THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

ELBIT SYSTEMS LAND AND C4I LTD. and ELBIT SYSTEMS OF AMERICA, LLC,	§	
v.	§	CASE NO. 2:15-CV-37-RWS-RSP
HUGHES NETWORK SYSTEMS, LLC, BLACK ELK ENERGY OFFSHORE OPERATIONS, LLC, BLUETIDE COMMUNICATIONS, and COUNTRY HOME INVESTMENTS, INC.	§	

CLAIM CONSTRUCTION MEMORANDUM AND ORDER

On September 28, 2016, the Court held a hearing to determine the proper construction of disputed claim terms in United States Patents No. 6,240,073 and 7,245,874. Having reviewed the arguments made by the parties at the hearing and in their claim construction briefing (Dkt. Nos. 181, 187 & 190),[1] having considered the intrinsic evidence, and having made subsidiary factual findings about the extrinsic evidence, the Court hereby issues this Claim Construction Memorandum and Order. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005); *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015).

[1] Citations to documents (such as the parties' briefs and exhibits) in this Claim Construction Memorandum and Order refer to the page numbers of the original documents rather than the page numbers assigned by the Court's electronic docket unless otherwise indicated.

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I. BACKGROUND

Plaintiffs have alleged infringement of United States Patents No. 6,240,073 ("the '073 Patent") and 7,245,874 ("the '874 Patent") (collectively, the "patents-in-suit"). Plaintiffs submit that the '073 Patent relates to two-way satellite communications and the '874 Patent relates to providing backup connections for cellular telephone networks via satellite. *See* Dkt. No. 181 at 1-4. Plaintiffs have asserted Claims 2-7 and 28 of the '074 Patent and Claims 1-5, 7-9, and 11-12 of the '874 Patent. *Id.* at 4.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with preliminary constructions with the aim of focusing the parties' arguments and facilitating discussion. Those preliminary constructions are set forth below within the discussion for each term.

II. LEGAL PRINCIPLES

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). Claim construction is clearly an issue of law for the court to decide. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). "In some cases, however, the district court will need to look beyond the patent's intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period." *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015) (citation omitted). "In cases where those subsidiary facts are in dispute, courts will need to make subsidiary factual findings about that extrinsic evidence. These are the 'evidentiary

underpinnings' of claim construction that we discussed in *Markman*, and this subsidiary factfinding must be reviewed for clear error on appeal." *Id.* (citing 517 U.S. 370).

To determine the meaning of the claims, courts start by considering the intrinsic evidence. *See Phillips*, 415 F.3d at 1313; *see also C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1314; *C.R. Bard*, 388 F.3d at 861. Courts give claim terms their ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent. *Phillips*, 415 F.3d at 1312-13; *accord Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

The claims themselves provide substantial guidance in determining the meaning of particular claim terms. *Phillips*, 415 F.3d at 1314. First, a term's context in the asserted claim can be very instructive. *Id.* Other asserted or unasserted claims can aid in determining the claim's meaning because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term's meaning. *Id.* For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id.* at 1314-15.

"[C]laims 'must be read in view of the specification, of which they are a part.'" *Id.* at 1315 (quoting *Markman*, 52 F.3d at 979 (en banc)). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Phillips*, 415 F.3d at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *accord Teleflex, Inc. v. Ficosa N. Am.*

Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002). This is true because a patentee may define his own terms, give a claim term a different meaning than the term would otherwise possess, or disclaim or disavow the claim scope. *Phillips*, 415 F.3d at 1316. In these situations, the inventor's lexicography governs. *Id.* The specification may also resolve the meaning of ambiguous claim terms "where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone." *Teleflex*, 299 F.3d at 1325. But, "[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims." *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); *accord Phillips*, 415 F.3d at 1323.

The prosecution history is another tool to supply the proper context for claim construction because a patent applicant may also define a term in prosecuting the patent. *Home Diagnostics, Inc., v. Lifescan, Inc.*, 381 F.3d 1352, 1356 (Fed. Cir. 2004) ("As in the case of the specification, a patent applicant may define a term in prosecuting a patent."). "[T]he prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance." *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985).

Although extrinsic evidence can be useful, it is "less significant than the intrinsic record in determining the legally operative meaning of claim language." *Phillips*, 415 F.3d at 1317 (citations and internal quotation marks omitted). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too

broad or may not be indicative of how the term is used in the patent. *Id.* at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition are entirely unhelpful to a court. *Id.* Generally, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id.*

The Supreme Court of the United States has "read [35 U.S.C.] § 112, ¶ 2 to require that a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014). "A determination of claim indefiniteness is a legal conclusion that is drawn from the court's performance of its duty as the construer of patent claims." *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (Fed. Cir. 2005) (citations and internal quotation marks omitted), *abrogated on other grounds by Nautilus,* 134 S. Ct. 2120.

III. THE PARTIES' STIPULATED TERMS

The parties reached agreement on constructions as stated in their July 6, 2016 Joint Claim Construction and Prehearing Statement (Dkt. No. 161) and their September 14, 2016 Joint Claim Construction Chart (Dkt. No. 196). Those agreements are set forth in Appendix A to the present Claim Construction Memorandum and Order.

IV. CONSTRUCTION OF DISPUTED TERMS IN U.S. PATENT NO. 6,240,073

A. Preambles: "A [multiple] access communications system for use in a satellite communication network"

Plaintiffs' Proposed Construction	Defendants' Proposed Construction
Preamble is limiting, and should be understood per its plain and ordinary meaning.	Plain and ordinary meaning

Dkt. No. 161, Ex. A at 1. The parties submit that these terms appear in Claims 2-7 and 28 of the '073 Patent. Dkt. No. 161, Ex. A at 1.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary construction: "The preambles are limiting."

(1) The Parties' Positions

Plaintiffs argue that "[b]ecause the preambles serve as the antecedent for the structural limitations of the claim and give 'life, meaning, and vitality' into the claims, the Court should construe the preambles as limiting." Dkt. No. 181 at 4.

Defendants respond that "only a portion of the preamble serves as an antecedent basis for a later referenced term," and "[i]ntentional omission of 'satellite communication system' in the claim body reflects the drafter's intent of a non-limiting statement of purpose." Dkt. No. 187 at 2-3.

Plaintiffs reply that "[t]he phrase which Defendants omit ('for use in a satellite communication network') is necessary because the claims recite components ('a plurality of user terminals' and 'at least one hub') that constitute the well-known components of a satellite communications return link." Dkt. No. 190 at 1.

At the September 28, 2016 hearing, the parties presented no oral argument as to these disputed preamble terms.

(2) Analysis

Claim 2 of the ’073 Patent is representative and recites:

> 2. A multiple access communications system for use in a satellite communication network, comprising:
>
> a plurality of user terminals for generating data to be transmitted over said multiple access communication system;
>
> at least one hub for receiving data over said multiple access communication system from said plurality of user terminals;
>
> transmitter means within each user terminal for receiving data to be transmitted from said user terminal to said hub, said transmitter means including first communication means for transmitting short bursty data in combination with second communication means for continuous transmission of data;
>
> switching means coupled to said transmitter means for switching transmission between said first communication means and said second communication means in accordance with predefined criteria, and
>
> receiver means within said at least one hub adapted to receive data transmitted by said plurality of terminals utilizing either said first communication means or said second communication means;
>
> wherein said switching means comprises means for switching from said first communication means to said second communication means when the length of a message received by said transmitter means exceeds a predetermined threshold.

On one hand, even where a preamble provides antecedent basis for a limitation recited in the body of the claim, an accompanying statement of purpose or use is not necessarily limiting. *See TomTom Inc. v. Adolph*, 790 F.3d 1315, 1323 (Fed. Cir. 2015) (“That [a] phrase in the preamble . . . provides a necessary structure for [the] claim . . . does not necessarily convert the entire preamble into a limitation, particularly one that only states the intended use of the invention.”); *see also Marrin v. Griffin*, 599 F.3d 1290, 1294-95 (Fed. Cir. 2010) (“the mere fact that a structural term in the preamble is part of the claim does not mean that the preamble’s statement of purpose or other description is also part of the claim”).

On the other hand, the phrase “for use in a satellite communication network” provides additional detail regarding the “multiple access communications system.” *See Bell Commc’ns Research, Inc. v. Vitalink Commc’ns Corp.*, 55 F.3d 615, 620 (Fed. Cir. 1995) (“[W]hen the

claim drafter chooses to use *both* the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects."); *see also Proveris Scientific Corp. v. Innovasystems, Inc.*, 739 F.3d 1367, 1373 (Fed. Cir. 2014) ("The phrase 'the image data' clearly derives antecedent basis from the 'image data' that is *defined in greater detail in the preamble* as being 'representative of at least one sequential set of images of a spray plume.'") (emphasis added).

On balance, the phrase "for use in a satellite communication network" is limiting because it provides further detail regarding the "multiple access communications system" that has its antecedent basis in the preamble. *See id.* This also comports with the specification consistently presenting itself in the context of a satellite communication network, including in the Title, Abstract, Field of the Invention, Background of the Invention, Summary of the Invention, and Detailed Description of the Invention. *See, e.g.,* '073 Patent at 4:45-47 & 8:37-38.

The Court therefore hereby finds that the preambles are **limiting**.

B. "first communication means for transmitting short bursty data" / "second communication means for continuous transmission of data"

"first communication means for transmitting short bursty data"	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
Subject to § 112, ¶ 6 Function: "transmitting short bursty data" Structure: "Random Access Transmitter 70 in Fig. 5, and equivalents"	Subject to § 112, ¶ 6 Function: "transmitting short bursty data" Structure: "Random Access Transmitter 70 performing a non synchronous frequency hopping code division multiple access technique"

"second communication means for continuous transmission of data"	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
Subject to § 112, ¶ 6 Function: "continuous transmission of data" Structure: "Channel Assignment Transmitter, 110 in Fig. 6, and equivalents"	Subject to § 112, ¶ 6 Function: "continuous transmission of data" Structure: "channel access transmitter 110 performing a channel assignment method based on a frequency division multiple access"

Dkt. No. 161, Ex. A at 2. The parties submit that these terms appear in Claims 2-7 and 28 of the '073 Patent. Dkt. No. 161, Ex. A at 2.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary constructions:

Term	Preliminary Construction
"first communication means for transmitting short bursty data"	§ 112, ¶ 6 applies Function: transmitting short bursty data Structure: Random Access Transmitter 70 in Fig. 5, and equivalents thereof"
"second communication means for continuous transmission of data"	§ 112, ¶ 6 applies Function: continuous transmission of data Structure: Channel Assignment Transmitter 110 in Fig. 6, and equivalents thereof

(1) The Parties' Positions

The parties agree that these disputed terms are means-plus-function terms governed by 35 U.S.C. § 112, ¶ 6, and the parties agree upon the claimed functions. The parties dispute the corresponding structure.

Plaintiffs argue that the additional functional language proposed by Defendants is inappropriate because those functions are not recited in the asserted claims. Dkt. No. 181 at 6. Plaintiffs urge that "where the patentee intended to limit the claims to particular transmission techniques, they explicitly did so." *Id.* at 7.

As to the "first communication means," Defendants respond that the corresponding structure should not encompass *all* possible types of transmitters but rather should be limited to the specific transmitter actually disclosed and tied to the claimed function. Dkt. No. 187 at 4. Defendants also submit that the specification disparages other techniques. *See id.* at 4-6.

Likewise, as to the "second communication means," Defendants respond that the corresponding structure should be limited to "the specific type of CA [(channel assignment)] transmitter that is clearly linked to the claimed function." Dkt. No. 187 at 7. Defendants also submit that the specification "disparage[s] TDMA [(time division multiple access)] as ill-suited for the type of traffic handled by modern communications systems." *Id.* at 7-8 (citing '073 Patent at 2:61-67). Defendants conclude that "[b]ecause the specification only discusses the CA transmitter 110 as performing a frequency division multiple access technique for continuous transmission of data and disparages the use of TDMA for such transmission, the structure for this term should reflect that the CA transmitter is performing an FDMA technique." Dkt. No. 187 at 8.

Plaintiffs reply that "Defendants' argument that their constructions reflect the 'configuration' of the structures is just a euphemism for importing functional limitations." Dkt. No. 190 at 2 (citation omitted).

At the September 28, 2016 hearing, Plaintiffs urged that the structures shown in Figure 5, for example, are merely implementation details of a specific embodiment. Defendants responded that the transmitter structure that is linked to the claimed function includes all of the components in Figure 5, and Defendants explained that the specification contains no suggestion that any of those components could be excluded.

(2) Analysis

As to the "first communication means . . .," Defendants have cited disclosures in which the specification refers to using non-synchronous frequency hopping code division multiple access ("NS/FH/CDMA"). *See, e.g.*, '073 Patent at 10:8-16 & 10:22-26. The specification also discloses:

> The frequency hopping of the random access transmitter 70 is controlled via control signals output by the pseudo random sequence generator 106 and input to the local oscillator 95.

Id. at 16:13-16. Defendants argue that this disclosure of using a pseudo random sequence generator demonstrates that the random access transmitter 70 is configured solely to perform NS/FH/CDMA. Dkt. No. 187 at 5. No such limitation is apparent in the disclosures cited by Defendants. Although the above-quoted disclosure refers to "frequency hopping," it is unclear whether this necessarily requires NS/FH/CDMA. Moreover, this particular protocol appears in the specification to be merely a technique that can be used with the corresponding structure rather than part of the corresponding structure itself.

Also, independent Claim 9 expressly recites a "first transmitter means for transmitting data utilizing a non synchronous frequency hopping code division multiple access communication scheme." Although Plaintiffs have not demonstrated that the doctrine of claim differentiation is directly applicable as between the independent claims at issue, particularly when applied to means-plus-function limitations, this distinct recital of Defendants' proposed limitation is noteworthy and weighs at least somewhat against Defendants' proposal. Likewise, the specification characterizes NS/FH/CDMA as merely one example. *See* '073 Patent at 5:18-21 ("[t]he first communication means can comprise nonsynchronous multiple access communication means or non synchronous frequency hopping code division multiple access communication means").

Further, although Defendants argue that the specification disparages other techniques, "[a] patentee's discussion of the shortcomings of certain techniques is not a disavowal of the use of those techniques in a manner consistent with the claimed invention." *Epistar Corp. v. Int'l. Trade Comm'n*, 566 F.3d 1321, 1335 (Fed. Cir. 2009).

Finally, Plaintiffs have failed to identify any evidence suggesting that the "random access transmitter 70" illustrated in Figure 5 can be dissected. *See, e.g.*, '073 Patent at 7:37-39. Indeed, at the September 28, 2016 hearing, Plaintiffs' argument amounted to a proposal that the corresponding structure was simply the dashed line box indicated by numeral 70 (or perhaps also the dashed line boxes indicated by numerals 72, 74, and 76) without necessarily including any of the particular components contained therein. Plaintiffs' argument is seemingly directly at odds with the purpose of 35 U.S.C. § 112, ¶ 6 to permit functional claiming but to limit the claim scope to the specific corresponding structure disclosed in the specification.

At the September 28, 2016 hearing, Plaintiffs relied extensively upon *Wenger Mfg., Inc. v. Coating Machinery Sys., Inc.*, 239 F.3d 1225 (Fed. Cir. 2001). Plaintiffs emphasized that, in *Wenger*, the district court found as to an "air circulation means" limitation having the function of "circulating air" that "[t]he structure corresponding to the function of circulating air through the apparatus requires the ability to recirculate air." *Id.* at 1233. "By doing so," the Federal Circuit found on appeal, "the court improperly restricted the 'air circulation means' limitation to structure that was disclosed in the preferred embodiment, but was not necessary to perform the recited function of circulating air." *Id.*

On balance, *Wenger* is distinguishable because Plaintiffs have not identified any indication in the specification that particular components in Figure 5 can be omitted. Instead, Plaintiffs essentially argued at the September 28, 2016 hearing that the corresponding structure should not include *any* of the particular structures in Figure 5 as components of the "random access transmitter 70." This argument, and Plaintiffs' reliance upon *Wenger*, are thus unavailing.

Based on all of the foregoing, the Court construes the corresponding structure to be the random access transmitter as depicted in Figure 5 in its entirety, but the Court rejects Defendants' proposal to include a specific technique as part of the corresponding structure.

Substantially the same analysis applies to the "second communication means . . . ." *See* '073 Patent at 5:21-23 ("The second communication means can comprise frequency division multiple access communication means.") & Cl. 9. The corresponding structure is thus the channel assignment transmitter 110 as depicted in Figure 6 in its entirety.

The Court therefore hereby construes the disputed terms as set forth in the following chart:

Term	Construction
"first communication means for transmitting short bursty data"	**35 U.S.C. § 112, ¶ 6 applies** **Function:** **"transmitting short bursty data"** **Structure:** **"Random Access Transmitter 70 in Fig. 5, and equivalents thereof"**[2]
"second communication means for continuous transmission of data"	**35 U.S.C. § 112, ¶ 6 applies** **Function:** **"continuous transmission of data"** **Structure:** **"Channel Assignment Transmitter 110 in Fig. 6, and equivalents thereof"**

[2] Defendants have argued that discussion of "equivalents" under 35 U.S.C. § 112, ¶ 6 should be addressed in jury instructions rather than in the constructions of disputed terms. *See* Dkt. No. 187 at 3 n.3. In accordance with this Court's usual practice, the Court includes "equivalents" in the construction as specified by the language of 35 U.S.C. § 112, ¶ 6 itself.

C. "receiver means within said at least one hub adapted to receive data transmitted by said plurality of terminals utilizing either said first communication means or said second communication means"

Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
Subject to § 112, ¶ 6 Function: "receive data transmitted by said plurality of terminals utilizing either said first communication means or said second communication means" Structure: "hub receiver 240 depicted in Fig. 10, and equivalents"	Subject to § 112, ¶ 6 Function: "receive data transmitted by said plurality of terminals utilizing either said first communication means or said second communication means" Structure: "hub receiver 240 including random access (RA) receiver 248 performing a non synchronous frequency hopping code division multiple access technique and channel assignment (CA) receiver 252 performing a channel assignment method based on a frequency division multiple access"

Dkt. No. 161, Ex. A at 3-4. The parties submit that this term appears in Claims 2-7 and 28 of the '073 Patent. Dkt. No. 161, Ex. A at 3-4.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary construction: "§ 112, ¶ 6 applies. / Function: receive data transmitted by said plurality of terminals utilizing either said first communication means or said second communication means[] / Structure: hub receiver 240 depicted in Fig. 10, and equivalents."

The parties agree that this disputed term is a means-plus-function term governed by 35 U.S.C. § 112, ¶ 6, and the parties agree upon the claimed function. The parties have disputed the corresponding structure.

Plaintiffs argue that the Court should reject Defendants' attempt to "include additional functional limitations not recited in the claims" and "selectively include certain components of

hub receiver 240." Dkt. No. 181 at 8. Defendants' response brief does not address this term. *See* Dkt. No. 187. Plaintiffs reply that "[b]ecause Defendants offer no argument disputing Plaintiffs' construction[] of 'receiver means' . . ., the Court should adopt those constructions." Dkt. No. 190 at 6.

At the September 28, 2016 hearing, Defendants submitted that this term is disputed as set forth in the parties' joint claim charts (*see* Dkt. Nos. 161 & 196), but Defendants presented no substantive argument.

Because Defendants have presented no substantive argument as to this term, the Court hereby finds that **"receiver means within said at least one hub adapted to receive data transmitted by said plurality of terminals utilizing either said first communication means or said second communication means"** is a means-plus-function term, the claimed function is **"receive data transmitted by said plurality of terminals utilizing either said first communication means or said second communication means,"** and the corresponding structure is **"hub receiver 240 depicted in Fig. 10, and equivalents thereof."**

D. "transmitter means within each user terminal for receiving data to be transmitted from said user terminal to said hub"

Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
Subject to § 112, ¶ 6 Function: "receiving data to be transmitted from said user terminal to said hub" Structure: "modem 160 and equivalents"	Subject to § 112, ¶ 6 Function: "receiving data to be transmitted from said user terminal to said hub" Structure: "modem 160 including random access transmitter 70 and channel assignment transmitter 110"

Dkt. No. 161, Ex. A at 1. The parties submit that this term appears in Claims 2-7 and 28 of the '073 Patent. Dkt. No. 161, Ex. A at 1.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary construction: "§ 112, ¶ 6 applies. / Function: receiving data to be transmitted from said user terminal to said hub / Structure: modem 160 and equivalents thereof / NOTE: reject Plaintiff[s'] argument that structure does not include random access transmitter 70 and channel assignment transmitter 110."

(1) The Parties' Positions

The parties agree that this disputed term is a means-plus-function term governed by 35 U.S.C. § 112, ¶ 6, and the parties agree upon the claimed function. The parties dispute the corresponding structure.

Plaintiffs argue that "Defendants . . . propose including unnecessary structures which are not necessary to receive data from said user terminal." Dkt. No. 181 at 9.

Defendants respond that "[a]s the plain meaning suggests, transmitter means must have structure to transmit." Dkt. No. 187 at 8.

Plaintiffs reply that "the function of this limitation is not transmission itself, but '*receiving data to be transmitted* from said user terminal to said hub.'" Dkt. No. 190 at 3.

(2) Analysis

The specification discloses:

> The transmitter portion of the reverse link of the present invention will now be described in more detail. The transmitter for the reverse link actually comprises two portions: a random access portion and a channel assignment portion. Although the two portions are shown separately, overlapping functions can be combined. In general, the transmitter comprises a user interface and a message classifier. The *data received from the user* is divided or classified into three different types of messages, as described previously.
>
> The first message type requires transmission rates lower than a certain number of bytes/sec, i.e., short messages. The second message type requires transmission rates higher than a certain number of bytes/sec. The third message type include[s] messages that are known to require a continuous type communications channel.

> This third message type comprises messages generated from two way bandwidth intensive applications such as video conferencing, Internet phone, etc.
>
> Each type is processed in the transmitter in a different way. The random access (RA) transmitter is utilized for short messages wherein each message is transmitted as a packet, a packet being the information transmitted in a single hop. The channel assignment (CA) transmitter is utilized for long streams of information, i.e., message types two and three. A specific frequency and a particular bandwidth are assigned and the data is transmitted for a specific period of time or until the data ends.

'073 Patent at 15:5-31 (emphasis added).

> The PC 150 transmits data to be sent via satellite to the hub to the modem 160 which comprises the random access transmitter 70 (FIG. 5) and the channel assignment transmitter 110 (FIG. 6).

Id. at 17:25-28.

Plaintiffs urge: "While Defendants are correct that the disclosed modem 160 comprises the random access transmitter 70 and channel assignment transmitter 110, those structures are not linked to the claimed function of '*receiving* data to be transmitted.'" Dkt. No. 190 at 3. This seemingly internally inconsistent argument cannot be squared with the principles of 35 U.S.C. § 112, ¶ 6. That is, if the corresponding structure is modem 160, and if modem 160 includes random access transmitter 70 and channel assignment transmitter 110, then it necessarily follows that the corresponding structure includes random access transmitter 70 and channel assignment transmitter 110.

The Court therefore hereby expressly rejects Plaintiffs' argument that the modem 160 does not necessarily include the random access transmitter 70 and channel assignment transmitter 110. Indeed, because this is self-evident, the construction of the corresponding structure need not specify structures that are included within the disclosed modem 160. Further, Defendants' proposed construction would tend to create confusion by potentially giving rise to

an implication that the modem 160 includes only the components that are expressly set forth and no others.

The Court therefore hereby finds that **"transmitter means within each user terminal for receiving data to be transmitted from said user terminal to said hub"** is a means-plus-function term, the function is **"receiving data to be transmitted from said user terminal to said hub,"** and the corresponding structure is **"modem 160 and equivalents thereof."**

E. "switching means" / "means for switching"

"switching means [coupled to said transmitter means / within said plurality of user terminals] for switching transmission between said first communication means and said second communication means in accordance with predefined criteria" ('073 Patent, Claims 2-7, 28)	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
Subject to § 112, ¶ 6 Function: "switching transmission between said first communication means and said second communication means in accordance with predefined criteria" Structure: "driver layer 158, as described in 10:30-11:40, or driver layer 158 as executing the 'Switch to RA 170' and/or 'Switch to CA 196' steps as depicted in Fig. 8[], and equivalents"	Subject to § 112, ¶ 6 Function: "switching transmission between said first communication means and said second communication means in accordance with predefined criteria" Structure: "modem 160 and PC 150 including driver layer 158 performing the algorithm of Figure 8"

"means for switching from said first communication means to said second communication means when the length of a message received by said transmitter means exceeds a predetermined threshold" ('073 Patent, Claim 2)	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
Subject to § 112, ¶ 6 Function: "switching from said first communication means to said second communication means when the length of a message received by said transmitter means exceeds a predetermined threshold" Structure: "Driver layer 158 of Figure 7 as described in 10:63-67, Driver layer 158 of Figure 7, executing the 'Switch to RA 170' and/or 'Switch to CA 196' steps as described at 17:37-45, and equivalents"	Subject to § 112, ¶ 6 Function: "switching from said first communication means to said second communication means when the length of a message received by said transmitter means exceeds a predetermined threshold" Structure: "modem 160 and PC 150 including driver layer 158 performing the algorithm at 10:63-67"[3]

"means for switching transmission from said first communication means when a continuation flag in a message received by said transmitter means is turned on" ('073 Patent, Claim 3)	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
Subject to § 112, ¶ 6 Function: "switching transmission from said first communication means when a continuation flag in a message received by said transmitter means is turned on" Structure: "Driver layer 158 of Figure 7 executing the 'Switch to CA 196' step as described at 11:1-8, and equivalents"	Subject to § 112, ¶ 6 Function: "switching transmission from said first communication means when a continuation flag in a message received by said transmitter means is turned on" Structure: "modem 160 and PC 150 including driver layer 158 performing the algorithm at 11:1-8"[4]

[3] Defendants previously proposed: "10:47-11:20." Dkt. No. 161, Ex. A at 3-8.

[4] Defendants previously proposed: "10:47-11:20." Dkt. No. 161, Ex. A at 3-8.

"means for switching transmission from said first communication means to said second communication means when a user buffer containing a plurality of messages to be sent via said transmitter means fills beyond a predetermined level" ('073 Patent, Claim 4)	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
Subject to § 112, ¶ 6 Function: "switching transmission from said first communication means to said second communication means when a user buffer containing a plurality of messages to be sent via said transmitter means fills beyond a predetermined level" Structure: "Driver layer 158 of Figure 7 executing the 'Switch to CA 196' step as described at 11:9-11, and equivalents"	Subject to § 112, ¶ 6 Function: "switching transmission from said first communication means to said second communication means when a user buffer containing a plurality of messages to be sent via said transmitter means fills beyond a predetermined level" Structure: "modem 160 and PC 150 including driver layer 158 performing the algorithm at 11:9-11"[5]
"means for switching transmission from said second communication means to said first communication means when the length of a message received by said transmitter means fails to exceed a predetermined threshold" ('073 Patent, Claim 5)	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
Subject to § 112, ¶ 6 Function: "switching transmission from said second communication means to said first communication means when the length of a message received by said transmitter means fails to exceed a predetermined threshold" Structure: "Driver layer 158 of Figure 7 executing the 'Switch to RA 170' step, as described at 11:30-31, and equivalents"	Subject to § 112, ¶ 6 Function: "switching transmission from said second communication means to said first communication means when the length of a message received by said transmitter means fails to exceed a predetermined threshold" Structure: "modem 160 and PC 150 including driver layer 158 performing the algorithm at 11:30-31"[6]

[5] Defendants previously proposed: "10:47-11:20." Dkt. No. 161, Ex. A at 3-8.

[6] Defendants previously proposed: "11:20-40." Dkt. No. 161, Ex. A at 3-8.

"means for switching transmission from said second communication means to said first communication means when a continuation flag in a message received by said transmitter means is turned off" ('073 Patent, Claim 6)	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
Subject to § 112, ¶ 6 Function: "switching transmission from said second communication means to said first communication means when a continuation flag in a message received by said transmitter means is turned off" Structure: "Driver layer 158 of Figure 7 executing the 'Switch to RA 170' step, as described at 11:22-40, and equivalents"	Subject to § 112, ¶ 6 Function: "switching transmission from said second communication means to said first communication means when a continuation flag in a message received by said transmitter means is turned off" Structure: "modem 160 and PC 150 including driver layer 158 performing the algorithm at 11:22-40"[7]

"means for switching transmission from said second communication means to said first communication means when the software application meeting a predetermined criteria that initiated a message to be transmitted via said transmitter means ceases to generate message data" ('073 Patent, Claim 7)	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
Subject to § 112, ¶ 6 Function: "switching transmission from said second communication means to said first communication means when the software application meeting a predetermined criteria that initiated a message to be transmitted via said transmitter means ceases to generate message data" Structure: "Driver layer 158 of Figure 7 as described in 11:34-36, Driver layer 158 of Figure 7, executing the 'Switch to RA 170' step as described at 18:10-15, and equivalents"	Subject to § 112, ¶ 6 Function: "switching transmission from said second communication means to said first communication means when the software application meeting a predetermined criteria that initiated a message to be transmitted via said transmitter means ceases to generate message data" Structure: "modem 160 and PC 150 including driver layer 158 performing the algorithm at 11:34-36"[8]

[7] Defendants previously proposed: "11:20-40." Dkt. No. 161, Ex. A at 3-8.

[8] Defendants previously proposed: "11:20-40." Dkt. No. 161, Ex. A at 3-8.

Dkt. No. 161, Ex. A at 3-8; Dkt. No. 187 at 15.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary constructions:

Term	Preliminary Construction
"switching means [coupled to said transmitter means / within said plurality of user terminals] for switching transmission between said first communication means and said second communication means in accordance with predefined criteria" ('073 Patent, Claims 2-7, 28)	§ 112, ¶ 6 applies. Function: switching transmission between said first communication means and said second communication means in accordance with predefined criteria Structure: modem 160 and PC 150 including driver layer 158 performing the algorithms disclosed in the '073 Patent at 10:30-11:40 or Figure 8, and equivalents thereof
"means for switching from said first communication means to said second communication means when the length of a message received by said transmitter means exceeds a predetermined threshold" ('073 Patent, Claim 2)	§ 112, ¶ 6 applies. Function: switching from said first communication means to said second communication means when the length of a message received by said transmitter means exceeds a predetermined threshold Structure: modem 160 and PC 150 including driver layer 158 performing the algorithm disclosed in the '073 Patent at 10:63-67 or 17:37-45, and equivalents thereof

"means for switching transmission from said first communication means when a continuation flag in a message received by said transmitter means is turned on" ('073 Patent, Claim 3)	§ 112, ¶ 6 applies. Function: switching transmission from said first communication means when a continuation flag in a message received by said transmitter means is turned on Structure: modem 160 and PC 150 including driver layer 158 performing the algorithm disclosed in the '073 Patent at 11:1-8, and equivalents thereof
"means for switching transmission from said first communication means to said second communication means when a user buffer containing a plurality of messages to be sent via said transmitter means fills beyond a predetermined level" ('073 Patent, Claim 4)	§ 112, ¶ 6 applies. Function: switching transmission from said first communication means to said second communication means when a user buffer containing a plurality of messages to be sent via said transmitter means fills beyond a predetermined level Structure: modem 160 and PC 150 including driver layer 158 performing the algorithm disclosed in the '073 Patent at 11:9-11, and equivalents thereof
"means for switching transmission from said second communication means to said first communication means when the length of a message received by said transmitter means fails to exceed a predetermined threshold" ('073 Patent, Claim 5)	§ 112, ¶ 6 applies. Function: switching transmission from said second communication means to said first communication means when the length of a message received by said transmitter means fails to exceed a predetermined threshold Structure: modem 160 and PC 150 including driver layer 158 performing the algorithm disclosed in the '073 Patent at 11:30-31, and equivalents thereof

"means for switching transmission from said second communication means to said first communication means when a continuation flag in a message received by said transmitter means is turned off" ('073 Patent, Claim 6)	§ 112, ¶ 6 applies. Function: switching transmission from said second communication means to said first communication means when a continuation flag in a message received by said transmitter means is turned off Structure: modem 160 and PC 150 including driver layer 158 performing the algorithm disclosed in the '073 Patent at 11:22-40, and equivalents thereof
"means for switching transmission from said second communication means to said first communication means when the software application meeting a predetermined criteria that initiated a message to be transmitted via said transmitter means ceases to generate message data" ('073 Patent, Claim 7)	§ 112, ¶ 6 applies. Function: switching transmission from said second communication means to said first communication means when the software application meeting a predetermined criteria that initiated a message to be transmitted via said transmitter means ceases to generate message data Structure: modem 160 and PC 150 including driver layer 158 performing the algorithm disclosed in the '073 Patent at 11:34-36, and equivalents thereof

(1) The Parties' Positions

The parties agree that these disputed terms are means-plus-function terms governed by 35 U.S.C. § 112, ¶ 6, and the parties agree upon the claimed functions. The parties dispute the corresponding structure.

Plaintiffs argue that the Court should reject Defendants' proposals to: (1) include the entire PC 150 and modem 160 instead of just the necessary driver layer 158; (2) include only some of the disclosed embodiments; and (3) include the entire algorithms, including many steps

unrelated to switching transmission modes, instead of just the steps of the algorithms linked to the claimed function. Dkt. No. 181 at 12.

Defendants respond that "Plaintiffs told the PTAB in the IPR proceedings on the '073 Patent that the location of these switching means is solely within the VSAT terminal." Dkt. No. 187 at 10. Defendants argue that: (1) "Plaintiffs conflate two distinct and separately claimed means-plus-function terms: (i) 'switching means' and (ii) the 'means for switching'"; (2) Plaintiffs propose only a portion of the necessary structure, thus "essentially amounting to a mere black box"; and (3) Plaintiffs' proposal reads out the limitation that the switching function must be performed "in accordance with predefined criteria." *Id.* at 11.

Plaintiffs reply that because "[t]he claims explicitly state that 'said switching means *comprises means for switching . . .*," "[t]he 'means for switching' is therefore a part of the 'switching means,' not an entirely separate element." Dkt. No. 190 at 3-4 (citing '073 Patent at 23:45-49). Plaintiffs also argue that Defendants improperly limit the term "predefined criteria" to a single criterion. Dkt. No. 190 at 4. Finally, Plaintiffs argue that additional "enabling" steps are not part of the corresponding structure. *Id.* at 5 (citing *Asyst Techs. Inc. v. Empak, Inc.*, 268 F.3d 1364, 1371 (Fed. Cir. 2001) ("The corresponding structure . . . must actually perform the recited function, not merely enable the pertinent structure to operate as intended.")).

(2) Analysis

The specification discusses circumstances in which "driver layer 158" switches from random access to requesting channel assignment. For example, the specification discloses:

> The transmitter method portion of the present invention is situated within the *driver layer 158*. The transmitter method operates as a driver under the IP layer receiving IP packets output therefrom. Each protocol utilized by the application is identified by its own so called well known port number. The well known port

> number is part of the TCP/UDP header embedded within the IP packet. Each packet is identified by its connection including its source and destination addresses and source and destination ports. In the random access mode, the transmitter method monitors the port number and the rate of the packets being received as measured in bits per second (bps). The bps rate is monitored by counting the number of bytes transmitted within a specific time window. If one of the applications transmits packets whose source port within the protocol header corresponds to a predetermined list or the length of the messages is larger than a specified length, the driver requests a channel assignment. In addition, if the rate of the transmission is higher than the maximal rate permitted in the random access mode the driver also requests a channel assignment. Note that the application layer 152 can be implemented using, for example, any browser or web browser, e-mail application or other communication type application.

'073 Patent at 17:29-51 (emphasis added). Also, the specification provides additional detail regarding the "driver layer 158" in the form of a flow chart in Figure 8. *See* '073 Patent at 17:52-18:31 ("A high level flow diagram illustrating the driver method of the present invention is shown in FIG. 8.").

During *Inter Partes* Review proceedings, the patentee stated that "the 'driver' and 'modem[]' . . . are contained *within* the VSAT terminal and are described as performing the function of monitoring traffic over the random-access channel and requesting and switching to the channel-assignment mode if necessary." Dkt. No. 187, Ex. 19, Feb. 18, 2016 Patent Owner Preliminary Response Pursuant To 37 C.F.R. § 42.107 at 18. The proper corresponding structure thus includes both "driver layer 158" and "modem 160."

As to whether the "PC 150" should be included, Figure 7 of the '073 Patent illustrates "Driver 158" as part of "PC 150," which is illustrated as distinct from modem 160. In the description of Figure 8 of the '073 Patent, however, the specification refers to steps being performed by "modem 160." *See* '073 Patent at 17:55-56, 17:66-67, 18:2-4 & 18:8-15. Although Defendants have emphasized disclosure that the "transmitter method of the present invention" is "PC based" ('073 Patent at 17:20), this general disclosure does not override the

above-cited more specific explanation that switching functions can be performed by the modem 160.

The Court therefore finds that the specification contains alternative disclosures that the driver layer 158 may be implemented in either PC 150 or modem 160. *See Ishida Co., Ltd. v. Taylor*, 221 F.3d 1310, 1316 (Fed. Cir. 2000) (noting that a patent may disclose multiple "alternative structures for performing the claimed function").

As to the appropriate algorithms, at the September 28, 2016 hearing neither side objected to any of the Court's preliminary identifications of algorithms for the "means for switching . . ." terms. As to the "switching means . . ." term, Defendants maintained that the only criteria associated with the driver layer is checking the source port. Defendants thus urged that Plaintiffs' proposal of referring to 10:30-11:40 is unsupported.

On balance, Defendants have failed to demonstrate that the switching criteria disclosed at 10:30-11:40 are not linked to the claimed function for the "switching means . . . ." Instead, the disclosure at issue refers to a transmitter method in which "[c]ommunication begins in the random access mode" and "[t]he decision to switch to the channel assignment mode is made in accordance with one of the following criteria: . . . ." '073 Patent at 10:53-57. Defendants' argument that this disclosure is linked only to the "means for switching . . ." terms is unavailing.

As to Plaintiffs' proposal, however, Plaintiffs have not demonstrated that the flow chart of Figure 8 can be viewed selectively. Instead, the specification simply discloses that "[a] high level flow diagram illustrating the driver method of the present invention is shown in FIG. 8." *See id.* at 17:52-53.

The Court therefore hereby construes the disputed terms as set forth in the following chart:

Term	Construction
"switching means [coupled to said transmitter means / within said plurality of user terminals] for switching transmission between said first communication means and said second communication means in accordance with predefined criteria" ('073 Patent, Claims 2-7, 28)	**35 U.S.C. § 112, ¶ 6 applies.** Function: **"switching transmission between said first communication means and said second communication means in accordance with predefined criteria"** Structure: **"modem 160 or PC 150 including driver layer 158 performing the algorithms disclosed in the '073 Patent at 10:30-11:40 or Figure 8, and equivalents thereof"**
"means for switching from said first communication means to said second communication means when the length of a message received by said transmitter means exceeds a predetermined threshold" ('073 Patent, Claim 2)	**35 U.S.C. § 112, ¶ 6 applies.** Function: **"switching from said first communication means to said second communication means when the length of a message received by said transmitter means exceeds a predetermined threshold"** Structure: **"modem 160 or PC 150 including driver layer 158 performing the algorithm disclosed in the '073 Patent at 10:63-67 and 17:37-45, and equivalents thereof"**
"means for switching transmission from said first communication means when a continuation flag in a message received by said transmitter means is turned on" ('073 Patent, Claim 3)	**35 U.S.C. § 112, ¶ 6 applies.** Function: **"switching transmission from said first communication means when a continuation flag in a message received by said transmitter means is turned on"** Structure: **"modem 160 or PC 150 including driver layer 158 performing the algorithm disclosed in the '073 Patent at 11:1-8, and equivalents thereof"**

"means for switching transmission from said first communication means to said second communication means when a user buffer containing a plurality of messages to be sent via said transmitter means fills beyond a predetermined level" ('073 Patent, Claim 4)	**35 U.S.C. § 112, ¶ 6 applies.** Function: **"switching transmission from said first communication means to said second communication means when a user buffer containing a plurality of messages to be sent via said transmitter means fills beyond a predetermined level"** Structure: **"modem 160 or PC 150 including driver layer 158 performing the algorithm disclosed in the '073 Patent at 11:9-11, and equivalents thereof"**
"means for switching transmission from said second communication means to said first communication means when the length of a message received by said transmitter means fails to exceed a predetermined threshold" ('073 Patent, Claim 5)	**35 U.S.C. § 112, ¶ 6 applies.** Function: **"switching transmission from said second communication means to said first communication means when the length of a message received by said transmitter means fails to exceed a predetermined threshold"** Structure: **"modem 160 or PC 150 including driver layer 158 performing the algorithm disclosed in the '073 Patent at 11:30-31, and equivalents thereof"**
"means for switching transmission from said second communication means to said first communication means when a continuation flag in a message received by said transmitter means is turned off" ('073 Patent, Claim 6)	**35 U.S.C. § 112, ¶ 6 applies.** Function: **"switching transmission from said second communication means to said first communication means when a continuation flag in a message received by said transmitter means is turned off"** Structure: **"modem 160 or PC 150 including driver layer 158 performing the algorithm disclosed in the '073 Patent at 11:22-40, and equivalents thereof"**

"means for switching transmission from said second communication means to said first communication means when the software application meeting a predetermined criteria that initiated a message to be transmitted via said transmitter means ceases to generate message data" ('073 Patent, Claim 7)	**35 U.S.C. § 112, ¶ 6 applies.** Function: **"switching transmission from said second communication means to said first communication means when the software application meeting a predetermined criteria that initiated a message to be transmitted via said transmitter means ceases to generate message data"** Structure: **"modem 160 or PC 150 including driver layer 158 performing the algorithm disclosed in the '073 Patent at 11:34-36 and 18:10-15, and equivalents thereof"**

F. "continuation flag"

Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
"a data field that indicates additional messages follow the current message"	"a data field that, when set, indicates that the reserved channel is still needed and when not set indicates that the reserved channel is no longer needed"

Dkt. No. 161, Ex. A at 5. The parties submit that this term appears in Claims 3 and 6 of the '073 Patent. Dkt. No. 161, Ex. A at 5.

In their September 14, 2016 Joint Claim Construction Chart, the parties have submitted an agreed-upon construction for this term (Dkt. No. 196, Ex. A at 7), which the Court sets forth in Appendix A to this Claim Construction Memorandum and Order.

G. "means for generating a request to be sent over said return link in order to utilize said second communication means"

Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
Subject to § 112, ¶ 6 Function: "generating a request to be sent over said return link in order to utilize said second communication means" Structure: "Driver layer 158 of Figure 7 sending a Request for Allocation message as described at 11:12-15, Driver layer 158 of Figure 7 executing the Transmit CAR step 190 as described at 17:58-182 [*sic*], and equivalents"	Indefinite Subject to § 112, ¶ 6 Function: "generating a request to be sent over said return link in order to utilize said second communication means" Structure: "modem 160 and PC 150 including driver layer 158 performing an undisclosed algorithm"

Dkt. No. 161, Ex. A at 8-9. The parties submit that this term appears in Claim 28 of the '073 Patent. Dkt. No. 161, Ex. A at 8-9.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary construction: "§ 112, ¶ 6 applies. / Function: generating a request to be sent over said return link in order to utilize said second communication means / Structure: modem 160 and PC 150 including driver layer 158 configured for sending a Request for Allocation message as described at 11:12-15 or executing the Transmit CAR step 190 as described at 17:58-60."

(1) The Parties' Positions

The parties agree that this disputed term is a means-plus-function term governed by 35 U.S.C. § 112, ¶ 6, and the parties agree upon the claimed function. The parties dispute the corresponding structure.

Plaintiffs argue that the Court should reject Defendants' argument that this disputed term lacks a corresponding algorithm because "the specification describes two algorithms that determine when the driver generates the request for a channel assignment." Dkt. No. 181 at 18.

Defendants respond that "Plaintiffs rely on portions of the specification merely restating the claimed function, rather than providing an algorithm showing how the claimed function is performed." Dkt. No. 187 at 17.

Plaintiffs reply that "the specification describes two separate embodiments which generate a request to utilize the second communication means." Dkt. No. 190 at 5.

(2) Analysis

The specification discloses, for example:

> If one of the applications transmits packets whose source port within the protocol header corresponds to a predetermined list or the length of the messages is larger than a specified length, the driver requests a channel assignment.

'073 Patent at 17:42-45; *see id.* at 10:56-11:20 & 17:55-18:27.

Defendants have cited deposition testimony of Plaintiffs' expert opining that the specification does not limit how a software programmer would implement the software that would generate the channel assignment request and that "there's almost an infinite number of ways to write a piece of software code to do something." Dkt. No. 187, Ex. 14, Aug. 9, 2016 Elbert dep. at 152:7-22. This testimony does not demonstrate indefiniteness, however, particularly in light of the general principle that "the amount of detail that must be included in the specification depends on the subject matter that is described and its role in the invention as a whole, in view of the existing knowledge in the field of the invention." *Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1385 (Fed. Cir. 2011); *see id.* at 1386 ("A description of the function in words may disclose, at least to the satisfaction of one of ordinary skill in the art,

enough of an algorithm to provide the necessary structure under § 112, ¶ 6.") (citation and internal quotation marks omitted).

Finally, for substantially the same reasons set forth above as to the "switching means . . ." and "means for switching . . ." terms, the Court therefore finds that the specification contains alternative disclosures that the driver layer 158 may be implemented in either PC 150 or modem 160. *See Ishida*, 221 F.3d at 1316 (noting that patent may disclose multiple "alternative structures for performing the claimed function").

The Court therefore hereby finds that **"means for generating a request to be sent over said return link in order to utilize said second communication means"** is a means-plus-function term, the function is **"generating a request to be sent over said return link in order to utilize said second communication means,"** and the corresponding structure is **"modem 160 or PC 150 including driver layer 158 configured for sending a Request for Allocation message as described at 11:12-15 or executing the Transmit CAR step 190 as described at 17:58-60 and 17:66-18:2, and equivalents thereof."**

V. CONSTRUCTION OF DISPUTED TERMS IN U.S. PATENT NO. 7,245,874

A. "[wherein said synchronous protocol allows] non-data carrying time slots"

Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
"[wherein said synchronous protocol allows] time slots that do not contain data"	Indefinite

Dkt. No. 161, Ex. A at 10. The parties submit that this term appears in Claim 1 of the '874 Patent. Dkt. No. 161, Ex. A at 10.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary construction: "[wherein said synchronous protocol allows] time slots that do not contain data (Not indefinite)."

(1) The Parties' Positions

Plaintiffs argue that "[t]he plain language of the claim and the specification provide clear guidance for the term 'non-data carrying time slots.'" Dkt. No. 181 at 20.

Defendants respond that "[t]he specification provides no guidance on either the content or the form of the claim term." Dkt. No. 187 at 18.

Plaintiffs reply that "[t]he specification describes time slots that 'do not contain data' and 'blank time slots,' among other examples." Dkt. No. 190 at 6 (citing '874 Patent at 7:6-8 & 7:49-56).

(2) Analysis

The Background of the Invention refers to "blank slots":

> The telephony system including cellular networks and the PSTN, is generally based on the E1, or possibly T1, protocol for multiplexing transmissions into time slots. The protocol is strongly synchronous in that the individual transmission to which a time slot is assumed to belong to is determined from its temporal position amongst the other time slots. Thus an individual transmission which does not have current data creates *blank slots* to reserve its current position.

'874 Patent at 1:26-33 (emphasis added). The specification further discloses that there can be "time slots that do not carry data":

> The IPMux 50, using data encoded into the packet headers, is also able to recreate *blank slots*, which have no meaning within a TCP/IP environment but are necessary in the E1 environment for maintaining correct sequence between time slots. Suitable buffering and reconstruction thus allows an E1 stream at the output which is a reconstruction of the E1 stream at the input despite having used an asynchronous protocol in between. Thus the IPMux 50 provides transparent bridging between E1//T1 based systems and switch based packet networks including but not restricted to TCP/IP based networks.
>
> The IPMux 50 is preferably configurable to set desired packet sizes, and the filter 51 is preferably configurable to filter out E1 *time slots that do not carry data*. A definition for a non-data carrying time slot is preferably provided to filter 51 by an operator prior to use. Preferably, TS0 slots of the E1 protocol are also filtered out since these have no meaning in the TCP/IP protocol and may in any case be regenerated at the receiving end.

Id. at 7:38-56 (emphasis added).

These disclosures are consistent with Plaintiffs' proposed construction, and Defendants have not demonstrated that the ability of an operator to configure the system (*see* '874 Patent at 7:51-53) necessarily gives rise to indefiniteness.

Defendants' arguments regarding Plaintiffs' statements in *Inter Partes* Review proceedings are unavailing, in particular because the patentee distinguished the "Arimilli" reference's "silent frame" by arguing that the reference lacked any disclosure at all regarding time slots in a synchronous data protocol. Dkt. No. 187, Ex. 15, Feb. 19, 2016 Patent Owner Preliminary Response Pursuant To 37 C.F.R. § 42.107 at 27.

Finally, Defendants urged at the September 28, 2016 hearing that the specification provides no guidance for determining whether a particular time slot is not carrying "data." For example, Defendants submitted that signaling time slots as well as "silent" time slots do indeed contain data. The above-quoted disclosures in the specification, however, demonstrate that "non-data" in the '874 Patent refers to time slots that contain information that may be useful or necessary in one communication protocol but that is not needed in another communication protocol. The identification of particular time slots as not containing "data" is thus implementation-specific and will depend on the particular communication protocols being used.

The Court therefore hereby expressly rejects Defendants' indefiniteness arguments and hereby construes **"[wherein said synchronous protocol allows] non-data carrying time slots"** to mean **"[wherein said synchronous protocol allows] time slots that do not contain data."**

B. "[a central] high-capacity data trunking region"

Plaintiffs' Proposed Construction	Defendants' Proposed Construction
"a high speed data link coupled to one or more branches of a cellular telephone network"	Indefinite

Dkt. No. 161, Ex. A at 13. The parties submit that this term appears in Claims 2 and 3 of the '874 Patent. Dkt. No. 161, Ex. A at 13.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary construction: "network backbone (Not indefinite)."

(1) The Parties' Positions

Plaintiffs argue that "'trunk' is a well-known term in the telecommunications industry," and "the specification defines a 'trunking region' as a synonym for a network 'backbone.'" Dkt. No. 181 at 23.

Defendants respond that although the term "trunk" is known in the art, "[t]he base term 'trunking region' is simply not known to those of ordinary skill in the art . . . ." Dkt. No. 187 at 20-21. Defendants also argue that "the specification provides no objective guidance for determining whether" the requirements of "central" and "high-capacity" are met. *Id.* at 21.

Plaintiffs reply that Defendants' current arguments are inconsistent with their position in *Inter Partes* Review proceedings. Dkt. No. 190 at 7.

At the September 28, 2016 hearing, the parties presented no oral argument as to this term.

(2) Analysis

At first blush, the term "high-capacity" appears to be subjective, and the term "trunking region" appears to contrast with the well-known term "trunk." The specification, however, is consistent with Plaintiffs' proposal that the disputed term refers to connections between switching systems (as opposed to connections to subscribers):

> The embodiments concern cellular and other wireless networks comprising branches and a heavy data trunking region which is required to carry large amounts of data rapidly and thus to serve as the backbone of the network.
>
> * * *
>
> High capacity connections that link different MSCs or groupings of MSCs are referred to as the cellular backbone. High capacity connections that form part of the PSTN 18 are referred to as the PSTN backbone.

'874 Patent at 5:29-32 & 6:49-52.

Plaintiffs have also submitted an extrinsic technical dictionary definition of "trunk" that is likewise consistent with such a reading. Dkt. No. 181, Ex. 9, *The New IEEE Standard Dictionary of Electrical and Electronics Terms* 1418 (5th ed. 1993) ("A telephone line or channel between two central offices or switching devices, which is used in providing telephone connections between subscribers."). Finally, in *Inter Partes* Review proceedings, Defendants themselves noted: "The Abstract of the '874 patent discusses the 'high-capacity trunking region,' as either equivalent to or interchangeable with a 'network backbone.'" *See* Dkt. No. 181, Ex. 6, Hughes Network Systems, LLC's Petition For *Inter Partes* Review of Claims 2-7 of U.S. Patent No. 7,245,874 Under 35 U.S.C. §§ 311-319 and 37 C.F.R. §§ 42.100 *et seq.* at 12.

The Court therefore hereby expressly rejects Defendants' indefiniteness arguments. The proper construction is further informed by the context of the claims in which the disputed term appears, such as in the recital of "one of peripheral branches of a telephone network, the peripheral branches being connected to a central high-capacity data trunking region." '874 Patent at Cl. 2. On balance, the claims, the specification, and the extrinsic evidence, as discussed above, demonstrate that the disputed term refers to a network backbone.

The Court nonetheless rejects Plaintiffs' proposal of "a high speed data link coupled to one or more branches of a cellular telephone network" as potentially overbroad and unclear

because it includes the term "high speed" and because it could be interpreted as encompassing subscriber connections.

The Court therefore hereby construes **"[a central] high-capacity data trunking region"** to mean **"network backbone."**

C. "converters for converting data of a datastream between said first data communication protocol and said second data communication protocol" / "E1-TCP/IP converters for converting data between said E1 protocol and said TCP/IP protocol"

"converters for converting data of a datastream between said first data communication protocol and said second data communication protocol" ('874 Patent, Claim 1)	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
No construction needed In the alternative, if the Court decides that this term is subject to § 112, ¶ 6, Plaintiffs propose the following construction: Function: "converting data of a datastream between said first data communication protocol and said second data communication protocol" Structure: "internet protocol multiplexor (IPMux) 50 as depicted in Figure 2 and described at 6:60-7:56, SS7 Gateway 150 as depicted in Figure 10 and described at 10:51-11:44, and equivalents"	Indefinite Subject to § 112, ¶ 6 Function: "converting data of a datastream between said first data communication protocol and said second data communication protocol" Structure: None

"E1-TCP/IP converters for converting data between said E1 protocol and said TCP/IP protocol" ('874 Patent, Claim 8)	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
No construction needed In the alternative, if the Court decides that this term is subject to § 112, ¶ 6, Plaintiffs propose the following construction: Function: "for converting data between said E1 protocol and said TCP/IP protocol" Structure: "internet protocol multiplexor (IPMux) 50 as depicted in Figure 2 and described at 6:60-7:56, SS7 Gateway 150 as depicted in Figure 10 and described at 10:51-11:44, and equivalents"	Indefinite Subject to § 112, ¶ 6 Function: "converting data between said E1 protocol and said TCP/IP protocol" Structure: None

Dkt. No. 161, Ex. A at 10-11 & 15.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary construction: "§ 112, ¶ 6 does not apply. Plain and ordinary meaning."

(1) The Parties' Positions

Plaintiffs argue that these are not means-plus-function terms because "'[c]onverters' are a well-known class of structures in the telecommunications space, used to adapt one telecommunications protocol to another so that two devices may communicate." Dkt. No. 181 at 25 (citation omitted). Alternatively, Plaintiffs argue that ample corresponding structure is disclosed with reference to Figure 2 of the '874 Patent. *Id.* at 26.

Defendants respond that "converters" is a nonce term that does not indicate any structure for performing the claimed function. Dkt. No. 187 at 22. Further, Defendants argue that "[t]he

structures identified by Plaintiffs are not any more structural than the terms of the claims." *Id.* at 23.

Plaintiffs reply that "Defendants do not dispute that 'converters' are a well-known class of structures." Dkt. No. 190 at 8.

(2) Analysis

Title 35 U.S.C. § 112, ¶ 6 provides: "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."

"[T]he failure to use the word 'means' . . . creates a rebuttable presumption . . . that § 112, para. 6 does not apply." *Williamson v. Citrix Online LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (citations and internal quotation marks omitted). "When a claim term lacks the word 'means,' the presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." *Id.* at 1349 (citations and internal quotation marks omitted).

Williamson, in an *en banc* portion of the decision, abrogated prior statements that the absence of the word "means" gives rise to a "strong" presumption against means-plus-function treatment. *Id.* (citation omitted). *Williamson* also abrogated prior statements that this presumption "is not readily overcome" and that this presumption cannot be overcome "without a showing that the limitation essentially is devoid of anything that can be construed as structure." *Id.* (citations omitted). Instead, *Williamson* found, "[h]enceforth, we will apply the presumption as we have done prior to *Lighting World . . . .*" *Id.* (citing *Lighting World, Inc. v. Birchwood*

Lighting, Inc., 382 F.3d 1354, 1358 (Fed. Cir. 2004)). In a subsequent part of the decision not considered *en banc*, *Williamson* affirmed the district court's finding that the term "distributed learning control module" was a means-plus-function term that was indefinite because of lack of corresponding structure, and in doing so *Williamson* stated that "'module' is a well-known nonce word." 792 F.3d at 1350.

Here, the disputed terms each recite "converters," which connote structure. *See* '874 Patent at 4:47-50, 6:60-7:56 & Fig. 2 (illustrating a "converter"); *see also* Dkt. No. 181, Ex. 9, *The New IEEE Standard Dictionary of Electrical and Electronics Terms* 267 (5th ed. 1993) (defining "converter" in the context of data transmission as meaning "[a] device for changing one form of information language to another, so as to render the language acceptable to a different machine").

In so finding, the Court applies long-standing principles articulated prior to the abrogated *Lighting World* decision. *See, e.g., Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1320 (Fed. Cir. 2004) ("when the structure-connoting term 'circuit' is coupled with a description of the circuit's operation, sufficient structural meaning generally will be conveyed to persons of ordinary skill in the art, and § 112 ¶ 6 presumptively will not apply"; noting "language reciting [the circuits'] respective objectives or operations"); *Apex Inc. v. Raritan Computer, Inc.*, 325 F.3d 1364, 1372 (Fed. Cir. 2003) ("While we do not find it necessary to hold that the term 'circuit' by itself always connotes sufficient structure, the term 'circuit' with an appropriate identifier such as 'interface,' 'programming' and 'logic,' certainly identifies some structural meaning to one of ordinary skill in the art."); *Personalized Media Commc'ns, LLC v. Int'l Trade Comm'n*, 161 F.3d 696, 705 (Fed. Cir. 1998) ("Even though the term 'detector' does not specifically evoke a particular structure, it does convey to one knowledgeable in the art a variety

of structures known as 'detectors.' We therefore conclude that the term 'detector' is a sufficiently definite structural term to preclude the application of § 112, ¶ 6."); *Greenberg*, 91 F.3d at 1583 (finding that "detent mechanism" was not a means-plus-function term because it denotes a type of device with a generally understood meaning in the mechanical arts); *Affymetrix, Inc. v. Hyseq, Inc.*, 132 F. Supp. 2d 1212, 1232 (N.D. Cal. 2001) (finding that "'computer code' is not a generic term, but rather recites structure that is understood by those of skill in the art to be a type of device for accomplishing the stated functions").

Finally, "[t]he amount of detail required to be included in claims depends on the particular invention and the prior art." *Typhoon Touch*, 659 F.3d at 1385 (citation and internal quotation marks omitted). Here, the relatively simple converting functions do not demand any greater detail than is recited. Although Defendants have argued that no "off-the-shelf" hardware existed at the time of the invention that could have performed the claimed functions, Defendants have not demonstrated that this necessarily leads to a finding that the term "converters" fails to connote a class of structures. In sum, Defendants have failed to rebut the presumption against means-plus-function treatment for these non-means terms.

The Court therefore hereby construes the disputed terms as set forth in the following chart:

Term	Construction
"converters for converting data of a datastream between said first data communication protocol and said second data communication protocol"	**35 U.S.C. § 112, ¶ 6 does not apply.** **Plain meaning.**
"E1-TCP/IP converters for converting data between said E1 protocol and said TCP/IP protocol"	**35 U.S.C. § 112, ¶ 6 does not apply.** **Plain meaning.**

D. "non-data carrying time slot remover for removing said non-data carrying time slots during conversion into said asynchronous protocol" / "time slot regenerator for regenerating non-data carrying time slots during reconstruction of said datastream"

"non-data carrying time slot remover for removing said non-data carrying time slots during conversion into said asynchronous protocol"	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
No additional construction necessary In the alternative, if the Court decides that this term is subject to § 112, ¶ 6, Plaintiffs propose the following construction: Function: "removing said non-data carrying time slots during conversion into said asynchronous protocol" Structure: "Filter 51 as depicted in Figure 2 and equivalents"	Indefinite Subject to § 112, ¶ 6 Function: "removing said non-data carrying time slots during conversion into said asynchronous protocol" Structure: None
"time slot regenerator for regenerating non-data carrying time slots during reconstruction of said datastream"	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
No additional construction necessary In the alternative, if the Court decides that this term is subject to § 112, ¶ 6, Plaintiffs propose the following construction: Function: "regenerating non-data carrying time slots during reconstruction of said datastream" Structure: "E1 Reconstructor 61 as depicted in Figure 2, and equivalents"	Indefinite Subject to § 112, ¶ 6 Function: "regenerating non-data carrying time slots during reconstruction of said datastream" Structure: None

Dkt. No. 161, Ex. A at 11-13. The parties submit that these terms appear in Claim 1 of the '874 Patent. Dkt. No. 161, Ex. A at 11-13.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary construction: "§ 112, ¶ 6 does not apply. Plain and ordinary meaning."

(1) The Parties' Positions

Plaintiffs argue that "remover" and "regenerator" are not nonce words but rather recite structure, and Plaintiffs further urge that "the prefixes 'non-data carrying time slot' for the term 'remover' and 'time slot' for the term 'regenerator' impart additional structural meaning." Dkt. No. 181 at 26-27. Alternatively, Plaintiffs argue that ample corresponding structure is disclosed with reference to Figure 2 of the '874 Patent. *Id.* at 27-28.

Defendants respond that "non-data carrying time slot remover" and "time slot regenerator" are nonce terms that do not indicate any structure for performing the claimed function. Dkt. No. 187 at 24 & 26. Defendants also urge that "non-data carrying time slot" and "time slot" are "non-structural" modifiers. *Id.* at 25 & 26. Further, Defendants argue that "[t]he structures identified by Plaintiffs are no more than functionally-described black boxes, rather than structures or algorithms for performing the claimed functions." *Id.* at 25 & 27.

Plaintiffs reply by reiterating their opening arguments. *See* Dkt. No. 190 at 8-9.

(2) Analysis

For substantially the same reasons discussed above as to the "converters" terms, Defendants have failed to rebut the presumption against means-plus-function treatment as to these "remover" and "regenerator" terms. *See, e.g.*, '874 Patent at 4:21-24 & 7:6-8.

The Court therefore hereby construes the disputed terms as set forth in the following chart:

Term	Construction
"non-data carrying time slot remover for removing said non-data carrying time slots during conversion into said asynchronous protocol"	**35 U.S.C. § 112, ¶ 6 does not apply.** **Plain meaning.**
"time slot regenerator for regenerating non-data carrying time slots during reconstruction of said datastream"	**35 U.S.C. § 112, ¶ 6 does not apply.** **Plain meaning.**

E. "an extractor for extracting said SS7 signaling" / "a TCP/IP packet former for arranging said extracted signaling into TCP/IP packets"

"an extractor for extracting said SS7 signaling"	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
No construction needed In the alternative, if the Court decides that this term is subject to § 112, ¶ 6, Plaintiffs propose the following construction: Function: "extracting said SS7 signaling" Structure: "Filter 51 as depicted in Figure 2, SS7 Gateway 150 as depicted in Figure 10 and described at 10:51-11:44, and equivalents"	Indefinite Subject to § 112, ¶ 6 Function: "extracting said SS7 signaling" Structure: None

"a TCP/IP packet former for arranging said extracted signaling into TCP/IP packets"	
Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
No construction needed In the alternative, if the Court decides that this term is subject to § 112, ¶ 6, Plaintiffs propose the following construction: Function: "arranging said extracted signaling into TCP/IP packets" Structure: "Packager 53 as depicted in Figure 2, SS7 Gateway 150 as depicted in Figure 10 and described at 10:54-11:9, and equivalents"	Indefinite Subject to § 112, ¶ 6 Function: "arranging said extracted signaling into TCP/IP packets" Structure: None

Dkt. No. 161, Ex. A at 13-15. The parties submit that these terms appear in Claim 5 of the '874 Patent. Dkt. No. 161, Ex. A at 13-15.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary construction: "§ 112, ¶ 6 does not apply. Plain and ordinary meaning."

(1) The Parties' Positions

Plaintiffs argue that "extractor" and "packet former" are not nonce words but rather recite structure, and furthermore the prefix "TCP/IP" imparts additional structural meaning to the "packet former." Dkt. No. 181 at 28. Alternatively, Plaintiffs argue that "the specification links Filter 51, Packager 53 and SS7 Gateway 150 to the recited functions." *Id.*

Defendants respond that "the terms 'extractor' and 'TCP/IP packet former' are instances of . . . purely functional 'nonce' claiming," and "[t]he structures identified by Plaintiffs are no

more than functionally-described black boxes, rather than structures or algorithms for performing the claimed functions." Dkt. No. 187 at 27-28.

Plaintiffs reply that the disputed terms denote specific structure, "especially in view of the surrounding claim language and the specification, which make clear that the Filter 51, Packager 53, and SS7 Gateway 150 perform the recited functions." Dkt. No. 190 at 9 (citing '874 Patent at 7:6-10 & 10:45-11:44).

(2) Analysis

For substantially the same reasons discussed above as to the "converters" terms, Defendants have failed to rebut the presumption against means-plus-function treatment as to these "extractor" and "TCP/IP packet former" terms. *See, e.g.*, '874 Patent at 10:45-11:44. Also of note, the modifier "TCP/IP" provides additional structural significance to the "packet former" term. *See Williamson*, 792 F.3d at 1351 (noting "the presence of modifiers").

The Court therefore hereby construes the disputed terms as set forth in the following chart:

Term	Construction
"an extractor for extracting said SS7 signaling"	**35 U.S.C. § 112, ¶ 6 does not apply.** **Plain meaning.**
"a TCP/IP packet former for arranging said extracted signaling into TCP/IP packets"	**35 U.S.C. § 112, ¶ 6 does not apply.** **Plain meaning.**

F. "a multiplexer for converting between the E1 signal and the TCP/IP signal"

Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
No construction needed In the alternative, if the Court decides that this term is subject to § 112, ¶ 6, Plaintiffs propose the following construction: Function: "converting between the E1 signal and the TCP/IP signal" Structure: "internet protocol multiplexor (IPMux) 50 as depicted in Figure 2 and described at 6:60-7:56 and equivalents"	Indefinite Subject to § 112, ¶ 6 Function: "converting between the E1 signal and the TCP/IP signal" Structure: None

Dkt. No. 161, Ex. A at 16. The parties submit that this term appears in Claims 2 and 8 of the '874 Patent. Dkt. No. 161, Ex. A at 16.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary construction: "§ 112, ¶ 6 does not apply. Plain and ordinary meaning."

(1) The Parties' Positions

Plaintiffs argue that "'[m]ultiplexers' are a well-known class of structures and are used to interleave or funnel multiple streams of data over a common communications line." Dkt. No. 181 at 29 (citation omitted). Alternatively, Plaintiffs argue that ample corresponding structure is disclosed with reference to Figure 2 of the '874 Patent. *Id.* at 29.

Defendants respond that "multiplexer" is a purely functional nonce term that "merely sets forth the same 'black box' recitation of structure for providing the specified function as if the term 'means' had been used." Dkt. No. 187 at 29. Defendants also argue that "[t]he structure identified by Plaintiffs is a functionally-described black box, rather than adequate structure for performing the claimed function." *Id.*

Plaintiffs reply that "multiplexer" is "indisputably a well-known class of structures," and Plaintiffs argue that "[b]y Defendants' logic, §112(6) could apply to any well-known structure so long as a dictionary definition for it happens to recite the word 'device.'" Dkt. No. 190 at 10.

(2) Analysis

For substantially the same reasons discussed above as to the "converters" terms, Defendants have failed to rebut the presumption against means-plus-function treatment as to this "multiplexer" term. *See, e.g.,* '874 Patent at 4:47-51 & 6:60-7:32. Also of note, Plaintiffs have submitted an extrinsic technical dictionary that defines "multiplexer" as meaning "a device that allows the interleaving of two or more signals to a single line or terminal." Dkt. No. 181, Ex. 9, *The New IEEE Standard Dictionary of Electrical and Electronics Terms* 829 (5th ed. 1993).

The Court therefore hereby finds that 35 U.S.C. § 112, ¶ 6 does not apply, and the Court hereby construes **"a multiplexer for converting between the E1 signal and the TCP/IP signal"** to have its **plain meaning**.

G. "decoders operable to decode synchronization control information from data arriving from said link, to reconstruct a synchronized telephony protocol data stream"

Plaintiffs' Proposed Construction	**Defendants' Proposed Construction**
No construction needed In the alternative, if the Court decides that this term is subject to § 112, ¶ 6, Plaintiffs propose the following construction: Function: "to decode synchronization control information from data arriving from said link and to reconstruct a synchronized telephony protocol data stream" Structure: "Header Reader 59 and E1 Reconstructor 61 as depicted in Figure 2, and equivalents"	Indefinite Subject to § 112, ¶ 6 Function: "regenerating non-data carrying time slots during reconstruction of said datastream" Structure: None

Dkt. No. 161, Ex. A at 16-17. The parties submit that this term appears in Claim 11 of the '874 Patent. Dkt. No. 161, Ex. A at 16-17.

Shortly before the start of the September 28, 2016 hearing, the Court provided the parties with the following preliminary construction: "§ 112, ¶ 6 does not apply. Plain and ordinary meaning."

(1) The Parties' Positions

Plaintiffs argue that "'decoders' are a well-known class of structures that convert coded data to its original form." Dkt. No. 181 at 30 (citation omitted). Alternatively, Plaintiffs argue that ample corresponding structure is disclosed with reference to Figure 2 of the '874 Patent. *Id.*

Defendants respond that "decoders" is a purely functional nonce term, and "[t]he structures identified by Plaintiffs are a functionally-described black box, rather than any structure." *Id.*

Plaintiffs reply that "Defendants do not dispute Plaintiffs' dictionary definition or that decoders are a well-known class of structures." Dkt. No. 190 at 10.

(2) Analysis

For substantially the same reasons discussed above as to the "converters" terms, Defendants have failed to rebut the presumption against means-plus-function treatment as to this "decoders" term. *See, e.g.*, '874 Patent at 7:20-31. Also of note, Plaintiffs have submitted an extrinsic technical dictionary that defines "decoder" as meaning "[a] device or a program routine that converts coded data back into its original form." Dkt. No. 181, Ex. 12, *Microsoft Press Computer Dictionary* 114 (2d ed. 1994).

The Court therefore hereby finds that 35 U.S.C. § 112, ¶ 6 does not apply, and the Court hereby construes **"decoders operable to decode synchronization control information from**

data arriving from said link, to reconstruct a synchronized telephony protocol data stream" to have its **plain meaning**.

VI. CONCLUSION

The Court adopts the constructions set forth in this opinion for the disputed terms of the patents-in-suit.

The parties are ordered to not refer to each other's claim construction positions in the presence of the jury. Likewise, in the presence of the jury, the parties are ordered to refrain from mentioning any portion of this opinion, other than the actual definitions adopted by the Court. The Court's reasoning in this order binds the testimony of any witnesses, and any reference to the claim construction proceedings is limited to informing the jury of the definitions adopted by the Court.

SIGNED this 17th day of October, 2016.

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE

APPENDIX A

Term	Parties' Agreement
"first synchronous data communication protocol" ('874 Patent, Claim 1)	"a data communication protocol that relies on the temporal relationship between time slots"
"second asynchronous data communication protocol" ('874 Patent, Claim 1)	"a data communication protocol that does not rely on the temporal relationship between time slots"
"continuation flag" ('073 Patent, Claims 3 and 6)	"a data field that indicates additional messages follow the current message"

Dkt. No. 161 at 2; Dkt. No. 196, Ex. A at 7.