

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

NXP USA, INC.,

Plaintiff,

v.

MEDIATEK INC., MEDIATEK USA, INC.,
AMAZON.COM INC., and
BEST BUY CO., INC.,

Defendants.

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Case No. 2:21-CV-00318-JRG

CLAIM CONSTRUCTION MEMORANDUM OPINION AND ORDER

In this patent case, Plaintiff NXP USA, Inc., asserts claims from two wireless-communications patents against Defendants Mediatek, Inc., Mediatek USA, Inc., Amazon.com, Inc., and Best Buy Co., Inc. U.S. Patent 10,742,780 (the “’780 Patent”) relates “to parsing and encoding methods in wireless communications systems.” ’780 Patent at 1:29–31. U.S. Patent 10,560,158 (the “’158 Patent”) concerns “wireless local area networks that utilize orthogonal frequency division multiple access (OFDMA),” ’158 Patent at 1:21–24. OFDMA is a digital modulation scheme that allows simultaneous transmission from multiple clients to an access point. Id. at 3:2–11.

The parties dispute the scope of one term from each patent. From the ’780 Patent, Defendants challenge the phrase “minimum number of encoders” as indefinite. Plaintiff counters that Defendants have “plucked” the term from the proper context “to create a false appearance of ‘indefiniteness.’” Dkt. No. 115 at 1. From the ’158 Patent, Defendants urge a particular construction for “trigger information portion,” which refers to a portion of a data unit transmitted from a network access point to clients. Plaintiff, however, asserts the phrase need not be given a

specific construction—that is, “plain and ordinary meaning” will suffice.

Having considered the parties’ briefing, along with arguments of counsel during an April 14, 2022 hearing, the Court resolves the disputes as follows.

I. LEGAL STANDARDS

A. Generally

“[T]he claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure-Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). As such, if the parties dispute the scope of the claims, the court must determine their meaning. *See, e.g., Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1317 (Fed. Cir. 2007); *see also Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996), *aff’g*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc).

Claim construction, however, “is not an obligatory exercise in redundancy.” *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997). Rather, “[c]laim construction is a matter of [resolving] disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims” *Id.* A court need not “repeat or restate every claim term in order to comply with the ruling that claim construction is for the court.” *Id.*

When construing claims, “[t]here is a heavy presumption that claim terms are to be given their ordinary and customary meaning.” *Aventis Pharm. Inc. v. Amino Chems. Ltd.*, 715 F.3d 1363, 1373 (Fed. Cir. 2013) (citing *Phillips*, 415 F.3d at 1312–13). Courts must therefore “look to the words of the claims themselves . . . to define the scope of the patented invention.” *Id.* (citations omitted). “[T]he 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.” *Phillips*, 415 F.3d at 1313. This “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.*

Intrinsic evidence is the primary resource for claim construction. *See Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1348 (Fed. Cir. 2010) (citing *Phillips*, 415 F.3d at 1312). For certain claim terms, “the ordinary meaning of claim language as understood by a person of skill in the art 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.” *Phillips*, 415 F.3d at 1314; *see also Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) (“We cannot look at the ordinary meaning of the term . . . in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history.”). But for claim terms with less-apparent meanings, courts consider “those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean[,] [including] 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.” *Phillips*, 415 F.3d at 1314 (quoting *Innova*, 381 F.3d at 1116).

B. Indefiniteness

“[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). “A patent must be precise enough to afford clear notice of what is

claimed,” but that consideration must be made while accounting for the inherent limitations of language. *Id.* at 908–09. “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).

II. THE LEVEL OF ORDINARY SKILL IN THE ART

The level of ordinary skill in the art is the skill level of a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In resolving the appropriate level of ordinary skill, courts consider the types of and solutions to problems encountered in the art, the speed of innovation, the sophistication of the technology, and the education of workers active in the field. *Id.* Importantly, “[a] person of ordinary skill in the art is also a person of ordinary creativity, not an automaton.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007).

The parties generally agree on the level of ordinary skill in the art at the time of invention.¹ Plaintiff’s expert asserts a skilled artisan would have had “an undergraduate degree in electrical engineering, computer science, or an equivalent field, and . . . at least 3 years of experience in the field of wireless communications.” Ding Decl., Dkt. No. 115-4 ¶ 19. Defendants’ expert opines a skilled artisan “would have had a bachelor’s degree in electrical engineering or a similar field and two or more years of experience with wireless communication networks, such as local area networks.” Bims Decl., Dkt. No. 133-1 ¶ 19. Neither party suggests the Court must resolve the differences between these proffered skill levels to arrive at the correct constructions.

¹ The ’780 Patent stems from an application claiming the benefit of provisional application nos. 61/678,531 (filed Aug. 1, 2012) and 61/390,971 (filed Oct. 7, 2010). ’780 Patent at [63]. The Office granted the ’158 Patent from an application claiming priority to application no. 15/380,795 (filed Dec. 15, 2016). ’158 Patent at [63].

III. THE DISPUTED TERMS

A. “minimum number of encoders” (’780 Patent, Claims 1, 7–9, 12, 15–17)

Plaintiff’s Construction	Defendants’ Construction
Not indefinite.	Indefinite.

1. *The ’780 Patent*

The ’780 Patent teaches enabling the use of certain modulation and coding schemes (MCSs) with system configurations not otherwise intended to be used with such schemes. If an MCS violates a particular system’s constraints on parsing or coding techniques, that MCS cannot be used with the system. *See* ’780 Patent at 3:39–43. The patent teaches altering otherwise invalid parsing rules and/or coding techniques of the MSC to accommodate these system configurations. *See id.* at 3:47–50.

For example, the patent describes one constraint—“the integer N_{DBPS}/N_{ES} constraint”—that requires equal encoder parsing. This means the number of data bits per OFDM symbol² (N_{DBPS}) divided by the number of encoders used by the system (N_{ES}) must be an integer. An MCS that violates this constraint, if required by a particular system configuration, will be excluded. *See generally* ’780 Patent at 8:34–47.

The Summary describes four embodiments—two methods and two devices—concerning this constraint. Each summarized method describes generating a data unit with coded bits and then, if necessary, padding the data unit to ensure it corresponds to the encoding parameters of the system. ’780 Patent at 1:56–2:3; *see also id.* at 2:19–32. Each summarized apparatus has a network interface that implements an embodiment of the method. *Id.* at 2:4–18; *id.* at 2:33–46.

² An OFDM symbol is essentially an electromagnetic waveform that can be deconstructed into information.

The '780 Patent has two independent claims directed to “the integer N_{DBPS}/N_{ES} constraint.” Claim 1 recites a network interface configured to:

receive a plurality of information bits to be included in a physical layer (PHY) data unit for transmission via a communication channel,
 determine a number N_{ES} of encoders for encoding the plurality of information bits for transmission at a particular data rate using frequency division multiplexing (OFDM), [and]
 prior to encoding the information bits, add a number of padding bits to the information bits, wherein the number of padding bits is determined based on the determined number N_{ES} of encoders[.]

'780 Patent at 23:20–40. Later in the “determining” step, the claim ensures “the integer N_{DBPS}/N_{ES} constraint” will be satisfied by requiring that

[if the] number N_{DBPS} of information bits per OFDM symbol . . . divided by *a minimum number of encoders*, operating at a particular coding rate, required for encoding the plurality of information bits . . . is a non-integer value, the number N_{ES} of encoders is selected as a number that i) is greater than the minimum number of encoders and ii) satisfies a constraint that N_{DBPS}/N_{ES} is an integer value[.]

Id. at 23:26–36 (emphasis added). Method Claim 12 recites (1) performing these same three steps, (2) adding padding bits to the information bits based on the determined number of encoders (N_{ES}), and (3) encoding the information bits. *Id.* at 24:33–57.

2. *The Dispute: Definiteness of “Minimum Number of Encoders”*

Defendants allege a skilled artisan would not know how to determine the required “minimum number of encoders.” For one, they base their challenge on the lack of any information about this term in the specification. Dkt. No. 133 at 6–7. They also cite an excerpt suggesting the number of encoders can be decremented, stressing “[i]f the number of encoders can be decremented, the network interface did not have a ‘minimum’ number of encoders to

begin with.” *Id.* at 7 (citing ’780 Patent at 19:57–60). And “[t]o make things more difficult,” claim Defendants, “[t]he different encoding rates and other parameters, such as the number of spatial streams, affect the number of encoders in a network interface,” so a skilled artisan could not know the minimum number of encoders without additional information not specified in the claims. *Id.*

According to Plaintiff, Defendants’ position “ignores considerable evidence to the contrary” from the intrinsic record. Dkt. No. 115 at 5. Plaintiff notes the disputed phrase “is surrounded by descriptive language that infuses the term with meaning,” and argues Defendants have ignored that context. *Id.* at 5. Specifically, Plaintiff stresses the claims’ recitation of a “particular coding rate” removes any ambiguity inherent in the term. *Id.* at 5–6. Plaintiff also cites language from the specification, dependent claims, and the related provisional application as showing “examples of specific calculations” for the “minimum number of encoders.” *Id.* at 6–8.

Contrary to Defendants’ assertion, a skilled artisan *would* understand the scope of this term with reasonable certainty. Starting with the claim language, Defendants’ position ignores that the minimum number of encoders depends on a “particular coding rate.” That encoders might have many different “coding rates” is immaterial, because the claims differentiate between embodiments based on “particular coding rates.” The excerpt on which Defendants rely simply explains that the number of encoders can be decremented relative to other embodiments of the invention.

Concerning Defendants’ contention that a skilled artisan would need to know additional information, such as the number of spatial streams or constellation size, to determine the minimum number of encoders, the claim language suggests otherwise. The claims recite only

that the “minimum number of encoders” is the number required for “encoding the information bits.” They do *not*, for example, recite “the minimum number of encoders required for encoding the plurality of information bits *into X spatial streams*.” Although Defendants correctly suggest the number of coded bits in an OFDM symbol might depend on the constellation size or number of spatial streams, Dkt. No. 133 at 7 (citing Bims Decl., Dkt. No. 133-1 ¶ 67), the claims already account for those parameters because the number of information bits per symbol (N_{DBPS}) is a given in the “determining” step. *See id.* at 23:26–27.

Defendants’ criticisms of Plaintiff’s position are based on two allegedly incorrect assumptions by Plaintiff. First, say Defendants, Plaintiff wrongly assumes “coding rate,” as used in the claims at issue, refers to the speed (i.e., throughput) of encoders. They note, correctly, the specification describes the “coding rate” as the ratio of information bits to total encoded bits per symbol. Dkt. No. 133 at 9 (citing ’780 Patent at 8:18–47, 9:22–12:58, fig.3). According to Defendants, a skilled artisan would have understood that meaning of “coding rate” and at least “been confused by the inconsistency” of using that term in the claims. *Id.* at 10.

But this is not a persuasive critique. A skilled artisan would understand “coding rate” in the claims in the context of the surrounding language. That context shows the encoder “operates” at a “coding rate” and is “for *encoding* the plurality of information bits for transmission.” ’780 Patent at 23:29–31. From this language alone, the meaning of “coding rate” in the claims is clear, and it pertains to throughput. *See id.* at 24:11–14 (limiting, in Claim 9, the “coding rate” of each encoder to a throughput of 600 Mbps). Moreover, a skilled artisan would understand that “coding rate” as used in the specification—that is, the ratio of information bits to total encoded bits—has no applicability to this claim language.

Second, Defendants criticize Plaintiff’s position as assuming all encoders have the same

speed of 600 Mbps. Dkt. No. 133 at 9. Plaintiff replies that it makes no such assumptions, and that its brief simply cites examples from the specification. Dkt. No. 142 at 5. The Court agrees with Plaintiff: Nothing in Plaintiff’s opening brief assumes all encoders operate at the same speed. *See* Dkt. No. 115 at 6 (noting “[e]xamples of how to compute this minimum quantity are provided in the specification”).

Given the context of the surrounding language, Defendants have not carried their burden of showing a skilled artisan would not understand the scope of this term with reasonable certainty. Accordingly, the term is not indefinite.

B. “trigger information portion” (’158 Patent, Claims 1, 2, 4, 12, 13, 15)

Plaintiff’s Construction	Defendants’ Construction
Plain and ordinary meaning.	“fields that include information for one or more of the second communication devices to receive the trigger frame and that include the length or duration of one or more of those fields”

1. U.S. Patent 10,560,158

The ’158 Patent relates to wireless communication networks that allow simultaneous uplink transmissions from multiple clients to an access point. ’158 Patent at [57]. To facilitate this communication, the access point broadcasts a data unit that includes a “trigger frame” to trigger the simultaneous uplink transmissions. *Id.* The method teaches generating a trigger frame that includes a “padded portion” of a length that depends on the time-duration requirements of the clients. *Id.* at 1:50–55. Padding the trigger frame helps ensure sufficient time for the client stations to prepare for the uplink transmissions. *Id.* at 11:63–12:5.

FIG. 10 (below) shows an exemplary trigger frame 1000, which includes a frame control field 1002, a duration/ID 1004, receiver and transmitter addresses, 1006, 1008, a frame body 1020, and a frame check field 1022. The frame body 1020 includes a trigger length 1048,

common information 1050, per-user/group subfields 1052, and a padding portion 1054. The trigger length 1048 indicates the length or duration of the common information 1050 and the per-user/group subfields 1052. *See generally* '158 Patent at 17:20–43.

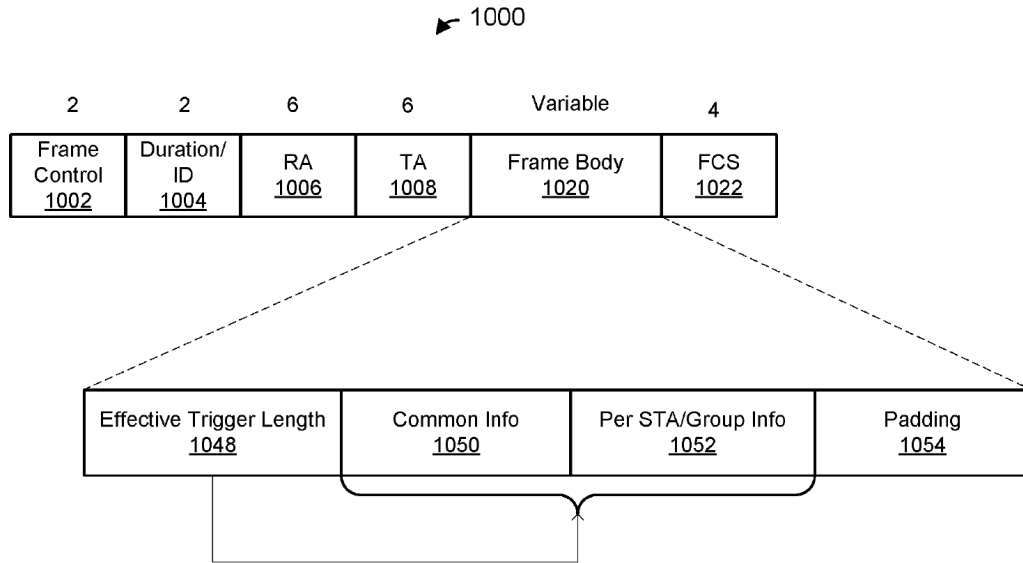


FIG. 10 of the '158 Patent

Like the '780 Patent, the '158 Patent includes two independent claims—a method claim and an apparatus configured to implement similar steps. Claim 1 recites:

1. A method for communicating in a wireless communication network, the method comprising:
 - determining, at a first communication device, respective time duration requirements for preparing uplink transmissions by multiple second communication devices as part of an uplink multi-user (MU) transmission;
 - generating, at the first communication device, a physical layer (PHY) data unit that includes a trigger frame, wherein the trigger frame is for triggering simultaneous uplink transmissions by multiple second communication devices as part of the uplink MU transmission, wherein the trigger frame includes a *trigger information portion*, and wherein the PHY data unit is generated such that a duration between transmission of an end of the trigger information portion and transmission of an end of the PHY data unit is sufficient to satisfy the respective time duration

requirements of the multiple second communication devices;
transmitting, with the first communication device, the PHY data unit; and
receiving, at the first communication device, the simultaneous uplink transmissions, triggered by the trigger frame, from the multiple second communication devices.

'158 Patent at 24:56–25:12 (emphasis added). Independent Claim 12 recites a “wireless network interface” configured to implement similar steps. *Id.* at 26:20–44.

2. *The Dispute*

The parties dispute the scope of “trigger information portion.” Defendants claim the term is coined, and the specification provides its meaning when describing FIGS. 10 and 11. Dkt. No. 133 at 12, 15–19. Plaintiff, however, suggests “plain and ordinary meaning” will suffice. Dkt. No. 115 at 12–15.

The parties’ dispute became more focused at the hearing. Before the hearing, the Court proposed a preliminary construction of “portion of a trigger frame containing information that can trigger a simultaneous uplink transmission by the second communication device.” Defendants generally accepted that preliminary construction, but suggested it should contemplate both “preparing and triggering” the simultaneous transmissions.³ Moreover, Defendants suggested that a trigger length, such as the trigger length 1048 in FIGS. 10 and 11, are encompassed within the concept of “preparing.” This is consistent with their proposed construction from the briefing, which requires “the length or duration” of other fields. Plaintiff countered that “preparing” was redundant to “triggering,” and criticized Defendants’ attempt to expressly include a length or duration in the construction as unnecessary. In short, Plaintiff

³ Specifically, Defendants suggested, as the proper construction, “portion of a trigger frame containing information for preparing and triggering a simultaneous uplink transmission by the second communication device.”

contends “trigger information portion” includes the information that triggers the stations’ simultaneous transmission, whereas Defendants suggest it includes *any* trigger-related information. *See* Dkt. No. 133 at 18 (suggesting a skilled artisan “would also have understood ‘Effective Trigger Length’ field 1048 to be part of the ‘trigger information portion’ because it is also an information field *related to* the trigger of the client stations” (emphasis added)); *see also id.* (“In that way it provides *trigger-related information* about the common and per-user/group information fields 1050 and 1052.” (emphasis added)).

Although neither “trigger information” nor “trigger information portion” appear in the specification outside of the claims, the specification refers to “trigger frame” ubiquitously. The Abstract, for example, explains the patent is directed to “[a] method for communicating in a wireless communication network” in which

a *trigger frame* is generated to trigger simultaneous uplink transmissions by multiple communication devices. The *trigger frame* includes a padding portion having a length determined based on respective time duration requirements of the multiple communication devices, the respective time duration requirements for preparing uplink transmission by the corresponding second communication devices. The *trigger frame* is transmitted to the multiple communication devices. The simultaneous uplink transmissions, triggered by the *trigger frame*, are received from the multiple communication devices.

’158 Patent at [57] (emphasis added). With reference to FIGS. 3A–3C, which show exemplary data units, the patent explains

the data portion 304 includes a *trigger frame* that triggers uplink OFDMA transmission by a plurality of client stations 25. In an embodiment, the *trigger frame* includes information that indicates allocation of subchannels to be used for uplink OFDMA transmission, in an embodiment. The *trigger frame* further indicates other transmission parameters to the multiple client stations 25, such as which modulation and coding scheme (MCS) each of the multiple client stations 25 should use, the OFDM numerology (e.g., guard interval, tone spacing, etc.) that each of the multiple client stations should use, transmit power that each of the multiple client stations 25 should use, etc.

'158 Patent at 8:48–59 (emphasis added).

Based on these excerpts, Defendants' construction is too narrow. For one, they arrive at their construction from FIGS. 10–11, which are each “a block diagram of a [trigger] frame . . . *according to an embodiment.*” *Id.* at 2:36–37 (emphasis added); *see also id.* at 2:38–39 (same). Moreover, initiating simultaneous transmissions is different than “preparing” for those transmissions and does not inherently require a field length or duration. In embodiments with predetermined frame lengths, for example, there may be no need to communicate lengths or durations of the trigger frame, but the client stations will nonetheless be “triggered.” The Court finds no reason to exclude such embodiments from the scope of the claims, as Defendants' construction would do.

The point of the invention is not what makes up the “trigger information,” but the clients' “decision” to simultaneously transmit based on information received from the access point. While the “trigger information” *could also be* “preparation information” (e.g., the allocation of subchannels or the modulation and coding scheme), the claims do not require that. Accordingly, the Court construes “trigger information portion” as “portion of a trigger frame containing information that can trigger simultaneous uplink transmissions by the second communication devices.”

IV. CONCLUSION

Term	The Court's Construction
"minimum number of encoders"	Not indefinite.
"trigger information portion"	"portion of a trigger frame containing information that can trigger simultaneous uplink transmissions by the second communication devices"

The Court **ORDERS** each party not to refer, directly or indirectly, to its own or any other party's claim-construction positions in the presence of the jury. Likewise, the Court **ORDERS** the parties to refrain from mentioning any part of this opinion, other than the actual positions adopted by the Court, in the presence of the jury. Neither party may take a position before the jury that contradicts the Court's reasoning in this opinion. Any reference to claim construction proceedings is limited to informing the jury of the positions adopted by the Court.

SIGNED this 9th day of May, 2022.


 ROY S. PAYNE
 UNITED STATES MAGISTRATE JUDGE