

Tentative Order Regarding Claim Construction

Plaintiffs Wi-LAN Inc.; Wi-LAN USA, Inc.; and Wi-LAN Labs, Inc. (“Wi-LAN”) filed this action against Defendants Huizhou TCL Mobile Communications Co., Ltd.; TCL Communication Inc.; TCL Communication Ltd.; TCL Communication Technology Holdings Ltd.; TCL Corporation; TCL Mobile Communications Holdings Ltd.; TCT Mobile, Inc.; TCT Mobile International Ltd.; TCT Mobile (US) Inc.; and TCT Mobile (US) Holdings Inc. (“TCL”) alleging infringement of U.S. Patent Nos. 8,817,805 (the “’805 Patent”) and 9,854,577 (the “’577 Patent”). See generally Compl., Dkt. No. 1; Am. Compl., Dkt. No. 43; Second Am. Compl., Dkt. No. 116.

The parties now seek construction of nine claim terms. They filed the following claim construction briefs and supporting documents: Amended Joint Claim Construction and Prehearing Statement (Dkt. No. 128); Wi-LAN’s Opening Claim Construction Brief (“Wi-LAN Op. Br.,” Dkt. No. 130); TCL’s Opening Claim Construction Brief (“TCL Op. Br.,” Dkt. No. 129); Wi-LAN’s Responsive Claim Construction Brief (Wi-LAN Resp. Br.,” Dkt. No. 133); TCL’s Responsive Claim Construction Brief (“TCL Resp. Br.,” Dkt. No. 132). The Court held a technology tutorial on June 1, 2024 and a claim construction hearing on June 10, 2024.

Court construes the disputed terms as summarized in § IV.

I. TECHNICAL BACKGROUND

The ’805 and ’577 Patents are generally directed to wireless communication technology. They are not part of the same patent family and are directed to different solutions, as explained below.

A. The ’805 Patent

The ’805 Patent, titled “Apparatus, system and method for the transmission of data with different QoS attributes” was issued on August 26, 2014. The ’805 Patent discloses an apparatus, system, and method for transmitting multiple data flows with

different quality of service (“QoS”) attributes over various wireless network channels. ’805 Patent at 3:19-23. The method consists of determining available resources for data transmission, selecting a channel based on QoS attributes, then repeatedly selecting, packaging, and transferring data through the selected channel until one of three conditions are met. Id. at 3:23-37. To increase the range of QoS offerings in a network, the method of the ’805 Patent allows for data transfer over less reliable physical layers, such as radio channels, and allows for data transfer across networks with heterogenous physical layers or links. Id. at 2:53-59.

Figure 3 from the ’805 Patent illustrates a QoS processor at a base station. The QoS processor includes a network interface port (104) to receive data, which is fed into a respective prioritization and queuing engine (108), which includes a data classifier (11) that examines the data packet and routes it to an appropriate one of sixteen logical channel queues (LC.sub.0 to LC.sub.15). Id. at 7:3-9; 7:17-20. The data packets are then transferred to a segmentation cache (16) for each logical queue, where the highest priority data package is taken and stored until completely transmitted to one or more shared broadcast data channels (“BDCHs”) (156) or dedicated data channels (“DDCHs”) (144) Id. at 9:16-20.

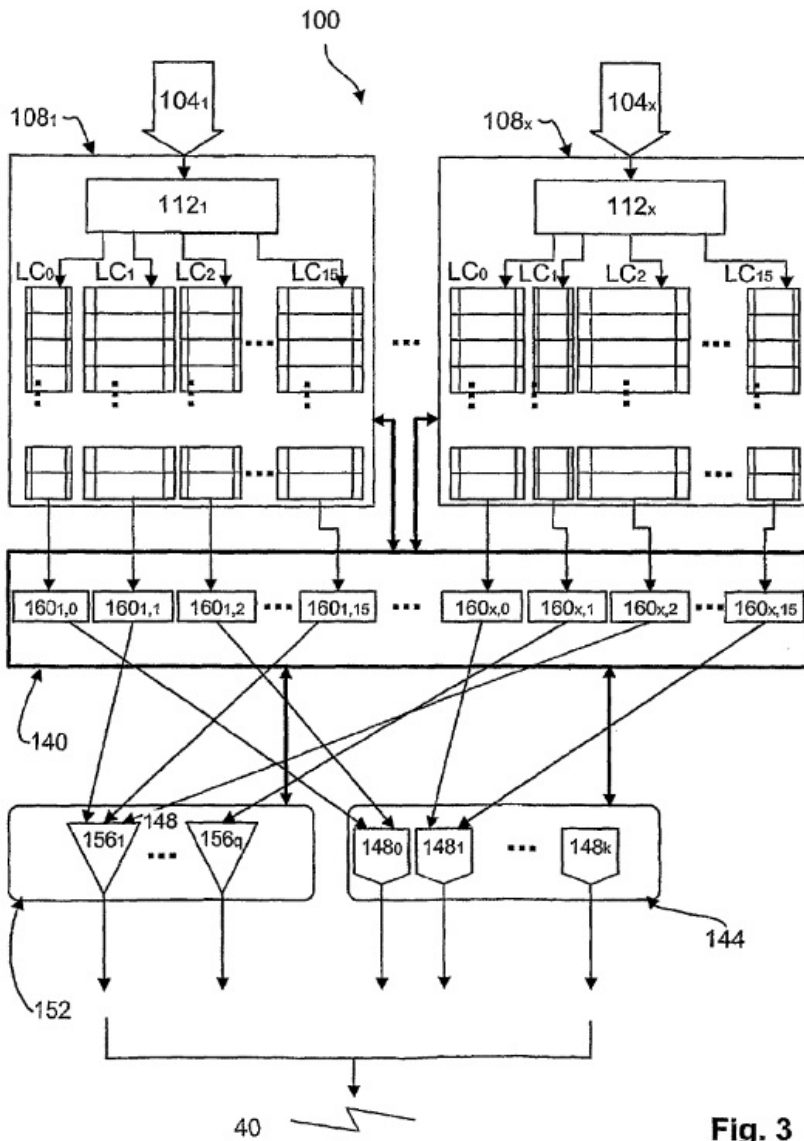


Fig. 3

Id., FIG. 3.

Wi-LAN alleges that TCL infringes at least claims 12 and 17 of the '805 Patent. See Second Am. Compl., Dkt. 116 ¶ 46. Claims 12 and 17 depend from claim 11.¹ Claims 11, 12, and 17 disclose:

¹The PTAB cancelled claim 11 during ex parte reexamination (“EPR”) proceedings. See Wi-LAN Op. Br., Dkt. 130 at 9.

11. A wireless device, comprising:
a plurality of logical channel queues, each of the plurality of logical channel queues capable of being associated with a plurality of quality of service attributes; and
a link controller adapted to
determine available resources for the plurality of queues in a frame,
select one of the plurality of logical channel queues based on a first one of the quality of service attributes, where the selected one of the plurality of logical channel queues has data for transmission, and
package data from the selected one of the logical channel queues until one of:
a second one of the quality of service attributes for the selected one of the logical channel queues is satisfied,
the available resources for the plurality of queues are used, and
all the data from the selected one of the plurality of logical channel queues has been packaged,
wherein **the link controller** is further adapted to repeat, while the available resources for the plurality of queues are not completely used, the step to select one of the plurality of logical channel queues and the step to package data from the selected one of the logical channel queues for remaining ones of the logical channel queues.

12. A wireless device as claimed in claim 11, wherein, **if the second quality of service attribute is satisfied for all the logical channel queues, the link controller:**
repeatedly selects another one of the logical channel queues based on the first one of the quality of service attributes; and
packages data from the selected another one of the logical channel queues until one of:
all data from the selected another one of the logical channel queues has been packaged, and
the transmission resources available to the selected one of the plurality of queues are used.

17. A wireless device as claimed in claim 11, wherein the packaging data from the selected one of the logical channel queues further includes **segmenting a data packet if necessary** to fit the data packet within the

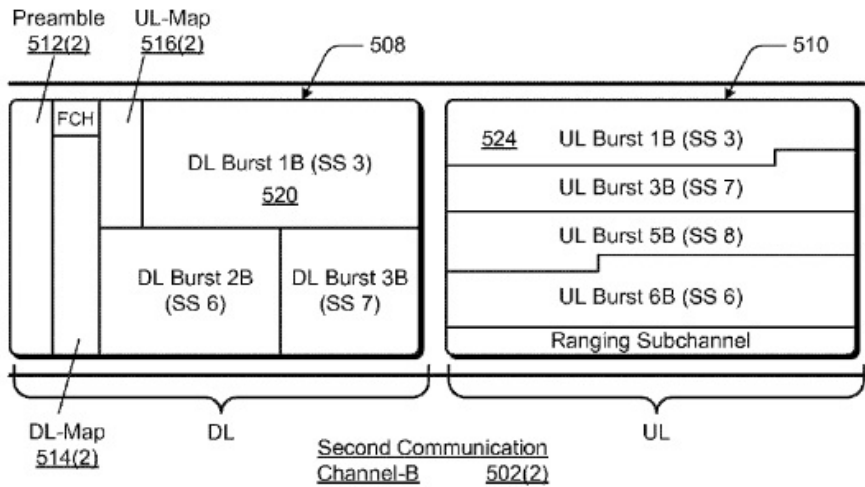
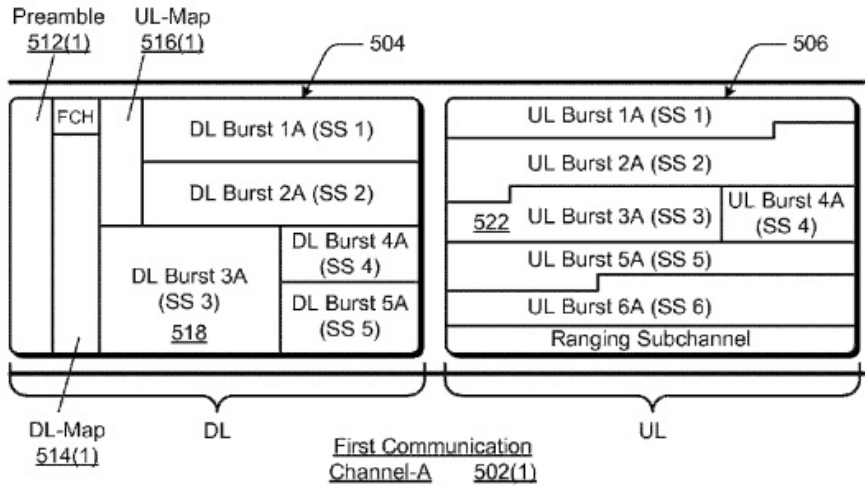
transmission resources available to the selected one of the plurality of queues.

'805 Patent, Claims 11, 12, and 17 (emphasis added to show disputed claim terms).

B. The '577 Patent

The '577 Patent, titled “Multi-band channel aggregation,” issued on December 26, 2017. Because different frequency bands on the electromagnetic spectrum have different propagation and interference characteristics, no individual frequency band is optimal for all communications in all situations. '577 Patent at 1:53-62. The '577 Patent describes a method of transferring two portions of data through distinct communication channels to a wireless device. Id. at 1:66-67; 2:1-2. The data portions are transmitted in a coordinated manner through aggregation of the first and second channels, to optimize data transfer. Id. at 2:3-4. However, each channel is independently and properly formed such that devices incapable of aggregation can receive all of the data through a single channel. Id. at 2:5-10.

Figure 5 shows an example of communication frame structures, including two general communication channels (502(1) and 502(2) which are aggregated. Id. at 11:44-48. Both contain a downlink (“DL”) and uplink (“UL”) subframes. Id. at 11:51-55. The DL subframes each include respective preambles, respective DL maps, and respective UL maps in addition to downlink data for the subscriber stations. Id. at 12:1-4. UL subframes each include a ranging subchannel and uplink data for the subscriber stations. Id. at 12:5-7.



500 ↗

FIG. 5

Aggregated
Communication
Example

Id., FIG. 5.

Wi-LAN alleges that TCL infringes several claims of the '577 Patent. Second Am. Compl., Dkt. No. 116 ¶¶ 62. Claim 1 discloses:

1. A wireless device comprising:
a receive unit; and

a processor; and
the receive unit and **the processor are configured to** receive control data via control channels over at least **a first communication channel** or **a second communication channel**, the control data including a first assignment of downlink resources for **the first communication channel** and a second assignment of downlink resources for **the second communication channel**; wherein **the first communication channel** and **the second communication channel** have different carrier frequencies; wherein the first assignment of downlink resources indicates assigned orthogonal frequency division multiple access (OFDM) subcarriers of **the first communication channel** and the second assignment of downlink resources indicates assigned OFDM subcarriers of **the second communication channel**; and
the receive unit and **the processor are further configured to** receive downlink data on the assigned OFDM subcarriers of **the first communication channel** and the assigned OFDM subcarriers of **the second communication channel**; wherein at least a portion of the downlink data is received at least in part simultaneously on **the first communication channel** and **the second communication channel**; and
the processor is configured to combine at least a portion of the received downlink data from **the first communication channel** and **the second communication channel to produce data for a single service.**

'577 Patent, Claim 1 (emphasis added to show disputed claim terms).

II. LEGAL STANDARD

A. General Principles of Claim Construction

Claim construction is “exclusively within the province of the court.” Markman v. W. Instruments, Inc., 517 U.S. 370, 372 (1996). Such construction “must begin and remain centered on” the claim language itself. Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001).] But extrinsic evidence may also be consulted “if needed to assist in determining the meaning or scope of technical terms in the claims.” Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211,

1216 (Fed. Cir. 1995).

In construing the claim language, the Court begins with the principle that “the words of a claim are generally given their ordinary and customary meaning.” Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal quotation marks omitted). This ordinary and customary meaning “is the meaning that the [claim] term would have to a person of ordinary skill in the art (POSITA) in question at the time of the invention, i.e., as of the effective filing date of the patent application.” Id. at 1313. “[T]he 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.

“In some cases, the ordinary meaning of claim language as understood by a [POSITA] may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words. In such circumstances general purpose dictionaries may be helpful.” Id. at 1314 (internal citation omitted). In other cases, “determining the ordinary and customary meaning of the claim requires examination of terms that have a particular meaning in a field of art.” Id. Then “the court looks to those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.” Id. (internal quotation marks omitted). These sources include “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” Id. (internal quotation marks omitted).

But it is improper to read limitations from the specification into the claim. Callicrate v. Wadsworth Mfg., Inc., 427 F.3d 1361, 1368 (Fed. Cir. 2005) (“[I]f we once begin to include elements not mentioned in the claim, in order to limit such claim . . . we should never know where to stop.”) (quoting Phillips, 415 F.3d at 1312). A court does “not import limitations into claims from examples or embodiments appearing only in a patent’s written description, even when a specification describes very specific embodiments of the invention or even describes only a single embodiment, unless the specification makes clear that ‘the patentee . . . intends for the claims and the embodiments in the specification to be strictly coextensive.’” JVW Enters., Inc. v. Interact Accessories, Inc., 424 F.3d 1324, 1335 (Fed. Cir. 2005) (internal citations omitted) (emphasis added).

B. Means Plus Function Claim Terms²

Under § 112 ¶6, means-plus-function claiming occurs when an element in a claim is a “means or step for performing a specified function without the recital of structure, material, or acts in support thereof” *JVW Enters., Inc. v. Interact Accessories, Inc.*, 424 F.3d 1324, 1335 (Fed. Cir. 2005). In that case, “such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” *Id.* This provision allows “patentees to express a claim limitation by reciting a function to be performed rather than by reciting structure for performing that function” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347 (Fed. Cir. 2015) (en banc). At the same time, it constrains “how such a limitation is to be construed, namely, by restricting the scope of coverage to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof.” *Id.* The point of § 112 ¶6 is to prevent “pure functional claiming.” *Noah Systems Inc. v. Intuit Inc.*, 675 F.3d 1302, 1317 (Fed. Cir. 2012).

The failure to use “means” creates a rebuttable presumption that § 112 ¶6 does not apply. *See Advanced Ground Info. Sys., Inc. v. Life360, Inc.*, 830 F.3d 1341, 1347 (Fed. Cir. 2016). To overcome this presumption a challenger must show “that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *Egenera, Inc. v. Cisco Systems, Inc.*, 972 F.3d 1367, 1372 n.1 (Fed. Cir. 2020) (emphasis in original) (quoting *Williamson*, 792 F.3d at 1348). The challenger must establish § 112 ¶6’s applicability by a preponderance of the evidence. *Skky, Inc. v. MindGeek, s.a.r.l.*, 859 F.3d 1014, 1019 (Fed. Cir. 2017).

“The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349. “[I]t is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure,

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The ’805 and ’577 Patents are transition applications, meaning they were both filed after March 16, 2013 but claim earliest priority to patents and applications filed before March 16, 2013. To the extent the claims are fully supported by pre-AIA disclosure, the Court considers the ’805 and ’577 Patents pre-AIA patents. Accordingly, in discussing the applicability of the means plus function statute, the Court refers to 35 U.S.C. § 112, ¶ 6 (pre-AIA) as opposed to 35 U.S.C. § 112(f) (post-AIA).

even if the term covers a broad class of structures and even if the term identifies the structures by their function.” Skky, 859 F.3d at 1019 (quoting TecSec, Inc. v. Int’l Bus. Machs. Corp., 731 F.3d 1336, 1347 (Fed. Cir. 2013)). For instance, the Federal Circuit has held that “first circuit” was not subject to § § 112 ¶6 because “contextual language” described the term’s “objectives” and “operations.” Linear Tech. Corp. Impala Linear Corp. F.3d 1311, 1320 (Fed. Cir. 2004). Therefore, persons of ordinary skill in the art would understand “the structural arrangements of circuit components from the term ‘circuit’ coupled with the qualifying language” Id. Likewise, Personalized Media Commc’ns, Trade Comm’n, held that, even though the term “detector” did not specifically evoke a particular structure, it was not subject to § § 112 ¶6 because it conveyed “to one knowledgeable in the art a variety of structures known as ‘detectors.’” 161 F.3d 696, 705 (Fed. Cir. 1998).

Once a court concludes that a term is subject to § § 112 ¶six, it follows a two-step process. Williamson, 792 F.3d at 1351. “First, the court must determine the claimed function. Second, the court must identify the corresponding structure in the written description of the patent that performs the function.” Noah Sys., Inc. v. Intuit Inc., 675 F.3d 1302, 1311 (Fed. Cir. 2012) (internal citations omitted). “Where there are multiple claimed functions . . . the patentee must disclose adequate corresponding structure to perform all of the claimed functions. If the patentee fails to disclose adequate corresponding structure, the claim is indefinite.” Williamson, 792 F.3d at 1351.

A corresponding structure is one that the specification or prosecution history “clearly links . . . to the function recited in the claim.” Id. The specification’s disclosure of a corresponding structure “must be of adequate corresponding structure to achieve the claimed function.” Id. (internal quotations omitted). “If a person of ordinary skill in the art would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim, a means-plus-function clause is indefinite.” Id.

For cases “involving a special purpose computer-implemented means-plus-function limitation,” the disclosed structure must “be more than simply a general purpose computer or microprocessor.” Noah, 675 F.3d at 1312. Instead, the specification must “disclose an algorithm for performing the claimed function.” (quoting Net MoneyIN, VeriSign, Inc., 545 F.3d 1359, 1367 (Fed. Cir. 2008)). “The specification can express the algorithm ‘in any understandable terms including as a mathematical formula, in prose, or as a flow chart, or in any other manner that

provides sufficient structure.” Id. (quoting Finisar Corp. v. DirecTV Grp., 523 F.3d 1323, 1340 (Fed. Cir. 2008)).

C. Indefiniteness

A patent’s specification must conclude “with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.” 35 U.S.C. § 112(b); see also 35 U.S.C. § 112 ¶ 2 (2006). In order to meet this “definiteness” requirement, “a patent’s claims, viewed in light of the specification and prosecution history, [must] inform those skilled in the art about the scope of the invention with reasonable certainty.” Nautilus, Inc. v. Biosig Instruments, Inc. (“Nautilus I”), 572 U.S. 898, 910 (2014). The Supreme Court in Nautilus I emphasized that patents must be precise enough to afford clear notice of what is claimed, thereby “appris[ing] the public of what is still open to them,” while recognizing that absolute precision is unobtainable given “the inherent limitations of language.” Id. at 899, 910 (quoting Markman, 517 U.S. at 373).

General claim construction principles apply to indefiniteness challenges, but the burdens are different. See Enzo Biochem, Inc. v. Applera Corp., 599 F.3d 1325, 1332 (Fed. Cir. 2010) (“In the face of an allegation of indefiniteness, general principles of claim construction apply”) (internal quotations and citations omitted). Although courts construing claim language sit in relative equipoise, a patent is “presumed valid under 35 U.S.C. § 282.” Biosig Instruments, Inc. v. Nautilus, Inc. (“Nautilus II”), 783 F.3d 1374, 1377 (Fed. Cir. 2015). “[C]onsistent with that principle, a fact finder is instructed to evaluate . . . whether an invalidity defense has been proved by clear and convincing evidence.” Id. (quoting Microsoft Corp. v. i4i Ltd. P’ship, 564 U.S. 91, 111 (2011)) (emphasis added and brackets removed); Young v. Lumenis, Inc., 492 F.3d 1336, 1345 (Fed. Cir. 2007) (“Because a patent is presumed to be valid, the evidentiary burden . . . is one of clear and convincing evidence.”).

III. DISCUSSION

A. “link controller” (’805 Patent, Claims 12 and 17)

Wi-LAN’s Proposed Construction	TCL’s Proposed Construction
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<p>No construction necessary. Ordinary meaning. Not subject to 35 U.S.C. § 112 ¶6. Not indefinite.</p>	<p>Subject to 35 U.S.C. § 112 ¶6, indefinite.</p>
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Both parties agree that “link controller” is synonymous with a processor. Wi-LAN Resp. Br., Dkt. No. 132 at 2; TCL Op. Br., Dkt. No. 129 at 5. They dispute whether the term is a means-plus-function term under 35 U.S.C. § 112, ¶6. Wi-LAN Resp. Br., Dkt. No. 132 at 2; 6. TCL Op. Br., Dkt. No. 129 at 4. For the following reasons, the Court determines “link controller” is not a means-plus-function term.

Because the disputed term does not use the word “means,” there is a presumption that § 112 ¶6 does not apply. See Advanced Ground, 830 F.3d at 1347. To overcome the presumption, Defendants must show by a preponderance of the evidence “that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” Id. (quoting Williamson, 792 F.3d at 1348); Skky, 859 F.3d at 1019. “The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” Williamson, 792 F.3d at 1349.

Here, Defendants fail to establish that a POSITA would not understand the term “link controller” to convey a sufficiently definite structure. A POSITA would understand a “link controller,” interpreted by both parties as a “processor,” to mean a processor with hardware structures. Claim 11 recites interactions between the “link controller” and “logical channel queues,” which a POSITA would understand to be memory. ’805 Patent, Claim 11. Figure 2 also describes well known hardware structures and the link controller’s caches, which a POSITA would understand as memory. Id., FIGs. 2-3; see also id. at 5:23-53 and 9:13-16 (“ Specifically, RLC 140 includes a segmentation cache 160 for each logical channel queue LC.subi in each PQE 108. Sub.x.”).

The relevant authority also counsels against construing “link controller” as a means plus function term. First, TCL’s cited authority does not compel the outcome they seek. WSOU Investments LLC v. Google LLC, No. 2022-1063, 2023 WL 6889033 (Fed. Cir. Oct. 19, 2023) does not require patents relating to “processor[s]” to always specify whether they are “hardware, software, or a combination of the two.” Rather, the Court found that “the term ‘processor’ is not a nonce word and, in some

circumstances, the term would connote sufficient structure.” Id. at *3. The WSOU Court ultimately found the term indefinite because “the specification treats the word ‘processor’ so broadly as to generically be any structure that manipulates data.” Id. at *4. That is not the case here. The Court also finds the applicability of Aristocrat Techs. Australia Pty Ltd. v. Int’l Game Tech., 521 F.3d 1328, 1332-33 (Fed. Cir. 2008) limited because neither party disputed that § 112 ¶6 controlled.

Second, Courts have found the term “processor” or similar terms sufficiently definite. In VDPP LLC v. Vizio, Inc., No. 2021-2040, 2022 WL 885771 (Fed. Cir. Mar. 25, 2022), the Court found viewed the specification’s disclosure that “processors” and “storage” are “well-known” as evidence of sufficiently definite structure at the time of invention. Id. at *3. Similarly, the court in Sound View Innocatoin, LLC v. Facebook, Inc., No. 16-CV-116 (RGA), 2017 WL 2221177 (D. Del. May 19, 2017), on reconsideration, 2017 WL 3444687, found the term “controller” sufficiently definite and not overbroad. Id. at *5. There, the specification disclosed, “those skilled in the art should be familiar with the use of controllers in processing environments generally and, more specifically, with main memory databases. Controllers may be implemented in software, firmware, hardware, or some suitable combination of at least two of the three.” Id. Also, here, the term is not simply “processor” or “controller” but rather “link controller.” The presence of the adjectival, “link,” “further narrows the scope fo the structures covered by the claim and makes the term more definite.” Personalized Media Commc’ns, L.L.C. v. Int’l Trade Comm’n, 161 F.3d 696, 705 (Fed. Cir. 1998).

For the foregoing reasons, the term is not indefinite and 35 U.S.C. § 112 ¶6 does not apply. Plain and ordinary meaning applies.

B. “package data . . . until one of” (’805 Patent, Claims 12 and 17)

Wi-LAN’s Proposed Construction	TCL’s Proposed Construction
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<p>“package data until . . . one of the subsequent claimed conditions is met”</p>	<p>“[package data . . .] until one of condition [A], condition [B], or condition [C] occurs.”</p> <p>The wireless device must be capable of halting packaging of data from the selected one of the logical channel queues based on each of conditions [A], [B], and [C].</p>
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The parties agree that to “package data until one of: condition [A], condition [B], and condition [C] occurs” means that packaging will continue until one of three conditions are met. Wi-LAN Op. Br. at 8; TCL Op. Br. at 7. The parties dispute whether “the wireless device must be capable of halting packaging data from the selected one of the logical channel queues based on each of conditions [A], [B], and [C],” as proposed by TCL. Wi-LAN argues TCL’s construction is inconsistent with the conditional “or” language of claim 12 because it requires the apparatus to perform all three conditions (“[A], [B], *and* [C]”). TCL argues Wi-LAN’s statements made during the EPR proceeding support TCL’s construction.

The Court first considers the claim language. See Vederi, LLC v. Google, Inc., 744 F.3d 1376, 1382 (Fed. Cir. 2014) (noting that the claim language itself is the best guide to the meaning of a claim term). Claim 1 teaches “a link controller adapted to . . . package data until one of” three conditions is met. “[A]dapted to” often means “made to, designed to, or configured to” and can sometimes mean “capable of or suitable for.” In re Giannelli, 739 F.3d 1375, 1379 (Fed. Cir. 2014). “Made to,” “designed to,” and “configured to” do not require that each of the three conditions halt packaging. “Capable of,” or “suitable for,” would require all three conditions to be met. Thus, the claim language alone does not resolve the dispute.

Next, the Court considers prosecution history. In its appeal brief following reexamination proceedings, Wi-LAN argued that claim 11 “requires structure for performing the function regardless of whether the condition occurs.” Dkt. No. 129-3 at 11; see also *id.* at 9 (“[C]laim 11 requires an apparatus that includes structure adapted to perform the packaging step until any one of the conditions occurs, and the reading these conditions as optional would be unreasonably broad.”), 8 (“[T]he cited claim elements . . . are not optional elements.”). “[S]tructure adapted to” halt data

packaging means the wireless device should be capable of halting data packaging for each of the three conditions. Therefore, Wi-LAN’s disavowal narrows the scope of claim 11. See In re Giannelli 739 F.3d at 1379. Also, though the word, “halting,” does not appear in the specification or claims, if a “link controller [is] adapted to . . . package data . . . until one of [A], [B], or [C],” then it necessarily follows that data packaging must stop (halt) if [A], [B], or [C] occurs.¹ Thus, the Court does not find TCL’s proposed language unsupported or problematic.

For these reasons, the Court construes “package data . . . until one of” as “[package data . . .] until one of condition [A], condition [B], or condition [C] occurs,” with the clarification that the wireless device must be capable of halting packaging of data from the selected one of the logical channel queues based on each of conditions [A], [B], and [C].

C. “if the second quality of service attribute is satisfied for all logical channel queues” (’805 Patent, Claim 12)

Wi-LAN’s Proposed Construction	TCL’s Proposed Construction
No construction necessary. Ordinary meaning.	“if the second one of the quality of service attributes is satisfied for each of the following logical channel queues: the selected one of the logical channel queues; and all of the wireless device’s other logical channel queues”

TCL argues that clarification is needed to resolve confusion regarding whether “all the logical channel queues” refers to all queues of the device or the queues of claim 11. TCL Op. Br., Dkt. No. 129 at 9. TCL argues that “all logical channel queues” refers to “a wireless device, comprising: a plurality of logical channel queues

¹ Wi-LAN argues that TCL argued for a contrary term construction in inter partes review (“IPR”) and EPR proceedings, by failing to propose the second part of their construction. Wi-LAN Op. Br., Dkt. No. 130 at 9. TCL is not bound to the arguments it raised before the PTAB. Wi-LAN’s position is not relevant for the claim construction analysis.

...” in claim 11. See id. Wi-LAN argues additional clarification is unnecessary. Wi-LAN Op. Br., Dkt. No. 130 at 10.

Courts should interpret claims to uphold their validity when possible. See Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 911 (Fed. Cir. 2004). However, this principle applies only when the claim remains ambiguous after applying all available tools of claim construction. Phillips v. AWH Corp., 415 F.3d 1303, 1328 (Fed. Cir. 2005). Here, the Court finds a POSITA would understand “all logical channel queues” to refer to the “plurality of logical queues” in claim 11. ’805 Patent, Claims 11 and 12.

First, claim 12 is directed to “a wireless device as claimed in claim 11.” Id., Claim 12. Claim 11 teaches “a wireless device comprising a plurality of logical channel queues” Id. at 14:46–47. Because claim 12 depends from and incorporates all limitations of claim 11, claim 12 is also directed to “a wireless device comprising a plurality of logical channel queues.” Thus, the “plurality of logical channel queues” clearly provides antecedent basis for “all logical channel queues.”

Additionally, figure 8 shows an example of a prioritization and queuing engine (PQE) (300) that contains sixteen logical channel queues. Id. at 12:16–18. The specification discloses that “each [of the sixteen] logical channel queues has an appropriate priority and set of [quality of service] attributes defined for it.” Id. at 12:16–21. Thus, in the limitation, “if the second quality of service attribute is satisfied for all the logical channel queues,” “all the logical channel queues” must refer to the “plurality” of specified logical channel queues in claim 11, an example of which is shown in figure 8. Id. at 15:4–6.

For these reasons, the Court finds construction unnecessary. The claims themselves sufficiently clarify that “a plurality of logical channel queues” in claim 11 provides antecedent basis for “all logical channel queues” in claim 12. With this understanding, plain and ordinary meaning applies.

D. “segmenting a data packet if necessary” (’805 Patent, Claim 17)

Wi-LAN’s Proposed Construction	TCL’s Proposed Construction
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No construction necessary. Ordinary meaning. Not indefinite.	This term is indefinite.
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Wi-LAN argues that the specification, together with the knowledge of a POSITA, establishes “an objective baseline . . . to understand this claim phrase with reasonable certainty.” Wi-Lan Op. Brief at 17. TCL argues the subjective term, “if necessary,” renders the scope of claim 17 ambiguous and thus indefinite. See TCL’s Op. Brief at 14.

Here, claim 17 teaches, “segmenting a data packet if necessary to fit the data packet within the transmission resources available to the selected one of the plurality of queues.” ’805 Patent, Claim 17 (emphasis added). Thus, “if necessary” is not ambiguous in scope. Rather, it means if the data otherwise would not fit within the transmission resources available. The plain language of claim 17 resolves this issue. See Vederi, LLC, 744 F.3d at 1382.

The specification further confirms this understanding and that “if necessary” is not indefinite. ’805 Patent at 3:6-9 (emphasis added) (“The radio link controller determines the data transmission capacity for each channel and segments the contents of the selected logical channel to fit within the determined capacity.”); id. at 4:3-5 (emphasis added) (“the link controller segmenting the packet as necessary to have the portion fit within the data transmission capacity of said link.”); id. at 9:54-58 (emphasis added) (“ . . . then segments the data in segmentation cache 160. Sub.X.0, if necessary, to fit within the reported data transmission capacity of DDCH 148. Sub. 1 (i.e. twenty four bytes in the above-mentioned example).”); see also id. at 9:66-10:3 (similar); id. at 10:26-29 (emphasis added) (“At step 208, a segment of the contents of the selected segmentation cache 160 is formed, if necessary, to fit the data transmission capacity reported to RLC 140 by the channel.”); id. at 12:31-45 (emphasis added) (“If necessary, [R]LC 316 will segment the contents of the selected cache 312.sub.i to fit the reported data traffic capacity and will provide the data (whether segmented or not) to DDCH 148 for transmission as the next transmitted frame.”)); see also id. at 7:9-16 (explaining that the size of data packets placed into logical queues can vary depending on the type(s) of data). Thus, the specification defines a number of events which trigger necessity.

Because the intrinsic evidence sufficiently resolves the dispute, the Court need not consider extrinsic evidence, including expert testimony. For the foregoing

reasons, “if necessary,” is not indefinite. Plain and ordinary meaning applies, consistent with the surrounding claim language.

E. “a processor . . . configured to” (’577 Patent, Claim 1)

Wi-LAN’s Proposed Construction	TCL’s Proposed Construction
No construction necessary. Ordinary meaning. Not indefinite.	This term is subject to 35 U.S.C. § 112 ¶6. Indefinite.

The parties raise similar arguments here to the ones they raise concerning, “link controller,” discussed above.

Here, claim 1 teaches that the processors is configured to receive control data, receive downlink data from both the first and second communication channels, and combine at least a portion of the received downlink data. ’577 Patent, Claim 1. The specification discloses that “[p]rocessors 306(e.g., any of microprocessors, controllers, etc.) may be implemented using any applicable processing-capable technology” and figure 3B shows processor 306 on a subscriber station along with processor-accessible media 308 and processor-executable instructions 310. ’577 Patent, FIG. 3B and 8:42-44. The specification further discloses, “[m]edia 308 may be any available media that is included as part of and/or accessible by base station 102 or subscriber station 104. It includes volatile and non-volatile media, removable and non-removable media, storage and transmission media (e.g., wireless or wired communication channels), hard-coded logic media (e.g., an application-specific integrated circuit (ASIC), a field programmable gate-array (FPGA), etc.), and so forth.” Id. at 8:44-51. Accordingly, the specification and claims provide at least some indication of structure (microprocessor) and disclose memory. Additionally, the authority discussed above in § IV.A applies equally here.

Accordingly, for the reasons discussed above and in § IV.A , the Court does not find this term indefinite. 35 U.S.C. 112 6 does not apply. Plain and ordinary meaning applies.

F. “communication channel” (’577 Patent, Claims 1 and 12)

Wi-LAN's Proposed Construction	TCL's Proposed Construction
No construction necessary. Ordinary meaning.	“a physical layer signal defined by a specific carrier frequency, that has a specific frequency range that is non-overlapping with other communication channels”

The parties agree that claims 1 and 12 teach distinct communication channels having different frequencies. Wi-LAN Resp. Br. at 23; see TCL Resp. Br. at 15. They dispute the appropriateness of TCL's proposed “non-overlapping” language. Wi-LAN Resp. Br. at 23. Wi-LAN also argues that the term “other channels” is ambiguous. Id. TCL argues that Wi-LAN statements made during the EPR proceeding support TCL's construction. TCL Resp. Br. at 15.

Here, the Court first considers the claim language. Claim 1 teaches that the first and second communication channels have “different carrier frequencies.” '577 Patent, Claim 1. Claim 1 further teaches that the “first [and second] assignment[s] of downlink resources indicate assigned orthogonal frequency division multiple access (OFDM) subcarriers of the first [and second] communication channel[s],” respectively. Id. Thus, based on the plain language of claim 1, the communication channels must have different carrier frequencies. This potentially supports the “non-overlapping” aspect of TCL's proposed construction.

Next, the Court turns to the specification. The specification supports the idea that the communication channels are physical layer signals. See '577 Patent at 10:39-32 (“Single MAC configuration 316(S) includes independent physical layers 402(1) and 402(2) for the first aggregated channel 110(1) and second aggregated channel 110(2), respectively”)

Finally, the Court turns to the prosecution history. During the EPR proceeding, Wi-LAN argued, ““all communication channels at the time of the invention that have OFDM subcarriers and a carrier frequency must be OFDM communication channels that are physical layer signals with its center frequency being its carrier frequency.” Dkt. No. 129-4 at 21-22; see also id. at 16 (characterizing the fact that “[a]n OFDM communication channel is a physical layer signal” as a “fundamental and inalienable propert[y].”) In its appeal brief following the initial EPR proceeding, Wi-LAN further argued that “[a]n OFDM communication channel is a physical layer signal, such as

either one of First Channel 110(1) or Second Channel 110(2) in FIGs. 4A or 4B that are input into Physical Layer 402(1)/452(1) or 402(2)/452(2), respectively.” Dkt. No. 129-5 at 14. Accordingly the Court adopts TCL’s proposed “physical layer” requirement and requires that the “center frequency be the carrier frequency.”

Additionally, the prosecution history supports TCL’s suggestion that the carrier frequencies must be non-overlapping. In its appeal brief, Wi-LAN argued that “receiving portions of data for a single service via two distinct OFDM communication channels that have different carrier frequencies was not at all trivial, well-known, or obvious at the time of the invention.” Dkt. No. 129-5 at 11 (emphasis added). Wi-LAN further argued that “[t]he orthogonal relationship between the subcarriers maintained by the IFFT [inverse Fast Fourier Transform] prevents interference between the subcarriers and thus enables the subcarriers to be packed more densely than convention frequency divisional multiplexing.” *Id.* at 13. As to Wi-LAN’s argument concerning “other channels” the Court finds that Wi-LAN’s disclaimers and the claim language distinguish the first and second channels but do not discuss “other channels.” Accordingly, the Court formulates a consistent construction.

For these reasons, the Court construes “communication channel” as “a physical layer signal having its center frequency as the carrier frequency” and would further clarify that “the first communication channel” and “the second communication channel” have non-overlapping frequency ranges.

G. “to produce data for a single service” (’577 Patent, Claims 1 and 12)

Wi-LAN’s Proposed Construction	TCL’s Proposed Construction
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“[to produce data for] a data service (such as a video call, an e-mail, streaming a video, etc.) comprising integrated data of at least a portion of the received downlink data from the first communication channel and the second communication channel”

Alternatively, Plaintiffs propose “to produce data for a data service (such as video call, an e-mail streaming a video, etc.)”

“[to produce data for] a single data service application (e.g., video call, e-mail, streaming a video, etc.)”

Wi-LAN’s alternative proposed construction and TCL’s proposed construction are similar except that Wi-LAN’s disputes the appropriateness of the term “application.” See Wi-LAN’s Op. Br. at 24. Wi-LAN argues an application is just an example of a data service and that a POSITA would understand “data service” to encompass other embodiments, such as receiving a video call or a Voice over Internet Protocol (“VoIP”) call. *Id.* TCL distinguishes data services offered by an application (e.g., video call, e-mail, streaming a video, etc.) from “mere use of a wireless provider’s data service (or the wireless data service itself).” TCL Op. Br., Dkt. No. 129 at 17. TCL further argues that Wi-LAN disclaimed “a single network service provider” during an inter partes review (“IPR”) proceeding. *Id.* at 18.¹

Here, the Court finds Wi-LAN made a disclaimer of scope in its preliminary response in the IPR proceeding for the ’577 Patent. There, Wi-LAN argued:

As explained below, Petitioner’s construction of the term “single service” to mean “single network service provider” cannot be correct. Perhaps Petitioner sought this self-serving construction based on the lack of disclosure of “single service” in the references relied on by Petitioner. Regardless, the proper construction of “single service” is “data service (e.g., video call, e-mail, streaming a video, etc.)”

TCL also argues that Wi-LAN’s arguments made during EPR proceedings constitute a disclaimer of scope. However, TCL admits that “Wi-LAN’s construction is consistent with its ex parte reexamination (“EPR”) construction, verbatim.” TCL Op. Br. at 25. Accordingly, the Court declines to find a disclaimer as to the EPR proceedings.

Dkt. No. 130-6 at 249; see also id. (“Petitioner misconstrues the term “a single service” to mean “a single service provider (e.g., AT&T Wireless, Verizon Wireless, etc.)” Accordingly, the Court would construe “single service” to exclude “single network service provider.”

Still, the Court declines to include the term “application” in its proposed construction. This term does not appear in the specification. Additionally, as Wi-LAN argues, data services may include receiving video calls or other types of data services not associated with an application. Because Wi-LAN only disclaimed service providers, the Courts finds a construction that potentially limits al non-application based data services too narrow. The Court also finds that addition of the term “application” may “confuse the jury” and “is unlikely to be helpful to the trier of fact” since it does not have an agreed-upon definition. BSD Crown, Ltd. v. Amazon.com, Inc., No. 3:23-CV-00057-WHO, 2024 WL 1120979, at *8 (N.D. Cal. Mar. 14, 2024); West v. Quality Gold, Inc., No. 5:10-CV-03124-JF HRL, 2011 WL 6055424, at *11 (N.D. Cal. Sept. 16, 2011).

Because the Court chooses to adopt Wi-LAN’s proposed alternative construction, the Court declines to apply Wi-LAN’s proposed “comprising” clause. Even to the extent the specification and claims otherwise support the “comprising” clause, the extraneous language is potentially redundant with the claim language itself and also poses jury confusion problems. The alternative construction is easier to understand.

For these reasons, the Court construes “to produce data for a single service” as “to produce data for a data service (such as video call, an e-mail streaming a video, etc.)” with the clarification that “a single service” is not “a single network service provider.”

H. “cell” (’577 Patent, Claims 10 and 21)

Wi-LAN’s Proposed Construction	TCL’s Proposed Construction
No construction necessary. Ordinary meaning.	“a spatially-defined wireless service area served by one or more dedicated base stations”

TCL asks the Court to construe “cell” to prevent jury confusion. TCL Op. Brief at 27. Wi-LAN disputes the “spatially-defined” and “dedicated” requirements as not supported by the specification. Wi-LAN’s Op. Brief at 25-26. Wi-LAN also argues that under TCL’s construction, it is not clear whether the same base station can serve both the first and second cell. Wi-LAN’s Resp. Br. at 26.

Here, claims 10 and 21 of the ’577 Patent disclose “a first cell” and “a second cell.” See e.g., Claim 10 (“The wireless device of claim 1, wherein a portion of the downlink data that is received on a least a portion of the assigned OFDM subcarriers of the first communication channel is received from a first cell, and wherein a portion of the downlink data that is received on a least a portion of the assigned OFDM subcarriers of the second communication channel is received from a second cell.”) However, the claim language does not resolve the parties’ disputes. The Court turns to the specification.

First, the specification does not use the term “spatial” or “spatially-defined.” However, it does consistently describe the “cell” as a “region.” For instance, in describing figures 10 and 11, the specification “refers to region 202 as a cell.” ’577 Patent at 17:5-6. It refers to “region 204” as a “mini-cell.” Id. at 20:39. Figure 10 describe a “cell” as a “licensed communication region” and the “mini-cells” as a “non-exclusively licensed communication regions.” Id., FIG. 10; 3:14-18. Accordingly, the Court applies the language “a wireless service region” instead of “a spatially-defined wireless service area,” as TCL proposes.

Second, the specification also does not expressly describe base stations as “dedicated.” Instead, it describes the relationship between base stations and communication regions. For instance, it discloses, “[w]ireless communication throughout licensed communication cell 202 is facilitated by BTS 206 [base transceiver station] that communicates (e.g., transmits and/or receives) data for wireless communication.” Id. at 17:12-14. It further discloses, “a single base station 102 may be creating first and second communication regions 202 and 204 and may be transceiving first and second channel aggregated communications 110(1) and 110(2).” Id. at 7:34-39. It further explains:

In wireless communications environment 100, base station 102 is in wireless communication with subscriber stations 104(1), 104(2) . . . 104(n) via wireless communications or communication links 106(1), 106(2) . . . 106(m), respectively. Although implementations may vary,

base station 102 is typically fixed, and subscriber stations 104 are usually mobile, nomadic, or stationary. Although wireless communications environment 100 depicts base station 102 as communicating with “n” subscriber stations 104 in one general direction, base station 102 may actually be communicating with any number of subscriber stations 104 in any number of directions including in different sections or omni-directionally.

Id. at 4:48-60. Because the specification and claims do not require a “dedicated” base station to serve each cell, the Court declines to adopt that portion of TCL’s proposed construction. As to Wi-LAN’s concern regarding, the specification clarifies that a single base station may serve two cells. Id. at 7:34-39.

Accordingly, the Court construes “cell” as “a wireless service region served by one or more base stations.”

- I. “wherein the control data received via the control channels is received over the first communication channel and is not received via the second communication channel” (’577 Patent, Claims 11 and 22)

Wi-LAN’s Proposed Construction	TCL’s Proposed Construction
No construction necessary. Ordinary meaning. Not indefinite.	This term is indefinite.

Claim 11 depends from Claim 1. ’577 Patent, Claim 11. TCL argues Claim 1 teaches a device having a receive unit and a processor configured to receive control data on two channels. TCL Op. Br. at 28. Claim 11 teaches that the control data is received on only one channel. Id., Claim 11. TCL argues this is an impermissible blended system and method claim and is contradictory because the system cannot simultaneous be configured to receive control data on two channels and to receive control data on only one channel. Wi-LAN argues that claim 11 is not indefinite because it merely recites an embodiment of the system in claim 1.

“[A]pparatus claims are not necessarily indefinite for using functional language.” See Microprocessor Enhancement Corp. v. Texas Instrument, Inc., 520

F.3d 1367, 1375 (Fed. Cir. 2008). Functional language is permissible in an apparatus claim when “the functional language tells us something about the structural requirements of the [apparatus].” K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1363 (Fed. Cir. 1999) (finding limitation reciting “for substantially preventing movement . . .” sufficiently definite); MasterMine Software, Inc. V. Microsoft Corp., 874 F.3d 1307, 1315 (Fed. Cir. 2017) (finding the claim “wherein the reporting module installed within the CRM software application . . . receives from the user a selection of . . . , and generates a database query . . .” not indefinite because the active verbs represent “permissible functional language used to describe the capabilities of the reporting module”); see also Microprocessor Enhancement Corp. v. Texas Instrument, Inc., 520 F.3d 1367, 1375 (Fed. Cir. 2008).

However, “[a] claim that covers both an apparatus and a method of use is indefinite because “a manufacturer or seller of the claimed apparatus would not know from the claim whether it might also be liable for contributory infringement because a buyer or user of the apparatus later performs the claimed method of using the apparatus.” IPXL Holdings, LLC v. Amazon.com, Inc., 430 F.3d 1337, 1384 (Fed. Cir. 2005) (internal citations omitted); Rembrandt v. Data Technologies, LP v. AOL, LLC, 641 F.3d 1331, 1339 (Fed. Cir. 2011) (finding claim indefinite where first four limitations recited apparatus elements, but the final limitation recited a method). Claims like those at issue in IPXL and Rembrandt are indefinite because they leave open two infringement possibilities: (1) the off the shelf device is capable of performing the method limitation, and thus sale, offer, or importation of the claimed apparatus constitutes infringement; or (2) the off the shelf device is capable of performing the limitation but infringement does not occur unless and until the device performs the limitation, typically while in use by a user.

Claim 1 discloses that “the receive unit and the processor are configured to receive control data via control channels over at least a first communication channel **or** a second communication channel.” ’577 Patent, Claim 1 (emphasis added). Claim 11 then teaches that “the control data received via the control channels is received over the first communication channel and is not received via the second communication channel.” Id., Claim 11. The plain language of the claims does not present a contradiction, as TCL contends, because the “or” language leave open the possibility that the receive unit and processor are configured to receive control data via control channels only over the first communication channel.

The Court also does not find the “configured to” style of claiming problematic

from a definiteness standpoint. There is no indication that a user would change or adapt the device in a way that would cause it to infringe post sale. Rather, claim 1 leaves open two possible configurations and claim 11 specifies that the device must be configured within only one of those possibilities.

For the foregoing reasons, the Court finds TCL has not established indefiniteness by clear and convincing evidence. Plain and ordinary meaning applies.

IV. CONCLUSION

The Court construes the disputed terms as follows:

Term	Construction
“link controller”	Plain and ordinary meaning.
“package data . . . until one of”	“[package data . . .] until one of condition [A], condition [B], or condition [C] occurs,” with the clarification that the wireless device must be capable of halting packaging of data from the selected one of the logical channel queues based on each of conditions [A], [B], and [C].
“if the second quality of service attribute is satisfied for all the logical channel queues”	Plain and ordinary meaning.
“segmenting a data packet if necessary”	Plain and ordinary meaning.
“processor . . . configured to”	Plain and ordinary meaning.
“communication channel”	“a physical layer signal having its center frequency as the carrier frequency and wherein the first communication channel and the second communication channel have non-overlapping frequency ranges.”

<p>“to produce data for a single service”</p>	<p>“to produce data for a data service (such as video call, an e-mail streaming a video, etc.)” with the clarification that “a single service” is not “a single network service provider.”</p>
<p>“cell”</p>	<p>“a wireless service region served by one or more base stations.”</p>
<p>“wherein the control data received via the control channels is received over the first communication channel and is not received via the second communication channel”</p>	<p>Plain and ordinary meaning.</p>

IT IS SO ORDERED.