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

ENTROPIC COMMUNICATIONS, LLC,	§	
	§	
Plaintiff,	§	
	§	
v.	§	CASE NO. 2:22-CV-00125-JRG
	§	
CHARTER COMMUNICATIONS, INC.,	§	
	§	
Defendant.	§	
	§	
	§	

CLAIM CONSTRUCTION
MEMORANDUM OPINION AND ORDER

Before the Court is the Opening Claim Construction Brief (Dkt. No. 97) filed by Plaintiff Entropic Communications, LLC ("Plaintiff" or "Entropic"). Also before the Court are the Responsive Claim Construction Brief (Dkt. No. 104) filed by Defendant Charter Communications, Inc. ("Defendant" or "Charter") and Plaintiff's reply (Dkt. No. 110). The Court held a hearing on June 13, 2023.

Comcast, Ex. 1117

Table of Contents

I. BACKGROUND **3**
II. LEGAL PRINCIPLES **3**
III. AGREED TERMS **7**
IV. DISPUTED TERMS IN U.S. PATENT NO. 8,223,775 ..... **8**
1. "a data networking engine implemented in a first circuit that includes at least one processor . . ." and "a cable modem engine implemented in a second circuit that includes at least one processor . . ." 8
2. "data bus" 12
3. "wherein the cable modem functions performed by the cable modem engine are completely partitioned from the home networking functions performed by the data networking engine" 13
4. "DOCSIS functions" 18
5. "DOCSIS MAC processor" and "DOCSIS controller" 21
V. DISPUTED TERMS IN U.S. PATENT NO. 9,825,826 ..... **25**
6. "network management messages" 26
VI. DISPUTED TERMS IN U.S. PATENT NO. 8,792,008 ..... **30**
7. "operable to" 30
8. "digitize a received signal spanning an entire television spectrum comprising a plurality of television channels" 30
9. "signal monitor," "data processor," and "channelizer" 34
VII. DISPUTED TERMS IN U.S. PATENT NO. 8,284,690 ..... **36**
10. "probe" and "physical layer probe" 37
11. "probe request" 42
12. "generating the probe in accordance with the first plurality of parameters and the second plurality of parameters, wherein the probe has a form dictated by the first plurality of parameters," "wherein the probe is generated in accordance with the first plurality of parameters and in accordance with a second plurality of parameters determined by the second node," and "the first plurality of probe parameters comprising a form for the probe including a modulation profile for the probe" 45
VIII. DISPUTED TERMS IN U.S. PATENT NO. 9,210,362 ..... **48**
13. "downconverting . . . a plurality of frequencies" and Order of Steps in Claim 11 48
IX. DISPUTED TERMS IN U.S. PATENT NO. 10,135,682 ..... **52**
14. "a composite SNR-related metric based at least in part on a worst-case SNR profile of said SNR-related metrics" 53
15. "service group[s]" 55
16. "[communicating with/corresponding to] said one of said plurality of service groups" ... 58
X. CONCLUSION **61**

I. BACKGROUND

Plaintiff alleges infringement of United States Patents No. 8,223,775 ("the '775 Patent"), 8,792,008 ("the '008 Patent"), 9,825,826 ("the '826 Patent"), 8,284,690 ("the '690 Patent"), 9,210,362 ("the '362 Patent"), and 10,135,682 ("the '682 Patent") (collectively, the "patents-in-suit"). (Dkt. 97, Exs. 1–6.)

II. LEGAL PRINCIPLES

It is understood that "[a] claim in a patent provides the metes and bounds of the right which the patent confers on the patentee to exclude others from making, using or selling the protected invention." *Burke, Inc. v. Bruno Indep. Living Aids, Inc.*, 183 F.3d 1334, 1340 (Fed. Cir. 1999). Claim construction is 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 Pharm. 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 ascertain the meaning of claims, courts look to three primary sources: the claims, the specification, and the prosecution history. *Markman*, 52 F.3d at 979. The specification must contain a written description of the invention that enables one of ordinary skill in the art to make and use the invention. *Id.* A patent's claims must be read in view of the specification, of which

they are a part. *Id.* For claim construction purposes, the description may act as a sort of dictionary, which explains the invention and may define terms used in the claims. *Id.* "One purpose for examining the specification is to determine if the patentee has limited the scope of the claims." *Watts v. XL Sys., Inc.*, 232 F.3d 877, 882 (Fed. Cir. 2000).

Nonetheless, it is the function of the claims, not the specification, to set forth the limits of the patentee's invention. Otherwise, there would be no need for claims. *SRI Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc). The patentee is free to be his own lexicographer, but any special definition given to a word must be clearly set forth in the specification. *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1388 (Fed. Cir. 1992). Although the specification may indicate that certain embodiments are preferred, particular embodiments appearing in the specification will not be read into the claims when the claim language is broader than the embodiments. *Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 1054 (Fed. Cir. 1994).

This Court's claim construction analysis is substantially guided by the Federal Circuit's decision in *Phillips v. AWH Corporation*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). In *Phillips*, the court set forth several guideposts that courts should follow when construing claims. In particular, the court reiterated that "the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Id.* at 1312 (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To that end, the words used in a claim are generally given their ordinary and customary meaning. *Id.* The ordinary and customary meaning of a claim term "is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1313. This principle of patent law flows naturally from the recognition that

inventors are usually persons who are skilled in the field of the invention and that patents are addressed to, and intended to be read by, others skilled in the particular art. *Id.*

Despite the importance of claim terms, *Phillips* made clear that "the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* Although the claims themselves may provide guidance as to the meaning of particular terms, those terms are part of "a fully integrated written instrument." *Id.* at 1315 (quoting *Markman*, 52 F.3d at 978). Thus, the *Phillips* court emphasized the specification as being the primary basis for construing the claims. *Id.* at 1314–17. As the Supreme Court stated long ago, "in case of doubt or ambiguity it is proper in all cases to refer back to the descriptive portions of the specification to aid in solving the doubt or in ascertaining the true intent and meaning of the language employed in the claims." *Bates v. Coe*, 98 U.S. 31, 38 (1878). In addressing the role of the specification, the *Phillips* court quoted with approval its earlier observations from *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998):

> Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction.

Phillips, 415 F.3d at 1316. Consequently, *Phillips* emphasized the important role the specification plays in the claim construction process.

The prosecution history also continues to play an important role in claim interpretation. Like the specification, the prosecution history helps to demonstrate how the inventor and the United States Patent and Trademark Office ("PTO") understood the patent. *Id.* at 1317. Because the file history, however, "represents an ongoing negotiation between the PTO and the applicant,"

it may lack the clarity of the specification and thus be less useful in claim construction proceedings. *Id.* Nevertheless, the prosecution history is intrinsic evidence that is relevant to the determination of how the inventor understood the invention and whether the inventor limited the invention during prosecution by narrowing the scope of the claims. *Id.*; *see Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1350 (Fed. Cir. 2004) (noting that "a patentee's statements during prosecution, whether relied on by the examiner or not, are relevant to claim interpretation").

Phillips rejected any claim construction approach that sacrificed the intrinsic record in favor of extrinsic evidence, such as dictionary definitions or expert testimony. The *en banc* court condemned the suggestion made by *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193 (Fed. Cir. 2002), that a court should discern the ordinary meaning of the claim terms (through dictionaries or otherwise) before resorting to the specification for certain limited purposes. *Phillips*, 415 F.3d at 1319–24. According to *Phillips*, reliance on dictionary definitions at the expense of the specification had the effect of "focus[ing] the inquiry on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent." *Id.* at 1321. *Phillips* emphasized that the patent system is based on the proposition that the claims cover only the invented subject matter. *Id.*

Phillips does not preclude all uses of dictionaries in claim construction proceedings. Instead, the court assigned dictionaries a role subordinate to the intrinsic record. In doing so, the court emphasized that claim construction issues are not resolved by any magic formula. The court did not impose any particular sequence of steps for a court to follow when it considers disputed claim language. *Id.* at 1323–25. Rather, *Phillips* held that a court must attach the appropriate weight to the intrinsic sources offered in support of a proposed claim construction, bearing in mind the general rule that the claims measure the scope of the patent grant.

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.*, 572 U.S. 898, 910, 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*, 572 U.S. 898. "Indefiniteness must be proven by clear and convincing evidence." *Sonix Tech. Co. v. Publ'ns Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017).

III. AGREED TERMS

In their April 4, 2023 P.R. 4-3 Joint Claim Construction and Prehearing Statement, the parties submitted the following agreed-upon constructions (Dkt. No. 84, at 1):

Term	Construction
"the cable modem engine configured to enable upgrades to its software in a manner that is independent of upgrades to the software of the data networking engine" ('775 Patent, Claim 18)	Plain and ordinary meaning
"downstream PDU packets" ('775 Patent, Claim 18)	Plain and ordinary meaning
"parameters" ('690 Patent, Claims 1, 9)	Plain and ordinary meaning
"associated with [the] generation and transmission of [a/the] probe" ('690 Patent, Claim 1)	Plain and ordinary meaning
"wideband analog-to-digital converter (ADC) module"	Plain and ordinary meaning

('362 Patent, Claim 1)	

IV. DISPUTED TERMS IN U.S. PATENT NO. 8,223,775

The '775 Patent, titled "Architecture for a Flexible and High-Performance Gateway Cable Modem," issued on July 17, 2012, and bears a filing date of September 30, 2003. The Abstract of the '775 Patent states:

> A cable modem system and architecture. A cable modem engine performs all cable modem functions, and a data networking engine performs all data and home networking functions. The cable modem engine is completely partitioned from the data networking engine. DOCSIS and VoIP functionality is implemented in the cable modem engine. The VoIP functionality may be in accordance with the Packet-Cable specification. The data networking functionality provided by the data networking engine may be in accordance with the CableHome specification.

1. "a data networking engine implemented in a first circuit that includes at least one processor . . ." and "a cable modem engine implemented in a second circuit that includes at least one processor . . ."

"a data networking engine implemented in a first circuit that includes at least one processor . . ." ('775 Patent, Claim 18)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	Indefinite
"a cable modem engine implemented in a second circuit that includes at least one processor . . ." ('775 Patent, Claim 18)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	Indefinite

(Dkt. No. 84, at A-1; Dkt. No. 97, at 6; Dkt. No. 104, at 4; Dkt. No. 115, Ex. A, at 1.)

(a) The Parties' Positions

Plaintiff argues that "data networking" and "cable modem" were well-known phrases at the time of the invention and that the generic word "engine," as modified by the phrases "data networking" and "cable modem," would have been readily understood by a person of ordinary skill in this art. (Dkt. No. 97, at 6–7.) Plaintiff also argues that Defendant's indefiniteness arguments should be rejected because "electrical engineers routinely design subcomponents of consumer electronics, even if the components reside on the same chip," and "[a] POSITA would have no trouble determining where one circuit begins and another ends, because integrating functional blocks on 'a chip' does not render them indistinguishable." (*Id.*, at 8.)

Defendant responds that "[t]here is no disclosure of a DNE or CME implemented in any circuit, much less two circuits which are 'separate' from one another." (Dkt. No. 104, at 5.) Defendant argues that Plaintiff cannot simply chose whatever meaning or "level" of the word "circuit" suits its infringement contentions. (*See id.*, at 6–8.)

Plaintiff replies that the term "circuit" is readily understandable and that the specification discloses separation of functions. (Dkt. No. 110, at 1.)

At the June 13, 2023 hearing, Plaintiff argued that although the functionality of the first circuit and the second circuit must be separate, this does not necessarily require physical separation. Defendant responded that it is *not* arguing that the first circuit and the second circuit must be on separate *chips*, but the problem, Defendant argued, is that this claim uses "circuit" in a subjective way and, as a result, there is no way for a person of skill in the art to know if these limitations are satisfied.

(b) Analysis

Claim 18 of the '775 Patent recites (emphasis added):

> 18. A cable modem system comprising:
>
> *a data networking engine implemented in a first circuit that includes at least one processor*, the data networking engine programmed with software that when executed by the at least one processor of the first circuit causes the data networking engine to perform home networking functions including interfacing with customer provided equipment;
>
> *a cable modem engine implemented in a second circuit that includes at least one processor*, the second circuit being *separate* from the first circuit, the cable modem engine programmed with software that when executed by the at least one processor of the second circuit causes the cable modem engine to perform cable modem functions other than the home networking functions performed by the data networking engine, the cable modem functions including interfacing with cable media, and the cable modem engine configured to enable upgrades to its software in a manner that is independent of upgrades to the software of the data networking engine, the cable modem engine including a DOCSIS controller and a DOCSIS MAC processor, the DOCSIS MAC processor configured to process downstream PDU packets and forward the processed packets directly to the data networking engine without the involvement of the DOCSIS controller in order to boost downstream throughput; and
>
> a data bus that connects the data networking engine to the cable modem engine, wherein the cable modem functions performed by the cable modem engine are completely partitioned from the home networking functions performed by the data networking engine.

The specification discloses "functional partitioning" and also contrasts the disclosed cable modem system with "current stand-alone cable modem chips":

> Functional Partitioning. Cable modem 100 completely partitions data networking functions . . . from DOCSIS cable modem functionality.
>
> * * *
>
> A chip implementing cable modem system 100 will have only a small incremental hardware cost/functional increase over current stand-alone cable modem chips.

'775 Patent at 4:13–16 & 4:58–60; *see id.* at FIGS. 1 and 2 (illustrating data networking engine ("DNE") 120 and cable modem engine ("CME") 110).

Such disclosure regarding "functionality" is consistent with the technical dictionary cited by Defendant's expert, which defines "circuit" as:

> 1. Any path that can carry electrical current. 2. A combination of electrical components interconnected to perform a particular task. At one level, a computer

> consists of a single circuit; at another, it consists of hundreds of interconnected circuits.

(Dkt. No. 97, Ex. 8, Apr. 4, 2023 Almeroth Decl., App'x C, *Microsoft Computer Dictionary* 99 (5th ed. 2002).)

The specification and this extrinsic evidence are thus consistent with Plaintiff's interpretation that the phrases "first circuit" and "second circuit" are not limited to specific established structures but rather refer to interconnected electrical components that implement the data networking engine functionality and the cable modem engine functionality. *Cf. 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 [POSITAs]").

Further, although the claim requires "the second circuit being separate from the first circuit," the "first circuit" and "second circuit" need not be physically separated, such as on separate chips, for example. *Cf. Linear Tech. Corp. v. Int'l Trade Comm'n*, 566 F.3d 1049, 1055 (Fed. Cir. 2009) ("We agree with the Commission's construction of 'second circuit' and 'third circuit,' defining the terms broadly to not require entirely separate and distinct circuits."). This is true even if the disclosed cable modem system 100 is implemented as a "System-on-a-Chip" ("SoC") because even if the SoC is considered to be a single "circuit" (*see* Dkt. No. 97, at 8; *see also* Dkt. No. 104, Ex. 2, May 4, 2023 Kramer dep. at 127:13–22 ("a System on a Chip can be considered an integrated circuit")), this circuit can itself be understood as being composed of multiple circuits. The opinions of Defendant's expert to the contrary are unpersuasive. (*See* Dkt. No. 97, Ex. 8, Apr. 4, 2023 Almeroth Decl. at ¶¶ 64–68.)

Thus, Defendant does not meet its burden to show any lack of reasonable certainty. *Nautilus*, 572 U.S. at 910. The *Dow* and *Teva* cases cited by Defendant do not compel otherwise

because, for example, the present case does not involve different potential methods of measurement. *See Dow Chemical Co. v. Nova Chemicals Corp. (Canada)*, 803 F.3d 620, 631, 634 (Fed. Cir. 2015) (finding indefiniteness as to "a slope of strain hardening coefficient greater than or equal to 1.3"); *see also Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1338, 1344–45 (Fed. Cir. 2015) (finding indefiniteness as to "a molecular weight of about 5 to 9 kilodaltons").

The Court therefore hereby expressly rejects Defendant's indefiniteness argument. Defendant presents no alternative proposed constructions, and no further construction is necessary.

The Court accordingly hereby construes **"a data networking engine implemented in a first circuit that includes at least one processor . . ."** and **"a cable modem engine implemented in a second circuit that includes at least one processor . . ."** to have their **plain meaning**.

2. "data bus"

"data bus" ('775 Patent, Claim 18)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	Indefinite

(Dkt. No. 84, at A-2; Dkt. No. 97, at 9; Dkt. No. 104, at 8; Dkt. No. 115, Ex. A, at 2.)

(a) The Parties' Positions

Plaintiff argues that the meaning of "data bus" is well known to persons of ordinary skill in the art. (Dkt. No. 97, at 9.)

Defendant responds that, in light of the prosecution history, "the 'data bus' limitation is irreconcilable with the 'completely partitioned' limitation, and claim 18 is therefore indefinite." (Dkt. No. 104, at 8 (citation omitted).)

Plaintiff replies that Defendant's argument is untenable because "[p]rosecution history disclaimers operate to narrow what would otherwise fall within a claim; they do not operate to invalidate claims by eliminating elements textually present." (Dkt. No. 110, at 2.)

At the June 13, 2023 hearing, the parties argued this term together with the above-discussed ". . . in a first circuit . . ." and ". . . in a second circuit . . ." terms.

(b) Analysis

Defendant does not dispute that "data bus" is a well-known term in the relevant art. (*See* Dkt. No. 97, Ex. 10, *The IEEE Standard Dictionary of Electrical and Electronics Terms* 252 (defining "data bus" as "a bus used to communicate data to and from a processing unit or a storage device").)

The parties' dispute pertains not to the term "data bus" in isolation but rather to the accompanying "wherein" clause, which the parties present as a distinct disputed term and which is addressed separately below.

The Court therefore hereby construes **"data bus"** to have its **plain meaning**.

3. "wherein the cable modem functions performed by the cable modem engine are completely partitioned from the home networking functions performed by the data networking engine"

"wherein the cable modem functions performed by the cable modem engine are completely partitioned from the home networking functions performed by the data networking engine" ('775 Patent, Claim 18)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	The cable modem engine and the data networking engine do not share any connecting circuitry, data paths, or memory devices.

(Dkt. No. 84, at A-4; Dkt. No. 97, at 10; Dkt. No. 104, at 8; Dkt. No. 115, Ex. A, at 2–3.)

(a) The Parties' Positions

Plaintiff argues:

> The disputed claim language explicitly recites that the functions of the DNE [(data networking engine)] and CME [(cable modem engine)] are partitioned. This distinction is key because functions can be partitioned in hardware, software, or both. Functional partitioning is explicitly described in the specification as 'localizing' the cable modem and data networking functions in the separate engines:
>
> * * *
>
> A POSITA would understand that connecting the DNE and CME (e.g., via a data bus) does not eliminate the compartmentalization of their respective functions."

(Dkt. No. 97, at 10 (citations omitted).)

Defendant responds as to this term together with the term "data bus," which is addressed above. (*See* Dkt. No. 104, at 8.) Plaintiff replies likewise. (*See* Dkt. No. 110, at 2–3.)

At the June 13, 2023 hearing, the parties argued this term together with the above-discussed ". . . in a first circuit . . ." and ". . . in a second circuit . . ." terms.

(b) Analysis

Claim 18 of the '775 Patent recites (emphasis added):

> 18. A cable modem system comprising:
>
> a data networking engine implemented in a first circuit that includes at least one processor, the data networking engine programmed with software that when executed by the at least one processor of the first circuit causes the data networking engine to perform home networking functions including interfacing with customer provided equipment;
>
> a cable modem engine implemented in a second circuit that includes at least one processor, the second circuit being separate from the first circuit, the cable modem engine programmed with software that when executed by the at least one processor of the second circuit causes the cable modem engine to perform cable modem functions other than the home networking functions performed by the data networking engine, the cable modem functions including interfacing with cable media, and the cable modem engine configured to enable upgrades to its software in a manner that is independent of upgrades to the software of the data networking engine, the cable modem engine including a DOCSIS controller and a DOCSIS MAC processor, the DOCSIS MAC processor configured to process downstream PDU packets and *forward the processed packets directly to the data networking engine* without the involvement of the DOCSIS controller in order to boost downstream throughput; and

> a *data bus* that connects the data networking engine to the cable modem engine, *wherein the cable modem functions performed by the cable modem engine are completely partitioned from the home networking functions performed by the data networking engine*.

The specification discloses "localizing" the *functions*:

> Functional Partitioning. Cable modem 100 completely partitions data networking *functions* (advanced bridging/routing, NAT/firewall, VPN, web server and CableHome applications) from DOCSIS cable modem *functionality*. This is accomplished by localizing data networking *functions* in the data networking engine processor and localizing cable modem *functions* in the cable modem engine processor.

'775 Patent at 4:13–19 (emphasis added). Further, the claim itself recites that the cable modem engine "forward[s] the processed packets directly to the data networking engine," thus implying that such communication is not inconsistent with the cable modem engine and the data networking engine being "completely partitioned" from one another. *See id.* at Figs. 1 & 2 (illustrating data path 118 between CME and DNE); *see also id.* at 3:15–17 ("DS PDU packets are forwarded by [the DOCSIS MAC processor] directly to [DNE] 120 along path 118, bypassing controller 116").

The prosecution history cited by Defendant does not compel otherwise. The patentee distinguished the "Brooks" reference (United States Patent Application Publication No. 2001/0039600) as follows:

> [T]he Office Action make the conclusion statement [s*ic*] that "the data networking engine and cable modem engines are represented in Figures 1 and 2 of the [Brooks] reference" . . . . However, Applicant is uncertain how any reasonable interpretation of these Figures can provide correspondence. For example, Figure 2 of [Brooks] discloses only two processors, each of which, therefore, must correspond to the claimed data-networking and cable-modem engines. However, the discussion of Figure 2 makes clear that the cable modem functions are performed by CMAC unit 224 . . . . Therefore, in order for the cable modem engine to contain a processor and perform the CMAC functions as claimed, the cited cable modem engine must include circuitry to connect the processors with the CMAC unit. Because available *connecting circuitry would be shared with the other processor*, Applicant is uncertain how the asserted cable modem engine and home networking engine can be completely partitioned as claimed.

(Dkt. No. 97, Ex. 8, Apr. 4, 2023 Almeroth Decl., App'x G, Apr. 5, 2010 Response to Final Office Action, at 6 (ENTROPIC_CHARTER_0000108) (p. 236 of 290 of Ex. 8) (emphasis added).)

After an advisory action by the examiner, the patentee explained further, distinguishing Brooks as using processors that were not functionally separate:

> The Examiner's apparent designation of the first processor 102 in Brooks '600 as the "data networking engine," and the second processor 104 and the CMAC/CPHY block (114, 118, 224 and 228) as the "cable modem engine," further does not square with the claim 1 feature that "the cable modem functions performed by the cable modem engine are completely partitioned from the home networking functions performed by the data networking engine," and the claim 15 feature of "partitioning the data networking engine from the cable modem engine so that the data and home networking functionality is completely decoupled from the DOCSIS and VOOP functionality." This is because the CMAC/CPHY block (114, 118, 224 and 228) communicates with both the processors 102 and 104 by sharing the same data paths and sharing the same direct memory access controller. (See peripheral bus 112 – bridge 110 – system bus 108 in Fig. 1 and APB 214 – OMA Controller/ASB-APB Bridge 212 – ASB 210 in Fig. 2, and paragraphs 0034 and 0035).
>
> Further, accepting the Examiner's assertion that first processor 102 handles data networking *functionality*, and considering the description of paragraphs 0025 and 0026 that processor 102 is programmed to implement the desired MAC *functionality* (which would include typical DOCSIS MAC *functionality*), leads to a conclusion that the Brooks '600 processor 102 does not implement a complete partitioning or a completely decoupled arrangement of the data networking engine from the cable modem engine.
>
> Thus, Brooks '600 does not provide the complete partitioning or completely decoupled arrangement of the data networking engine from the cable modem engine that the Examiner apparently asserts it does.

(*Id.*, June 7, 2010 Response to Final Office Action, at 9 (ENTROPIC_CHARTER_0000134) (p. 254 of 290 of Ex. 8) (emphasis added); *see id.*, at 7–9 (ENTROPIC_CHARTER_0000132–34) (pp. 252–54 of 290 of Ex. 8).)

The patentee thus distinguished Brooks as lacking *functional* separation because what the examiner identified as the cable modem engine in Brooks required interaction with the "CMAC unit," and, the patentee argued, such interaction involved circuitry that was shared with what the

examiner identified as the data networking engine in Brooks. (*See id.*) Thus, no relevant disclaimer is apparent, and in particular the patentee did not disclaim having a data bus that connects the data networking engine to the cable modem engine, as recited in above-reproduced Claim 1 of the '775 Patent. *See Omega Eng'g Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003) ("prosecution disclaimer promotes the public notice function of the intrinsic evidence and protects the public's reliance on *definitive* statements made during prosecution") (emphasis added); *see also id.* at 1325–26 ("for prosecution disclaimer to attach, our precedent requires that the alleged disavowing actions or statements made during prosecution be both *clear and unmistakable*") (emphasis added).

The Court therefore hereby expressly rejects Defendant's proposal that the cable modem engine and the data networking engine cannot share any connecting circuitry, data paths, or memory devices.

The Court accordingly hereby construes **"wherein the cable modem functions performed by the cable modem engine are completely partitioned from the home networking functions performed by the data networking engine"** to mean **"wherein the cable modem engine and the data networking engine are not necessarily physically separate but are functionally separate such that the cable modem functions are performed only by the cable modem engine and the home networking functions are performed only by the data networking engine."**

4. "DOCSIS functions"

"DOCSIS functions" ('775 Patent, Claim 19)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	This limitation does not change the scope of claim 18.

(Dkt. No. 84, at A-5; Dkt. No. 97, at 11; Dkt. No. 104, at 8; Dkt. No. 115, Ex. A, at 3.)

(a) The Parties' Positions

Plaintiff argues that Defendant's proposal is contrary to the doctrine of claim differentiation. (Dkt. No. 97, at 12.)

Defendant responds:

> According to claim 19, all DOCSIS functions are localized in the CME. However, as explained . . . above, the specification explains that the sine qua non of a CME is that it 'performs all cable modem functions' including 'the entire DOCSIS cable modem functionality.' Accordingly, claim 19 is redundant and does not further limit the scope of claim 18. Otherwise, the term 'cable modem engine' is indefinite.

(Dkt. No. 104, at 9.)

Plaintiff replies that there is no redundancy because "Claim 18 recites the broader 'cable modem functions,' which does not necessarily have the same scope as 'all *DOCSIS* functions,' referring to the DOCSIS standard." (Dkt. No. 110, at 3.)

At the June 13, 2023 hearing, the parties argued this term together with the above-discussed ". . . in a first circuit . . ." and ". . . in a second circuit . . ." terms.

(b) Analysis

Claim 19 of the '775 Patent depends from Claim 18 and recites:

> 19. A cable modem system as claimed in claim 18, wherein all DOCSIS functions are localized in the cable modem engine.

Plaintiff applies the doctrine of claim differentiation, arguing:

> Claim 18 states that the CME comprises a processor, programmed with software, that when executed causes the CME to perform "cable modem functions other than the home networking functions performed by the [DNE]." Dependent claim 19 increases the burden on the CME—"all DOCSIS functions are localized in the [CME]." Logically, claim 18 does not require that each and every DOCSIS function be executed by the circuitry of the CME, while claim 19 does.

(Dkt. No. 97, at 12.)

As a general matter, "[c]laim differentiation is 'not a hard and fast rule,' but rather a presumption that will be overcome when the specification or prosecution history dictates a contrary construction." *GPNE Corp. v. Apple Inc.*, 830 F.3d 1365, 1371 (Fed. Cir. 2016).

Defendant argues that this limitation set forth in Claim 19 is redundant (and thus does not imply the absence of such a limitation in Claim 18) because Claim 18, read in light of the specification, already requires this limitation. (*See* Dkt. No. 104, at 9.) Defendant argues that "cable modem engine" "is a phrase coined by the inventors" and "[i]f it does not refer to the components of a cable modem that perform all the cable modem functions, then there is no way to know what it is." (*Id.*, at 9.)

Defendant cites disclosure in the Abstract that the CME "performs all cable modem functions" and "implements the entire DOCSIS cable modem functionality." '775 Patent at Abstract & 2:55–56. The Abstract, however, is not limiting, and the portion of the written description cited by Defendant does not purport to limit the entire claimed invention but rather describes a particular embodiment of "cable modem engine 110." *See Phillips*, 415 F.3d at 1323. Further, there is a "presumption that each claim in a patent has a different scope." *Comark Comm'cns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998). The contrary opinion of Defendant's expert is unpersuasive. (*See* Dkt. No. 97, Ex. 8, Apr. 4, 2023 Almeroth Decl. at ¶ 36 (citing '775 Patent at 2:15–17 ("In one implementation, the VoIP functionality provided by the

cable modem is in accordance with the PacketCable specification and the data networking functionality provided by the data networking engine is in accordance with the CableHome specification."), 2:23–24 ("Data and home networking functionality is provided by a data networking engine, and DOCSIS and VoIP functionality is provided by a cable modem engine.") & 4:19–21).)

The Court therefore hereby expressly rejects Defendant's attempted reliance on Claim 19 to arrive at a narrow interpretation of "cable modem engine" in Claim 18, and no further construction is necessary as to Claim 19. *See U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) ("Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement. It is not an obligatory exercise in redundancy."); *see also O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008) ("[D]istrict courts are not (and should not be) required to construe every limitation present in a patent's asserted claims."); *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1207 (Fed. Cir. 2010) ("Unlike *O2 Micro*, where the court failed to resolve the parties' quarrel, the district court rejected Defendants' construction."); *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1326 (Fed. Cir. 2012); *Summit 6, LLC v. Samsung Elecs. Co., Ltd.*, 802 F.3d 1283, 1291 (Fed. Cir. 2015); *Bayer Healthcare LLC v. Baxalta Inc.*, 989 F.3d 964, 977–79 (Fed. Cir. 2021).

The Court accordingly hereby construes **"DOCSIS functions"** to have its **plain meaning**.

5. "DOCSIS MAC processor" and "DOCSIS controller"

"DOCSIS MAC processor" ('775 Patent, Claim 18)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	The DOCSIS MAC processor as described in the patent specification (*see, e.g.,* '775 Patent at 3:1–20; 4:41–57; *id.* at FIGs. 1 & 2). Otherwise indefinite.
"DOCSIS controller" ('775 Patent, Claim 18)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	The DOCSIS controller as described in the patent specification (*see, e.g.,* '775 Patent at 3:21–48; 4:41–57; *id.* at FIGs. 1 & 2). Otherwise indefinite.

(Dkt. No. 84, at A-6; Dkt. No. 97, at 12; Dkt. No. 115, Ex. A, at 1–2.)

(a) The Parties' Positions

Plaintiff urges that Defendant's proposals would improperly limit these terms to specific exemplary embodiments described in the specification. (Dkt. No. 97, at 12.) Plaintiff also argues that Defendants have already agreed that these are *not* means-plus-function terms governed by 35 U.S.C. § 112, ¶ 6. (*Id.*) Further, Plaintiff submits that "[t]he Federal Circuit and this Court have held that the terms 'processor' and 'controller' denote known classes of structures—generally understood to POSITAs." (*Id.* (citations omitted).)

Defendant responds that "[n]either the phrase 'DOCSIS MAC processor' nor 'DOCSIS controller' has a plain meaning." (Dkt. No. 104, at 9.) Defendant also argues that Plaintiff's proposed construction would either contradict the specification or "make it impossible to distinguish a DOCSIS MAC processor from a DOCSIS controller." (*Id.*, at 9–10.) Defendant

urges that "[t]he only construction of DOCSIS MAC processor and DOCSIS controller that both comports with the specification and provides a basis for distinguishing between the two is a construction whereby each refers to the corresponding device described in the specification." (*Id.*, at 11.)

Plaintiff replies that "the claims themselves describe the functions of the DOCSIS MAC processor and DOCSIS controller," and "Charter has made no argument that the DOCSIS MAC processor and DOCSIS controller should be limited to the specific ARM-based embodiments disclosed in the specification." (Dkt. No. 110, at 3–4.)

At the June 13, 2023 hearing, Defendant submitted that the DOCSIS controller disclosed in the specification performs some MAC functions. Defendant argued that this makes it impossible to distinguish between a "DOCSIS MAC processor" and a "DOCSIS controller," which, in turn, Defendant argued makes it impossible to determine whether an accused instrumentality meets the limitation of "forward[ing] the processed packets directly to the data networking engine without the involvement of the DOCSIS controller."

(b) Analysis

Claim 18 of the '775 Patent recites (emphasis added):

> 18. A cable modem system comprising:
>
> a data networking engine implemented in a first circuit that includes at least one processor, the data networking engine programmed with software that when executed by the at least one processor of the first circuit causes the data networking engine to perform home networking functions including interfacing with customer provided equipment;
>
> a cable modem engine implemented in a second circuit that includes at least one processor, the second circuit being separate from the first circuit, the cable modem engine programmed with software that when executed by the at least one processor of the second circuit causes the cable modem engine to perform cable modem functions other than the home networking functions performed by the data networking engine, the cable modem functions including interfacing with cable media, and the cable modem engine configured to enable upgrades to its software in a manner that is independent of upgrades to the software of the data networking

> engine, the cable modem engine including a *DOCSIS controller* and a *DOCSIS MAC processor*, the *DOCSIS MAC processor* configured to process downstream PDU packets and forward the processed packets directly to the data networking engine without the involvement of the *DOCSIS controller* in order to boost downstream throughput; and
>
> a data bus that connects the data networking engine to the cable modem engine, wherein the cable modem functions performed by the cable modem engine are completely partitioned from the home networking functions performed by the data networking engine.

The words "processor" and "controller" refer to known classes of structures in the relevant art, and the parties agree that "DOCSIS" (Data Over Cable Service Interface Specification) and DOCSIS "MAC" (Medium Access Control) have been well-known at all relevant times. (*See, e.g.,* Dkt. No. 97, Ex. 7, Apr. 14, 2023 Kramer Decl. at ¶ 84.)

Defendant proposes to limit these terms to the particular DOCSIS controller and DOCSIS MAC processor disclosed in the specification, but Defendant does not show any definition or disclaimer that would warrant a narrowing of these terms. *See Thorner v. Sony Computer Ent. Am. LLC*, 669 F.3d 1362, 1367 (Fed. Cir. 2012) ("The patentee is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning unless the patentee explicitly redefines the term or disavows its full scope.").

Moreover, other claims of the patent-in-suit can be considered. *See Phillips*, 415 F.3d at 1314. Claim 1 recites a "DOCSIS MAC processor" and a "DOCSIS controller," and Claim 12 depends from Claim 1 and recites that "the DOCSIS MAC processor is an ARM9TDMI-based RISC processor, and wherein the DOCSIS controller is an ARM940-based RISC processor." Because claim terms should be interpreted consistently throughout all of the claims of a particular patent, *id.*, the doctrine of claim differentiation weighs against limiting the "DOCSIS MAC processor" and a "DOCSIS controller" to ARM9TDMI, ARM940, or any other particular specific implementation.

The disclosure in the specification regarding "functional blocks" is also consistent with interpreting these terms broadly rather than limiting them to particular types of processors. *See* '775 Patent at 2:55–3:38; *see also* Dkt. No. 97, Ex. 7, Apr. 14, 2023 Kramer Decl. at ¶¶ 92–93.

Further, Defendant cites disclosure in which the DOCSIS controller is involved with MAC functions (*see* '775 Patent at 3:27–48), but although the claim requires a "DOCSIS MAC processor configured to . . . forward the processed packets directly to the data networking engine without the involvement of the DOCSIS controller," the absence of involvement of the DOCSIS controller in this particular operation does not preclude the DOCSIS controller from being involved with other MAC functions.

Finally, Defendant cites the opinions of its expert that a person of ordinary skill in the art would be unable to distinguish between a "DOCSIS MAC processor" and a "DOCSIS controller," but these opinions are unpersuasive, particularly given that DOCSIS is a well-established standard and that MAC is also a well-known term in the relevant art. (*See* Dkt. No. 97, Ex. 8, Apr. 4, 2023 Almeroth Decl. at ¶¶ 76–77.) Any remaining question regarding distinguishing between a "DOCSIS MAC processor" and a "DOCSIS controller" pertains to factual questions of infringement rather than any legal question for claim construction. *See PPG Indus. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1355 (Fed. Cir. 1998) ("after the court has defined the claim with whatever specificity and precision is warranted by the language of the claim and the evidence bearing on the proper construction, the task of determining whether the construed claim reads on the accused product is for the finder of fact"); *see also Acumed LLC v. Stryker Corp.*, 483 F.3d 800, 806 (Fed. Cir. 2007) ("[t]he resolution of some line-drawing problems . . . is properly left to the trier of fact") (citing *PPG*, 156 F.3d at 1355); *Eon Corp. IP Holdings LLC v. Silver Spring*

Networks, Inc., 815 F.3d 1314, 1318–19 (Fed. Cir. 2016) (citing *PPG*, 156 F.3d at 1355; citing *Acumed*, 483 F.3d at 806).

The Court therefore hereby expressly rejects Defendant's proposed constructions, and no further construction is necessary. *See U.S. Surgical*, 103 F.3d at 1568; *see also O2 Micro*, 521 F.3d at 1362; *Finjan*, 626 F.3d at 1207; *ActiveVideo*, 694 F.3d at 1326; *Summit 6*, 802 F.3d at 1291; *Bayer*, 989 F.3d at 977–79.

The Court accordingly hereby construes **"DOCSIS MAC processor"** and **"DOCSIS controller"** to have their **plain meaning**.

V. DISPUTED TERMS IN U.S. PATENT NO. 9,825,826

The '826 Patent is a continuation of the '008 Patent.

Plaintiff submits: "The '826 and the '008 Patents disclose methods and apparatuses that can be implemented in Customer Premises Equipment (CPE) that enable the CPE to: receive a cable or satellite television signal, digitize said signal, determine a characteristic of the digitized signal, and then report the determined characteristic back to the source of the signal (*i.e.*, the network-based service providers) without interrupting normal customer service." (Dkt. No. 97 at 3.)

The '008 Patent, titled "Method and Apparatus for Spectrum Monitoring," issued on July 29, 2014, and bears an earliest priority date of September 8, 2011. The Abstract of the '008 Patent states:

> A system, such as a satellite reception assembly or customer premises gateway, may comprise an analog-to-digital converter operable to digitize a signal spanning an entire television spectrum (e.g., cable television spectrum or satellite television spectrum) comprising a plurality of television channels. The system may comprise a signal monitor operable to analyze a signal to determine a characteristic of the signal. The system may comprise a data processor operable to process a television channel to recover content carried on the television channel. The system may comprise a channelizer operable to select first and second portions of the signal,

and concurrently output the first portion to the signal monitor and the second portion to the data processor.

6. "network management messages"

"network management messages" ('826 Patent, Claim 1)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	Messages which report on the status of the network based on an analysis of the measured characteristics.

(Dkt. No. 84, at A-8; Dkt. No. 97, at 15; Dkt. No. 104, at 12; Dkt. No. 115, Ex. A, at 5.)

(a) The Parties' Positions

Plaintiff argues that "[t]he Court should construe this term according to its plain and ordinary meaning because 'network management message' is a plain English phrase that means exactly what it says," and "[t]he '826 Patent's specification confirms the phrase is meant to convey all its ordinary possibilities, in disclosing a list of exemplary types/uses of the messages." (Dkt. No. 97, at 15 (citations omitted).)

Defendant responds that Plaintiff attempts to encompass implementations in which the set-top box returns only a measured characteristic and nothing else to the headend, which Defendant argues is inconsistent with the claim requirement that "said measured characteristic is *different than* said network management messages." (Dkt. No. 104, at 12 (emphasis modified).)

Plaintiff replies that Defendant improperly relies on claim language in the parent '008 Patent in an attempt to limit Claim 1 of the continuation '826 Patent. (Dkt. No. 110, at 4.) Plaintiff also argues that Defendant's argument pertains to a question of fact, not claim construction. (*Id.*)

At the June 13, 2023 hearing, Defendant submitted that although Defendant is *not* arguing that the message cannot include the measured characteristic, the message must include something

that is *not* the measured characteristic. As for Plaintiff's interpretation that a *message* conveying just the measured characteristic is "different" than the measured characteristic *itself*, Defendant argued that this would vitiate the claim requirement that "said measured characteristic is different than said network management messages."

(b) Analysis

Claim 1 of the '826 Patent recites (emphasis added):

> 1. A method comprising:
>
> performing by one or more circuits of a receiver coupled to a television and data service provider headend via a hybrid fiber coaxial (HFC) network:
>
> receiving, via said HFC network, a signal that carries a plurality of channels, wherein said channels comprise one or both of television channels and data channels;
>
> digitizing said received signal to generate a digitized signal;
>
> selecting a first portion of said digitized signal;
>
> selecting a second portion of said digitized signal;
>
> processing said selected second portion of said digitized signal to recover information carried in said plurality of channels;
>
> analyzing said selected first portion of said digitized signal to measure a characteristic of said received signal; and
>
> controlling the transmission of *network management messages* back to said headend based on said measured characteristic of said received signal, wherein said measured characteristic is different than said *network management messages*.

On one hand, the specification discloses that messages sent to the headend can include measured characteristics:

> The CMTS 114 may process the messages and, in an example embodiment, adjust transmission parameters (e.g., modulation parameters, transmit power, frequency offsets, etc.) and/or perform other maintenance/management based on the received messages.
>
> * * *
>
> Such message may comprise, for example, network status updates indicating whether one or more communication parameters of one or more received television or DOCSIS channels are outside acceptable bounds, and/or *conveying measured/determined characteristics* back to a source of the received signal (e.g., back to a cable headend).

’826 Patent at 3:11–15 & 3:63–4:2 (emphasis added).

On the other hand, the claim here at issue, Claim 1 of the ’826 Patent, recites that “said measured characteristic is *different than* said network management messages.” Thus, simply sending the measured characteristic to the headend is insufficient to meet this claim limitation. Also of note, this contrasts with the recital in Claim 1 of the related ’008 Patent of “report[ing] said determined characteristic to a source of said received signal.”

Nonetheless, Defendant’s proposal of an “*analysis* of the measured characteristics” lacks sufficient support in the specification. Defendant cites disclosures regarding “analyz[ing]” and whether one or more channels are “outside acceptable bounds”:

> The monitoring module 154 may be operable to *analyze* the band C_{J+1} that it receives from the channelizer 102 to *measure/determine characteristics* such as, for example, signal power level vs. frequency, delay vs. frequency, phase shift vs. frequency, type and/or amount of modulation, code rate, interference levels, signal to noise ratio, a transfer function of the channel of [*sic*] over which the signal was received, an impulse response of the channel over which the signal was received, and/or any other characteristic that may help assess characteristics of the channel over which the signal was received, assess characteristics of the transmitter that sent the signal and/or any otherwise be pertinent to performance of the communication system. . . . Additionally or alternatively, the control signal(s) 160 output by the monitoring module 154 may control the transmission of network management/maintenance messages by the device 150. Such message may comprise, for example, network status updates indicating whether one or more communication parameters of one or more received television or DOCSIS channels are *outside acceptable bounds*, and/or conveying *measured/determined* characteristics back to a source of the received signal (e.g., back to a cable headend)[.]

Id. at 3:45–4:2 (emphasis added).

This disclosure regarding “acceptable bounds” relates to a specific feature of a particular embodiment and does not warrant introducing a “status” or “analysis” limitation into the construction of “network management messages.” *See Phillips*, 415 F.3d at 1323. Further, this disclosure that “[t]he monitoring module 154 may be operable to analyze the band C_{J+1} that it

receives from the channelizer 102 to measure/determine characteristics" likewise pertains to a particular embodiment and, moreover, this usage of "analyze" merely reflects what is already recited elsewhere in the claim, namely "analyzing said selected first portion of said digitized signal to measure a characteristic of said received signal." Defendant's proposal of construing "network management messages" in terms of an "analysis" would tend to confuse rather than clarify the scope of the claim.

Nonetheless, although the claim already recites "transmission of network management messages back to said headend *based on* said measured characteristic of said received signal," Defendant's proposal of "based on" will assist the finder of fact in understanding that merely sending the measured characteristic is insufficient. *See 01 Communique Laboratory, Inc. v LogMeIn, Inc.*, 687 F.3d 1292, 1296 (Fed. Cir. 2012) ("01 Communique has not cited, and we have not discovered, any authority for the proposition that construction of a particular claim term may not incorporate claim language circumscribing the meaning of the term.").

Finally, Defendant discusses Plaintiff's infringement contentions (*see* Dkt. No. 104, at 12–13), but any remaining dispute pertains to factual questions regarding infringement rather than any legal question for claim construction. *See PPG*, 156 F.3d at 1355; *see also Acumed*, 483 F.3d at 806 (citing *PPG*, 156 F.3d at 1355); *Eon*, 815 F.3d at 1318–19 (citing *PPG*, 156 F.3d at 1355; citing *Acumed*, 483 F.3d at 806).

The Court therefore hereby construes **"network management messages"** to mean **"messages which report on the network based on the measured characteristics."**

VI. DISPUTED TERMS IN U.S. PATENT NO. 8,792,008

7. "operable to"

"operable to" ('008 Patent, Claim 1)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	Configured to

(Dkt. No. 84, at A-8; Dkt. No. 97, at 16; Dkt. No. 104, at 13.)

In their Amended Patent Rule 4-5(d) Joint Claim Construction Chart, the parties agree that "operable to" should be construed to mean "configured to." (Dkt. No. 115, Ex. A, at 3.)

The Court therefore hereby construes **"operable to"** to mean **"configured to."**

8. "digitize a received signal spanning an entire television spectrum comprising a plurality of television channels"

"digitize a received signal spanning an entire television spectrum comprising a plurality of television channels" ('008 Patent, Claim 1)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	The "received signal" contains only television channels.

(Dkt. No. 84, at A-9; Dkt. No. 97, at 16; Dkt. No. 104, at 13; Dkt. No. 115, Ex. A, at 3–4.)

(a) The Parties' Positions

Plaintiff argues that "[t]he plain language of the claim recites '*comprising* a plurality of television channels,' indicating that the 'received signal spanning an entire television spectrum' is *not limited* to only television channels." (Dkt. No. 97, at 16.) Plaintiff also argues that the specification confirms this understanding. (*See id.*, at 17.)

Defendant responds that "'[s]pan' is a plain English word which means the full extent of something from end to end (*e.g.,* 'wing span,' 'life span,' 'span of a bridge')." (Dkt. No. 104, at 14.)

Plaintiff replies that "a television spectrum may contain inside it something in addition to individual television channels," and "[i]t does not cease being a television spectrum if non-video signals are added within the block." (Dkt. No. 110, at 4–5.)

At the June 13, 2023 hearing, Defendant alternatively proposed: "The 'received signal' contains only television channels and data channels which fall between television channels."

(b) Analysis

Claim 1 of the '008 Patent recites (emphasis added):

> 1. A system comprising:
> an analog-to-digital converter operable to *digitize a received signal spanning an entire television spectrum comprising a plurality of television channels*, said digitization resulting in a digitized signal;
> a signal monitor operable to:
> analyze said digitized signal to determine a characteristic of said digitized signal; and
> report said determined characteristic to a source of said received signal;
> a data processor operable to process a television channel to recover content carried on the television channel; and
> a channelizer operable to:
> select a first portion of said digitized signal;
> select a second portion of said digitized signal; and
> concurrently output said first portion of said digitized signal to said signal monitor and said second portion of said digitized signal to said data processor.

As a general matter, "[t]he transitional term 'comprising' . . . is open-ended and does not exclude additional, unrecited elements or method steps." *See Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1371 (Fed. Cir. 2005).

Defendant submits authority that "[t]he usage 'comprising' means that additional components may be present in the device, but does not change the elements that are stated in the claim." *Outside the Box Innovations, LLC v. Travel Caddy, Inc.*, 695 F.3d 1285, 1305 (Fed. Cir. 2012).

But although the claim language refers to "television spectrum" and refers to the television spectrum comprising television channels, this does *not* preclude non-television channels from being present within that spectrum. In other words, Defendant has not shown that this usage of "comprising" is somehow closed-ended. Also, Defendant's reliance at the June 13, 2023 hearing on a general-purpose dictionary definition of "spanning" as referring to the "extent" of something "between any two limits," even if found relevant, is unpersuasive. *Collins English Dictionary* (30th ed.).

This finding is consistent with disclosures in the specification that the received signal may include data from an IP network or may include DOCSIS channels:

> For downstream traffic, the headend 108 may receive television signals via the antenna 102 and the satellite dish 104, and *may receive data via the IP network 106*. The switch 110 may convey the television signals to the video modulator 112 and the data to the CMTS 114. The video modulator 112 may modulate the received television signals onto a carrier. The CMTS 114 may modulate the received data onto carrier. The splitter/combiner 116 may *combine the outputs* of the video modulator 112 and the CMTS 114 resulting in a frequency division multiplexed (FDM) *signal comprising one or more television channels and/or one or more DOCSIS channels*.
>
> * * *
>
> The RF receive front-end 158 may be operable to process a received RF signal S to generate a digital signal D. The signal S may be the result of *a plurality of television and/or DOCSIS channels* being frequency division multiplexed into a *single signal*. The signal S may occupy a frequency band from F_{lo} to F_{hi}.

'008 Patent at 2:44–54 & 3:12–16 (emphasis added); *see id.* at 4:45–47 ("The data processing module 156 may process one or more of bands C_1–C_J to recover data on one or more channels

(e.g., television and/or DOCSIS channels) . . . .") & 5:60–62 ("Accordingly, for cable television/DOCSIS, the ADC 256 may be operable to digitize the entire cable downstream (e.g., from ~55 MHz to ~1002 MHz).").

Further, Defendant points to the express recital in Claim 1 of the '826 Patent that the received signal comprises "one or both of television and data channels," but this recital in a different independent claim in a different (albeit related) patent does not imply or otherwise justify a narrow interpretation of the disputed term in Claim 1 of the '008 Patent. Further, as Plaintiff argued at the June 13, 2023 hearing, whereas Claim 1 of the '826 Patent allows for there being only data channels, Claim 1 of the '008 Patent requires television channels.

Finally, at the June 13, 2023 hearing, Defendant proposed that "[t]he 'received signal' contains only television channels and data channels which fall between television channels." Defendant thus proposes that a data channel cannot overlap (or be subsumed within) a television channel. As discussed above, Defendant does not demonstrate that the disputed term precludes the presence of data channels within the same spectrum as television channels. The Court therefore rejects Defendant's alternative proposal.

The Court thus hereby expressly rejects Defendant's proposed constructions. No further construction is necessary. *See U.S. Surgical*, 103 F.3d at 1568; *see also O2 Micro*, 521 F.3d at 1362; *Finjan*, 626 F.3d at 1207; *ActiveVideo*, 694 F.3d at 1326; *Summit 6*, 802 F.3d at 1291; *Bayer*, 989 F.3d at 977–79.

The Court accordingly hereby construes **"digitize a received signal spanning an entire television spectrum comprising a plurality of television channels"** to have its **plain meaning**.

9. "signal monitor," "data processor," and "channelizer"

"signal monitor" **"data processor"** **"channelizer"** ('008 Patent, Claim 1)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	Three separate pieces of hardware, configured to perform the functions the claim ascribes to the signal monitor, data processor, and channelizer, respectively.

(Dkt. No. 84, at A-9; Dkt. No. 97, at 17; Dkt. No. 104, at 14; Dkt. No. 115, Ex. A, at 4.)

(a) The Parties' Positions

Plaintiff argues that Defendant's proposal should be rejected because "[n]o phrase [in the claim] even arguably related to separateness is present," and "the specification is clear that these three items do *not* have to be implemented on separate pieces of hardware." (Dkt. No. 97, at 17.)

Defendant responds:

> Entropic contends that there need not be any 'separateness' between the three, and that they can all refer to the same physical device. Entropic provides no support for its contention that this is the 'plain and ordinary meaning' of these terms, or any facts to overcome the presumption that each of these must be a distinct physical component. . . . Nor could Entropic possibly overcome this presumption, as neither the claims nor the specification make any sense unless each of the three is a separate device.

(Dkt. No. 104, at 14–15 (citation omitted).)

Plaintiff replies that Defendant is attempting to argue a question of fact regarding what is separate, as part of claim construction, which Plaintiff submits is improper. (Dkt. No. 110, at 5.) Plaintiff also submits that "[b]y the priority date (2011), it was exceedingly common for a single

SoC [(System on a Chip)] to embody many functional elements, as a POSITA would have been well aware." (*Id.* (footnote omitted).)

At the June 13, 2023 hearing, Defendant argued that these terms refer to three structures that might even be on a single chip but that nonetheless must be physically separate pieces of hardware.

(b) Analysis

Claim 1 of the '008 Patent recites (emphasis added):

> 1. A system comprising:
>
> an analog-to-digital converter operable to digitize a received signal spanning an entire television spectrum comprising a plurality of television channels, said digitization resulting in a digitized signal;
>
> a *signal monitor* operable to:
>
> analyze said digitized signal to determine a characteristic of said digitized signal; and
>
> report said determined characteristic to a source of said received signal;
>
> a *data processor* operable to process a television channel to recover content carried on the television channel; and
>
> a *channelizer* operable to:
>
> select a first portion of said digitized signal;
>
> select a second portion of said digitized signal; and
>
> concurrently output said first portion of said digitized signal to said *signal monitor* and said second portion of said digitized signal to said *data processor*.

As a general matter, "[w]here a claim lists elements separately, 'the clear implication of the claim language' is that those elements are 'distinct component[s]' of the patented invention." *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010); *see Kyocera Senco Indus. Tools Inc. v. Int'l Trade Comm'n*, 22 F.4th 1369, 1382 (Fed. Cir. 2022) (listing components separately in a claim gives rise to "a presumption that those components are distinct").

Defendant does not show, however, that a requirement for "distinct" components, *id.*, necessarily requires separate pieces of hardware. Also, the specification discloses that "[t]he various modules of the subassembly 174," including "the signal monitor 154, data processor 156, and channelizer 152," "may reside in . . . one or more integrated circuits." *See id.* at 4:56–59 & Fig. 1C. Defendant argues that "[w]hat this sentence means is that each individual module can be one or more integrated circuits, not that all of the different modules can be one device" (Dkt. No. 104, at 16), but here, too, the patentee did not express or imply any physical separation.

Finally, at the June 13, 2023 hearing, Defendant emphasized disclosure regarding "[t]he parallel arrangement of the monitoring module 154 and data processing module 156," but this disclosure pertains to a specific embodiment and therefore should not be imported into the claim. *See Phillips*, 415 F.3d at 1323. Also, Defendant does not show that a "parallel arrangement" necessarily implies physically separate structures.

The Court therefore hereby expressly rejects Defendant's proposed construction. No further construction is necessary. *See U.S. Surgical*, 103 F.3d at 1568; *see also O2 Micro*, 521 F.3d at 1362; *Finjan*, 626 F.3d at 1207; *ActiveVideo*, 694 F.3d at 1326; *Summit 6*, 802 F.3d at 1291; *Bayer*, 989 F.3d at 977–79.

The Court accordingly hereby construes **"signal monitor," "data processor,"** and **"channelizer"** to have their **plain meaning**.

VII. DISPUTED TERMS IN U.S. PATENT NO. 8,284,690

The '690 Patent, titled "Receiver Determined Probe," issued on October 9, 2012, and bears an earliest priority date of December 15, 2008. Plaintiff submits that the '690 Patent "relates generally to aiding in the diagnosis of problems with subscriber services." (Dkt. No. 97 at 4.)

The Abstract of the '690 Patent states:

> According to various embodiments of the disclosed method and apparatus, nodes on a network are programmed to generate a probe transmission in response to a request from the node that will be receiving the probe. The receiving node may generate a probe request that specifies a plurality of parameters, such as a modulation profile for the probe; the payload content of the probe; the number of times to transmit the probe; a number of symbols for the payload of the probe; a preamble type for the probe; a cyclic-prefix length for the payload of the probe; a transmit power for the probe; and a transmit power scaling factor for the payload of the probe.

10. "probe" and "physical layer probe"

"probe" ('690 Patent, Claims 1, 7, 8, 9, 11)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	A packet transmitted to a network node which the node compares to a reference packet having a known form in order to determine characteristics of the channel on which the packet was transmitted.
"physical layer probe" ('690 Patent, Claim 9)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	"Physical layer probe" means probe. Otherwise indefinite.

(Dkt. No. 84, at A-10; Dkt. No. 97, at 18; Dkt. No. 104, at 18; Dkt. No. 115, Ex. A, at 7–9 & 11.)

(a) The Parties' Positions

Plaintiff argues that these are different terms and are therefore presumed to have different meanings. (Dkt. No. 97, at 18.) Plaintiff also argues that "Charter's proposed construction imposes on 'probe' a lengthy requirement of a specific function, in clear violation of the rule against importing the specification into the claim." (*Id.* (citation omitted).)

Defendant responds: "Entropic asserts that 'probe' should be construed according to its plain and ordinary meaning, but it does not explain which of the many 'plain meanings' of the word 'probe' applies. Charter's construction, taken from the patent specification, *is* the plain meaning in the context of probes sent between nodes in a network. The DOCSIS specification confirms this." (Dkt. No. 104, at 18.) As for Defendant's proposal of "packet," Defendant submits that "'[p]acket' is in the construction to avoid having the word 'probe' in the construction of 'probe' and because probes *are* packets." (*Id.*)

Plaintiff replies that "Charter grounds its argument to limit 'probe' based on *post-priority, extrinsic* evidence," and "Charter's focus seems to be on the DOCSIS 3.1 cable modems accused of infringement in this case, thereby committing error in construing the claims with reference to the accused devices." (Dkt. No. 110, at 6 (citation omitted).) Also, "with respect to 'physical layer probe,' Charter errs by importing an embodiment into the claims." (*Id.*)

At the June 13, 2023 hearing, Plaintiff alternatively proposed that a "probe" is "a signal used to determine one or more characteristics of a channel." Defendant disagreed with Plaintiff's alternative proposal, but Defendant had no objection to replacing "packet" with "signal" in Defendant's proposed construction.

(b) Analysis

The specification discloses that "probes" are used, for example, to determine characteristics of channels:

> In some instances, probes are sent between nodes of the network in order to allow a receiving node on the network to determine some of the characteristics of the channel between the receiving node and the transmitting node. These probes are typically well defined. Accordingly, the receiving node knows before reception what reference signal was transmitted. By comparing the reference probe with the actual received probe, the receiver can determine some of the characteristics of the channel between the transmitting and receiving node.

> * * *
>
> In various embodiments, these receiver determined probes may be used in a variety of applications. For example, the probes may be used to reach or discover hidden nodes; in networks employing orthogonal frequency division multiple access (OFDMA), the probes may be used for OFDMA subchannel assessment; or in networks accessible by content providers, the probes may be used for off-site network diagnosis.
>
> * * *
>
> In block 204, the requesting node receives the probe generated according to its earlier probe request. The received probe may then be used in further processing in block 205. In one embodiment, the received probe may be used in channel analysis to determine a bitloading table, FEC and other communication parameters for OFDM or OFDMA signals for future transmissions from the probe transmitter. In another embodiment, post reception processing might comprise generating a report from the probe and transmitting this probe report to the requesting node or to a designated entity.

'690 Patent at 1:48–57, 2:20–27 & 6:59–7:11.

Claim 9 of the '690 Patent is limited to a "physical layer probe," and the subsequent recitals of "the probe" in Claim 9 can be readily understood as referring back to the recital of a "physical layer probe" (emphasis added):

> 9. A method comprising:
>
> a) a first node transmitting a probe request to a second node, the probe request specifying a first plurality of probe parameters for *a physical layer probe*, the first plurality of probe parameters comprising a form for *the probe* including a modulation profile for *the probe*;
>
> b) the first node receiving *the probe* from the second node, wherein *the probe* is generated in accordance with the first plurality of parameters and in accordance with a second plurality of parameters determined by the second node.

The other independent claim of the '690 Patent that recites a "probe" is Claim 1, which recites (emphasis added):

> 1. A method comprising:
>
> a) receiving in a first node, a probe request specifying a first plurality of parameters associated with the generation and transmission of *a probe*, wherein the first plurality of parameters at least specify content payload of *the probe* and a second node;

b) determining a second plurality of parameters associated with generation and transmission of *the probe*;

c) generating *the probe* in accordance with the first plurality of parameters and the second plurality of parameters, wherein *the probe* has a form dictated by the first plurality of parameters; and

d) transmitting *the probe* from the first node to the second node.

Defendant argues that a "probe," even in Claim 1, is necessarily a physical layer signal. In some cases, "[d]ifferent terms or phrases in separate claims may be construed to cover the same subject matter where the written description and prosecution history indicate that such a reading of the terms or phrases is proper." *Nystrom v. TREX Co., Inc.*, 424 F.3d 1136, 1143 (Fed. Cir. 2005). Defendant submits that the patent speaks only of generating physical layer ("PHY") packets. (Dkt. No. 104, at 18 (citing '690 Patent at 3:3–5, 3:40–64 & 5:59).) Defendant also submits authority that "[t]he preference for giving meaning to all terms, however, is not an inflexible rule that supersedes all other principles of claim construction." *SimpleAir, Inc. v. Sony Ericsson Mobile Commc'ns AB*, 820 F.3d 419, 429 (Fed. Cir. 2016) (citation omitted).

Defendant also cites the DOCSIS specification, which states "[a] probe is a wideband physical-layer signal . . . ." (Dkt. No. 104, Ex. 4, *Data-Over-Cable Service Interface Specifications, DOCSIS 3.1*, at 20 & 57 (CHARTER_ENTROPIC00101891 & CHARTER_ENTROPIC00101928).) This statement, however, is not set forth as a broadly applicable definition but rather is set forth as part of a discussion of a specific feature. *See id.*

On balance, using a "physical layer" probe is a specific feature of particular disclosed embodiments that should not be imported into the claims. *See Phillips*, 415 F.3d at 1323. To the extent Defendant maintains that a "probe" must be a "physical layer" probe because no other type of probe is disclosed in the specification, Defendant's argument perhaps may pertain to arguments regarding the enablement or written description requirements but does warrant importing such a limitation into the claims.

Further, the recital of "a probe" in Claim 1 and "a physical layer probe" in Claim 9, as set forth above, weighs at least somewhat further against Defendant's proposal of limiting "probe" to being a "physical layer probe." *See id.* at 1314 (noting that "terms are normally used consistently throughout the patent," and "[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term").

As for Defendant's proposal of referring to a "packet," Defendant submits that the patent relates to packet-based networks, disclosing for example:

> In the illustrated embodiment, the communications protocol specifies a packet based communications system. In this embodiment, physical layer (PHY) packets comprise preambles and payloads.

'690 Patent at 3:40–44. The specification, however, refers more broadly to a probe "signal." *Id.* at 1:48–57. As noted above, at the June 13, 2023 hearing, Defendant was amenable to replacing "packet" with "signal."

Finally, at the June 13, 2023 hearing, Defendant urged that Plaintiff is attempting to interpret "probe" to encompass *new* information, which Defendant argued is contrary to the specification and the plain meaning of "probe" as referring to a signal that is already known (so that it can be compared to a reference signal). Defendant's argument in this regard is persuasive at least so far as "probe" should be limited to a signal that can be compared to a reference signal having a known form, and this is consistent with the Description of the Related Art portion of the specification. *See* '690 Patent at 1:48–57 (reproduced above).

The Court therefore hereby construes these disputed terms as follows:

Term	Construction
"probe" ('362 Patent, Claim 11)	**"a signal transmitted to a network node that the network node can compare to a reference signal having a known form in order to determine characteristics of the channel on which the signal was transmitted"**
"physical layer probe" ('690 Patent, Claim 9)	**Plain meaning** (apart from the Court's construction of "probe," above)

11. "probe request"

"probe request" ('690 Patent, Claims 1, 7, 8, 9, 11, 15, 16)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	A request sent by a first network node to a second network node which defines the form of a probe to be generated and transmitted by the second network node. The probe request specifies at least the content payload of the probe.

(Dkt. No. 84, at A-11; Dkt. No. 97, at 19; Dkt. No. 104, at 19; Dkt. No. 115, Ex. A, at 7–12.)

(a) The Parties' Positions

Plaintiff argues that "[t]he plain language of the claims confirms that 'probe request' means exactly what it sounds like—a request for a probe." (Dkt. No. 97, at 19.) Plaintiff also argues that Defendant's proposed construction is confusing and incorporates features that are recited elsewhere in the claims. (*Id.*, at 20.)

Defendant responds that "'probe request' could not possibly have had a plain and ordinary meaning in the context of the alleged invention" because "[*t*]*he probe request is the invention*." (Dkt. No. 104, at 19.) Defendant submits that "the specification explains exactly

what this allegedly novel 'probe request' is." (*Id.*) Further, Defendant argues that "to whatever extent the inventor's definition of 'probe request' makes that definition redundant with other claim language, the inventor's definition still governs . . . ." (*Id.*, at 20.)

Plaintiff replies that "well-known components can be used or joined in novel ways," and "[h]ere, 'probe request' means simply a request for a probe," which "must meet certain criteria, but those are defined by the other elements of the claim, not by 'probe request' itself." (Dkt. No. 110, at 7.) Plaintiff also argues that "[Defendant's] resort to lexicography fails because the relied-upon passage is a description, not a definition which meets the high and 'exacting' legal hurdle." (*Id.* (citation omitted).)

At the June 13, 2023 hearing, Plaintiff argues that a "probe request" could specify things other than form, such as transmission power.

(b) Analysis

Claim 1 of the '690 Patent recites (emphasis added):

> 1. A method comprising:
>
> a) receiving in a first node, a *probe request* specifying a first plurality of parameters associated with the generation and transmission of a probe, wherein the first plurality of parameters at least specify content payload of the probe and a second node;
>
> b) determining a second plurality of parameters associated with generation and transmission of the probe;
>
> c) generating the probe in accordance with the first plurality of parameters and the second plurality of parameters, wherein the probe has a form dictated by the first plurality of parameters; and
>
> d) transmitting the probe from the first node to the second node.

The Brief Summary section of the specification states:

> The receiving node may generate a probe request that specifies a plurality of parameters to be used in such a "receiver determined" probe to generate a probe having the "form" specified by these parameters. Accordingly, the probe request specifies a plurality of parameters associated with the generation and transmission of a probe, including the content of a payload of the probe. In one embodiment, the parameters further include: the modulation profile for the probe; the payload

> content of the probe; the number of times to transmit the probe; the number of symbols for the payload of the probe; the preamble type for the probe; the cyclic-prefix length for the payload of the probe; the transmit power for the probe; and the transmit power scaling factor for the payload of the probe. Accordingly, the probe that is transmitted in response to the probe request will have a form dictated by the parameters specified in the probe request.

'690 Patent at 2:3–19.

Contrary to Defendant's suggestion that this disclosure amounts to a definition, no lexicography is apparent. That is, Defendant does not identify any expression of a clear intent by the patentee to set forth a definition for the term "probe request." *See Irdeto Access, Inc. v. EchoStar Satellite Corp.*, 383 F.3d 1295, 1301 (Fed. Cir. 2004) ("It is well-established that the patentee can act as his own lexicographer, so long as he *clearly* states any special definitions of the claim terms in the patent specification or file history.") (emphasis added) (citing *Vitronics*, 90 F.3d at 1582).

Nonetheless, "terms coined by the inventor are best understood by reference to the specification." *Intervet Inc. v. Merial Ltd.*, 617 F.3d 1282, 1287 (Fed. Cir. 2010) (citing *Phillips*, 415 F.3d at 1315). Plaintiff replies that "'probe request' means simply a request for a probe," but Plaintiff does not demonstrate that the term "probe request" has any established meaning in the art. The above-reproduced disclosure explains that, as used in the '690 Patent, a probe request is sent by one network node to another network node and defines the form of a probe to be generated and transmitted.

As for Defendant's proposal that "[t]he probe request specifies at least the content payload of the probe," however, the above-reproduced disclosure refers to the payload but the above-reproduced claim language already specifically recites "the first plurality of parameters at least specify content payload of the probe and a second node," which weighs against including this specific requirement in the construction of "probe request." *See, e.g., Apple, Inc. v. Ameranth,*

Inc., 842 F.3d 1229, 1237 (Fed. Cir. 2016) ("Construing a claim term to include features of that term already recited in the claims would make those expressly recited features redundant.").

The Court therefore hereby construes **"probe request"** to mean **"a request, sent by one network node to another network node, that specifies the form of a probe to be generated and transmitted."**

12. "generating the probe in accordance with the first plurality of parameters and the second plurality of parameters, wherein the probe has a form dictated by the first plurality of parameters," "wherein the probe is generated in accordance with the first plurality of parameters and in accordance with a second plurality of parameters determined by the second node," and "the first plurality of probe parameters comprising a form for the probe including a modulation profile for the probe"

"generating the probe in accordance with the first plurality of parameters and the second plurality of parameters, wherein the probe has a form dictated by the first plurality of parameters" ('690 Patent, Claim 1) **"wherein the probe is generated in accordance with the first plurality of parameters and in accordance with a second plurality of parameters determined by the second node"** ('690 Patent, Claim 9) **"the first plurality of probe parameters comprising a form for the probe including a modulation profile for the probe"** ('690 Patent, Claim 9)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	Indefinite

(Dkt. No. 84, at A-11–A-12; Dkt. No. 97, at 21; Dkt. No. 104, at 20; Dkt. No. 115, Ex. A, at 7–8 & 10–11.)

(a) The Parties' Positions

Plaintiff argues that these terms are not indefinite because "[a] POSITA would understand there are two sets of parameters—one set which relates to the probe's *form*, and another set relating to any characteristic of the probe." (Dkt. No. 97, at 21.)

Defendant argues that "the claims cover the form of the probe being determined only by the parameters in the probe request," and "[t]his renders the claims indefinite" because "[i]f the parameters determined by the probe transmitter are used to generate the probe, those parameters necessarily contribute to defining the form of the probe," and "it is impossible to imagine a parameter used to generate a probe that does not relate to its form." (Dkt. No. 104, at 21.)

Plaintiff replies that "the probe may be based on additional information, namely 'information that previously existed within the transmitting node.'" (Dkt. No. 110, at 8 (citing '690 Patent at 6:42–45).)

At the June 13, 2023 hearing, Defendant urged that any parameter used to generate something is related to its form. Plaintiff responded that the probe transmitter can define some parameters, such as transmission power, based on information existing within the transmitter.

(b) Analysis

Claim 1 of the '690 Patent recites (emphasis added):

> 1. A method comprising:
>
> a) receiving in a first node, a probe request specifying a first plurality of parameters associated with the generation and transmission of a probe, wherein the first plurality of parameters at least specify content payload of the probe and a second node;
>
> b) determining a second plurality of parameters associated with generation and transmission of the probe;
>
> *c) generating the probe in accordance with the first plurality of parameters and the second plurality of parameters, wherein the probe has a form dictated by the first plurality of parameters*; and
>
> d) transmitting the probe from the first node to the second node.

The "generating . . ." limitation thus involves a "first plurality of parameters" that dictates the form of the probe and a "second plurality of parameters" that is *not* recited as dictating the form of the probe. The manner in which "generating the probe" is "in accordance" with the "second plurality of parameters" thus is not recited.

Defendant does not show that this gives rise to any inconsistency. The same is true as to the ". . . is generated . . ." and "parameters" limitations recited in Claim 9 of the '690 Patent. The indefiniteness opinion of Defendant's expert is unpersuasive. (*See* Dkt. No. 104, Ex. 8, Apr. 4, 2023 Almeroth Decl. at ¶ 84.) Moreover, the opinion of Plaintiff's expert is persuasive that the "second plurality of parameters" could, for example, affect a payload portion of a probe without affecting the form of the probe. (Dkt. No. 97, Ex. 7, Apr. 14, 2023 Kramer Decl. at ¶ 138.)

Also, Plaintiff persuasively argued at the June 13, 2023 hearing that the transmitter of a probe could define some non-form parameters, such as transmission power, timing, or destination, "based upon information that previously existed within the transmitting node." *See* '690 Patent at 6:33–45.

Finally, Defendant argues that "the specification says nothing about putting parameters into probe payloads." (Dkt. No. 104, at 22.) This argument perhaps may pertain to arguments regarding enablement or written description, but this does not raise any concern regarding indefiniteness.

The Court therefore hereby expressly rejects Defendant's indefiniteness argument, and Defendant presents no alternative proposed constructions.

The Court accordingly hereby construes these terms to have their **plain meaning**.

VIII. DISPUTED TERMS IN U.S. PATENT NO. 9,210,362

The ’362 Patent, titled “Wideband Tuner Architecture,” issued on December 8, 2015, and bears an earliest priority date of April 19, 2010. Plaintiff submits that the ’362 Patent “relates generally to a receiver system configured to receive a number of channels across a broad radio frequency (RF) spectrum.” Dkt. No. 97 at 5.

The Abstract of the ’362 Patent states:

> A wideband receiver system comprises a mixer module, a wideband analog-to-digital converter (ADC) module, and digital circuitry. The mixer module is configured to downconvert a plurality of frequencies that comprises a plurality of desired television channels and a plurality of undesired television channels. The wideband ADC module is configured to digitize the swatch [*sic*, swath] of frequencies comprising the plurality of desired television channels and the plurality of undesired television channels. The digital circuitry is configured to select the desired plurality of television channels from the digitized plurality of frequencies, and output the selected plurality of television channels to a demodulator as a digital datastream.

13. “downconverting . . . a plurality of frequencies” and Order of Steps in Claim 11

“downconverting . . . a plurality of frequencies” (’362 Patent, Claim 11)	
Plaintiff’s Proposed Construction	**Defendant’s Proposed Construction**
Plain and ordinary meaning. No construction necessary.	Downconverting a plurality of frequencies of an analog radio frequency (RF) signal.
Order of Steps (’362 Patent, Claim 11)	
Plaintiff’s Proposed Construction	**Defendant’s Proposed Construction**
Plain and ordinary meaning. No construction necessary.	Claimed steps must be performed in the order recited in the claim.

(Dkt. No. 84, at A-13; Dkt. No. 97, at 22 & 24; Dkt. No. 104, at 24; Dkt. No. 115, Ex. A, at 12–13.)

(a) The Parties' Positions

Plaintiff submits that "[t]here seems to be general agreement that downconverting is well-understood" and that "[t]he process brings 'down' the frequency of a signal, using a 'mixer' or a 'mixing' process." (Dkt. No. 97, at 23.) Plaintiff argues that no order of steps is required because "[t]here is no grammatical or logical reason why digitizing cannot occur before downconverting or *vice versa* since claim 11 states these steps are performed on the same object—the 'plurality of frequencies.'" (Dkt. No. 97, at 25.) Plaintiff also argues that "because the digitizing step does not refer to the output of the 'downconverting' step (but rather its input), the claim itself requires no particular order of those steps." (*Id.*, at 24.) Further, Plaintiff argues that "[v]iewed in light of the differently ordered embodiments disclosed in the specification, Charter's request for an order of the steps limitation is nothing more than a second attempt by Charter to require that the claimed downconverting is done on an analog signal only." (*Id.*, at 25–26.) Finally, Plaintiff argues that there is no basis for limiting the downconverting to only "radio frequency (RF)" signals. (*Id.*)

Defendant responds that "the language of claim 11 itself dictates that the steps be performed in the order written," and "even if the structure of the claim did not mandate the order of the steps (it does), the specification 'directly or implicitly requires' that the claims be performed in order." (Dkt. No. 104, at 24 & 25 (citation omitted).) "Finally," Plaintiff submits, "claim 11 is written to track the order in which the steps are performed in the specification." (*Id.*, at 26.)

Plaintiff replies that "read in light of the specification, the claim envisions digital and/or analog downconversion of desired and undesired channels." (Dkt. No. 110, at 9.)

At the June 13, 2023 hearing, Defendant argued that Plaintiff is attempting to excise the entire invention from the claim because the purported invention is to reduce the need for expensive analog-to-digital converters by downconverting *before* digitizing. *See* '362 Patent at 2:20–27 &

2:45–55. Plaintiff responded that the Defendant's argument is unavailing because the specification also discloses digital downconversion. *See id.* at 5:31–58 & 9:11–34.

(b) Analysis

"As a general rule, '[u]nless the steps of a method [claim] actually recite an order, the steps are not ordinarily construed to require one.'" *Mformation Techs., Inc. v. Research in Motion Ltd.*, 764 F.3d 1392, 1398 (Fed. Cir. 2014) (quoting *Interactive Gift Express, Inc. v. Compuserve, Inc.*, 256 F.3d 1323, 1342 (Fed. Cir. 2001)).

Courts apply a two-part test to determine whether a particular order of steps is required: "First, we look to the claim language to determine if, as a matter of logic or grammar, they must be performed in the order written," and "[i]f not, we next look to the rest of the specification to determine whether *it* directly or implicitly requires such a narrow construction." *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369–70 (Fed. Cir. 2003) (citation omitted).

Claim 11 of the '362 Patent recites (emphasis added):

> 11. A method comprising:
> in a wideband receiver system:
> *downconverting*, by a mixer module of said wideband receiver system, *a plurality of frequencies* that comprises a plurality of desired television channels and a plurality of undesired television channels;
> *digitizing*, by a wideband analog-to-digital converter (ADC) module of said wideband receiver system, *said plurality of frequencies* comprising said plurality of desired television channels and said plurality of undesired television channels;
> *selecting*, by digital circuitry of said wideband receiver system, said plurality of desired television channels from *said digitized plurality of frequencies*; and
> *outputting*, by said digital circuitry of said wideband receiver system, *said selected plurality of television channels* to a demodulator as a digital datastream.

In some cases, "the sequential nature of the claim steps is apparent from the plain meaning of the claim language." *See Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc.*, 152 F.3d 1368,

1376 (Fed. Cir. 1998); *see also E-Pass Techs., Inc. v. 3Com Corp.*, 473 F.3d 1213, 1222 (Fed. Cir. 2007) ("[B]ecause the language of most of the steps of its method claim refer to the completed results of the prior step, E–Pass must show that all of those steps were performed in order.").

Here, the "downconverting . . ." step and the "digitizing . . ." step both operate on the same "plurality of frequencies," and there is no reference to "completed results of the prior step." *Id.* Rather, the "downconverting . . ." step and the "digitizing . . ." step both refer to the same "plurality of frequencies" without any indication that one of these steps must necessarily be performed before the other. Further, because the "digitizing . . ." step could potentially be performed before the "downconverting . . ." step, the Court rejects Defendant's proposal to limit "downconverting . . . a plurality of frequencies" to downconverting a plurality of frequencies of an *analog* radio frequency (RF) signal.

The "selecting . . ." step, by contrast, refers to "said digitized plurality of frequencies." The "digitizing . . ." step must therefore be performed before the "selecting . . ." step. *Id.*

The "outputting . . ." step refers to "said selected plurality of television channels." The "selecting . . ." step must therefore be performed before the "outputting . . ." step. *Id.*

Finally, Defendant does not persuasively justify limiting the claim to "radio frequency (RF)" signals. Defendant's reliance on the "complex mixer module" 211/221 illustrated in Figure 2 is unavailing. (*See* Dkt. No. 104, at 25–26 (discussing '362 Patent at Fig. 2).) To the extent the specification discloses downconverting radio frequencies, the use of radio frequencies is a particular feature of disclosed embodiments that should not be imported into the claim. *See Phillips*, 415 F.3d at 1323.

The Court therefore hereby construes these disputed terms as follows:

Term	Construction
"downconverting . . . a plurality of frequencies" ('362 Patent, Claim 11)	**Plain meaning**
Order of Steps in Claim 11 of the '362 Patent	**In Claim 11 of the '362 Patent, the "digitizing . . ." step must be performed before the "selecting . . ." step, and the "selecting . . ." step must be performed before the "outputting . . ." step. No other order of steps is required.**

IX. DISPUTED TERMS IN U.S. PATENT NO. 10,135,682

The '682 Patent, titled "Method and System for Service Group Management in a Cable System," issued on November 20, 2018, and bears an earliest priority date of July 23, 2012. Plaintiff submits that the '682 Patent "relates generally to organizing cable modems (CMs) into service groups based on signal-to-noise ratio (SNR) related metrics." (Dkt. No. 97, at 5.)

The Abstract of the '682 Patent states:

> A cable modem termination system (CMTS) may determine, for a plurality of cable modems served by the CMTS, a corresponding plurality of SNR-related metrics. The CMTS may assigning [*sic*] the modems among a plurality of service groups based on the SNR-related metrics. For any one of the modems, the CMTS may configure physical layer communication parameters to be used by the one of the modems based on a SNR-related metric of a service group to which the one of the modems is assigned. The physical layer communication parameters may include one or more of: transmit power, receive sensitivity, timeslot duration, modulation type, modulation order, forward error correction (FEC) type, and FEC code rate. The CMTS and the modems may communicate using orthogonal frequency division multiplexing (OFDM) over a plurality of subcarriers, and the physical layer communication parameters may be determined on a per-subcarrier basis.

14. "a composite SNR-related metric based at least in part on a worst-case SNR profile of said SNR-related metrics"

"a composite SNR-related metric based at least in part on a worst-case SNR profile of said SNR-related metrics" ('682 Patent, Claim 1)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	Indefinite

(Dkt. No. 84, at A-14; Dkt. No. 97, at 26; Dkt. No. 104, at 27; Dkt. No. 115, Ex. A, at 14.)

(a) The Parties' Positions

Plaintiff argues that "[a]ny POSITA familiar with hybrid fiber coaxial ('HFC') networks understands what is meant by an SNR profile and SNR-related metrics," and "the adjectives 'worst-case' and 'composite' have plain meanings to a POSITA." (Dkt. No. 97, at 26 (citations omitted).) Plaintiff also argues that "[t]he specification confirms the claim terms are used in accord with a POSITA's expectations." (*Id.*)

Defendant responds that "[t]here is nothing about this limitation that finds any support in the specification." (Dkt. No. 104, at 27.) Defendant argues: "In view of the specification, 'composite SNR-related metric' *cannot* mean a 'composite *best-case* SNR profile.' It can only refer to the 'worst-case.' And the claim is therefore indefinite, as there is no difference between 'composite SNR-related metric' and 'worst-case SNR profile.'" (*Id.*, at 28.)

Plaintiff replies that "Charter's indefiniteness position is a chain of argument ultimately resting on a false equivalence of 'composite SNR-related metric' and 'worst-case SNR profile,'" but "[t]hey are not the same thing." (Dkt. No. 110, at 9.) Plaintiff also submits that "composite metrics based on SNR-related metrics generally (not merely worst-case) are, in fact, disclosed." (*Id.* (citing '682 Patent at 4:40–52).)

At the June 13, 2023 hearing, Defendant argued that Plaintiff does not provide any purported plain meaning for this "composite" term. Defendant submitted that the specification discloses only a "composite worst-case SNR profile." *See* '682 Patent at 4:9–20. Defendant urged that the disputed term is indefinite because the "composite SNR-related metric" cannot be based on the "worst-case SNR profile" if they are both the same thing. Plaintiff responded that "composite" means that something is for more than one cable modem and that a "profile" is something that involves multiple attributes (such as several frequency ranges). Plaintiff concluded that a person of ordinary skill in the art would understand that the term "composite SNR-related metric" relates to multiple cable modems and could be a profile (such as for several different frequency ranges) or could instead be a single composite metric, such as an average.

(b) Analysis

Claim 1 of the '682 Patent recites (emphasis added):

> 1. A method comprising:
>
> determining, by a cable modem termination system (CMTS), for each cable modem served by said CMTS, a *corresponding signal-to-noise ratio (SNR) related metric*;
>
> assigning, by said CMTS, each cable modem among a plurality of service groups based on a respective *corresponding SNR-related metric*;
>
> generating, by said CMTS for each one of said plurality of service groups, *a composite SNR-related metric based at least in part on a worst-case SNR profile of said SNR-related metrics* corresponding to said one of said plurality of service groups;
>
> selecting, by said CMTS, one or more physical layer communication parameter to be used for communicating with said one of said plurality of service groups based on said composite SNR-related metric; and
>
> communicating, by said CMTS, with one or more cable modems corresponding to said one of said plurality of service groups using said selected one or more physical layer communication parameter.

Defendant argues that the specification fails to distinguish between "a composite SNR-related metric" and "a worst-case SNR profile." This argument perhaps may pertain to arguments regarding enablement or written description, but Defendant does not show any lack of reasonable

certainty in the claim language itself. Rather, the claim merely recites a worst-case SNR profile that is based on the SNR-related metrics that correspond to each cable modem, and the composite SNR-related metric, in turn, is based on the worst-case SNR profile. The opinions of Plaintiff's expert are further persuasive in this regard. (*See* Dkt. No. 97, Ex. 7, Apr. 14, 2023 Kramer Decl. at ¶¶ 166 & 168–169; *see, e.g.,* '682 Patent at 4:9–20, 5:7–12 & 5:42–57 & Fig. 2C.) Plaintiff's arguments at the June 13, 2023 hearing (summarized above) are likewise persuasive.

The Court therefore hereby expressly rejects Defendant's indefiniteness argument, and Defendant presents no alternative proposed construction.

The Court accordingly hereby construes **"a composite SNR-related metric based at least in part on a worst-case SNR profile of said SNR-related metrics"** to have its **plain meaning**.

15. "service group[s]"

"service group[s]" ('682 Patent)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	A "service group" is the complete set of downstream and upstream channels within a single CMTS that a single cable modem could potentially receive or transmit on.

(Dkt. No. 84, at A-15; Dkt. No. 97, at 28; Dkt. No. 104, at 28–29; Dkt. No. 115, Ex. A, at 14.)

(a) The Parties' Positions

Plaintiff argues that "[a] 'service group' is a plain English term, and the claim and specification confirm that the groups consist of cable modems (CMs), not *channels*." (Dkt. No. 97, at 28.) "Furthermore," Plaintiff argues, "Charter is attempting to join the upstream and downstream channels without basis in the claim language and contrary to the specification." (*Id.*)

Defendant responds that "[t]he DOCSIS specification itself provides the plain meaning definition of a 'cable modem service group' in the cable television industry (a definition Charter identified in the P.R. 4-3 statement but which Entropic entirely ignores in its brief) . . . ." (Dkt. No. 104, at 29 (citation omitted).)

Plaintiff replies that "[n]othing in the opposition overcomes the central point—the '682 Patent is described in terms of service groups consisting of groups of cable modems (CMs)." (Dkt. No. 110, at 9.) Plaintiff also argues that "whatever DOCSIS might have later said, its use of terms cannot overcome the '682 Patent's usage." (*Id.*, at 10.)

At the June 13, 2023 hearing, the parties submitted this disputed term without oral argument.

(b) Analysis

Claim 1 of the '682 Patent recites (emphasis added):

> 1. A method comprising:
>
> determining, by a cable modem termination system (CMTS), for each cable modem served by said CMTS, a corresponding signal-to-noise ratio (SNR) related metric;
>
> assigning, by said CMTS, each cable modem among a plurality of *service groups* based on a respective corresponding SNR-related metric;
>
> generating, by said CMTS for each one of said plurality of *service groups*, a composite SNR-related metric based at least in part on a worst-case SNR profile of said SNR-related metrics corresponding to said one of said plurality of *service groups*;
>
> selecting, by said CMTS, one or more physical layer communication parameter to be used for communicating with said one of said plurality of *service groups* based on said composite SNR-related metric; and
>
> communicating, by said CMTS, with one or more cable modems corresponding to said one of said plurality of *service groups* using said selected one or more physical layer communication parameter.

Defendant relies on the following portion of a DOCSIS specification:

> Cable Modem Service Group

> In the HFC plant topology, the complete set of downstream and upstream channels within a single CMTS that a single Cable Modem could potentially receive or transmit on. In most HFC deployments, a CM-SG corresponds to a single Fiber Node. Usually, a CM-SG serves multiple CMs.

(Dkt. No. 104, Ex. 5, *Data-Over-Cable Service Interface Specifications, DOCSIS 3.0*, at 11 (CHARTER_ENTROPIC00101160).)

Because this definition refers to a set of channels that each cable modem can use (rather than a set of cable modems in a system of cable modems), this definition does not inform how the term "service group" is used in the '682 Patent, which refers to grouping cable modems:

> FIGS. 4A and 4B illustrate the network of FIG 1, with different groupings of CMs [(cable modems)] based on one or both of: measured performance metric(s) and location within the HFC network.
>
> * * *
>
> While FIGS. 3A and 3B depict SNR profiles and location as two separate bases on which to assign CMs to service groups, the two may be used in combination.

See '682 Patent at 2:24–27 & 6:39–41.

The Court therefore hereby expressly rejects Defendant's proposed construction. No further construction is necessary, particularly in light of the above-noted context provided by the specification. *See U.S. Surgical*, 103 F.3d at 1568; *see also O2 Micro*, 521 F.3d at 1362; *Finjan*, 626 F.3d at 1207; *ActiveVideo*, 694 F.3d at 1326; *Summit 6*, 802 F.3d at 1291; *Bayer*, 989 F.3d at 977–79.

The Court accordingly hereby construes **"service group[s]"** to have its **plain meaning**.

16. "[communicating with/corresponding to] said one of said plurality of service groups"

"[communicating with/corresponding to] said one of said plurality of service groups" ('682 Patent, Claim 1)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
Plain and ordinary meaning. No construction necessary.	Indefinite

(Dkt. No. 84, at A-16; Dkt. No. 97, at 30; Dkt. No. 104, at 30; Dkt. No. 115, Ex. A, at 14–15.)

(a) The Parties' Positions

Plaintiff argues that "Claim 1 itself of the '682 Patent is clear on how service groups, composed of cable modems, and the CMTS communicate . . . ." (Dkt. No. 97, at 30.) Plaintiff also submits that "[t]he specification has a multitude of references to the communication with the service group by way of, for example, physical layer parameters since the invention could not work without communication." (*Id.* (citations omitted).) "Further," Plaintiff argues, "the terms 'communicating,' 'corresponding,' and 'plurality' each have plain English meanings that are well-understood, and the combination of the terms do not create any ambiguity." (*Id.*)

Defendant responds: "There is no antecedent basis for 'said one of said plurality of service groups,' and there is no way to know which one service group among the 'plurality of service groups' the 'communicating' and 'corresponding' steps should be performed on. The claim is therefore indefinite." (Dkt. No. 104, at 30.)

Plaintiff replies:

> The '682 Patent criticizes the folly of lumping all CMs together in a "lowest common denominator" approach. '682 Patent, 5:50–57. Instead, the '682 Patent groups CMs based on their performance (SNR). For each group, the invention can choose communication parameters based on group performance. The chosen parameters are used to communicate with that group. *E.g., id.* at 5:42–50. This is precisely what the claim does. The "generating" step requires creating a composite metric for each service group. The "selecting step" uses the composite metric for

> a particular service group to choose one or more parameter(s) to use with *that* group. The "communicating" step uses the selected parameter(s) to communicate with *that* group.

(Dkt. No. 110, at 10.)

At the June 13, 2023 hearing, the parties submitted this disputed term without oral argument.

(b) Analysis

Claim 1 of the '682 Patent recites (emphasis added):

> 1. A method comprising:
>
> determining, by a cable modem termination system (CMTS), for each cable modem served by said CMTS, a corresponding signal-to-noise ratio (SNR) related metric;
>
> assigning, by said CMTS, each cable modem among *a plurality of service groups* based on a respective corresponding SNR-related metric;
>
> generating, by said CMTS for *each one of said plurality of service groups*, a composite SNR-related metric based at least in part on a worst-case SNR profile of said SNR-related metrics corresponding to *said one of said plurality of service groups*;
>
> selecting, by said CMTS, one or more physical layer communication parameter to be used for communicating with *said one of said plurality of service groups* based on said composite SNR-related metric; and
>
> communicating, by said CMTS, with one or more cable modems corresponding to *said one of said plurality of service groups* using said selected one or more physical layer communication parameter.

The recital of "a plurality of service groups" provides antecedent basis for "said plurality of service groups."

The parties dispute whether the recital of "*each one of* said plurality of service groups" provides antecedent basis for "*said one of* said plurality of service groups."

At first blush, the recital of "*said one* of said plurality of service groups" appears to fail to specify *which* one of the *plurality* of service groups. This is the opinion of Defendant's expert. (Dkt. No. 97, Ex. 8, Apr. 4, 2023 Almeroth Decl. at ¶ 97 ("there is no way to know which one service group among the 'plurality of service groups' is being referred to").)

A fair reading, however, is that "*said one of* said plurality of service groups" refers back to "each *one of* said plurality of service groups." In other words, the steps that refer to "said one of said plurality of service groups" must be performed for each and every one of the plurality of service groups. This is apparent on the face of the claim and is also consistent with Figure 3A of the '682 Patent referring to determining parameters "*per* service group," and the opinion of Plaintiff's expert is further persuasive. (*See* Dkt. No. 97, Ex. 7, Apr. 14, 2023 Kramer Decl. at ¶¶ 176–77.) The contrary opinion of Defendant's expert is unpersuasive. (Dkt. No. 97, Ex. 8, Apr. 4, 2023 Almeroth Decl. at ¶ 97.)

Indeed, the claim recites only *one* "one of said plurality of service groups," so the reference to "said one" is reasonably clear. Thus, to whatever extent this term is deemed to lack *explicit* antecedent basis, the antecedent basis is *implicit*. *See Energizer Holdings Inc. v. Int'l Trade Comm'n*, 435 F.3d 1366, 1371 (Fed. Cir. 2006) (holding that "an anode gel comprised of zinc as the active anode component" provided implicit antecedent basis for "said zinc anode"); *see also Ex Parte Porter*, 25 U.S.P.Q. 2d (BNA) 1144, 1145 (B.P.A.I. 1992) ("The term 'the controlled fluid' . . . finds reasonable antecedent basis in the previously recited 'controlled stream of fluid . . . .'"); *Fisher-Price, Inc. v. Graco Children's Prods.*, No. 05–1258, 154 F. App'x 903, 909 (Fed. Cir. Nov. 4, 2005) ("[a] claim is not invalid for indefiniteness if its antecedent basis is present by implication") (citations omitted). The burden is on Defendant to show a lack of reasonable certainty, and Defendant has not met that burden. *See Nautilus*, 572 U.S. at 910; *see also Sonix*, 844 F.3d at 1377.

The Court therefore hereby expressly rejects Defendant's indefiniteness argument, and Defendant presents no alternative proposed construction.

The Court accordingly hereby construes **"[communicating with/corresponding to] said one of said plurality of service groups"** to have its **plain meaning**.

X. CONCLUSION

The Court adopts the constructions set forth in this opinion for the disputed terms of the patents-in-suit, and as summarized below.

Disputed Term	The Court's Construction
"a data networking engine implemented in a first circuit that includes at least one processor . . ." ('775 Patent, Claim 18) "a cable modem engine implemented in a second circuit that includes at least one processor . . ." ('775 Patent, Claim 18)	Plain meanings.
"data bus" ('775 Patent, Claim 18)	Plain meaning
"wherein the cable modem functions performed by the cable modem engine are completely partitioned from the home networking functions performed by the data networking engine" ('775 Patent, Claim 18)	"wherein the cable modem engine and the data networking engine are not necessarily physically separate but are functionally separate such that the cable modem functions are performed only by the cable modem engine and the home networking functions are performed only by the data networking engine"
"DOCSIS functions" ('775 Patent, Claim 19)	Plain meaning.

"DOCSIS MAC processor" ('775 Patent, Claim 18) "DOCSIS controller" ('775 Patent, Claim 18)	Plain meanings.
"network management messages" ('826 Patent, Claim 1)	"messages which report on the network based on the measured characteristics"
"operable to" ('008 Patent, Claim 1)	"configured to"
"digitize a received signal spanning an entire television spectrum comprising a plurality of television channels" ('008 Patent, Claim 1)	Plain meaning.
"signal monitor" "data processor" "channelizer" ('008 Patent, Claim 1)	Plain meanings.
"probe" ('690 Patent, Claims 1, 7, 8, 9, 11)	"a signal transmitted to a network node that the network node can compare to a reference signal having a known form in order to determine characteristics of the channel on which the signal was transmitted"
"physical layer probe" ('690 Patent, Claim 9)	Plain meaning (apart from the Court's construction of "probe," above).
"probe request" ('690 Patent, Claims 1, 7, 8, 9, 11, 15, 16)	"a request, sent by one network node to another network node, that specifies the form of a probe to be generated and transmitted"

"generating the probe in accordance with the first plurality of parameters and the second plurality of parameters, wherein the probe has a form dictated by the first plurality of parameters" ('690 Patent, Claim 1) "wherein the probe is generated in accordance with the first plurality of parameters and in accordance with a second plurality of parameters determined by the second node" ('690 Patent, Claim 9) "the first plurality of probe parameters comprising a form for the probe including a modulation profile for the probe" ('690 Patent, Claim 9)	Plain meanings.
"downconverting . . . a plurality of frequencies" ('362 Patent, Claim 11)	Plain meaning.
Order of Steps ('362 Patent, Claim 11)	In Claim 11 of the '362 Patent, the "digitizing . . ." step must be performed before the "selecting . . ." step, and the "selecting . . ." step must be performed before the "outputting . . ." step. No other order of steps is required.
"a composite SNR-related metric based at least in part on a worst-case SNR profile of said SNR-related metrics" ('682 Patent, Claim 1)	Plain meaning.
"service group[s]" ('682 Patent)	Plain meaning.

"[communicating with/corresponding to] said one of said plurality of service groups" ('682 Patent, Claim 1)	Plain meaning.

The parties are **ORDERED** that they may not refer, directly or indirectly, to each other's claim construction positions in the presence of the jury. Likewise, the parties are **ORDERED** to refrain from mentioning any portion of this opinion, other than the actual definitions adopted by the Court, in the presence of the jury. Any reference to claim construction proceedings is limited to informing the jury of the definitions adopted by the Court.

So ORDERED and SIGNED this 26th day of June, 2023.

RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE