

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

INTELLECTUAL VENTURES I LLC,

Plaintiff,

v.

T MOBILE USA, INC., T-MOBILE US,
INC., ERICSSON INC.,
TELEFONAKTIEBOLAGET LM
ERICSSON,

Defendants.

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CASE NO. 2:17-CV-577-JRG

CLAIM CONSTRUCTION
MEMORANDUM AND ORDER

Before the Court is the Opening Claim Construction Brief (Dkt. No. 165) filed by Plaintiff Intellectual Ventures I, LLC (“Plaintiff” or “IV”). Also before the Court are Defendants T-Mobile USA, Inc., T-Mobile US, Inc. (“T-Mobile”), Ericsson Inc., and Telefonaktiebolaget LM Ericsson’s (“Ericsson’s”) (collectively, “Defendants”) Responsive Claim Construction Brief (Dkt. No. 118) and Plaintiff’s reply (Dkt. No. 126).

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I. BACKGROUND

On August 9, 2017, Plaintiff brought suit alleging infringement of United States Patents No. 6,628,629 (“the ’629 Patent”), 7,359,971 (“the ’971 Patent”), 7,412,517 (“the ’517 Patent”), and RE46,206 (“the ’206 Patent”) (collectively, “the patents-in-suit”). (*See* Dkt. No. 1.)

The ’629 Patent, titled “Reservation Based Prioritization Method for Wireless Transmission of Latency and Jitter Sensitive IP-Flows in a Wireless Point to Multi-Point Transmission System” and issued on September 30, 2003, bears the earliest priority date of July 10, 1998. The Abstract of the ’629 Patent states:

A wireless telecommunications network having superior quality of service is provided. A system and method for assigning future slots of a transmission frame to a data packet in the transmission frame for transmission over a wireless telecommunication network system includes applying an advanced reservation algorithm, reserving a first slot for a first data packet of an internet protocol (IP) flow in a future transmission frame based on the algorithm, reserving a second slot for a second data packet of the IP flow in a transmission frame subsequent in time to the future transmission frame based on the algorithm, wherein the second data packet is placed in the second slot in an isochronous manner to the placement of the first data packet in the first slot. There may be a periodic variation between the placement of the first data packet in the first slot and the placement of second data packet in the second slot or no periodic variation between placements of slots. The advanced reservation algorithm makes a determination whether the IP flow is jitter-sensitive.

The parties submit that the patents-in-suit all share a common specification. (*See* Dkt. No. 118 at 2.)

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 clearly an issue of law for the court to decide. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970–71 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996).

“In some cases, however, the district court will need to look beyond the patent’s intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period.” *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015) (citation omitted). “In cases where those subsidiary facts are in dispute, courts will need to make subsidiary factual findings about that extrinsic evidence. These are the ‘evidentiary underpinnings’ of claim construction that we discussed in *Markman*, and this subsidiary factfinding must be reviewed for clear error on appeal.” *Id.* (citing 517 U.S. 370).

To 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.*, 134 S. Ct. 2120, 2129 (2014). “A determination of claim indefiniteness is a legal conclusion that is drawn from the court’s performance of its duty as the construer of patent claims.” *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (Fed. Cir. 2005) (citations and internal quotation marks omitted), *abrogated on other grounds by Nautilus*, 134 S. Ct. 2120. “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 July 25, 2018 Revised Joint Claim Construction and Prehearing Statement (Dkt. No. 110-1, Ex. A) and their August 22, 2018 Joint Claim Construction Chart (Dkt. No. 128-1), the parties submitted the following agreed-upon constructions:

<u>Term</u>	<u>Construction</u>
<p>“reserving a second slot for a second data packet of said IP flow in a transmission frame, subsequent in time to said future transmission frame”</p> <p>(’629 Patent, Claim 1)</p>	<p>“reserving a second slot for a second data packet of said IP flow in a transmission frame subsequent in time to said future transmission frame”</p> <p>The parties agree that the comma is a typographical printing error.</p>
<p>“unlink direction”</p> <p>(’517 Patent, Claim 1)</p>	<p>“uplink direction”</p> <p>The parties agree that the “n” is a typographical printing error and should be a “p.”</p>
<p>“customer premises equipment (CPE) station(s)”</p> <p>(’517 Patent, Claims 1, 12)</p> <p>(’206 Patent, Claims 1, 112, 114)</p>	<p>“devices residing on the premises of a customer and used to connect to a telephone network, including ordinary telephones, key telephone systems, PBXs, video conferencing devices and modems”</p>
<p>“LIP flow”</p> <p>(’206 Patent, Claim 32)</p>	<p>“IP flow”</p> <p>The parties agree that the “L” is a typographical printing error.</p>

IV. DISPUTED TERMS

A. “in an isochronous manner”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
<p>“in a manner which provides for consistent timed access”</p>	<p>“according to a consistent time interval”</p>

(Dkt. No. 110, Ex. B at 1; Dkt. No. 111 at 3; Dkt. No. 118 at 10; Dkt. No. 128-1 at 1.) The parties submit that this term appears in Claim 1 of the '629 Patent, Claim 12 of the '971 Patent, and Claim 123 of the '206 Patent. (Dkt. No. 110, Ex. B at 1.)

(1) The Parties' Positions

Plaintiff argues that whereas Plaintiff's proposed construction is taken from the specification, "Defendants' construction unnecessarily alters the patentee's definition." (Dkt. No. 111 at 4.)

Defendants respond: "The patent explicitly defines an isochronous connection as one that is 'in phase with respect to time,' and it equates that articulation with a more layman-friendly explanation of delivering packets 'at consistent time intervals.'" (Dkt. No. 118 at 11 (quoting '629 Patent at 61:41–46).)

Plaintiff replies that Defendants' proposal of "'consistent time interval' has no antecedent in the specification and is being used improperly to try to shade the meaning of the claim for later stages of these proceedings." (Dkt. No. 126 at 1.)

(2) Analysis

Plaintiff's proposal is unclear as to the meaning of "access." Even though that word appears in one of the below-reproduced disclosures, referring to "access" would not be consistent with the context in which the disputed term appears in the claims. Claim 1 of the '629 Patent, for example, recites the disputed term in the context of placing a data packet in a slot (emphasis added):

1. A method for assigning future slots of a transmission frame to a data packet in the transmission frame for transmission over a wireless medium, comprising:
 - applying a reservation algorithm;
 - reserving a first slot for a first data packet of an internet protocol (IP) flow in a future transmission frame based on said reservation algorithm; and

reserving a second slot for a second data packet of said IP flow in a transmission frame, subsequent in time to said future transmission frame based on said reservation algorithm,

wherein said second data packet is placed in said second slot *in an isochronous manner* to the placing of said first data packet in said first slot.

As to the proper construction, the specification discloses:

In legacy networks created primarily for voice traffic by telephone companies, data transmission was accomplished with reference to a circuit-centric definition of [Quality of Service (“QoS”)]. In this definition, QoS implied the ability to carry asynchronous (i.e. transmission of data through start and stop sequences without the use of a common clock) as well as *isochronous* (i.e. consistent timed access of network bandwidth for time-sensitive voice and video) traffic.

’629 Patent at 13:53–60 (emphasis added).

For calls that are sensitive to jitter, meaning calls that are time sensitive, it is important to maintain an *isochronous* (i.e., *in phase with respect to time*) connection. With such signals, it is important that the data be dispersed in the same slot between frames, or in slots having a periodic variation between frames. For example, vertical reservation 1480 shows a jitter sensitive signal receiving the same slot for downlink communications in each frame. Specifically, the signal is assigned slot 1422 in frames 1402-1416. If the frame-to-frame interval is 0.5 ms, then a slot will be provided to the IP flow every 0.5 ms. As another example, diagonal reservation 1482 shows a jitter sensitive signal receiving a slot varying by a period of one between sequential frames. Specifically, the signal is assigned slot 1440 in frame 1402, slot 1438 in slot [*sic*, frame] 1404, . . . slot 1426 in frame 1416, to create a “diagonal.” If the frame-to-frame interval is 0.5 ms and the slot-to-slot interval is 0.01 ms, then a slot can be provided to the IP flow every 0.5 minus 0.01, equals 0.49 mms [*sic*, ms]. Thus, to decrease the frame interval, a diagonal reservation of positive slope can be used. To obtain an increased frame interval, a diagonal of negative slope such as, e.g., negative slope diagonal uplink reservation 1486. The diagonal reservation 1482 can also be more pronounced (i.e., using a greater or lesser slope), depending on the period between sequential frames desired.

Reservation patterns 1480, 1482, 1484 and 1486 are useful patterns for jitter sensitive communications. Also illustrated is a vertical reservation 1486, similar to vertical reservation 1480, useful for a jitter sensitive communication in the uplink direction.

Id. at 61:41–62:3 (emphasis added); *see also id.* at 50:59–61, Fig. 14. At the September 5, 2018 hearing, Plaintiff was amenable to construing “isochronous” to mean “in phase with respect to time,” as disclosed above. (*See* Dkt. No. 151 at 5:16–20.)

Yet, while the use of “i.e.” in these disclosures indicates that “isochronous” has a particular meaning, the disclosure of “i.e. in phase with respect to time” is unclear and does not adequately address the meaning of “isochronous *manner*,” as used in the claims at issue here. The two separate, different above-reproduced uses of “i.e.” prevent a finding of any clear definition by the patentee. *See Renishaw*, 158 F.3d at 1249 (“The patentee’s lexicography must, of course, appear with reasonable clarity, deliberateness, and precision before it can affect the claim.”); *see also CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (“[T]he claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and *clearly* set forth a definition of the disputed claim term in either the specification or prosecution history.”) (emphasis added). Instead, the context provided by these disclosures supports Defendants’ proposed construction, in particular as to consistency with respect to time.

Moreover, Defendants’ proposal comports with technical dictionary definitions of “isochronous” that refer to a “time interval,” a “constant phase relationship,” and “a fixed frequency or period.” (Dkt. No. 118, Ex. 2, *Telephony’s Dictionary* 165 (2d ed. 1986); *id.*, Ex. 3, *McGraw-Hill Dictionary of Scientific and Technical Terms* 1057 (5th ed. 1994).)

The Court therefore hereby construes **“in an isochronous manner”** to mean **“according to a consistent time interval.”**

B. “periodic variation”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Plain meaning, “regular variation of the location within frames into which the data is successively placed”	“changing of the placement between frames, while maintaining a consistent time interval”

(Dkt. No. 110, Ex. B at 2; Dkt. No. 111 at 4; Dkt. No. 118 at 13; Dkt. No. 128-1 at 3.) The parties submit that this term appears in Claim 3 of the '629 Patent and Claim 14 of the '971 Patent. (Dkt. No. 110, Ex. B at 2.)

(1) The Parties' Positions

Plaintiff argues: "Defendants' proposed construction is unhelpful and designed to sow jury confusion. It is the location of the data packet *within* the transmission frame that varies. The placement does not change *between* frames as Defendants propose." (Dkt. No. 111 at 5.)

Defendants respond that "Defendants' construction memorializes what is undisputed; although isochronous placement with 'periodic variation' allows the particular slot for the packet to change between frames, the interval between packet slots must be the same" (as required by the independent claims from which the claims here at issue depend). (Dkt. No. 118 at 13.) Defendants argue that Plaintiff's proposed construction "could be misinterpreted to mean that, although this dependent claim does not permit any *regular* variation of the slot location, it is acceptable in this claim (and therefore in the independent claims) to have an *irregular* variation of the slot location." (*Id.* at 14.)

Plaintiff replies that, under Defendants' proposed construction, "[t]he relationship between frames, slots, and consistent time intervals is unclear, and there is no way that a jury will understand what this means." (Dkt. No. 126 at 1.)

(2) Analysis

Claims 1–3 of the '629 Patent,¹ for example, recite (emphasis added):

1. A method for assigning future slots of a transmission frame to a data packet in the transmission frame for transmission over a wireless medium, comprising:
applying a reservation algorithm;

¹ Claim 2 of the '629 Patent is not asserted but has been reproduced here for context. Claims 2 and 3 depend from Claim 1, which is likewise reproduced here for context.

reserving a first slot for a first data packet of an internet protocol (IP) flow in a future transmission frame based on said reservation algorithm; and

reserving a second slot for a second data packet of said IP flow in a transmission frame, subsequent in time to said future transmission frame based on said reservation algorithm,

wherein said second data packet is placed in said second slot in an isochronous manner to the placing of said first data packet in said first slot.

2. The method of claim 1, wherein there is a *periodic variation* between the placing of said first data packet in said first slot and the placing of second data packet in said second slot.

3. The method of claim 1, wherein there is no *periodic variation* between the placing of said first data packet in said first slot and the placing of second data packet in said second slot.

The claims thus recite variation, and Plaintiff acknowledges that where variation is periodic it “varies by a regular amount.” (Dkt. No. 111 at 4.) Also, the specification provides context in which “varying by a period” refers to repeatedly varying by a particular amount from one frame to the next:

As another example, diagonal reservation 1482 shows a jitter sensitive signal receiving a slot varying by a period of one between sequential frames. Specifically, the signal is assigned slot 1440 in frame 1402, slot 1438 in slot [*sic*, frame] 1404, . . . slot 1426 in frame 1416, to create a “diagonal.” If the frame-to-frame interval is 0.5 ms and the slot-to-slot interval is 0.01 ms, then a slot can be provided to the IP flow every 0.5 minus 0.01, equals 0.49 mms [*sic*, ms].

’629 Patent at 61:51–59 (ellipsis in original; emphasis added); *see id.* at Fig. 14.

As to Plaintiff’s proposal of “frames into which the data is successively placed” and Defendants’ proposal of “between frames,” the parties’ proposals are directed to other claim language and should not be incorporated within the construction of “periodic variation.”

The Court therefore hereby construes “**periodic variation**” to mean “**repeated variation by a particular amount.**”

C. “host workstation”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Plain meaning, “a computer or other device that communicates with other computers on a network and includes a terminal or interface to accept input”	“end-point running one or more applications and capable of serving as the source or destination of an IP flow to or from a subscriber end-point” ²

(Dkt. No. 110, Ex. B at 3; Dkt. No. 111 at 5; Dkt. No. 118 at 14; Dkt. No. 128-1 at 4–5.) The parties submit that this term appears in Claim 12 of the ’971 Patent. (Dkt. No. 110 Ex. B at 3.)

(1) The Parties’ Positions

Plaintiff argues that “‘host workstation’ is a commonly used generic term,” and “Defendants improperly try to limit this general term to a narrow example” (Dkt. No. 111 at 5, 7.)

Defendants respond that “[n]ot every computer with an interface is a ‘host’ workstation,” and “IV’s construction improperly includes intermediate devices, such as routers (computers that communicate with other computers over a network and include an interface to accept input)” (Dkt. No. 118 at 16.)

Plaintiff replies: “A ‘host computer’ is a staple term of computer science, which appears in tens of thousands of patents in the PTO database. The word ‘host’ simply means that the device can connect to a network. Similarly, a ‘host workstation’ is a host computer that also functions as a workstation—i.e., it has a terminal or interface to accept input.” (Dkt. No. 126 at 2.)

(2) Analysis

The specification refers to “host computers” as well as to “workstation[s]”:

Network 148 includes an example local area network including a plurality of *host computers such as, e.g., client workstation 138 and server 136*, coupled together

² Defendants previously proposed: “end-point running one or more applications and serving as the source or destination of an IP flow to or from a subscriber end-point.” (Dkt. No. 110, Ex. B at 3.)

by wiring including network interface cards (NICs) and a hub, such as, e.g., an Ethernet hub. The LAN is coupled to data network 142 by a network router 140 which permits data traffic to be routed to workstations 144 and 146 from client 138 and server 136.

'971 Patent at 30:49–56 (emphasis added); *see id.* at 31:56–60 (“A local area network (LAN) can be thought of as a plurality of host computers interconnected via network interface cards (NICs) in the host computers. The NICs are connected via, for example, copper wires so as to permit communication between the host computers.”).

This disclosure is consistent with Defendants’ proposal that a “host workstation” is an end point rather than an intermediate device such as “a network router” or “an Ethernet hub” or, for that matter, “wiring.” ’971 Patent at 30:49–56; *see id.* at Fig. 3B. As Defendants have urged, this understanding gives meaning to the constituent term “host.” *See Merck & Co. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.”). Plaintiff argued at the September 5, 2018 hearing that Plaintiff’s proposal of requiring “a terminal or interface to accept input” would exclude network routers, but Plaintiff failed to demonstrate how this is so. Plaintiff has also urged that the specification refers to a “host workstation” in terms of accepting input, but Plaintiff has not shown how its cited disclosures compel such a construction. *See* ’971 Patent at 30:53–56, 32:6–9, 64:1–4, 64:24–31, 72:36–41, 73:47–49, Figs. 1, 2A.

As to Defendants’ proposal of referring to an “IP flow,” this proposal is consistent with the context in which the disputed term is used in the claim here at issue, namely Claim 12 of the ’971 Patent, which recites (emphasis added):

12. A quality of service (QoS) aware, wireless communications system comprising:
 - a wireless access point base station coupled to a first data network;
 - one or more *host workstations* coupled to said first data network;

one or more wireless network stations in wireless communication with said wireless access point base station over a shared wireless network using a packet-centric protocol; and

a scheduler that allocates resources of said shared wireless network among said wireless network stations to optimize end-user quality of service (QoS) for an *Internet Protocol (IP) flow*, wherein said *IP flow* is associated with at least one of a latency-sensitive and a jitter-sensitive application;

wherein said scheduler comprises assigning means for assigning future slots of a transmission frame to a portion of said *IP flow* in said transmission frame for transmission over said shared wireless network,

wherein said assigning means comprises:

means for applying an advanced reservation algorithm[;]

means for reserving a first slot for a first data packet of an *Internet Protocol (IP) flow* in a future transmission frame based on said algorithm[;]

means for reserving a second slot for a second data packet of said *IP flow* in a transmission frame subsequent in time to said future transmission frame based on said algorithm,

wherein said second data packet is placed in said second slot in an isochronous manner to the placing of said first data packet in said first slot.

Defendants' proposal of referring to an "IP flow" is also consistent with the specification.

See '971 Patent at 75:52–57 ("IP packet flow from subscriber workstation . . . to host workstation . . ."), 75:66–76:25. As to Defendants' proposal of "running one or more applications," Plaintiff "does not dispute that a host workstation runs applications . . ." (Dkt. No. 126 at 2.)

Defendants have not persuasively justified their proposal, however, of "to or from a subscriber end-point," which does not find support in surrounding claim language or in any definition or disclaimer in the intrinsic evidence.

Based on the foregoing, the Court hereby construes "**host workstation**" to mean "**end-point device that can run one or more applications and that is capable of serving as the source or destination of an IP flow.**"

D. “to optimize end-user quality of service (QoS) for an Internet Protocol (IP) flow,” “so as to optimize end-user quality of service (QoS) associated with said IP flow,” and “so as to optimize end-user internet protocol (IP) quality of service (QoS)”

“to optimize end-user quality of service (QoS) for an Internet Protocol (IP) flow” (’971 Patent, Claim 12; ’206 Patent, Claim 121)	
Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“to differentiate between types of traffic or service types and allocate a different level of system resources to an Internet Protocol (IP) flow”	Indefinite
“so as to optimize end-user quality of service (QoS) associated with said IP flow” (’206 Patent, Claim 1)	
Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“so as to differentiate between types of traffic or service types and allocate a different level of system resources to said IP flow”	Indefinite
“so as to optimize end-user internet protocol (IP) quality of service (QoS)” (’206 Patent, Claim 19)	
Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“so as to differentiate between types of traffic or service types and allocate a different level of system resources to an Internet Protocol (IP) flow”	Indefinite

(Dkt. No. 110, Ex. B at 3–5, 7; Dkt. No. 111 at 8; Dkt. No. 118 at 2; Dkt. No. 128-1 at 6–8.)

(1) The Parties’ Positions

Plaintiff argues that “Quality of Service or ‘QoS’ is a well understood term in the telecommunications world,” and a person of ordinary skill in the art would understand that “end user QoS associated with an IP flow refers to specific metrics of a data transmission link, such as

packet loss, bit rate, latency, and jitter that reflect the QoS for a particular type of IP flow.” (Dkt. No. 111 at 8–9.) Plaintiff cites the specification as well as prosecution history. (*See id.* at 9–12.) Plaintiff concludes that Defendants have failed to demonstrate indefiniteness. (*Id.* at 12–14.)

Defendants respond that “‘optimize’ is an indefinite, subjective term of degree that varies based on user preferences, and neither the specification nor the prosecution history provides objective criteria for ‘optimizing’ end-user quality of service (QoS).” (Dkt. No. 118 at 6.) Defendants also submit that the District of Delaware found indefinite the term “to optimize end user application IP QoS requirements of said software application” in related United States Patent No. 6,640,248. (*Id.* at 2.) Further, Defendants argue that “IV’s proposed construction wrongly collapses two separately-recited claim requirements: *optimizing* end-user QoS and *classifying* traffic based on end-user QoS requirements.” (*Id.* at 7.)

Plaintiff replies that “[u]nder IV’s construction the asserted claims are not indefinite because a person of ordinary skill would understand with reasonable certainty how to optimize end-user QoS for an IP flow.” (Dkt. No. 126 at 2.) Plaintiff also argues that “the patents teach how to optimize an IP flow by applying a set of parameters, such as the frequency of dropped packets or maximum delay between packets, to achieve a desired set of metrics for an IP flow of a particular type.” (*Id.* at 5.)

(2) Analysis

“Claim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention.” *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370 (Fed. Cir. 2014). “[A]bsolute or mathematical precision is not required.” *Id.*; *see id.* (“We do not understand the Supreme Court to have implied in *Nautilus* . . . that terms of degree are inherently indefinite.”); *see also Nautilus*, 134 S. Ct. at

2129 (“The definiteness requirement . . . mandates clarity, while recognizing that absolute precision is unattainable.”).

Nonetheless, “[t]he claims, when read in light of the specification and the prosecution history, must provide objective boundaries for those of skill in the art.” *Interval Licensing*, 766 F.3d at 1371. “[A] term of degree fails to provide sufficient notice of its scope if it depends on the unpredictable vagaries of any one person’s opinion.” *Id.* (citation and internal quotation marks omitted).

Claim 12 of the ’971 Patent, for example, recites (emphasis added):

12. A quality of service (QoS) aware, wireless communications system comprising:
 - a wireless access point base station coupled to a first data network;
 - one or more host workstations coupled to said first data network;
 - one or more wireless network stations in wireless communication with said wireless access point base station over a shared wireless network using a packet-centric protocol; and
 - a scheduler that allocates resources of said shared wireless network among said wireless network stations *to optimize end-user quality of service (QoS) for an Internet Protocol (IP) flow*, wherein said IP flow is associated with at least one of a latency-sensitive and a jitter-sensitive application;
 - wherein said scheduler comprises assigning means for assigning future slots of a transmission frame to a portion of said IP flow in said transmission frame for transmission over said shared wireless network,
 - wherein said assigning means comprises:
 - means for applying an advanced reservation algorithm[;]
 - means for reserving a first slot for a first data packet of an Internet Protocol (IP) flow in a future transmission frame based on said algorithm[;]
 - means for reserving a second slot for a second data packet of said IP flow in a transmission frame subsequent in time to said future transmission frame based on said algorithm,
 - wherein said second data packet is placed in said second slot in an isochronous manner to the placing of said first data packet in said first slot.

On one hand, the specification refers to “optimal” performance in terms of handling communications in ways that depend on the types of data being communicated:

Simply providing “adequate” bandwidth is not a sufficient QoS mechanism for packet-switched networks, and certainly not for wireless broadband access systems. Although some IP-flows are “bandwidth-sensitive,” other flows are

latency- and/or jitter-sensitive. Real time or multimedia flows and applications cannot be guaranteed timely behavior by simply providing excessive bandwidth, even if it were not cost-prohibitive to do so. It is desirable that QoS mechanisms for an IP-centric wireless broadband access system recognize the detailed flow-by-flow requirements of the traffic, and allocate system and media resources necessary to deliver these flows *in an optimal manner*.

* * *

The wireless transmission frames in each direction are constructed in a manner dictated by the individual QoS requirements of each IP flow. By using QoS requirements to build the wireless transmission frames, *optimal QoS performance* can result over the entire range of applications being handled by the system. For example, latency and jitter sensitive IP telephony, other H.323 compliant IP streams, and real-time audio and video streams can be given a higher priority for *optimal placement in the wireless transmission frames*. On the other hand, hypertext transport protocol (HTTP) traffic, such as, e.g., initial web page transmissions, can be given higher bandwidth reservation priorities for that particular application task. Other traffic without latency, jitter, or bandwidth requirements such as, e.g., file transfer protocol (FTP) file downloads, email transmissions, can be assigned a lower priority for system resources and placement in the wireless transmission frame.

'206 Patent at 13:16–27, 21:41–58 (emphasis added); *see id.* at 57:5–10 (“[T]he present invention’s reservation protocol with a dynamically adjustable number of contention subslots and explicit wireless base station reservation grants, allows a more optimal means of providing for the allocation of wireless, such as, e.g., radio, bandwidth in response to QoS requirements of IP-flows than any prior method.”); *see also id.* at 58:45–50 (“For example, suppose the data packets of class 1 packet flow queue 1324 require jitter-free and latency-free delivery, i.e., delivery of packets must be at constant time intervals and in real-time. Packet flow queue 1324 creates, e.g., 4 equal time spaced slot reservations in future frames”); *id.* at 58:28–60:28, 62:31–48. Plaintiff has also argued that the disclosures in the specification, as well as the recitals of “IP flows,” are directed to network operators rather than end users. *See id.* at 14:21–25 (“simplify the operation and administration of the QoS mechanism”); 51:14–16 (“By placing all scheduling function at the

wireless base station 302, overall system quality of service can be optimized by centralizing the control of scheduling.”).

On the other hand, the specification further explains that optimizing quality of service (“QoS”) ultimately depends on how “the user defines it”:

QoS can be a relative term, finding different meanings for different users. A casual user doing occasional web browsing, but no file transfer protocol (FTP) file downloads or real time multimedia sessions may have different a different [sic] definition of QoS than a power user doing many FTP file downloads of large database or financial files, frequent H.323 video conferencing and IP telephony calls. Also, a user can pay a premium rate (i.e. a so-called service level agreement (SLA)) for high network availability, low latency, and low jitter, while another user can pay a low rate for occasional web surfing only, and on weekends only. Therefore, perhaps it is best to understand QoS as a continuum, defined by what network performance characteristic is most important to a particular user and the user’s SLA. Maximizing the end-user experience is an essential component of providing wireless QoS.

* * *

*QoS can be thought of as a mechanism to selectively allocate scarce networking, transmission and communications resources to differentiated classes of network traffic with appropriate levels of priority. Ideally, the nature of the data traffic, the demands of the users, the conditions of the network, and the characteristics of the traffic sources and destinations all modify how the QoS mechanism is operating at any given instant. Ultimately, however, it is desirable that the *QoS mechanism operate in a manner that provides the user with optimal service, in whatever manner the user defines it.**

Id. at 11:41–56, 12:7–17 (emphasis added); *see also id.* at 13:45–48 (“The nature of the data application itself and the desired end-user experience then can provide the most reliable criteria for the QoS mechanism.”).

On balance, “to optimize end-user quality of service (QoS)” lacks sufficient “objective boundaries” for those of skill in the art to understand the scope of the claims, even when considered in light of the specification. *Interval Licensing*, 766 F.3d at 1371.

The various general disclosures regarding QoS cited by Plaintiff do not compel otherwise. *See, e.g.*, '206 Patent at 10:61–11:54, 12:7–10, 13:34–48, 14:9–25 (“differing levels of system resources can be allocated”), 32:4–12, 39:7–20, 40:59–41:3.

The prosecution history cited by Plaintiff (regarding United States Patent Application No. 09/349,478, cited in the patents-in-suit) is likewise unpersuasive:

The present invention *optimizes* end-user quality of service (QoS) by *differentiating between types of traffic or service types* so that differing levels of system resources can be allocated to these different types. . . . By creating a finite number of *discrete classes of service*, multiple IP flows can be consolidated and handled with a given set of *QoS* parameters by the QoS mechanisms.

(*See* Dkt. No. 111, Ex. 5, Mar. 27, 2002 Amendment and Reply Under 37 C.F.R. § 1.111 and 1.121 at 13 (emphasis in original); *see id.* at 13–14 (“End-user quality of service (QoS) is not optimized in [the] Meier [reference] because differentiating between types of traffic or service types is required in order to optimize end-user quality of service (QoS).”) (emphasis omitted).)

Here, too, although the patentee referred to differentiating between different types of data traffic, the patentee did not define or sufficiently explain the meaning of “optimize,” especially in the context of “end-user” QoS. To the extent that Plaintiff is arguing that “to optimize” means merely to treat differently, this argument is unavailing. The prosecution history set forth above indicates that differentiating is necessary *in order to* optimize, but this does not amount to an explanation of what “optimize” *means*. Further, dependent Claim 121 of the '206 Patent, in which one of the disputed terms appears, depends from Claim 109 of the '206 Patent, which separately recites “*classifying* a plurality of packets according to end-user quality of service requirements of said plurality of packets.” Claim 1 of the '206 Patent is similar in this regard. *See Phillips*, 415 F.3d at 1314 (“Other 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.”). The above-cited

disclosures demonstrate that to “optimize” means something more than merely differentiating or classifying, but the meaning is left unclear.

Finally, Plaintiff has asserted that Defendants have failed to meet their burden to “provide[] a factual record” by submitting an expert declaration as to the claims here at issue. (Dkt. No. 111 at 13.) The Court finds that Defendants’ expert has presented relevant opinions that are persuasive and that thus provide additional support for the Court’s finding that the recital of “optimize,” as used in the claims here at issue, renders the claims indefinite. (See Dkt. No. 118, Ex. 1, Aug. 8, 2018 Rubin Decl. ¶ 53 (“merely distinguishing one type of traffic from another does not inform how to optimize among the competing needs of that traffic”); see also *id.* ¶¶ 22–25, 33, 35–36, 38–54.) The contrary opinions of Plaintiff’s expert are unpersuasive. (See Dkt. No. 111, Ex. 9, July 10, 2018 Williams Decl. ¶ 28 (“parameters are optimized by a network operator through the adjustment of defined end-user QoS parameters for a particular IP flow such as packet delay budget, jitter, error rate, etc.”); see also *id.* ¶¶ 13–29; Dkt. No. 126, Ex. 10, 2d Williams Decl. ¶¶ 5–16.) For example, Plaintiff’s expert opines: “In a telecommunications environment where there are multiple users and multiple IP flows competing for limited network resources, the network operator needs to make trade-offs in the allocation of those resources.” (*Id.* ¶ 8.) Plaintiff has failed to demonstrate that such “trade-offs,” in the context of optimizing end-user QoS, would be anything other than subjective. See *Datamize*, 417 F.3d at 1350–51.³

³ On the eve of the September 5, 2018 hearing, the Federal Circuit affirmed an indefiniteness finding by the District of Delaware as to the term “allocating means for allocating resources to said IP flow . . . so as to optimize end user application IP QoS requirements of said software application” in Claim 20 of related United States Patent No. 6,640,248. See *Intellectual Ventures I, LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372, 1381 (Fed. Cir. 2018), affirming *Intellectual Ventures I, LLC v. AT&T Mobility LLC*, Nos. 13-1668, 13-1669, 13-1670, 13-1671, 13-1672, 14-1229, 14-1230, 14-1231, 14-1232, 14-1233, 2016 WL 4363485 (D. Del. Aug. 12, 2016).

At the September 5, 2018 hearing, Plaintiff urged that definiteness must be evaluated on a claim-by-claim basis, and the Federal Circuit found indefiniteness only as to one particular claim

The Court therefore hereby finds that **“to optimize end-user quality of service (QoS) for an Internet Protocol (IP) flow,” “so as to optimize end-user quality of service (QoS) associated with said IP flow,” and “so as to optimize end-user internet protocol (IP) quality of service (QoS)”** in Claim 12 of the '971 Patent and Claims 1, 19, and 121 of the '206 Patent are **indefinite**.

in a different patent. Plaintiff also submitted that Defendants presented their indefiniteness challenge only as to Claim 12 of the '971 Patent and Claims 1, 19, and 121 of the '206 Patent. Plaintiff argued that dependent claims may include limitations that provide reasonable certainty. *See, e.g., Halliburton Energy Servs., Inc. v. M-I, LLC*, 514 F.3d 1244, 1250 n.2 (Fed. Cir. 2008); *Signal IP v. Am. Honda Motor Co., Inc.*, No. 14-CV-02454, 2015 WL 5768344, at *35 n.15 (C.D. Cal. Apr. 17, 2015). Defendants responded that the onus was on Plaintiff to demonstrate that any dependent claims include limitations that overcome the indefiniteness arguments presented as to particular claims that Defendants have challenged.

At the September 5, 2018 hearing, the Court instructed the parties to file proposals for addressing this dispute. After the parties filed Notices (Dkt. Nos. 147, 148), the Court set a briefing schedule for a motion for summary judgment. (Dkt. No. 149, Sept. 10, 2018 Order for Expedited Briefing.) Defendants' filed a Motion for Partial Summary Judgment That Asserted Claims Reciting the Indefinite “Optimize” Term Are Invalid as Indefinite. (Dkt. No. 155.) The Court addresses that motion by separate Order.

E. “assigning means for assigning future slots of a transmission frame to a portion of said IP flow in said transmission frame for transmission over said shared wireless network”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
<p>Means-plus-function limitation under § 112 ¶ 6.</p> <p>Function: “assigning future slots of a transmission frame to a portion of said IP flow in said transmission frame over said shared wireless network”</p> <p>Structure: MAC subframe schedulers 1566 or 1666⁴</p>	<p>Function: “assigning future slots of a transmission frame to a portion of said IP flow in said transmission frame for transmission over said shared wireless network”</p> <p>Structure: MAC downlink subframe scheduler 1566 or MAC uplink subframe scheduler 1666, implementing an algorithm that assigns future slots to a portion of an IP flow based on the priority of the IP flow, as described at ’971 Patent 61:65–62:11⁵</p>

(Dkt. No. 110, Ex. B at 8; Dkt. No. 111 at 14; Dkt. No. 118 at 19; Dkt. No. 128-1 at 10.) The parties submit that this term appears in Claim 12 of the ’971 Patent. (Dkt. No. 110, Ex. B at 8.)

(1) The Parties’ Positions

Plaintiff argues that the specification citation proposed by Defendants “would unduly limit the scope of the assigning means and potentially conflict with the remaining three means elements.” (Dkt. No. 111 at 15.) Further, Plaintiff argues that Defendants’ proposal should be rejected because “[f]ocusing exclusively on the IP flow rather than on the data packets and the IP flow associated with these packets is incorrect.” (*Id.* at 16.)

⁴ Plaintiff previously proposed: “Plain meaning, as this term is not governed by 35 U.S.C. § 112 ¶ 6, or, should the Court find this term to be governed by § 112 ¶ 6: / Function: assigning future slots of a transmission frame to a portion of said IP flow in said transmission frame for transmission over said shared wireless network / Structure: MAC subframe schedulers 1566 or 1666.” (Dkt. No. 110, Ex. B at 8.)

⁵ Defendants previously proposed: “downlink scheduler 1566 or uplink scheduler 1666, implementing an algorithm that assigns future slots to a portion of an IP flow based on the priority of the IP flow, as described at ’971 Patent 61:65–62:11.” (Dkt. No. 110, Ex. B at 8.)

Defendants respond that “IV has failed to provide any algorithm in its proposed structure and neglected to provide any reasoning for why an algorithm is not required. Here, the mere disclosure of a generic scheduler that runs on a general purpose processor along with an identification of the location of the subframe being scheduled (i.e., the MAC) does not disclose any algorithm as required by Federal Circuit precedent.” (Dkt. No. 118 at 19.)

Plaintiff replies that “the uplink and downlink schedulers are not general purpose computers” and therefore the corresponding structure need not include an algorithm. (Dkt. No. 126 at 8.)

(2) Analysis

Title 35 U.S.C. § 112, ¶ 6 provides: “An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.”

“In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.” *WMS Gaming Inc. v. Int’l Gaming Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). The parties dispute whether the “MAC downlink subframe scheduler 1566” and the “MAC uplink subframe scheduler 1666” are general purpose computers such that an algorithm is required as part of the corresponding structure.

The specification discloses that the “MAC downlink subframe scheduler 1566” is a “processor module”:

MAC downlink subframe scheduler 1566 is a processor module that takes the packets queued in class queues 1564a-1564f, and can make frame slot reservations

to fill up subframes 1568a-1568k based on priorities 1570, 1572 and 1574, which is a variable number of frames.

'971 Patent at 67:36–40; *see id.* at 66:10–11 (“MAC downlink subframe scheduler module 1566”).

The specification also refers to “MAC uplink subframe scheduler *module 1666.*” *Id.* at 71:66–67 (emphasis added).

Nonetheless, the claim in which this disputed term appears already separately recites several additional limitations as to what “said assigning means comprises” (emphasis added):

12. A quality of service (QoS) aware, wireless communications system comprising:
 - a wireless access point base station coupled to a first data network;
 - one or more host workstations coupled to said first data network;
 - one or more wireless network stations in wireless communication with said wireless access point base station over a shared wireless network using a packet-centric protocol; and
 - a scheduler that allocates resources of said shared wireless network among said wireless network stations to optimize end-user quality of service (QoS) for an Internet Protocol (IP) flow, wherein said IP flow is associated with at least one of a latency-sensitive and a jitter-sensitive application;
 - wherein said scheduler comprises *assigning means* for assigning future slots of a transmission frame to a portion of said IP flow in said transmission frame for transmission over said shared wireless network,
 - wherein said assigning means comprises:*
 - means for applying an advanced reservation algorithm[;]
 - means for reserving a first slot for a first data packet of an Internet Protocol (IP) flow in a future transmission frame based on said algorithm[;]
 - means for reserving a second slot for a second data packet of said IP flow in a transmission frame subsequent in time to said future transmission frame based on said algorithm,
 - wherein said second data packet is placed in said second slot in an isochronous manner to the placing of said first data packet in said first slot.

The Court therefore rejects Defendants’ argument that the corresponding structure must include an algorithm from the specification.

Having thus resolved the parties’ dispute, and the parties being otherwise in agreement as to the proper construction, the Court hereby finds that **“assigning means for assigning future slots of a transmission frame to a portion of said IP flow in said transmission frame for**

transmission over said shared wireless network” is a means-plus-function term, the claimed function is **“assigning future slots of a transmission frame to a portion of said IP flow in said transmission frame for transmission over said shared wireless network,”** and the corresponding structure is **“MAC downlink subframe scheduler 1566 or MAC uplink subframe scheduler 1666; and equivalents thereof.”**

F. “means for applying an advanced reservation algorithm”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
<p>Means-plus-function limitation under § 112 ¶ 6.</p> <p>Function: “applying an advanced reservation algorithm”</p> <p>Structure: MAC subframe schedulers 1566 or 1666 configured to assign future slots to data packets based on the priority of the IP data flow with which the packet is associated, as described at ’971 Patent 23:14–35, 61:35–62:56, 63:47–57, 66:7–15, 67:36–50, 71:63–72:04, 72:53–66, 73:27–40, Figs. 14, 15A, 15B, 16A, and 16B⁶</p>	<p>Function: “applying an advanced reservation algorithm”</p> <p>Structure: MAC downlink subframe scheduler 1566 or MAC uplink subframe scheduler 1666 implementing an algorithm that determines the latency and jitter sensitivity of flows and then determines how to assign slots based on that determination (e.g., periodically or not, with what period), as described at ’971 Patent 51:11–23, 61:6–16, 61:65–62:7, 62:32–37, Fig. 14⁷</p>

(Dkt. No. 111 at 16; Dkt. No. 118 at 19–20; Dkt. No. 128-1 at 11–12.) The parties submit that this term appears in Claim 12 of the ’971 Patent. (Dkt. No. 110 Ex. B at 8.)

⁶ Plaintiff previously proposed: “Plain meaning, as this term is not governed by 35 U.S.C. § 112 ¶ 6” (Dkt. No. 110, Ex. B at 8–9.)

⁷ Defendants previously proposed: “downlink scheduler 1566 or uplink scheduler 1666 implementing an algorithm that determines the latency and jitter sensitivity of flows and then determines how to assign slots based on that determination (e.g., periodically or not, with what period), as described at ’971 Patent 51:11–23, 61:6–16, 61:65–62:7, 62:32–37, Fig. 14.” (Dkt. No. 110, Ex. B at 8–9.)

(1) The Parties' Positions

Plaintiff argues, as to Defendants' proposed algorithm: "This construction is not taken from the specification and has no support in the intrinsic evidence. It seeks to narrow the claim scope to a single embodiment and should be rejected. Nothing in the specification requires the reservation algorithm to determine any latency or jitter sensitivities." (Dkt. No. 111 at 17.) Plaintiff submits that Plaintiff's proposal, by contrast, "is taken verbatim from the specification." (*Id.* at 16 (citing '971 Patent at 61:65–62:1).)

Defendants respond that "IV ignores . . . the further detail that the specification provides regarding how the advanced reservation algorithm actually determines the priority of the IP data flow and assigns slots based on those priorities." (Dkt. No. 118 at 20.)

Plaintiff replies that "Defendants seek to limit the priority determination to latency and jitter sensitivity," despite "numerous priorities identified in the patent specification." (Dkt. No. 126 at 8–9.)

(2) Analysis

The parties agree that the corresponding structure for the "means for applying an advanced reservation algorithm" should include citation to configuration details set forth in the specification. The parties dispute merely which details should be included.

Under section 112, paragraph 6, structure disclosed in the specification is "corresponding" structure "only if the specification or the prosecution history clearly links or associates that structure to the function recited in the claim." *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424, 43 USPQ2d 1896, 1900 (Fed. Cir. 1997). A court may not import into the claim features that are unnecessary to perform the claimed function. *Acromed Corp. v. Sofamor Danek Group, Inc.*, 253 F.3d 1371, 1382, 59 USPQ2d 1130, 1138 (Fed. Cir. 2001).

Northrup Grumman Corp. v. Intel Corp., 325 F.3d 1346, 1352 (Fed. Cir. 2003) (citations omitted).

Here, the parties have cited various disclosures in the specification, as noted above, but the portion that the specification “clearly links or associates . . . to the function recited in the claim” (*id.*) appears in a series of paragraphs that explain “[i]n the present invention, an advanced reservation algorithm assigns future slots to data packets based on the priority of the IP data flow with which the packet is associated.” ’971 Patent at 61:65–62:56.

Plaintiff’s reply brief argues that the corresponding structure should include the “priorities” disclosed in the ’971 Patent at 51:56–52:20. (*See* Dkt. No. 126 at 8–9.) This disclosure does not appear among the disclosures set forth in Plaintiff’s portion of the parties’ pre-briefing Joint Claim Construction and Prehearing Statement, in Plaintiff’s opening brief, or in Plaintiff’s portion of the parties’ post-briefing Joint Claim Construction Chart. (*See* Dkt. No. 110, Ex. B at 8–9; *see also* Dkt. No. 111 at 16; Dkt. No. 128-1 at 11–12.) Nonetheless, this disclosure need not be included as part of the express corresponding structure because the disclosure in the ’971 Patent at 61:65–62:56 states that “[e]xemplary priorities are described above with respect to FIGS. 8A and 8B” (which is set forth in the disclosure in 51:56–52:20). ’971 Patent at 62:1–2.

Nonetheless, to whatever extent Defendants are arguing that the corresponding structure is limited to latency sensitivity and jitter sensitivity (let alone determining *values* for latency sensitivity and jitter sensitivity), no such disclosure is apparent, and the Court hereby expressly rejects any such requirement.

The Court accordingly hereby finds that **“means for applying an advanced reservation algorithm”** is a means-plus-function term, the claimed function is **“applying an advanced reservation algorithm,”** and the corresponding structure is **“MAC downlink subframe scheduler 1566 or MAC uplink subframe scheduler 1666 configured as set forth in the ’971 Patent at 61:65–62:56; and equivalents thereof.”**

G. “means for reserving a first slot for a first data packet of an Internet Protocol (IP) flow in a future transmission frame based on said algorithm”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
<p>Means-plus-function limitation under § 112 ¶ 6.</p> <p>Function: “reserving a first slot for a first data packet of an Internet Protocol (IP) flow in a future transmission frame based on said algorithm”</p> <p>Structure: MAC subframe schedulers 1566 or 1666 configured to reserve slots in a future transmission frame in accordance with one or more of the patterns shown in Figure 14, by reserving a slot one or more frames in the future, or as described at ’971 Patent 23:14–35, 61:35–62:56, 63:47–57, 66:7–15, 67:36–50, 71:63–72:04, 72:53–66, 73:27–40, Figs. 14, 15A, 15B, 16A, and 16B⁸</p>	<p>Means-plus-function limitation under § 112 ¶ 6.</p> <p>Function: “reserving a first slot for a first data packet of an Internet Protocol (IP) flow in a future transmission frame based on said algorithm”</p> <p>Structure: MAC downlink subframe scheduler 1566 or MAC uplink subframe scheduler 1666 implementing an algorithm for assigning a first future slot that is at least one frame in the future from the current frame based on the determination by the reservation algorithm of the latency- and jitter-sensitivity of the flows, as described at ’971 Patent 62:7–17, 62:46–54, 67:36–47, 73:27–37, Fig. 14⁹</p>

(Dkt. No. 110, Ex. B at 9–10; Dkt. No. 111 at 17–18; Dkt. No. 118 at 21; Dkt. No. 128-1 at 12–13.) The parties submit that this term appears in Claim 12 of the ’971 Patent. (Dkt. No. 110, Ex. B at 9.)

(1) The Parties’ Positions

Plaintiff argues that whereas Plaintiff’s proposal is “fully supported by the specification . . . without any extraneous phrases or unnecessary confusion,” “Defendants once again attempt to add

⁸ Plaintiff previously proposed: “Plain meaning, as this term is not governed by 35 U.S.C. § 112 ¶ 6” (Dkt. No. 110, Ex. B at 9–10.)

⁹ Defendants previously proposed: “downlink scheduler 1566 or uplink scheduler 1666 implementing an algorithm for assigning a first future slot that is at least one frame in the future from the current frame based on the determination by the reservation algorithm of the latency- and jitter-sensitivity of the flows, as described at ’971 Patent 62:7–17, 62:46–54, 67:36–47, 73:27–37, Fig. 14.” (Dkt. No. 110, Ex. B at 9–10.)

limitations to the structure that are both confusing and unsupported by the specification.” (Dkt. No. 111 at 18.)

Defendants respond that “[t]he ’971 Patent explains that once the advanced algorithm determines the sensitivities and priorities of an IP flow, and determines generally how to assign slots, the algorithm selects specific slots for the current frame and frames that will occur in the future, relative to the current frame” (Dkt. No. 118 at 21 (citing ’971 Patent at 61:40–46, 62:7–17).)

Plaintiff replies: “The ‘means for reserving’ incorporates its own algorithm—‘said algorithm,’ i.e., the advanced reservation algorithm—from the prior element. Accordingly, the schedulers when running the advanced reservation algorithm are the corresponding structure.” (Dkt. No. 126 at 9.)

(2) Analysis

This disputed term presents substantially the same issues as the term “means for applying an advanced reservation algorithm,” addressed above. The Court reaches the same conclusions for the same reasons.

The claimed function in this disputed term contains no “current frame” limitation, but at the September 5, 2018 hearing, Defendants urged that the frame that is going to be transmitted next is referred to in the ’971 Patent as the “current” frame. *See* ’971 Patent at 61:40–46, Fig. 14. On balance, Defendants’ proposed explanation regarding the “current frame” is potentially confusing and is unnecessary in light of the context provided by the claim language and by the disclosure cited in the Court’s construction.

The Court accordingly hereby finds that **“means for reserving a first slot for a first data packet of an Internet Protocol (IP) flow in a future transmission frame based on said**

algorithm” is a means-plus-function term, the claimed function is **“reserving a first slot for a first data packet of an Internet Protocol (IP) flow in a future transmission frame based on said algorithm,”** and the corresponding structure is **“MAC downlink subframe scheduler 1566 or MAC uplink subframe scheduler 1666 implementing the algorithms set forth in the ’971 Patent at 61:65–62:56; and equivalents thereof.”**

H. “means for reserving a second slot for a second data packet of said IP flow in a transmission frame subsequent in time to said future transmission frame based on said algorithm”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
<p>Means-plus-function limitation under § 112 ¶ 6.</p> <p>Function: “reserving a second slot for a second data packet of said IP flow in a transmission frame subsequent in time to said future transmission frame based on said algorithm”</p> <p>Structure: MAC subframe schedulers 1566 or 1666 configured to reserve slots in a second future transmission frame, in accordance with one or more of the patterns shown in Figure 14, by reserving a slot two or more frames in the future, or as described at ’971 Patent 23:14–35, 61:35–62:56, 63:47–57, 66:7–15, 67:36–50, 71:63–72:04, 72:53–66, 73:27–40, Figs. 14, 15A, 15B, 16A, 16B¹⁰</p>	<p>Means-plus-function limitation under § 112 ¶ 6.</p> <p>Function: “reserving a second slot for a second data packet of said IP flow in a transmission frame subsequent in time to said future transmission frame based on said algorithm”</p> <p>Structure: MAC downlink subframe scheduler 1566 or MAC uplink subframe scheduler 1666 implementing an algorithm for assigning a second future slot in a frame that is at least two frames in the future from the current frame based on the determination by the reservation algorithm of the latency- and jitter-sensitivity of the flows, as described at ’971 Patent 62:7–17, 62:46–54, 67:36–47, 73:27–37, Fig. 14¹¹</p>

¹⁰ Plaintiff previously proposed: “Plain meaning, as this term is not governed by 35 U.S.C. § 112 ¶ 6” (Dkt. No. 110, Ex. B at 10–11.)

¹¹ Defendants previously proposed: “downlink scheduler 1566 or uplink scheduler 1666 implementing an algorithm for assigning a second future slot in a frame that is at least two frames in the future from the current frame based on the determination by the reservation algorithm of the latency- and jitter-sensitivity of the flows, as described at ’971 Patent 62:7–17, 62:46–54, 67:36–47, 73:27–37, Fig. 14.” (Dkt. No. 110, Ex. B at 10–11.)

(Dkt. No. 110, Ex. B at 10–11; Dkt. No. 111 at 18–19; Dkt. No. 118 at 21; Dkt. No. 128-1 at 14–15.) The parties submit that this term appears in Claim 12 of the '971 Patent. (Dkt. No. 110, Ex. B at 10.)

(1) The Parties' Positions

Plaintiff argues that “for the reasons described above [as to the ‘means for reserving a first slot . . .’], Defendants’ proposed construction improperly and incorrectly incorporates a determination of latency- and jitter-sensitivity as well as introducing the term ‘current frame’ which will confuse a jury.” (Dkt. No. 111 at 19.)

Defendants respond as to this term together with the “means for reserving a first slot” term addressed above. (*See* Dkt. No. 118 at 21–22.)

Plaintiff replies as to this term together with the “means for reserving a first slot” term addressed above. (*See* Dkt. No. 126 at 9.)

(2) Analysis

This disputed term presents substantially the same issues as the term “means for reserving a first slot for a first data packet of an Internet Protocol (IP) flow in a future transmission frame based on said algorithm,” addressed above. The Court reaches the same conclusions for the same reasons.

The Court accordingly hereby finds that **“means for reserving a second slot for a second data packet of said IP flow in a transmission frame subsequent in time to said future transmission frame based on said algorithm”** is a means-plus-function term, the claimed function is **“reserving a second slot for a second data packet of said IP flow in a transmission frame subsequent in time to said future transmission frame based on said algorithm,”** and the corresponding structure is **“MAC downlink subframe scheduler 1566 or MAC uplink**

subframe scheduler 1666 implementing the algorithms set forth in the '971 Patent at 61:65–62:56; and equivalents thereof.”

I. “means for taking into account service level agreement (SLA) based priorities for said IP flow”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
<p>Means-plus-function limitation under § 112 ¶ 6.</p> <p>Function: “taking into account service level agreement (SLA) based priorities for said IP flow”</p> <p>Structure: Downlink scheduler 604/1566 or uplink scheduler 634/1666 configured to use information from SLA priority data table 1570 to affect the queuing function and provide different service levels to users¹²</p>	<p>Means-plus-function limitation under § 112 ¶ 6.</p> <p>Function: “taking into account service level agreement (SLA) based priorities for said IP flow”</p> <p>Structure: downlink scheduler 604/1566 or uplink scheduler 634/1666 implementing an algorithm that increases or decreases queuing priority of an IP flow based on the service level agreement of the user associated with the IP flow, as described at '971 Patent 53:49–57, 53:34–36, 66:57–63.</p>

(Dkt. No. 110, Ex. B at 11; Dkt. No. 111 at 19–20; Dkt. No. 118 at 22; Dkt. No. 128-1 at 15–16.)

The parties submit that this term appears in Claim 18 of the '971 Patent. (Dkt. No. 110, Ex. B at 11.)

(1) The Parties’ Positions

Plaintiff argues that whereas Plaintiff’s proposed construction “is again taken directly from the specification,” “Defendants’ additional proposed structure excludes all but one embodiment and is therefore improper.” (Dkt. No. 111 at 20 (citing '971 Patent at 63:47–56).)

¹² Plaintiff previously proposed: “Plain meaning, as this term is not governed by 35 U.S.C. § 112 ¶ 6” (Dkt. No. 110, Ex. B at 11.)

Defendants respond that “Defendants’ proposed construction identifies the only algorithm described in the patent for taking into account SLA based priorities.” (Dkt. No. 118 at 22 (citing ’971 Patent at 66:59–63).)

Plaintiff replies that “IV’s construction correctly identifies the disclosed structure, including that the scheduler is configured to apply a set of rules (‘downlink flow scheduler 604 . . . based on a set of rules, schedules the data packets’) that operate upon specific data (‘the rules can be determined by inputs to the . . . scheduler from . . . a service level agreement priority data table 1570’).” (Dkt. No. 126 at 9 (citing ’971 Patent at 63:47–56).)

(2) Analysis

The specification discloses:

Downlink flow scheduler 604 places the data packets of an IP data flow into a class queue, and based on a set of rules, schedules the data packets for transmission over the wireless medium to a subscriber CPE station using, e.g., an advanced reservation algorithm. The rules can be determined by inputs to the downlink flow scheduler from a hierarchical class-based priority processor module 1574, a virtual private network (VPN) directory enabled (DEN) data table 1572, and a *service level agreement (SLA) priority data table 1570*.

’971 Patent at 63:47–56 (emphasis added); *see also id.* at 53:49–57, 66:57–63.

This disclosure links the claimed function to the structure of SLA priority data table 1570. No additional structure is necessary for performing the claimed function (other than the agreed-upon “downlink scheduler 604/1566 or uplink scheduler 634/1666”). *See Northrup Grumman*, 325 F.3d at 1352 (“A court may not import into the claim features that are unnecessary to perform the claimed function.”). The disclosures cited by Defendants do not demonstrate that “an algorithm that increases or decreases queuing priority of an IP flow” is necessary for performing the claimed function of merely “taking into account” SLA priorities.

The Court therefore hereby finds that **“means for taking into account service level agreement (SLA) based priorities for said IP flow”** is a means-plus-function term, the claimed function is **“taking into account service level agreement (SLA) based priorities for said IP flow,”** and the corresponding structure is **“downlink scheduler 604/1566 or uplink scheduler 634/1666, and service level agreement (SLA) priority data table 1570; and equivalents thereof.”**

J. “the analyzed contents” and “the analyzed packet contents”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Plain meaning, “the portion of the packets previously analyzed”	“analyzed contents of the packets to be communicated over the shared wireless bandwidth in the downlink direction”

(Dkt. No. 110, Ex. B at 12; Dkt. No. 111 at 21; Dkt. No. 118 at 23; Dkt. No. 128-1 at 18–20.) The parties submit that these terms appear in Claims 1 and 12 of the ’517 Patent. (Dkt. No. 110, Ex. B at 12.)

(1) The Parties’ Positions

Plaintiff argues that “Defendants’ proposed construction is unhelpful and it offers nothing beyond a repetition of the claim language.” (Dkt. No. 111 at 22.)

Defendants respond that “[t]he issue regarding these terms is antecedent basis,” and “the phrases ‘the analyzed contents’ and ‘the analyzed packet contents’ refer to the same contents of the same packets that previously were analyzed.” (Dkt. No. 118 at 23.)

Plaintiff replies, as to the phrase “to be communicated over the shared wireless bandwidth in the downlink direction” proposed by Defendants, that “[t]hese words appear *elsewhere* in the claims, and Defendants do not explain why repeating the words is necessary.” (Dkt. No. 126 at 10.)

(2) Analysis

Claim 1 of the '517 Patent, for example, recites (emphasis added):

1. A method for allocating a shared wireless bandwidth in a packet-centric wireless point to multi-point telecommunications system, the method comprising:

analyzing contents of packets to be communicated over the shared wireless bandwidth in a downlink direction from a wireless base station to at least one customer premises equipment (CPE) station;

analyzing reservation requests for packets to be communicated in the u[p]link direction from the at least one CPE station to the wireless base station, wherein each reservation request comprises a subscriber identifier and at least one other subscriber attribute, wherein the analyzing includes processing the subscriber identifier and the at least one other subscriber attribute to schedule packets in the uplink direction; and

allocating the shared wireless bandwidth between the wireless base station transmitting in the downlink direction and the at least one CPE station transmitting in the uplink direction based on *the analyzed contents* and the analyzed reservation requests, wherein allocating the shared bandwidth comprises:

assigning slots in a frame to the at least one CPE station; and

communicating the assigned slots to the at least one CPE station

in a reservation request acknowledgement section of a frame.

Claim 12 of the '517 Patent is similar in relevant part except that it recites “the analyzed packet contents” rather than “the analyzed contents” (emphasis added):

12. A wireless base station comprising:

a first interface configured to couple to a wired data network;

a second interface configured to communicate on a wireless network; and

a controller coupled to the first interface and the second interface, wherein the controller is configured to receive reservation requests from one or more customer premises equipment (CPE) stations via the second interface, wherein each reservation request corresponds to a packet to be transmitted in an uplink direction from the at least one CPE station to the wireless base station, and wherein each reservation request comprises a subscriber identifier and at least one other subscriber attribute, and wherein the controller is configured to receive packets from the wired data network via the first interface to be communicated in a downlink direction from the wireless base station to the at least one CPE station, and wherein the controller is configured to *analyze contents of the packets* received from the first interface and to analyze the reservation requests, and wherein the controller is configured to allocate wireless bandwidth between the uplink direction and the downlink direction responsive to *the analyzed packet contents* and the analyzed reservation requests, and wherein the controller is configured to allocate slots in a frame to the reservation requests responsive to the allocated bandwidth,

and wherein the controller is configured to communicate the allocated slots in a reservation request acknowledgement section of a frame.

The antecedent basis for the disputed terms is clear on the face of these claims. Although the parties appear to be largely in agreement, construction is appropriate to ensure that any remaining dispute is fully resolved as well as to prevent confusion. In particular, the recital of an intervening “analyzing . . .” step in Claim 1 and an intervening “analyze” limitation in Claim 12 (reproduced above) might give rise to confusion as to the proper antecedent basis. The Court accordingly hereby construes these disputed terms as set forth in the following chart:

<u>Term</u>	<u>Construction</u>
<p>“the analyzed contents” (’517 Patent, Claim 1)</p>	<p>This term refers back to the limitation of “analyzing contents of packets to be communicated over the shared wireless bandwidth in a downlink direction from a wireless base station to at least one customer premises equipment (CPE) station”</p>
<p>“the analyzed packets contents” (’517 Patent, Claim 12)</p>	<p>This term refers back to the limitation of “analyze contents of the packets received from the first interface.”</p>

K. “allocating the shared wireless bandwidth between the wireless base station transmitting in the downlink direction and the at least one CPE station transmitting in the uplink direction” and “allocate wireless bandwidth between the uplink direction and the downlink direction responsive to the analyzed packet contents and the analyzed reservation requests”

<p>“allocating the shared wireless bandwidth between the wireless base station transmitting in the downlink direction and the at least one CPE station transmitting in the uplink direction” (’517 Patent, Claim 1)</p>	
<p>Plaintiff’s Proposed Construction</p>	<p>Defendants’ Proposed Construction</p>
<p>Plain meaning, no construction necessary.</p>	<p>“allocating the shared wireless bandwidth between (1) the wireless base station transmitting in the downlink direction and (2) the at least one CPE station transmitting in the uplink direction”</p>
<p>“allocate wireless bandwidth between the uplink direction and the downlink direction responsive to the analyzed packet contents and the analyzed reservation requests” (’517 Patent, Claim 12)</p>	
<p>Plaintiff’s Proposed Construction</p>	<p>Defendants’ Proposed Construction</p>
<p>Plain meaning, no construction necessary.</p>	<p>“allocate wireless bandwidth between (1) the uplink direction and (2) the downlink direction responsive to the analyzed packet contents and the analyzed reservation requests”</p>

(Dkt. No. 110, Ex. B at 13–14; Dkt. No. 111 at 23; Dkt. No. 118 at 25; Dkt. No. 128-1 at 21–23.)

(1) The Parties’ Positions

Plaintiff argues: “Defendants’ proposal is not a construction at all, but rather an edited version of the claim language. Defendants have simply inserted ‘(1)’ and ‘(2)’ into the claim terms. These notational edits do nothing to assist the jury in understanding what is covered by the claims.” (Dkt. No. 111 at 23.)

Defendants respond that “[c]onstruction of this term is necessary because IV’s unstated ‘plain meaning’ of this language—as evidenced in its infringement contentions—improperly seeks to read the term ‘between’ out of the claim.” (Dkt. No. 118 at 25.)

Plaintiff replies that “[t]here is a disconnect in Defendants’ position because the notations ‘(1)’ and ‘(2)’ do not convey the complex limitations outlined in Defendants’ brief.” (Dkt. No. 126 at 10–11.)

(2) Analysis

Plaintiff’s reply brief expresses concern that Defendants are arguing that the allocating must be done “dynamically” (*see* Dkt. No. 126 at 11), but no such proposal is apparent in Defendants’ proposed construction or in Defendants’ responsive claim construction brief. (*See* Dkt. No. 118 at 25–28.) Likewise, Plaintiff argues that Defendants have not justified requiring “‘variable length’ subframes” (*see* Dkt. No. 126 at 11), but Defendants do not appear to have proposed any “subframes.” Similarly, Plaintiff has not shown how Defendants’ proposal would “preclude coverage of allocating bandwidth ‘between’ multiple CPE stations.” (*Id.* at 12.)

Rather than having presented any apparent claim construction dispute, the parties are disputing whether Plaintiff’s infringement contentions have properly applied the claim language. This dispute relates 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 Eon Corp. IP Holdings LLC v. Silver Spring Networks, Inc.*, 815 F.3d 1314, 1318–19 (Fed. Cir. 2016) (citing *PPG*).

The Court therefore hereby construes **“allocating the shared wireless bandwidth between the wireless base station transmitting in the downlink direction and the at least one CPE station transmitting in the uplink direction”** and **“allocate wireless bandwidth between the uplink direction and the downlink direction responsive to the analyzed packet contents and the analyzed reservation requests”** to have their **plain meaning**.

L. “said plurality of packets”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Plain meaning, said two or more packets	<p>“the plurality of packets” that are scheduled for communication over a shared wireless bandwidth are the same plurality of packets that are classified</p> <p>Or, alternatively: “the same plurality of packets that are classified”¹³</p>

(Dkt. No. 110, Ex. B at 14; Dkt. No. 111 at 24; Dkt. No. 118 at 28; Dkt. No. 128-1 at 9.) The parties submit that this term appears in Claim 109 of the ’206 Patent. (Dkt. No. 110, Ex. B at 14.)

(1) The Parties’ Positions

Plaintiff argues: “Defendants’ construction rewrites the claim. A plurality of packets is first classified and then scheduled. Defendants’ construction requires an additional step: that the plurality of packets must also be actually communicated (*i.e.*, transmitted and/or received).” (Dkt. No. 111 at 25.)

Defendants respond that “IV’s proposed construction (that ‘plurality’ refers to ‘two or more’) does not address the parties’ actual dispute,” which is “whether the ‘said plurality of

¹³ Defendants previously proposed: ““the plurality of packets’ that are communicated over a shared wireless bandwidth are the same plurality of packets that are classified.” (Dkt. No. 110, Ex. B at 14.)

packets’ are the same plurality of packets referred to throughout the claim.” (Dkt. No. 118 at 28.) Defendants urge that “the plain language of the claim supports a finding that the plurality of packets that are scheduled for communication over a shared wireless channel are the same plurality of packets that are classified.” (*Id.* at 29.)

Plaintiff replies that “IV’s construction explicitly includes the word ‘said,’ and Defendants’ criticisms on that point are misplaced.” (Dkt. No. 126 at 12.)

(2) Analysis

Claim 109 of the ’206 Patent recites (emphasis added):

109. A method for scheduling packets comprising:
classifying *a plurality of packets* according to end-user quality of service (QoS) requirements of *said plurality of packets*; and
scheduling said plurality of packets for communication in at least one of an upstream direction and a downstream direction over a shared wireless bandwidth according to a scheduling algorithm.

The claim thus requires that the packets that are scheduled are the same packets that are classified. *See Summit 6, LLC v. Samsung Elecs. Co.*, 802 F.3d 1283, 1291 (Fed. Cir. 2015) (regarding “said one or more pre-processing parameters,” finding that “[t]he use of the term ‘said’ indicates that this portion of the claim limitation is a reference back to the previously claimed ‘pre-processing parameters’”); *see also In re Varma*, 816 F.3d 1352, 1363 (Fed. Cir. 2016) (“For a dog owner to have ‘a dog that rolls over and fetches sticks,’ it does not suffice that he have two dogs, each able to perform just one of the tasks.”); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1342 (Fed. Cir. 2016) (regarding “a logical table,” finding that the limitations at issue were required to be “in the same logical table”).

The Court therefore hereby finds as follows regarding the term “said plurality of packets”:
Both instances of “said plurality of packets” in Claim 109 of the ’206 Patent refer back to the same “plurality of packets” recited in the phrase “classifying a plurality of packets.”


V. CONCLUSION

The Court **ADOPTS** and **ORDERS** the constructions set forth in this opinion for the disputed terms of the patent-in-suit, and in reaching conclusions the Court has considered extrinsic evidence. The Court's constructions thus include subsidiary findings of fact based upon the extrinsic evidence presented by the parties in these claim construction proceedings. *See Teva*, 135 S. Ct. at 841.

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.

Within thirty (30) days of the issuance of this Memorandum Opinion and Order, the parties are hereby **ORDERED**, in good faith, to mediate this case with the mediator agreed upon by the parties. As a part of such mediation, each party shall appear by counsel (with lead and local counsel present and participating) and by at least one corporate officer possessing sufficient authority and control to unilaterally make binding decisions for the corporation adequate to address any good faith offer or counteroffer of settlement that might arise during such mediation. Failure to do so shall be deemed by the Court as a failure to mediate in good faith and may subject that party to such sanctions as the Court deems appropriate. No participant shall leave the mediation without the approval of the mediator.

So ORDERED and SIGNED this 6th day of November, 2018.



RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE