11—do not recite a "determining means" or a "second UNEQ signal detecting means" within the claimed "controlling means," the "controlling means" that appears in all the independent claims does not perform the functions related to those additional means-plus-function terms. (Fujitsu's Opp. 21-23.) Specifically, clams 5 and 11 expressly state that the "said controlling means comprises" a first and second unequipment code signal detecting means, a first and second AI signal detecting means, and a "determining means" for "comparing" the signal detection results and "controlling the switching of said path switching means based on the comparison." ('006 Patent, col.7 l.45-col.8 l.17; col.9 l.35-col.10 l.36.) Claims 1 and 6, in contrast, simply recite that the "controlling means" controls the path switching means "in response to *at least one* unequipment code signal." (*Id.* at col.6 l.62-col.7 l.2; col.8 ll.40-48 (emphasis added).) Under Fujitsu's interpretation of the claims, the "controlling means" element does not perform a determining function based on a comparison of the UNEQ signal detection results. Instead, the "controlling means" can control the switching of the path switch based on the result of a single UNEQ signal detecting section without requiring a determination based on a comparison of two UNEQ signal detection results. (Fujitsu's Opp. 21-23.)

Thus, under Tellabs's interpretation of the "controlling means" function, the controlling unit includes a determining section and two UNEQ signal detecting sections. Under Fujitsu's interpretation, in contrast, the controlling unit can perform the "controlling means" function

without a determining section or a second UNEQ signal detecting section. For purposes of Tellabs's motion, the court finds that it need not resolve this dispute over the precise function of the "controlling means" element. *See Aristocrat Techs. Austl. Pty, Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1332 (Fed. Cir. 2007) (finding district court did not err in not explicitly construing the precise function of means-plus-function claim term where the function considered by the district court was "not materially different" from the patentee's proposed function and the specification did not disclose any algorithms for performing parties' proposed functions). Regardless of whether the "controlling means" performs a determining function based on a comparison of two UNEQ signal detection results, as proposed by Tellabs, or can control the path switching means based on a single UNEQ signal detection result without performing a determining function, as Fujitsu contends, the court, after a careful analysis discussed in the next section, finds that the '006 Patent does not disclose any structure that corresponds to either of these proposed functions.

II. Search for Disclosure of Corresponding Structure

Unless the specification of a patent discloses the corresponding structure for a means-plus-function claim limitation, "the claim will be found invalid as indefinite." *Biomedino, L.L.C. v. Waters Techs. Corp.*, 490 F.3d 946, 950 (Fed. Cir. 2007). A patent's specification must be "clear as to the structure that the patentee intends to correspond to the claimed function." *Id.* at 948 (quoting *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1211 (Fed. Cir. 2003)). If the specification fails to disclose the corresponding structure, "the patentee has not paid the price but is rather attempting to claim in functional terms unbounded by any reference to structure in the specification." *Id.* (quoting *Med. Instrumentation*, 344 F.3d at 1211). In other words, when a claim is written in means-plus-function form, "the written

description must clearly link or associate structure to the claimed function" to satisfy the definiteness requirement. *Telcordia Techs., Inc. v. Cisco Sys., Inc.*, 612 F.3d 1365, 1376 (Fed. Cir. 2010).

"The question is not whether one of skill in the art would be capable of implementing a structure to perform the function, but whether that person would understand the written description itself to disclose such a structure." *Id.* (quoting *Intel Corp. v. VIA Techs., Inc.*, 319 F.3d 1357, 1365-66 (Fed. Cir. 2003)). "While corresponding structure need not include all things necessary to enable the claimed invention to work, it must include all structure that actually performs the recited function." *Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005). The specification must "disclose adequate defining structure to render the bounds of the claim understandable to an ordinary artisan." *Telcordia*, 612 F.3d at 1377.

Before discussing whether the specification of the '006 Patent discloses adequate structure for performing the "controlling means" function, the court will first evaluate Fujitsu's argument that the competing extrinsic evidence regarding the structural disclosures in the specification creates a genuine dispute of material fact such that the court cannot determine that the '006 Patent is indefinite as a matter of law. As support for this position, Fujitsu relies on *Card Activation Technologies, Inc. v. Barnes & Noble, Inc.*, No. 07 C 1230, 2008 WL 7581720 (N.D. Ill. Mar. 18, 2008) (Gottschall, J.), which held that an expert affidavit demonstrated a genuine issue of material fact precluding entry of that summary judgment of invalidity for indefiniteness. During the *Markman* hearing, Fujitsu additionally cited *BJ Services Co. v. Halliburton Energy Services, Inc.*, 338 F.3d 1368 (Fed. Cir. 2003), and argued that the extrinsic evidence presents factual questions that should be resolved by a jury. (Case No. 09-4530, Dkt.

No. 291 ("Fujitsu's Cited Cases Brief") at 5 ("[C]ontrary to Tellabs' argument at the hearing, this Court need not resolve all of the issues of fact raised by Tellabs and Fujitsu with respect to Tellabs' Motions. These questions can and should be resolved by the jury.").)[2] In *BJ Services*, the Federal Circuit noted that "[l]ike enablement, definiteness, too, is amenable to resolution by the jury where the issues are factual in nature," but did not discuss whether such factual issues preclude summary judgment on the definiteness issue. 338 F.3d at 1372.

This court respectfully disagrees with *Card Activation* and is similarly not persuaded that *BJ Services* requires a denial of summary judgment in this case. Instead, the court agrees with Tellabs that *Exxon Research & Engineering Co. v. United States*, 265 F.3d 1371 (Fed. Cir. 2001), a decision neither *Card Activation* nor *BJ Services* addressed, supports this court's authority to resolve the presented indefiniteness issues on summary judgment.

In *Exxon Research*, plaintiff Exxon sought a reversal of summary judgment of invalidity for indefiniteness, arguing that "there [was] a genuine issue of material fact as to whether the claims of the two patents at issue, read in light of their specifications, reasonably apprise those skilled in the art of the scope of the invention." *Id.* at 1376. Specifically, Exxon requested that the Federal Circuit reverse the grant of summary judgment "so that the Court of Federal Claims, sitting as a fact-finder at trial, [could] decide the purported factual issues and reconsider its prior invalidity determination." *Id.*

The Federal Circuit "reject[ed] Exxon's argument that the issue of indefiniteness turns on an underlying factual dispute that should not have been resolved as a matter of law on summary judgment." *Id.* In explaining its holding, the court reiterated that a "determination of claim

[2] The court allowed the parties to submit supplemental briefs to address the additional case law cited by the parties at the *Markman* hearing. (*See* Case No. 09-4530, Dkt. Nos. 290, 291.)

indefiniteness is a legal conclusion that is drawn from the court's performance of its duty as the construer of patent claims," *id.* (quoting *Personalized Media Commc'ns, L.L.C. v. Int'l Trade Comm'n*, 161 F.3d 696, 705 (Fed. Cir. 1998)), and further recognized that

> although a court may consider or reject certain extrinsic evidence in resolving disputes en route to pronouncing the meaning of claim language, "the court is not crediting certain evidence over other evidence or making factual evidentiary findings. Rather the court is looking to the extrinsic evidence to assist in its construction of the written document . . . ."

id. (quoting *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc)). To date, *Exxon Research* has not been overruled by the Federal Circuit en banc. *See Wordtech Sys. v. Integrated Networks Solutions, Inc.*, 609 F.3d 1308, 1313 (Fed. Cir. 2010) ("[P]anels of this court are bound by previous precedential decisions until overturned by the Supreme Court or by this court *en banc*." (citing *Barclay v. United States*, 443 F.3d 1368, 1373 (Fed. Cir. 2006))).

Furthermore, the holding in *Exxon Research* is consistent with more recent Federal Circuit authority emphasizing that definiteness, like claim construction, is a legal question for the court. In *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306 (Fed. Cir. 2008), for example, the Federal Circuit explained that

> [i]ndefiniteness is a matter of claim construction, and the same principles that generally govern claim construction are applicable to determining whether allegedly indefinite claim language is subject to construction. Indefiniteness, like claim construction, is a question of law, and we review a district court's entry of summary judgment on the issue of indefiniteness de novo.

Id. at 1319 (internal citations omitted).

Similarly, in *Microprocessor Enhancement Corp. v. Texas Instruments Inc.*, 520 F.3d 1367 (Fed. Cir. 2008), the Federal Circuit cited *Exxon* in recognizing that "[w]hether a claim reasonably apprises those skilled in the art of its scope is a question of law that we review de novo." *Id.* at 1374; *see also Telcordia*, 612 F.3d at 1376 ("A determining of claim indefiniteness

is a legal conclusion that is drawn from the court's performance of its duty as a construer of patent claims." (citing *Personalized Media*, 161 F.3d at 705)); 3 Donald S. Chisum, *Chisum on Patents*, § 8.03[7] (2011) ("Federal Circuit decisions after *Exxon Research* recited that definiteness as a ground for invalidating a patent claim is a legal conclusion. This makes a definiteness challenge amenable to resolution on summary judgment."). *But see Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1338 (Fed. Cir. 2008) ("[T]hough we review the ultimate question of indefiniteness without deference to the trial court, any factual findings made by the court in a bench trial in support of that conclusion are reviewed for clear error.") (internal citations omitted). In this case, the court agrees with Tellabs that whether the '006 Patent discloses structures corresponding to the "controlling means" limitation is a question of law. The court accordingly finds that factual questions purportedly raised by the extrinsic evidence presented to the court do not preclude summary judgment of indefiniteness.

A. Processor Running Disclosed Algorithms as Corresponding Structure

Fujitsu first contends that the '006 Patent discloses a processor running certain algorithms as the structure for performing the claimed "controlling means" function in claims 1, 5, 6, and 11. Fujitsu also argues that the structure for the determining section, which, as discussed above, is part of the controlling unit under Tellabs's interpretation of the "controlling means" function, is a processor. (*See* Fujitsu's Opp. 28 n.114.)

The term "processor," however, does not appear anywhere in the '006 Patent. Instead, Fujitsu relies on the following reference in the specification to the determining section's "processing load" to argue that the '006 Patent clearly links a processor to the claimed "controlling means" function:

> [S]ince an UNEQ signal is sent for all paths which are not in use, the determining section 22 must switch the path switches corresponding to all UNEQ signals, resulting in an increase of the *processing load* on the determining section 22. In order to reduce the *processing load* of the determining section 22, the third or fourth detection signals\ corresponding to the path indicated by the UNP signal is ignored. That is, a UNP signal is supplied to the determining section 22, and thereby the control for the switching of the path switch 23 with respect to the path indicated by the UNP signal is not performed. Therefore, an unnecessary controlling operation is eliminated, and thus the *processing load* of the determining section 22 can be reduced.

('006 Patent, col.6 ll.9-22 (emphasis added).) Based on this excerpt from the specification, Fujitsu's expert, Dr. Eaves, opines that "[a]n engineer of ordinary skill in the art would understand the 'processing load' language . . . to disclose a processor, not only because it was a well known and commonly used structure, but also because it was well known and logical that a processor performs 'processing.'" (Eaves Decl. ¶ 142.) According to Dr. Eaves, because the determining section, which is part of the controlling unit (*see* '006 Patent, col.4 ll.28-32), is a processor, a person of ordinary skill in the art would understand that the controlling unit also is a processor (Eaves Decl. ¶ 142). Thus, Fujitsu argues that "by simply deleting the processor's algorithms directed to the determining section, the same processor can perform the function of a controlling unit that lacks a determining section" (Fujitsu's Opp. 28), i.e., the controlling unit for performing the "controlling means" function proposed by Fujitsu.

Fujitsu additionally relies on the following deposition testimony of Tetsuya Uchida ("Uchida"), the named inventor of the '006 Patent, to support its position that the '006 Patent discloses a processor running algorithms as the structure for the determining section and, consequently, the controlling unit:

> Q: Is it your belief that the '006 patent provides disclosure regarding implementing alarm indication signals detectors or AIS detectors as well as unequipment code detectors in hardware, firmware, or software?

A: Yes, it is my belief that it does. By 18, 19, 20, 21, and 22 shown in this Figure 4, with respect to these AIS detecting section, uneq–unequin–unequipment detecting section, *determining section*, with respect to these, '006 patent discloses constructs--constructing these by means of detector or comparator or *processor*.

(Uchida Dep. 81:2-21 (emphasis added) (attached as Ex. C-7 to Fujitsu's Opp.).)

Tellabs's expert, Dr. Singer, on the other hand, states that the phrase "processing load," to a person of ordinary skill in the art at the time of the invention, "could apply equally to the operation of an application specific integrated circuit, a general-purpose microprocessor, or any arrangement of electrical electro-mechanical, or electro-optical components, such as switches." (Singer Decl. ¶ 81 (attached as Ex. B to Tellabs's Mot.).) "Processing load," Tellabs contends, does not necessarily imply the structure of a processor.

Tellabs also cites Uchida's testimony to argue that the specification's references to the determining section's "processing load" do not disclose the structure of a processor running algorithms. Specifically, Uchida testified at his deposition that the '006 Patent did not describe the particular means for implementing the determining section:

Q: Does the '006 patent provide any disclosure that the determining section, element 22, is implemented in hardware, firmware, or software?

A: [. . .] [A]s to this element, what is referred to as determinating (sic) section in English, how or by what means it is implemented. Whether it's hardware, software, or firmware, *no means is described – there's no limitation as to what means should be used to realize this.*

Likewise, but as before, similarly as before, as for the implementation means, *an engineer skilled in the art, seeing this block diagram, would know by using one of three things – hardware, processor, or comparator–he can realize this.* And, of course, it is possible to use software or firmware in its implementation as well, I think.

(Uchida Dep. 48:4-21 (emphasis added) (attached as Ex. A-2 to Tellabs's Mot.).)

In determining whether the '006 Patent's references to the determining section's "processing load" disclose a structure of a processor to a person of ordinary skill, the Federal Circuit's decision in *Biomedino L.L.C. v. Waters Techs. Corp.*, 490 F.3d 946, 950 (Fed. Cir. 2007), is instructive. In *Biomedino*, the disputed means-plus-function claim terms were "control means for automatically operating said valving" and "control means for automatically operating valves." *Id.* at 949. The parties agreed that the claimed functions were "'automatically operating said valving'/'automatically operating valves.'" *Id.* at 950. The only reference in the specification to the "control means" was a box labeled "Control" in one of the figures and "a statement that the regeneration process may be 'controlled automatically by known differential pressure, valving and control equipment.'" *Id.* at 950. The evidence relied on by the patentee, which included prior art references and expert testimony, "suggest[ed] that there were many known ways to operate valves, including pneumatically, hydraulically, mechanically, and electrically." *Id.* at 951.

On appeal in *Biomedino*, the Federal Circuit addressed the following question: "[F]or purposes of § 112, P 6, is sufficient corresponding structure disclosed when the specification simply recites that a claimed function can be performed by known methods *or using known equipment* where prior art of record and the testimony of experts suggest that known methods *and equipment* exist." *Id.* at 951 (emphasis added). Ultimately, the Federal Circuit answered that question in the negative, finding that the means-plus-function claim term was indefinite because "there [was] nothing [in the specification] to suggest a structure for the claimed control means" and "a bare statement that known techniques or methods can be used does not disclose structure." *Id.* at 952-53.

In performing its analysis, the Federal Circuit in *Biomedino* also distinguished its

previous decision in *Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1378 (Fed. Cir. 1999), which found that the specification did disclose adequate structure corresponding to the means-plus-function claim term at issue. Discussing *Atmel*, the Federal Circuit in *Biomedino* explained that

> [t]he portion of the written description [in the patent in *Atmel*] that pertained to the structural component of the means plus function claim limitation was the following: "the present invention may include high-voltage generator circuit 34. Known Circuit [sic] techniques are used to implement high-voltage circuit 34. See On-Chip High Voltage Generation in NMOS Integrated Circuits Using an Improved Voltage Multiplier Technique, IEEE Journal of Solid State Circuits, Vol. SC-11, No.3, June 1976."

Biomedino, 490 F.3d at 952 (citing *Atmel*, 198 F.3d at 1382). Although, as the Federal Circuit noted, "the cited article could not take the place of structure that does not appear in the specification," *id.*, based on the unrebutted testimony of Atmel's expert that the title of the article alone set forth sufficient structure "to indicate to one skilled in the art the precise structure of the means recited in the specification" the court in *Atmel* concluded that § 112, paragraph 6's requirements were satisfied. *Id.* at 952.

In *Biomedino*, the Federal Circuit then distinguished the facts in *Atmel*:

> There is a significant difference between the facts of *Atmel* and those in the present case. In *Atmel it was not the fact that one skilled in the art was aware of known circuit techniques that resulted in a conclusion that sufficient structure was recited.* Rather, it was the inclusion in the written description of the title of the article which itself described the structure for a "known circuit technique." Expert testimony was used to show what the title of the article would convey to one skilled in the art–in that case it was "the precise structure of the means recited in the specification." *Atmel*, 198 F.3d at 1382. *The expert's testimony did not create or infer the structure.*

Id. (emphasis added). The Federal Circuit's opinion in *Biomedino* further reiterated that although "the patentee need not disclose the details of structures well known in the art, the specification must nonetheless disclose some structure." *Id.* (quoting *Default Proof*, 412 F.3d at

1302); *see also Maurice Mitchell Innovations, L.P. v. Intel Corp.*, Case No. 2007-1108, 249 Fed. Appx. 184, at *188 (Fed. Cir. Sept. 24, 2007) (Rader, J.) ("[T]he statute requires more than just the possibility that an artisan of ordinary skill *may be able to figure out the corresponding structure*. The quid pro quo for using a means-plus-function limitation requires specificity in reciting structure and linking that structure to the limitation.") (emphasis added).

Here, the specification does not recite a "processor," and a "processing load" itself is not a structure for performing the "controlling means" function. Nor does Fujitsu argue that a "determining section," which the '006 Patent describes as having a processing load, had a known structure to a person of ordinary skill in the art. To the contrary, Fujitsu identifies several structures for performing the "determining means" function of the determining section: a processor running algorithms, a detector, a comparator, and exclusive-or logic. (Fujitsu's Opp. 38.)

The '006 Patent's specification similarly does not describe a particular structure for the determining section but rather refers to the determining section only in terms of its function, not its structure. For example, the specification explains that

> [t]he *determining section 22 determines* whether or not only one AI signal is input from another node to the node 4 in accordance with a first detection signal input from the AI signal detecting section 18 and a second detection signal input from the AI signal detecting section 19. The *determining section 22 also determines* whether or not only one UNEQ signal is input from another node to the node 4 in accordance with a third detection signal input from the UNEQ signal detecting section 20 and a fourth detection signal input from the UNEQ signal detecting section 21. The *determining section 22 switches* the path switch 23 in accordance with the result of the determination.

('006 Patent, col.4 ll.40-51.)

Based on the court's review of the '006 Patent's specification, it finds that Fujitsu is relying on extrinsic evidence, in the form of expert declarations and inventor testimony, to infer

a structure which is not actually disclosed in the specification. For example, despite opining that the '006 Patent *discloses* a processor to a person of ordinary skill, Dr. Eaves does not actually identify that structure in the specification. Instead, he essentially is deducing from the specification's reference to a "processing load" that the '006 Patent contemplates using a processor running certain algorithms for performing the "controlling means" function. That a person of ordinary skill in the art "may be able to figure out the corresponding structure" does not suffice under § 112, paragraph 2. *Maurice Mitchell Innovations*, 249 Fed. Appx. 184, at *188.

Uchida's cited deposition testimony is similarly unpersuasive. Although Uchida states that "it was [his] belief" that the '006 Patent discloses using a processor to construct the determining means (Uchida Dep. 81:2-21), he additionally recognized that "no means is described – there's no limitation as to what means should be used to realize [the determining section]" (Uchida Dep. 48:4-21). "That ordinarily skilled artisans could carry out the recited function in a variety of ways is precisely why claims written in 'means-plus-function' form must disclose the particular structure that is used to perform the recited function." *Blackboard*, 574 F.3d at 1385; *see also Tex. Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1214-15 (Fed. Cir. 2002) (finding district court erred in relying on expert testimony to conclude that corresponding structure included "'any firmware, software and/or hardware' that performs the identified function" when those structures were not disclosed in the specification), *abrogated on other grounds, Phillips v. AWH Corp*, 415 F.3d 1303, 1319-24 (Fed. Cir. 2005).

Although this court can consider expert testimony in determining whether a person of ordinary skill in the art would understand that a corresponding structure is disclosed in the specification, the court cannot "look to the knowledge of one skilled in the art apart from and

unconnected to the disclosure of the patent." *Default Proof*, 412 F.3d at 1300 n.2 (citing *Med. Instrumentation*, 344 F.3d at 1211-12). Nor can expert testimony "supplant the total absence of structure from the specification." *Id.* at 1302. Here, because the specification does not disclose a processor, the court cannot rely on the purported knowledge of the ordinarily skilled artisan to infer that the "controlling means" function is performed by a processor running certain algorithms. *See id.*; *Biomedino*, 490 F.3d at 952.

Based on this absence of structure in the specification, the court finds that Fujitsu's cited authority is distinguishable. In *Telcordia Technologies, Inc. v. Cisco Systems, Inc.*, 612 F.3d 1365 (Fed. Cir. 2010), for example, the patent expressly disclosed a "controller," *see id.* at 1376, which the court found was structure clearly linked to the "monitoring means" claim term, *id.* at 1377. Although the patent at issue showed the controller's circuit as a "black box," the court relied on the testimony of the patentee's expert and found that "[t]he record show[ed] that an ordinary artisan would have recognized the controller as an electronic device with a known structure." *Id.* at 1377.

In *Technology Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316 (Fed. Cir. 2008), the patent at issue disclosed a "video standard detector," and the patentee's expert presented unrebutted testimony that the technology for the detector was known to a person of ordinary skill in the art. *Id.* at 1338-39. Expert testimony played a similar role in *S3 Inc. v. nVidia Corp.*, 259 F.3d 1364 (Fed. Cir. 2001). In that case the patent disclosed a "selector," and the "uncontradicted evidence," which included inventor and expert testimony, demonstrated that "a selector [was] of well known electronic structure" which "perform[ed] a common electronic function, and [was] readily implemented from the description in the specification." *Id.* at 1370-71.

Finally, in *Intel Corp. v. VIA Technologies, Inc.*, 319 F.3d 1357 (Fed. Cir. 2003), the patent at issue taught "the technology of Fast Write," *id.* at 1360, which was a protocol for certain computer system communications, *id.* at 1359. The court found that the corresponding structure was "the core logic of a computer modified to perform Fast Write." *Id.* at 1366. Notably, the patent at issue in *Intel* repeatedly referred to this "core logic," s*ee* U.S. Patent No. 6,006,291, and "the specification . . . include[d] three diagrams, 35 signal charts and a detailed written description explaining the invention." *Id.* The Federal Circuit rejected the defendant's argument that "a generic core logic is an inadequate disclosure of structure because no circuitry is disclosed in the patent to show how the core logic is modified" and instead explained that "how to modify the core logic to perform Fast Write on the circuitry level may also be properly left to the knowledge of those skilled in the art, and need not be specified in the patent." *Id.* at 1366-67.

Telcordia, *Technology Licensing*, *S3*, and *Intel* are distinguishable from the present case because the patents at issue in those cases all disclosed the structure for performing the claimed function. Specifically, the patents in those four cases respectively disclosed a controller; a video standard detector; a selector; and the core logic of a computer. The knowledge of a person of ordinary skill did not infer or create a structure from any of the respective patents' specifications. Rather, the knowledge of one of ordinary skill was pertinent only to the determination of whether the respective specifications sufficiently described the disclosed structures. Here, in contrast, the structure of a processor is not disclosed. Instead, Fujitsu is attempting to rely on

extrinsic evidence to effectively supplant the absence of that structure in the specification. *See Default Proof*, 412 F.3d at 1302.[3]

Nor does *In re Dossel*, 115 F.3d 942 (Fed. Cir. 1997), also cited by Fujitsu, support a different result. In *Dossel*, the Federal Circuit determined that the specification disclosed a general or special purpose computer corresponding to the claimed reconstructing data function even though "[n]either the written description nor the claims use[d] the magic word 'computer.'" *Id.* at 946. Significantly, the Federal Circuit found that a general or special purpose computer was the only structure that could have performed the described functions: "Clearly, a unit which receives digital data, performs complex mathematical computations and outputs the results to a display *must be implemented* by or on a general or special purpose computer . . . ." *Id.* at 946-47 (emphasis added).

Here, in contrast, the '006 Patent does not clearly require that the controlling means function be performed by a processor. As discussed above, Fujitsu relies on the determining section's "processing load" to argue that the structure corresponding to the "controlling means" is a processor running algorithms. Fujitsu, however, does not contend that the only structure for the determining section could be a processor running algorithms. Instead, Fujitsu admits that "the '006 patent discloses a processor running algorithms, detector, comparator, and/or exclusive-or logic as structures for the 'determining means'" performed by the determining section. (Fujitsu's Opp. 38.) Tellabs similarly has presented expert testimony that a person of ordinary skill "would know that any structure tasked with processing or manipulating a signal or

[3] As discussed below, *Telcordia*, *Technology Licensing*, *S3, Inc.*, and *Intel*, are also distinguishable with regard to both the detector and comparator structures proposed by Fujitsu because "detectors" and "comparators," like "processors," do not appear anywhere in the specification.

date can be said to have a processing load" and that the term "processing load" "could apply equally to the operation of an application specific integrated circuit, a general-purpose microprocessor, or any arrangement of electrical, electro-mechanical, or electro-optical components, such as switches." (Singer Decl. ¶ 81.) Consequently, unlike *Dossel*, the evidence in this case does not suggest that the functions performed by the determining section–and thus the controlling unit–must be implemented by a processor running certain algorithms.

For the above reasons, the court agrees with Tellabs that the '006 Patent does not disclose a processor running certain algorithms as a structure corresponding to the "controlling means" claim limitation.

B. Algorithms as Corresponding Structure

Although Fujitsu's claim charts (*see* Fujitsu's Opp. viii) identify a "processor *running the disclosed algorithm*," as opposed to simply an algorithm by itself, as a possible corresponding structure for the proposed "controlling means" functions (*id.*), Fujitsu additionally appears to argue that the disclosure of an algorithm alone, without the disclosure of a processor, is sufficient structure to satisfy §112, paragraph 6 (s*ee id.* at 29-30). An algorithm, Fujitsu contends, is simply a "methodology" such as "if, A then B," or "if A and B, then C." (*Id.*) According to Fujitsu, by identifying such methodologies for performing the "controlling means" function, the specification discloses algorithms as a corresponding structure. The court disagrees.

According to Fujitsu, *Allvoice Computing PLC v. Nuance Communications, Inc.*, 504 F.3d 1236 (Fed. Cir. 2007), supports its position that "[a]lgorithms are structures." (Fujitsu's Opp. 30.) The patent in *Allvoice*, however, expressly pertained to software which the Federal Circuit has recognized is a structure for purposes of § 112, paragraph 6. *See Med.*

Instrumentation & Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1216 (Fed. Cir. 2003) ("This portion of the specification clearly links software to the claimed functions of acquiring and manipulating the images and may therefore appropriately be considered a corresponding structure for those functions."). In *Allvoice*, the court explained that "[*i*]*n software cases*, . . . algorithms in the specification need only disclose adequate defining structure to render the bounds of the claim understandable to one of ordinary skill in the art." 504 F.3d at 1245 (emphasis added). *Allvoice*, therefore, does not support the broad proposition that merely disclosing an algorithm without additionally disclosing the underlying structure tied to the algorithm, e.g., a processor or software, discloses sufficient structure. In this case, because no processor is disclosed in the specification, the court finds that the purported disclosure of algorithms describing the methodologies for the "controlling means" function is inadequate under § 112, paragraph 6.

C. UNEQ Signal Detectors as Corresponding Structure

Fujitsu also argues that the '006 Patent discloses a "detector" as a structure for performing "controlling means" function of detecting the UNEQ signal.[4] Tellabs, however, contends that a detector is not disclosed in the specification and that the term UNEQ signal

[4] As discussed above, the parties agree that the "controlling means" function in claims 1, 5, 6, and 11 at least includes "controlling a switching operation of said path switching means . . . in response to at least one unequipment code signal" (*see* Fujitsu's '006 Patent Rebuttal Presentation at Slide 25; Tellabs's '006 Patent Presentation at Slide 68), but they dispute whether that function requires only one or two UNEQ signal detecting sections. Specifically, Tellabs argues that the "controlling means" requires two UNEQ signal detecting sections while Fujitsu contends that only one UNEQ signal detecting section is necessary. Because the court finds that the specification does not disclose any structure for the UNEQ signal detecting sections, the number of UNEQ signal detecting sections performing the "controlling means" function ultimately is immaterial for resolution of Tellabs's Motion.

detecting section does not identify a particular structure to a person of ordinary skill in the art. Again, the court agrees with Tellabs.

The term "detector," like "processor," does not appear in the '006 Patent. Instead, the specification identifies "signal detecting sections": "The controlling unit 16 comprises a first AI signal detecting section and second AI signal detecting section 19, a first UNEQ signal detecting section 20 and a second UNEQ signal detecting section 21, and a determining section 22." ('006 Patent, col.4 ll.28-32.) The '006 Patent further explains that

> [a] variety of known structures may be adopted for the first AI signal detecting section 18 and the second AI signal detecting section 19 since the format for AI signals has already been standardized. Additionally, structures of the first UNEQ signal detecting section 20 and the second UNEQ signal detecting section 21 can be easily realized since the format for UNEQ signals has already been standardized.

(*Id.* at col. 4 ll.32-39.)

Relying on these excerpts from the specification, Fujitsu argues that the specification discloses detectors as a structure corresponding with the "controlling means" function. Fujitsu's expert, Dr. Eaves, attests that detectors for the standardized UNEQ signals "were very well known in the art at the time of the invention" and that the references to the "UNEQ signal detection section" in the specification would disclose to one of ordinary skill in the art an UNEQ signal detector which was a "well known structure." (Eaves Decl. ¶ 150.)

Dr. Singer, however, states that the term "section," "is structurally indefinite to a person of ordinary skill in the art" (Singer Decl.¶ 114), and that the specification's reference to industry standards for the UNEQ signal "would not identify a particular structure to a person of ordinary skill in the art because, while industry standards specify the format for unequipment code signals, they do not specify a particular structure or method for detecting such a signal." (*Id.* ¶

115.) Instead, Dr. Singer opines that "[a] person of ordinary skill in the art would know that the function of detecting an unequipment code signal could be implemented either in hardware or in software using a variety of alternative structures and methods." (*Id.*)

Again, the court agrees with Tellabs and Dr. Singer that detectors are not a corresponding structure under § 112, paragraph 6. The specification, for example, only describes the signal detecting sections with respect to their functions:

> The *UNEQ signal detecting section 20 detects* an UNEQ signal from the east side, and sends a third detection signal to the determining section 22. The UNEQ signal detecting section 21 *detects* and UNEQ signal from the west side, and *sends* a fourth detection signal to the determining section 22. If the determining section 22 receives the third detection signal from the UNEQ signal detecting section 20 corresponding to the east side, and does not receive the fourth detection signal from the UNEQ signal detecting unit 21 corresponding to the west side, the determining section 22 switches the path switch so that the reception path is connected to the west side.

('006 Patent, col.5 ll.53-64 (emphasis added).)

Furthermore, the specification's recognition that the "structures" for the UNEQ detecting sections "can be easily realized since the format for UNEQ signals has already been standardized" implies that the recited "signal detecting sections" do not connote a single structure to a person of ordinary skill in the art but rather a number of possible structures for performing the function associated with the signal detecting sections. Although Dr. Eaves states in his declaration that "UNEQ signal detection section" identifies a specific structure–an UNEQ signal detector (*see* Eaves Decl. ¶ 150)–the plain language of the specification suggests otherwise.

Moreover, the additional extrinsic evidence presented to the court indicates that a signal detection section refers to various structure. For example, Dr. Singer explains that an ordinarily skilled artisan would know that the function of detecting an UNEQ signal could be performed

through a variety of known structures. (*See* Singer Decl. ¶ 115.) Uchida provided similar testimony during his deposition:

> As to how this unequipment signal detection section is implemented . . . there is no specific reference in this '006 patent by what means, whether it's hardware, software, or firmware, it is to be implemented. . . . . *If an engineer skilled in the art looks at this block diagram and this unequipment signal detection section, he would know he could implement this, for example, either by means of hardware, such as a processor, comparator, or simply using hardware as a detecting means or detector,* or in the current technology I think it's possible to implement it with a software as well.

(Uchida Dep. 46:20-47:22 (emphasis added).)

Fujitsu's argument that one of ordinary skill in the art would understand that the specification discloses a detector based on the specification's instruction that the "format for UNEQ signals has already been standardized" ('006 Patent, col.4 ll.34-38), is also unavailing. As discussed above, in *Biomedino* the Federal Circuit held that adequate structure is not disclosed when the "specification simply recites that a claimed function can be performed . . . using known equipment where . . . the testimony of experts suggest[s] that known . . . equipment exist[s]." *Biomedino*, 490 F.3d at 951. In *Blackboard*, the court likewise explained that "[a] patentee cannot avoid providing specificity as to structure simply because someone of ordinary skill in the art would be able to devise a means to perform the claimed function." *Blackboard*, 574 F.3d at 1385. Here, the specification's recognition that "structures" for the UNEQ signal detection sections "can easily be realized since the format for the UNEQ signals has already been standardized" does not disclose the structure for those detection sections. As in *Biomedino* and *Blackboard*, Fujitsu cannot rely on the knowledge of one of ordinary skill in the art to act as a substitute for the actual disclosure of corresponding structure in the specification.

Nor is the court persuaded that the '006 Patent's prosecution history supports Fujitsu's position. Fujitsu argues that the examiner's reference to "detectors" in the September 8, 1994 Office Action demonstrates that a person of ordinary skill in the art would understand that the '006 Patent discloses detectors for performing the "controlling means" function. Specifically, the examiner noted that

> [i]n claim 2[5] it is unclear if the alarm indication signal of lines 3-4 is the same as the alarm signal of line 6. If they are the same, the use of [sic] variety of terms for the same thing should be avoided. If they are different, it is unknown where the alarm signal comes from. Furthermore, according to lines 2-12, the first and second alarm signals are detected *by the first and second detectors*, and the determining unit receives both detection signals from the *detectors*. If so, it is not known how only one detecting signal is received as recited in lines 12-14. Similar error appears in claims 5, 9, and 12.

(Fujitsu's Opp., Ex. D-1 at FJIL0000033 (emphasis added).) The examiner did not make this statement in the context of determining whether the specification identified structure for the AI signal detecting section but instead was addressing an unrelated issue: his confusion over the number of the alarm indication signals recited in the claim. The court disagrees with Fujitsu that this casual reference to "detectors" is evidence that a person of ordinary skill in the art would

[5] Claim 2 as originally filed recited:

> The node as claimed in claim 1, wherein said controlling means comprises: a first alarm detection signal detecting unit which detects an alarm indication signal input from a first side of said ring type transmission path, and outputs a first detection signal when an alarm signal is detected; a second alarm indication signal detecting unit which detects an alarm indication signal input from a second side of said ring type transmission path, and outputs a second detection signal when an alarm indication signal is detected; and a determining unit which receives said first detection signal and said second detection signal, and determines whether or not only one of said first detection signal and said second detection signal is received, said path switching means being operated when it is determined by said determining unit that only one of said first detection signal and said second detection signal is received.

(Joint Appendix at 291.)

understand that the '006 Patent discloses detectors as the structure performing the signal detection functions of the "controlling means." Instead, like expert testimony, this court finds that the examiner's inference that the "alarm indication signal detecting unit" referred to a detector cannot act as a substitute for actually disclosing a detector in the specification. *Cf. Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1302 (Fed. Cir. 2005) ("[T]he testimony of one of ordinary skill in the art cannot supplant the total absence of structure from the specification."). Consequently, the court agrees with Tellabs that detectors are not a corresponding structure for the "controlling means" function.

D. Comparators as Corresponding Structure

Finally, Fujitsu argues that the '006 Patent discloses a "comparator" for performing the "controlling means" function. Tellabs contends that the structure of a comparator is not a corresponding structure to the "controlling means" function because the word "comparator" does not appear in the specification and does not refer to a particular structure to a person of ordinary skill. The court again agrees with Tellabs that a comparator is not a corresponding structure under § 112, paragraph 6.

Fujitsu primarily relies on Dr. Eaves's declaration to argue that one of ordinary skill would understand that the '006 Patent discloses a comparator for performing the "controlling means" function. According to Dr. Eaves, because "at the time of the invention of the '006 Patent, the well-known SONET standards defined exactly what the UNEQ signal was and where to find it within the frame" (Eaves Decl. ¶ 151), a person of ordinary skill in the art would know that "to detect the UNEQ signal, a comparator is required to compare the C2 byte with zero,"

(*id.*)[6] Dr. Eaves further opines that "[e]ngineers of ordinary skill would also have known that the comparator structure may be implemented in many known ways (e.g., a processor, algorithm, logic, ASIC, detector, etc.), and that [the comparator's] inclusion was inherently dictated by the signal's standardized format and the limits of SONET technology at the time of invention." (*Id.* ¶ 152.)

Tellabs's expert, Dr. Singer, however, states that "the term 'comparator' is merely an abstraction that refers to any device that performs a comparison." (Singer Reply Decl. ¶ 91 (attached as Ex. B to Tellabs's Reply).) The term "comparator," he contends, "can be applied to many different structures, including hardware, software, or both, whenever those structures are used to perform a comparison . . . operation." (*Id.*) Dr. Singer additionally criticizes Dr. Eaves's recognition that "the comparator structure may be implemented in many known ways (e.g., a processor, algorithm, logic, ASIC, detector, etc.)," arguing that this statement by Dr. Eaves further "highlights the abstract nature of the term" and supports Tellabs's position that a "comparator" does not refer to a specific structure. (*Id.*)

Again, "comparator," like "detector" and "processor," does not appear in the '006 Patent. In his declaration, Dr. Eaves does not specifically identify where the specification discloses the comparator but rather generally avers that "[e]ven if the term 'comparator' is not explicitly mentioned [in the '006 Patent], the engineer would still recognize from the context of the entire '006 Patent disclosure and the relevant SONET technology that the patent discloses a comparator as a structure for the controller." (Eaves Decl. ¶ 151.) That a comparator's "inclusion was inherently dictated by the signal's standardized format and the limits of SONET

[6] As discussed above, a C2 byte with a value of "00000000" was the SONET standard for transmitting the UNEQ signal.

technology at the time of the invention" does not excuse the patentee from actually disclosing a comparator in the specification. *See Biomedino*, 490 F.3d at 951-53. Thus, despite Dr. Eaves's characterization of '006 Patent as *disclosing* a comparator to a person of ordinary skill, the court instead finds that Dr. Eaves is inferring that the corresponding structure is a comparator based on the description of the comparing function in the specification. As discussed more thoroughly above, although the patent need not describe the particular details of the structure if that structure was well-known to a person of ordinary skill in the art, the specification nevertheless must include some disclosure of structure. Evidence that one skilled in the art was aware of the structure for performing a comparing function does not amount to a disclosure of structure in the specification. As the Federal Circuit explained in *Biomedino*, "[t]o conclude otherwise would vitiate the language of the statute requiring 'corresponding structure, material, or acts described in the specification.'" *Biomedino*, 490 F.3d at 953.

Nor does the evidence suggest that the function of comparing the value of the C2 byte with zero must be performed by a specific structure, as in *Dossel*. Instead, both Dr. Eaves and Dr. Singer recognize that multiple structures (e.g., a processor, algorithm, logic, ASIC, detector, etc.) can perform this comparing function. Although Dr. Eaves refers to these structures as alternative means for implementing the comparator structure, the court agrees with Dr. Singer that they actually represent various structures for performing a comparing function.[7] "[W]hether a person of skill in the art could devise some means to carry out the recited function," however, is not the relevant inquiry. *Blackboard*, 574 F.3d at 1385. Instead, "[t]he question . . . is whether the specification contains sufficiently precise description of the 'corresponding structure

[7] Fujitsu also refers to a processor running algorithms, detectors, comparators, and logic as distinct structures. (*See* Fujitsu's Opp. 38.)

to satisfy *section 112*, paragraph 6." *Id.* Based on the evidence before the court, a comparator does not meet the statute's requirements.

CONCLUSION

For the reasons explained above, the court finds that the specification for the '006 Patent does not disclose any structures corresponding to the means-plus-function claim term "controlling means," which appears in all the independent claims of the '006 Patent. Consequently, the '006 Patent is invalid for indefiniteness under § 112, paragraph 6. Tellabs's "Motion for Summary Judgment of Invalidity Based on Indefiniteness of All Claims of U.S. Patent 5,533,006" (Case No. 08-3379, Dkt. No. 305), is granted. In a separate opinion issued today, this court denied "Tellabs' Motion for Summary Judgment of Invalidity Based on Indefiniteness of All Asserted Claims (1 and 6-9) of U.S. Patent No. 5,386,418" (Case No. 09-4530, Dkt. No. 165), and granted Fujitsu's "Motion for Summary Judgment for Judicial Correction of 'And' to 'A' in Claim 1 of U.S. Patent 5,386,418" (Case No. 09-4530, Dkt. No. 202). The claim constructions for the '418, '163, '737, '681, and '772 Patents remain under advisement. The parties are encouraged to discuss settlement.

ENTER:

James F. Holderman

JAMES F. HOLDERMAN
Chief Judge, United States District Court

Date: March 31, 2011