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

ASUS TECHNOLOGY LICENSING INC. AND CELERITY IP, LLC, Plaintiffs, v. **AT&T CORP.,** **AT&T MOBILITY LLC,** **AT&T MOBILITY II LLC, AND** **AT&T SERVICES, INC.,** Defendants. **ERICSSON INC.,** **NOKIA CORPORATION OF AMERICA,** Intervenors.	Civil Action No. 2:23-cv-486 LEAD CASE **JURY TRIAL**
ASUS TECHNOLOGY LICENSING INC. AND CELERITY IP, LLC, Plaintiffs, v. **T-MOBILE USA, INC.,** Defendant. **ERICSSON INC.,** **NOKIA CORPORATION OF AMERICA,** Intervenors.	Civil Action No. 2:23-cv-487 **JURY TRIAL**

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ASUS TECHNOLOGY LICENSING INC. AND CELERITY IP, LLC, Plaintiffs, v. **CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS,** Defendant. **ERICSSON INC., NOKIA CORPORATION OF AMERICA,** Intervenors.	Civil Action No. 2:23-cv-488 **JURY TRIAL**
INNOVATIVE SONIC LIMITED AND CELERITY IP, LLC, Plaintiffs, v. **AT&T CORP., AT&T MOBILITY LLC, AT&T MOBILITY II LLC, AND AT&T SERVICES, INC.,** Defendants. **ERICSSON INC., NOKIA CORPORATION OF AMERICA,** Intervenors.	Civil Action No. 2:23-cv-489 **JURY TRIAL**

INNOVATIVE SONIC LIMITED AND CELERITY IP, LLC, Plaintiffs, v. **T-MOBILE USA, INC.,** Defendant. **ERICSSON INC.,** **NOKIA CORPORATION OF AMERICA,** Intervenors.	Civil Action No. 2:23-cv-490 **JURY TRIAL**
INNOVATIVE SONIC LIMITED AND CELERITY IP, LLC, Plaintiffs, v. **CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS,** Defendant. **ERICSSON INC.,** **NOKIA CORPORATION OF AMERICA,** Intervenors.	Civil Action No. 2:23-cv-491 **JURY TRIAL**

PLAINTIFFS' OPENING CLAIM CONSTRUCTION BRIEF (Case Nos. -489, -490, -491)

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Plaintiffs respectfully submit this opening claim construction brief on U.S. Patent Nos. 10,887,868 (the "'868 Patent"); 10,148,402 (the "'402 Patent"); 10,798,754 (the "'754 Patent"); and 10,951,359 (the "'359 Patent"). *See* Exs. 1-4.

I. The '868 Patent

A. No Further Construction is Necessary for the "Medium Access Control (MAC) signaling" Terms

Term	Plaintiffs	Defendants
"Medium Access Control (MAC) signaling" (claims 5, 13)	No further construction necessary	"Medium Access Control (MAC) signal not transmitted via a physical signal"

The claim refers to a "first signal" that is transmitted to a UE "to indicate a first information associated with the network beam . . . wherein the first signal is a Medium Access Control (MAC) signaling." '868 Pat. cl. 5. As explained in the specification, "the indication of the special UE or network beam(s) and a configuration related to transmissions via pre-allocated radio resources may be provided via different signaling," e.g., "the indication could be carried by a Medium Access Control (MAC) or Physical (PHY) signaling." '868 Pat. 12:66-13:14.

"MAC" and "PHY" refer to two different layers in the protocol stack where messages can originate. Typically, the MAC layer prepares packets of data that are going to be transmitted over physical channels such as PDSCH or PUCCH. *See* Ex. 5, (TS 36.321 V13.0.0, the MAC specification, incorporated by reference in the '868 Patent) at 13 (explaining that the "physical layer provides . . . data transfer services" to the MAC layer):[1]

[1] The patent's specification states "the exemplary wireless communication systems devices described below may be designed to support one or more standards" and lists in this group TS 36.321 V13.0.0, "Medium Access Control (MAC) protocol specification." '868 Pat. 2:57-3:11. While the claims are not limited to the specific 3GPP standards incorporated in the specification, the patent's reference to TS 36.321 is relevant because Defendants' proposed construction would exclude the process by which MAC signaling is transmitted to a UE in this exemplary embodiment.

4.3.2 Services expected from physical layer

The physical layer provides the following services to MAC:

- data transfer services;
- signalling of HARQ feedback;
- signalling of Scheduling Request;
- measurements (e.g. Channel Quality Indication (CQI)).

id. ("The access to the data transfer services is through the use of transport channels. The characteristics of a transport channel are defined by its transport format (or format set), ***specifying the physical layer processing to be applied to the transport channel*** in question, such as channel coding and interleaving, and any service-specific rate matching as needed."). The MAC specification (36.321) references the PHY specification (36.211), which similarly explains how the PHY layer translates information received from the higher layers into resource elements to be transmitted over the physical channels. *See, e.g.*, Ex. 6, (TS 36.211 V13.0.0, January, 2016, referenced by TS 36.321 V13.0.0) at 61 ("A downlink ***physical channel*** corresponds to a set of resource elements ***carrying information originating from higher layers***").

In addition to passing on information originating from the higher layers, the PHY layer may also add additional physical signals (i.e., signals which originate at the PHY layer) to the transmission, such as reference signals. *Id.* at 61 ("A downlink ***physical signal*** corresponds to a set of resource elements used by the physical layer but does not carry information originating from higher layers. The following downlink physical signals are defined: Reference signal; Synchronization signal; Discovery signal").

The contemporaneous "overall description" technical specification for LTE similarly reflects this concept – that all transmissions over the network ultimately occur via the physical layer's transport channels, but this is distinct from "*what* is transported," which may originate at different layers. Ex. 7, (TS 36.300 V14.2, April, 2017) at 66:

5.3 Transport Channels

The physical layer offers information transfer services to MAC and higher layers. The physical layer transport services are described by *how* and with what characteristics data are transferred over the radio interface. An adequate term for this is "Transport Channel".

NOTE: This should be clearly separated from the classification of *what* is transported, which relates to the concept of logical channels at MAC sublayer.

The claim language requires that the "first signal" be a MAC-layer signal; no further construction is necessary, as the claim language itself clearly indicates what type of message must be used. The claim is referring to a message originating at the MAC layer, and excludes the "physical signals" originating at the PHY layer such as reference signals.

Defendants' construction adds a further limitation that the MAC signal is "not transmitted via a physical signal," which Defendants apparently interpret to include any signal—including MAC layer signaling—that passes through the physical layer on its way to the wireless network:

> Q. How does a MAC layer communication get from a base station to a user equipment?
> A. Well, I mean, ***it can pass through a physical layer***.
> Q. And that would be [a] transmission ***via a physical signal***?
> A. ***It could -- there is -- right.*** A signal could pass -- could then be – a physical signal could be generated."

Ex. 8, (Hansen Tr.) 39:10-19. In other words, Defendants intend to exclude all transmissions that pass through the physical layer, despite their expert admitting that this is how the claimed "MAC signaling" is performed:

> Q. Do you know of any MAC layer messages that get transmitted from base stations to user equipment?
> A. There are -- there are MAC messages that are carried, you know. There are MAC -- I mean, there are MAC messages that are carried from base stations to user equipment.
> Q. And how do those MAC messages get from the base station to the user equipment?
> A. Well, ***normally what would happen is that, yeah, I mean, those messages are -- would be carried over -- be carried through a physical layer***.

Id. at 53:4-17. In fact, when asked at his deposition if he could name ***any*** examples of MAC signals that are transmitted to a UE by some means other than a physical signal, Dr. Hansen could not. The most he could do is argue "there may be some process" where a UE could "infer" the MAC signal.

> Q. Could you give me an example of [how the user equipment could infer the state of the MAC layer by some other means other than a physical signal]?
> A. Well, I mean, a device, you know -- you know, a MAC layer can -- you know, there may be some process in a user equipment by which it infers the state of the – you know, the other device it's communicating with, you know, based on, you know, some other information it has.

Id. at 43:10-44:2. But even this farfetched example fails because an application of this "inference" would not actually transmit the MAC layer message to the UE (as required by the claim), the UE would simply, somehow, infer what that message is without receiving a transmission.

In addition to contradicting the claim language, Defendants' position contradicts their IPR petition on the '868 Patent. In their IPR petition, Defendants argued that the claimed "first signal" which is "is a Medium Access Control (MAC) signaling" was disclosed in the prior art based on a message that was transmitted via a physical transmission. *See* Ex. 9, (Defendants' IPR Petition on the '868 Patent) at 37 (asserting that "Jung discloses transmitting a MAC signal" because Jung discloses "The notification method may be one of the following message transmissions: . . . Notify a Downlink MAC-CE message (***via PDSCH***) that contains an element specifying a beam feedback duration."). Defendants have therefore conceded that the claimed MAC signaling may be transmitted via PDSCH, or the Physical Downlink Shared Channel, which is a "physical channel" that carries "information originating from higher layers." *See* Ex. 6, (TS 36.211 V13.0.0) at 61:

> 6.1.1 Physical channels
>
> A downlink physical channel corresponds to a set of resource elements carrying information originating from higher layers and is the interface defined between 3GPP TS 36.212 [3] and the present document 3GPP TS 36.211.
> The following downlink physical channels are defined:
>
> - Physical Downlink Shared Channel, PDSCH
> - Physical Broadcast Channel, PBCH
> - Physical Multicast Channel, PMCH
> - Physical Control Format Indicator Channel, PCFICH
> - Physical Downlink Control Channel, PDCCH
> - Physical Hybrid ARQ Indicator Channel, PHICH
> - Enhanced Physical Downlink Control Channel, EPDCCH

Jung itself acknowledges that MAC signaling involves the "higher layer (MAC, RLC, . . .), rather than

a physical layer . . . ***determin[ing] to transmit*** beam feedback due to the corresponding operations and ***select[ing] a resource*** to transmit beam feedback," acknowledging that the resources themselves will be transmitted by the physical layer's channels. Ex. 10, (Jung) at 16:10-17; *see also id.* at 9:4-21 (distinguishing this signaling from other signals "which can be performed via only a physical layer," such as "CRS, DRS, RS, Beam RS, CSI-RS, and the like").

The sole basis for Defendants' proposed construction is an Office Action Response where applicants distinguished Li (Ex. 11, (U.S. Patent Publication No. 2013/0286960)). Ex. 12, ('868 Patent Prosecution History at 2019-02-28 Applicant Arguments):

> According to Paragraph [0137] of Li, FIG. 14 illustrates a process for a BS changing the beam width for data control channel. Paragraph [0140] of Li further describes the BS decides which one or multiple data control beams to include the information (e.g. the resource allocation information) for a UE, and Paragraph [0141] of Li states that the BS sends to the UE information that includes the TX beams to be used. Besides, according to Paragraph [0155] of Li, the data control channel could be a physical downlink channel (i.e. PDCCH), which means that the information is transmitted via a physical signal. Therefore, Li does not disclose the claimed MAC signaling to indicate the first information for deriving the at least one specific UE beam recited in claims 1, 8, 14, and 21.

Applicants' argument is consistent with the claim language, which requires the "first signal" to be "MAC signaling." The alleged "first signal" in Li was, by contrast, a reference signal called "cell specific reference signal[] (CRS)," which Li taught "can be carried on the beams for DL control 1610, such as the physical DL control channel (PDCCH)." Ex. 11, ¶ 0158; *see also* Ex. 11, ¶ 0156 ("throughout the disclosure, the wide beam, e.g., the beam for PDCCH, can carry CRS (cell specific reference signal), by which the UE or MS can perform the measurement of the beams."). As discussed above, a reference signal is a PHY signal that originates at the physical layer, not the MAC layer. *See* Ex. 6, (TS 36.211 V13.0.0) at 61:

6.1.2 Physical signals

A downlink physical signal corresponds to a set of resource elements used by the physical layer but does not carry information originating from higher layers. The following downlink physical signals are defined:

- Reference signal
- Synchronization signal
- Discovery signal

Unlike MAC signals, which originate at a higher layer and are only encoded for transmission by the PHY layer, reference signals like CRS are "special signal[s] that exist[] only at PHY layer." Ex. 13, (contemporaneous article discussing reference signals in 4G/LTE). By definition, MAC signaling adds more functionality beyond a physical signal, but this does not alter the accepted definition of MAC signaling at the time of the patent that the PHY layer provides the resources that allow for MAC signaling to be transmitted over the network to a user equipment. Applicant was therefore distinguishing Li based on its use of a signal that *originated* at the physical layer, consistent with the plain and ordinary meaning of the claimed MAC signaling.

This is the only reasonable interpretation of the prosecution history, and there is no support for Defendants' reading that would exclude the only known implementation of transmitting MAC signals to a user equipment at the time of the invention (i.e., via transmission on physical channels implemented at the PHY layer). The specification never states that MAC signaling is not carried across the PHY layer. The claims therefore require that the MAC signaling be transmitted over the PHY layer because the claims require the signal in question be transmitted to the UE. But Plaintiffs are not even required to show that this is the <u>only</u> reasonable interpretation of the prosecution history; rather, it is Defendants who must show a "disavowal [that was] both clear and unmistakable." *CUPP Computing AS v. Trend Micro Inc.*, 53 F.4th 1376, 1382 (Fed. Cir. 2022). "Thus, where 'the alleged disavowal is ambiguous, or even amenable to multiple reasonable interpretations, [the Federal Circuit] has declined to find prosecution disclaimer.'" *Id.*; *see also id.* at 1383 (affirming the Board's holding that the existence of "a 'reasonable interpretation[]'" of the claims that was less restrictive "defeat[ed] CUPP's assertion

of prosecutorial disclaimer").

Here, a MAC signal is by definition different from a physical signal, but nonetheless relies on the PHY (physical) layer to transmit the information it contains. If Defendants wanted to show fidelity to the actual discussion in the prosecution history they would propose that a MAC signal is different from a physical signal but relies on the PHY layer for transmission. Defendants, however, do not want to show fidelity to how MAC signals actually operate, and instead wish to exclude the patent's embodiments from the scope of the claims.

II. The '402 Patent

A. "refined beam" is Not Indefinite

Term	Plaintiffs	Defendants
"refined beam" (claims 3, 14)	No construction necessary	Indefinite

The independent claims recite "a reference signal for beam measurement" and a "control signal" that "includes a beam-related information for transmitting . . . and indicates how many symbols are used to carry the reference signal for beam measurement." The dependent claims recite "where the beam-related information indicates a first beam, and wherein the reference signal for mean measurement is transmitted on at least a refined beam of the first beam."

"[R]efined beam" is a definite term because the claim language and the '402 patent specification describe a "refined beam" as a beam that has been adjusted to improve beam quality. In the context of the dependent claims, the first beam indicated by the beam-related information transmitted as part of the control signal would be the "refined beam."

Claim 3 is dependent on claim 1 and claims a method "wherein the beam-related information indicates a first beam, and wherein the reference signal for beam measurement is transmitting on at least a ***refined beam*** of the first beam." A POSA would understand from this language alone that a

refined beam is created by adjusting the first beam that was indicated by the control to have improved beam quality. '402 Pat. cl. 1; cl. 3. The specification elaborates on what beam refinement could entail: "For example, the direction of base station beam(s) used to transmit the aperiodic beam reference signal could be slightly adjusted compared to the periodic one so that the beam quality could be improved, ***refined***, or fine-tuned." '402 Pat. 7:15-24. Beam refinement is a species of beam adjustment. *See* '402 Pat. 8:5-12:

> From the perspective of the base station, it is also possible that the base station detects only some beam(s) or some TRP(s) among the beams within the base station beam set of the UE would require refinement or adjustment. When the base station transmits the beam reference signal on the beam(s) or the TRP(s), the UE may not be able to decide what is the correct UE beam to perform the beam measurement for beam adjustment or refinement.

Id. 8:12-18:

> A first general concept of this invention is that when a UE requests beam refinement or adjustment, the UE would indicate which beam(s) or beam(s) from which TRP(s) would require beam refinement/adjustment associated with the request. An example of requesting beam refinement or adjustment would be to request beam reference signal.

Id. 8:19-23:

> A general second concept of this invention is that when a base station triggers beam refinement or adjustment for a UE, the base station would indicate that beam refinement or adjustment is performed on which beam(s) or beam(s) from which TRP(s) associated with the trigger. An example of triggering beam refinement or adjustment for a UE would be to send an aperiodic trigger for beam reference signal to the UE.

Refinement is therefore simply an adjustment that improves beam quality.

Defendants' expert Dr. Hansen contends that "refined beam" is indefinite for two main reasons: first, because the specification "contains no discussion of when one beam constitutes a 'refined beam' of a separate beam"; and second, because it is unclear which of the various potential interpretations of "refined beam" applies to the '402 claims. Ex. 14, (Hansen Decl.) ¶¶ 67-68.

First, Dr. Hansen's contention that the specification "does not specify when one beam

constitutes a 'refined beam' of a separate beam" is inaccurate. The specification explicitly teaches that alteration of the beam is a refinement. '402 Pat. 7:15-24 ("For example, the direction of base station beam(s) used to transmit the aperiodic beam reference signal could be slightly adjusted compared to the periodic one so that the beam quality could be improved, refined, or fine-tuned.").

Dr. Hansen also ignores the clear language of the claims and the specification describing "the first beam" indicated by the beam-related information as the beam to be refined for transmission of the reference signal. '402 Pat. cl. 3 ("wherein the beam-related information indicates a first beam, and wherein the reference signal for beam measurement is transmitted on at least a refined beam of the first beam.); 11:63-12:3 ("Alternatively or additionally, the beam-related information could indicate a first beam and the reference signal for beam measurement is transmitted on at least a refined beam of the first beam."). There is no need to question "when one beam constitutes a 'refined beam' of a separate beam" because the refined beam in the claims is by definition a refinement of the "first beam." Indeed, in deposition, Dr. Hansen admits that the specification indicates that the fist beam is the beam that would be refined for the purposes of claims 3 and 14. Ex. 8, (Hansen Tr.) at 152:15-153:12 ("Q: So the next sentence is saying that in this embodiment alternatively or additionally that beam-related information could indicate a first beam and the reference signal for beam measurement could be transmitted on a refined beam of that first beam; right? A: Yeah, I'm not certain, because this is now – now this is talking about some beam-related information. Yeah, I'm not sure what specifically it's referring to there. Q: You don't think it would be the beam-related information described in the preceding sentence? A: I don't – okay. All right. I see that. So the -- so right. The beam-related information could indicate -- okay. It follow -- the second sentence follows from the first sentence.").

Second, Dr. Hansen's concern that a POSA would be unable to understand what method of refinement is covered by "refined beam" fails because beam refinement is a comprehensible beam management method known to and practiced by POSAs. Dr. Hansen provides a litany of possible

interpretations of "beam refinement," ranging from "the 'refined beam' must be narrower than the claimed 'first beam' and entirely confined within the same spatial domain as the 'first beam'" to "the 'refined beam' is spatially different in any way at all from the 'first beam.'" Ex. 14, (Hansen Decl.) ¶ 68. The fact that there are multiple ways of refining a beam does not make the claim indefinite.

In effect, Dr. Hansen opines that "refined beam" is indefinite because the '402 patent fails to disclose every possible method of beam refinement that may be used. This is incorrect for three reasons. *First*, Dr. Hansen's concern sounds in an enablement challenge and should be accorded no weight during claim construction to the extent that such an issue is raised. *See Genzyme Corp. v. Transkaryotic Therapies, Inc.*, 346 F.3d 1094, 1104 (Fed. Cir. 2003) (noting that while "the record would appear to raise questions of enablement," "this court need not examine enablement to properly define the claim term [] in view of the specification and prosecution history."); *see also id.* at 1110 (Linn, J. concurring-in-part and dissenting-in-part) ("[i]t is wrong to allow enablement issues that have not yet been fully ventilated by the parties and the district court to influence a claim construction determination."). *Second*, the patent specification does describe techniques for beam refinement. Specifically, it describes how beam refinement may require direction adjustments. '402 Pat. 7:15-24; 7:44-52:

> For example, the ***direction*** of base station beam(s) used to transmit the aperiodic beam reference signal could be slightly adjusted compared to the periodic once so that the beam quality could be improved, ***refined***, or fine-tuned.
>
> …
>
> It is possible that a UE may detect beam ***refinement***/adjustment is required for some beam(s) or some TRP(s) among the beams within the base station beam set of the UE while beam ***refinement***/adjustment is not require for other beam(s) or other TRP(s) among the beams within the base station beam set of the UE. In this situation (i.e., only ***beam direction*** of some beam(s) or ***beam direction*** of some TRP(s) are changed and ***beam direction*** of other beam(s) or ***beam direction*** of other TRP(s) are unchanged.

It also describes how directional adjustments may be performed using beamforming techniques. '402

Pat. 5:26-60:

> Beamforming can be categorized into three types of implementation: digital beamforming, hybrid beamforming, and analog beamforming. For digital beamforming, the beam is generated on the digital domain, i.e., the weighting of each antenna element can be controlled by baseband (e.g., connected to a TXRU). Therefore it is very easy to tune the beam direction of each sub band differently across the system bandwidth. Also, to change beam direction from time to time does not require any switching time between OFDM (Orthogonal Frequency Division Multiplexing) symbols. All beams whose directions cover the whole coverage can be generated simultaneously. However, this structure requires (almost) one-to-one mapping between TXRU (transceiver/RF chain) and antenna element and is quite complicated as the number of antenna element increases and system bandwidth increases (also heat problem exists).
>
> For Analog beamforming, the beam is generated on the analog domain, i.e., the weighting of each antenna element can be controlled by an amplitude/phase shifter in the RF (Radio Frequency) circuit. Since the weighing is purely controlled by the circuit, the same beam direction would apply on the whole system bandwidth. Also, if beam direction is to be changed, switching time is required. The number of beam generated simultaneous by an analog beamforming depends on the number of TXRU. Note that for a given size of array, the increase of TXRU may decrease the antenna element of each beam, such that wider beam would be generated. In short, analog beamforming could avoid the complexity and heat problem of digital beamforming, while is more restricted in operation. Hybrid beamforming can be considered as a compromise between analog and digital beamforming, where the beam can come from both analog and digital domain.

Dr. Hansen's own testimony admits a familiarity with the methods of beamforming, beam adjustment and beam refinement, evidencing that a POSA would also be familiar with these terms. Ex. 8, (Hansen Tr.) at 26:5-10 ("Q: Would changing the direction of a beam, in your understanding, be a type of beam refinement? A: Once again, yes, I believe changing a direction could be one type of beam refinement."); 147:10-18 ("Q: [] In your review of the patent specification, I mean, do you have an opinion as to whether beam refinement is interchangeable with beam adjustment? A: Yeah. I mean, I can say that, you know, there's – there's a relationship there, but you know, I'm not certain if I would consider them to be interchangeable"). Bean refinement was a known concept at the time of the patent. *See e.g.* Ex. 15, (TR 38.912 V14.0.0, May, 2017) at 22:

The following DL L1/L2 beam management procedures are supported within one or multiple TRxPs:

- P-1: is used to enable UE measurement on different TRxP Tx beams to support selection of TRxP Tx beams/UE Rx beam(s)
  - For beamforming at TRxP, it typically includes a intra/inter-TRxP Tx beam sweep from a set of different beams. For beamforming at UE, it typically includes a UE Rx beam sweep from a set of different beams.
- P-2: is used to enable UE measurement on different TRxP Tx beams to possibly change inter/intra-TRxP Tx beam(s)
  - From a possibly smaller set of beams for beam refinement than in P-1. Note that P-2 can be a special case of P-1.
- P-3: is used to enable UE measurement on the same TRxP Tx beam to change UE Rx beam in the case UE uses beamforming

Moreover, Defendants' contention that "refined beam" is indefinite directly contradicts their IPR petition for the '402 patent, which proposes that "no terms need to be construed." Ex. 16, (Defendants' IPR Petition for '402 Patent) at 22. Defendants do not claim in a footnote that the term is indefinite. Defendants apply the term to a prior art reference. Ex. 16, at 50 (arguing that "Moon discloses a control signal that includes 'beam-related information' and in which 'the beam-related information indicates a first beam, and wherein the reference signal for beam measurement is transmitted on at least a refined beam of the first beam.'"); 53 ("A POSITA knows massive MIMO supports beams and refined beams through the use of arrays with a large number of antennas. Ex-1003, ¶ 118. And a POSITA would understand that the xCSI-RS in Moon are transmitted on 'a refined beam' of that 'first beam,' in the same way that the '402 patent specification describes that a 'beam reference signal' is a refined beam."). The fact that the Defendants can apply the term is strong evidence it is not indefinite. *See Liqwd, Inc. v. L'Oreal USA, Inc.*, 720 F. App'x 623, 631 (Fed. Cir. 2018) ("Such evidence of a challenger's own ability to apply a term without unreasonable uncertainty counts against an indefiniteness contention."); *Sonix Tech. Co. v. Publications Int'l, Ltd.*, 844 F.3d 1370, 1380 (Fed. Cir. 2017) (reversing finding of indefiniteness where "GeneralPlus, Sonix, and the USPTO did not express any uncertainty as to the scope of 'visually negligible,' or encounter any apparent difficulty in applying the term to the references" during reexamination proceedings); *Prolitec Inc. v. ScentAir Techs., LLC*, No. CV 20-984-WCB, 2023 WL 8697973, at *18 (D. Del. Dec. 13, 2023) ("The fact that both ScentAir's expert and the PTAB were able to apply the 'retards a flow' limitation to the prior art [in

IPR proceedings] suggests that the phrase is not indefinite.").

Therefore, a POSA would understand "refined beam" to mean a beam that has been adjusted to improve beam quality. More specifically, a POSA would understand the first beam indicated in the beam-related information of the control signal as the beam to be refined. "[R]efined beam" is a sufficiently definite term, and Defendants' attempt to construe it as indefinite should be rejected.

III. The '754 Patent

A. "not allowed" is Not Indefinite

Term	Plaintiffs	Defendants
"not allowed" (claims 2, 7)	No construction necessary	Indefinite

Plaintiffs propose that "not allowed" be given its plain and ordinary meaning. Defendants seek to construe the term as indefinite. Claim 2 is a dependent claim to claim 1 where a network node "transmit[s] a first RRC (Radio Resource Control) message with a DRB (Data Radio Bearer) configuration to a UE (User Equipment) for establishing a default DRB for a PDU (Protocol Data Unit) session, wherein the DRB configuration includes a QFI (QoS Flow Id) configuration used to indicate whether a QFI field is present or not in uplink for the default DRB and the QFI configuration is always set to a value indicating the QFI field is present in uplink for the default DRB." Claim 2 simply states, "[t]he method of claim 1, wherein the network node is *not allowed* to transmit a second RRC message to the UE for reconfiguring the QFI configuration for the default DRB to no presence of the QFI field." Claim 7 uses "not allowed" in the same way. A POSA reading the claims alone would understand that "not allowed" mean exactly what it says: the network node, after transmitting a first RRC message to the UE with a QFI configuration indicating QFI field is present, may not send subsequent RRC message that reconfigures the QFI configuration to "no presence" of the QFI field. The patent specification strengthens this interpretation and states "[i]n principle, the gNB ***would not***

reconfigure no presence of QFI for the default DRB if the gNB cannot make sure no further new QoS flows will be initiated by the UE. In this situation, QFI for the default DRB is always present." '754 Pat. 25:39-42.

Further, Defendants' proposed construction is contradicted by their own IPR petition for the '754 patent which proposes that the claim terms be construed "consistent with the ordinary and customary meaning as would be understood" by a POSA. Ex. 17, (Defendants' IPR Petition for '754 Patent) at 15. Defendants do not claim in a footnote that the term is indefinite. Defendants apply the term to a prior art reference. Ex. 17, at 26-27 (arguing that "R2-1706381 discloses that 'the network node is not allowed to transmit a second RRC message to the UE for reconfiguring the QFI configuration for the default DRB to no presence of the QFI field," as required by claim 2" because "a POSITA would understand from this disclosure that the network node is not allowed to transmit a second RRC message to the UE for reconfiguring the QFI configuration for the default DRB to no presence of the QFI field, as required by Claim 2."). The fact that the Defendants can apply the term is strong evidence it is not indefinite. *Liqwd, Inc.*, 720 F. App'x at 631 ("Such evidence of a challenger's own ability to apply a term without unreasonable uncertainty counts against an indefiniteness contention.").

IV. The '359 Patent

A. "Interval" Should Be Construed As "distance between two bit positions"

Term	Plaintiffs	Defendants
"interval" (claims 1, 12, 22)	"distance between two bit positions"	"the difference between two bit positions or the number of bits between two bit positions"

The claims recite "not allowing to transmit the signal such that an interval between any two bit positions with the same value of one in the set of bit positions in the bit map is smaller than the first duration." The '359 Patent specification expressly teaches that "interval" refers to a "distance

between two bit position," and frequently uses the terms "interval" and "distance" interchangeably. *See, e.g.* '359 Pat. 16:34-40:

> The ***interval (or distance)*** between each bit position (indicating value one) in the set (or bitmap) is larger than or equal to a number. The ***interval (or distance)*** between two bit positions indicating the value one in the bit map is larger than or equal to a number. The ***interval (or distance)*** between two neighboring bit positions indicating value one in the set is larger than or equal to a number.

See also '359 Pat. 16:58-17:3 ("The UE does not expect to receive a configuration of a bit map such that the ***interval (or distance) between the two bit positions*** indicating value one in the bit map is smaller than the number (e.g., the bit map is 11000000000000). The UE could ignore a configuration of the bit map such that the ***interval (or distance) between two bit positions*** indicating value one in the bit map is smaller than the number (e.g., the bit map is 11000000000000 when the number is 1)."); 19:63-20:7 ("In this example, the bit locations with too short ***interval/distance*** are excluded."); 19:63-20:7 ("In this example, one (the latter one) of the two bit locations with too short ***interval/distance*** are excluded."); 20:49-55 ("For bit locations corresponding to short ***interval or distance***, time duration can be used as a maximum time duration or an upper bound of time duration. For bit locations corresponding to a short ***interval or distance***, a value of 1 could mean a corresponding symbol containing the CORESET and the corresponding symbol is not the first symbol or starting symbol of the CORESET."). Plaintiffs' proposed construction tracks the specification.

Defendants' proposed construction is at odds with the specification. Defendants' declarant, Dr. Hansen, attempts to support Defendants' proposal but fails to address this clear use of "interval" and "distance" in the '359 Patent specification. Dr. Hansen's arguments in favor of Defendants' claim construction contradict the specification and claim language.

First, Dr. Hansen argues that Defendants' construction "is supported by the claim language." Ex. 14, (Hansen Decl.) ¶ 74. Specifically, Dr. Hansen notes that the two options for the "interval"

proposed by Defendants are recited in dependent claims. *Id.*; *see, e.g.*, '359 Pat. cl. 9 and 19 (both reciting "the interval is the difference between two bit positions") and cl. 10 and 20 (both reciting "the interval is number of bits between two bit positions."). Dr. Hansen's argument supports Plaintiffs' position. Limitations appearing only in dependent claims should not be read into the claims from which they depend. Thus, the fact that the patentee included one specific method of implementing an "interval" in dependent claims but omitted the specific method in the independent claims that no such limitation exists in the independent claims.

Second, Dr. Hansen argues that the specification supports Defendants' proposed construction because the specification states that an interval "***could be***" a number of bits between the two bit positions or a difference of the two bit positions. Ex. 14, (Hansen Decl.) ¶ 75. This is an attempt to limit the claims to examples in the specification, which is improper.

Third, Dr. Hansen further argues that the specification does not provide any other options for the "interval" beyond the two offered in Defendants' proposed construction. Ex. 14, (Hansen Decl.) ¶ 75. Dr. Hansen misreads the '359 Patent. As discussed above, the '359 Patent specification repeatedly states that the "interval" may be the "distance" between two bit positions.

Fourth, the provisional application repeatedly refers to the "interval" as a "distance" between two bit positions, similar to disclosures in the '359 Patent specification, which supports Plaintiffs' proposed construction. *E.g.*, Ex. 18, (U.S. Provisional Pat. App. No. 62/619,041 (the "'041 Provisional")); at 28 ("***Interval (or distance) between each bit position*** (indicating value one) in the set (or bitmap) is larger than or equal to a number. ***Interval (or distance) between two bit positions*** indicating value one in the bit map is larger than or equal to a number. ***Interval (or distance) between two neighboring bit positions*** indicating value one in the set is larger than or equal to a number. Two neighboring bit positions indicating value one could be two closest bit positions indicating value 1. An ***interval or distance between two bit positions*** is number of bit

between the two bit positions. The two bit positions could be neglected when calculate the ***interval or distance***."). The '359 specification both claims priority to the '041 Provisional and incorporates it by reference in its entirety. *See* '359 Pat., 1:9-12

Dr. Hansen's final argument in support of Defendants' proposal, put forth in a footnote, is that the '041 Provisional's statements about what the interval may be in certain embodiments should be strictly limiting, and that "interval" should be construed only to mean "number of bits between the two bit positions." Ex. 14, (Hansen Decl.) ¶ 77 n.3. This backup proposed construction should also be rejected. Under this proposed construction, dependent claims 10 and 20 (both reciting "the interval is number of bits between two bit positions") would be rendered redundant. The Federal Circuit has long recognized that individual claims should be construed to have a different scope to avoid redundancy with other claims. The fact that the full utility in Defendants minds adds disclosure beyond the provisional is unremarkable. *Sycamore IP Holdings LLC v. AT&T Corp.*, No. 2:16-CV-588-WCB, 2017 WL 1045949, at *5 (E.D. Tex. Mar. 16, 2017) ("It is clear from the patent that the term 'transition indicator' has a meaning that is broader than is suggested by the defendants' proposed claim construction. While it may or may not be the case that new matter was added to the non-provisional application, that is an issue that goes to the priority date to which the '405 patent is entitled; it does not govern the construction of the '405 patent, at least with respect to terms the meaning of which is clear in the non-provisional application that issued as the '405 patent.")

Beyond attempting to argue in favor of Defendants' proposed constructions, Dr. Hansen also criticizes Plaintiffs' proposed construction. Hansen Decl. ¶ 77 (asserting Plaintiffs' proposal "is an unhelpful replacement of terms that adds no clarity to the claim term."). Dr. Hansen fails to explain his criticism in any way. Plaintiffs' proposal clarifies that the claimed "interval" is a "distance between two bit positions," in accordance with how the term is used throughout the '359 Patent specification. It is Defendants' proposed construction that is "unhelpful" and "adds no clarity" to the scope of the

claims, as evidenced by the fact that Dr. Hansen himself admitted at deposition he could not actually use Defendants' construction to determine the interval of exemplary bit maps provided by the patent. *See* Ex. 8, (Hansen Tr.) 60:11-19 ("Q Right. I'm asking for this example bit map at Column 15, line 53, where it's one followed by 13 zeros. What would the number be? What would the interval be numerically if you applied defendants' construction? A. Right. I think there could be multiple interpretations."); 70:21-71:3 ("Q You're not certain how you would calculate the number of bits between bit positions in that example? A. I think it -- I think it -- (Reviewing document.) Yeah, I -- I'm not certain in that case.").

Defendants' attempts to limit the claims to specific embodiments disclosed by the '359 Patent are inappropriate. Plaintiffs' construction should be adopted because "a claim construction, if needed at all, should help resolve, not add to, uncertainty in the understanding the finder of fact is to use in applying a claim term." *Promptu Sys. Corp. v. Comcast Corp.*, 92 F.4th 1372, 1381 (Fed. Cir. 2024).

B. Defendants' Attempt to Impose an Order of Operations on the Elements of the Claims should be Rejected

Term	Plaintiffs	Defendants
[Order of Operations] (claims 1, 12, 22)	There is no order required for the recited method steps	The steps of the claims must be performed in the order listed in the claims.

"Unless the steps of a method actually recite an order, the steps are not ordinarily construed to require one." *Interactive Gift Exp., Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1342-43 (Fed. Cir. 2001). The Federal Circuit has set forth a "a two-part test for determining if the steps of a method claim that do not otherwise recite an order, must nonetheless be performed in the order in which they are written." *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369-70 (Fed. Cir. 2003). "First, we look to the claim language to determine if, as a matter of logic or grammar, they must be performed in the order written." *Id.* "If not, we next look to the rest of the specification to determine whether it 'directly or

implicitly requires such a narrow construction.'" *Id.* "If not, the sequence in which such steps are written is not a requirement." *Id.*

Here, claims 1, 12, and 22 of the '359 patent do not recite an order. Neither the claim language nor the specification justify requiring the steps of the claimed methods be performed in order.

Claim 1 is illustrative, which recites:

> 1. A method of a network node, the method comprising:
>
> transmitting a signal indicating at least a first duration and a bit map,
>
> wherein the first duration is time duration of a control resource set (CORESET), and
>
> wherein the bit map includes a set of bit positions, where each bit position has a value of one or zero and each bit position with the value of one indicates a starting Orthogonal Frequency Division Multiplexing (OFDM) symbol of a monitoring occasion of the CORESET within a slot; and
>
> not allowing to transmit the signal such that an interval between any two bit positions with the value of one in the set of bit positions in the bit map is smaller than the first duration.

First, there is no logic or grammar in the claim that would require the steps be performed in order. In fact, logic dictates that an order should not be imposed. Requiring an order would be nonsensical because the claim language identifies a single, actionable step: "transmitting a signal indicating at least a first duration and a bit map," followed by a "wherein" clause that further characterizes that transmission. '359 Pat. cl. 1. The claim language does not imply that the signal is sent in two parts, such as with the bit map following the first duration. The first duration and the bit map are components of the same signal and transmitted simultaneously. Imposing an order of transmission on the first duration and the bit map would be an illogical misreading of the claim language.

Second, the specification does not "directly or implicitly require such a narrow construction." *Altiris* 318 F.3d at 1370. The specification only requires an order of operations when "the patentee demonstrate[s] an intent to" impose an order. *Id.* That intent is absent here. The specification describes multiple embodiments that can be performed in a variety of orders. For example, in some

embodiments, the invention is performed in a single, conditional step. *See, e.g.*, '359 Pat. 20:65-67 ("The configuration or indication can be transmitted by a base station to a UE"); '359 Pat. 17:8-11 ("In one embodiment, a base station does not configure the UE with a bit map such that the interval (or distance) between two bit positions indicating value one in the bit map is smaller than the number"). In other embodiments, the "not allow…" clause may come after the signal has been transmitted. *See, e.g.*, '359 Pat. Figs. 7-8 (depicting exemplary embodiments as flowcharts). A POSA would not interpret any of these embodiments as limiting the invention to a particular order because the specification explicitly denotes these embodiments as "exemplary". '359 Pat. 33:42; 34:19. The Federal Circuit has held that the order of the claims are not constrained by the embodiments if the specification lacks an independent emphasis on the order or "disclaimer of any other order of the steps." *Altiris*, 318 F.3d at 1371. The '359 specification contains no such emphasis or disclaimer.

Defendants' expert witness Dr. Hansen does not provide any basis for the position that an order of operations should be imposed on the elements of claim 1, 12, and 22. Defendants' unsupported imposition of an order of operations should be rejected because it contradicts logic, grammar, and the patent specification.

C. Claim 4 Of The '359 Patent Does Not Require Further Construction

Term	Plaintiffs	Defendants
"The method of claim 1, wherein the network node is not allowed to transmit the signal such that interval between any bit position in the set in the bit map and the least significant bit position in the bit map is smaller than the first duration minus one." (claim 4)	No further construction necessary.	"The method of claim 1, wherein the network node is not allowed to transmit the signal such that an interval between any bit position ***with a value of 0 or 1*** in the set in the bit map and the least significant bit position in the bit map is smaller than the first duration minus one."

Plaintiffs submit that no further construction is required for dependent claim 4 of the '359

patent. In contrast, Defendants seek to re-write the claim by simply restating the entire claim verbatim but then adding to it an additional requirement that the "interval between any bit position in the set in the bit map and the least significant bit position" be from any bit position "***with a value of 0 or 1***."

As Dr. Hansen concedes, Claim 1 of the '359 Patent already states that each bit position has a value of one or zero. Ex. 14, (Hansen Decl.) ¶ 79 ("And Claim 1 specifically states that 'each bit position has a value of one or zero.'"). Dr. Hansen provides no justification for why a claim element from Claim 1 must be copied and added to Claim 4, one of its dependent claims.

Defendants' claim construction position conflicts with other asserted claims of the '359 Patent. Dr. Hansen concedes that Claim 12 of the '359 Patent discloses a similar "interval" based upon "any bit position ***with the value of one***." Ex. 14, (Hansen Decl.) ¶ 80. Dr. Hansen argues that this claim language supports Defendants' claim construction position. *Id.* In reality, the fact that the patentee included a "***with the value of one***" requirement for the bit position element in Claim 12, but omitted a similar requirement for the bit position element in Claim 4, further confirms that no such requirement exists for Claim 4. *See Enzo Biochem., Inc. v. Applera Corp.*, 599 F.3d 1325, 1333 (Fed. Cir. 2010) (rejecting proposal to read a "'hybridization' requirement into the claims" where "The applicants knew how to claim a linkage group that does not substantially interfere with hybridization, as they did in the '824 and '767 patents, but specifically omitted that language from the claims of the related '928 patent"). Here, the patentee specifically drafted an element to require a bit position with a particular value where it was intended, and thus there is no basis to read in a similar limitation to other claim elements where a particular value is not specified.

Ultimately, Defendants' proposed construction would confuse rather than clarify the scope of the claims. Dr. Hansen admitted at deposition that he had no idea how to apply Defendants' claim construction to an exemplary bit map from the '359 Patent specification:

> Q: Is that what the result would be if the court adopted defendants' construction of Claim 4?

A: I think the defendants' construction of Claim 4 is broader than that. It says that -- I mean, it can be the difference between the bit positions or the number of bits between two bit positions.

Q: Well, in that -- in the scenario we just discussed, both of those would be zero; right?
A: Yeah, I'm not certain.

Q: Well, if we're talking about what we've called bit position zero, the far right bit position, being both -- being both the least significant bit and a bit position having a value of zero or one, there are no bits between position zero and position zero; right?
A: Yeah, I -- yeah, I'm not certain -- I'm not certain how that -- you know, in that case, it would be read.

Q: You're not certain how you would calculate the number of bits between bit positions in that example?
A: I think it -- I think it – (Reviewing document.) Yeah, I -- I'm not certain in that case.

Ex. 8, (Hansen Tr.) at 69:18-71:3.

D. Claim 22 Of The '359 Patent Is Not A Means-Plus-Function Claim

Term	Plaintiffs	Defendants
"wherein the processor is configured to execute a program code stored in the memory to: transmit a signal . . . not allowing to transmit the signal . . ." (claim 22)	No further construction necessary. The term is not required to be construed under 35 U.S.C. § 112(f).	The term is subject to construction under §112(6). Structure: transmit (TX) data processor 214 for example as shown and described in Figure 2 and at 3:15-45, and equivalents thereof. Function: "transmit a signal" for example as shown in Step 705 in Figure 7 and "not allowing to transmit the signal" for example as shown in Step 710 in Figure 7.

Plaintiffs propose that claim 22 requires no further construction. Because the claim does not use the word "means" and provides a sufficiently definite structure, Defendants' proposal to construe the claim as a means-plus-function term fails. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) ("To determine whether § 112, para. 6 applies to a claim limitation, our precedent has

long recognized the importance of the presence or absence of the word 'means.' . . . [T]he failure to use the word 'means' . . . creates a rebuttable presumption . . . that § 112, para. 6 does not apply.").

Claim 22 in full recites:

22. A network node, comprising:
a control circuit;
a processor installed in the control circuit; and
a memory installed in the control circuit and coupled to the processor;
wherein the processor is configured to execute a program code stored in the memory to:
transmit a signal indicating at least a first duration and a bit map,
wherein the first duration is time duration of a control resource set (CORESET), and
wherein the bit map includes a set of bit positions, where each bit position has a value of one or zero and each bit position with the value of one indicates a starting Orthogonal Frequency Division Multiplexing (OFDM) symbol of a monitoring occasion of the CORESET within a slot; and
not allowing to transmit the signal such that an interval between any two bit positions with the value of one in the set of bit positions in the bit map is smaller than the first duration.

The term that Defendants propose is means-plus-function is emphasized above. The claim recites a sufficiently definite structure for performing the claimed function of transmitting/not allowing to transmit a signal: a program code, memory, and a processor.

The Federal Circuit has repeatedly found nearly identical claim language recites a definite structure and that Section 112(f) does not apply. In *WSOU Invs. LLC v. Google LLC*, the Federal Circuit held that the limitation "at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus to [accomplish various functions]" was ***not*** subject to Section 112(f) because "a person of ordinary skill in the art would understand the structure of the claimed 'computer program code,' 'memory,' and 'processor.'" No. 2022-1063, 2023 WL 6889033, at *4 (Fed. Cir. Oct. 19, 2023) (non-precedential). The Federal Circuit explained "the claim language itself provides structural guidance. For example, the claim limitation at issue requires 'at least one memory including computer program code,' which is configured 'with the at least one processor' to

perform various tasks." *Id.* "Though terms like 'computer program code,' 'memory,' and 'processor' may be broad, the recited combination of these multiple broadly named structures informs the skilled artisan's relative understanding of what each structure is and what it is not, as well as how the various structures relate to one another." *Id.* The Federal Circuit explained that they have repeatedly "explained that claim limitations like the recited 'computer program code,' when combined with a description of what the code is intended to accomplish, convey definite structure to the ordinarily skilled artisan," providing the following summary:

> For example, in *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003 (Fed. Cir. 2018), the district court found that the claim limitations "program" and "user interface code" were in means-plus-function format. *Id.* at 1006–07. We reversed, explaining that the skilled artisan would have been able to "reasonably discern from the claim language" that the limitations were references to conventional programs or code "existing in [the] prior art at the time of the invention," not just "generic terms or black box recitations of structure or abstractions." *Id.* at 1008. Similarly, in *Dyfan v. Target Corp.*, 28 F.4th 1360 (Fed. Cir. 2022)—reversing the district court—we explained that "[u]nlike in the mechanical arts, the specific structure of software code and applications is partly defined by its function." *Id.* at 1368. For software-related claim limitations, like "code," we explained that "we can look beyond the initial 'code' ... term to the functional language to see if a person of ordinary skill would have understood the claim limitation as a whole to connote sufficiently definite structure." *Id.* As for the term "memory," Google has not cited any cases holding that the term "memory" is a nonce term or devoid of sufficient structure so as to invoke § 112 ¶ 6 and we are aware of no such cases.

Id. at *5. This Court too has held that "'processor' undoubtedly connotes structure to an electrical engineer, computer engineer, and computer scientist." *G+ Commc'ns, LLC v. Samsung Elecs. Co.*, No. 2:22-CV-00078-JRG, 2023 WL 4534366, at *16–17 (E.D. Tex. July 13, 2023). *See also Realtime Data, LLC v. Rackspace US, Inc.*, No. 6:16-CV-00961, 2017 WL 2590195 at *17 (E.D. Tex. June 14, 2017) ("Defendants have not provided a sufficient basis to depart from the Court's typical practice in this instance. Instead, the record here is consistent with the numerous precedent from this District finding the term 'processor' is not a means-plus-function term.") (collecting cases).

The same is true here. The specification explains that a POSA would understand the structure of the recited claim terms. '359 Pat. 35:5-60:

> Those of skill would further appreciate that the various illustrative logical blocks, modules, processors, means, circuits, and algorithm steps described in connection with the aspects disclosed herein may be implemented as electronic hardware (e.g., a digital implementation, an analog implementation, or a combination of the two, which may be designed using source coding or some other technique), various forms of program or design code incorporating instructions (which may be referred to herein, for convenience, as "software" or a "software module"), or combinations of both.

The specification further explains the structure of the "processor" term. '359 Pat. 36:8-25:

> The [integrated circuit ("IC")] may comprise a general purpose processor, a digital signal processor (DSP), an application specific integrated circuit (ASIC), a field programmable gate array (FPGA) or other programmable logic device, discrete gate or transistor logic, discrete hardware components, electrical components, optical components, mechanical components, or any combination thereof designed to perform the functions described herein, and may execute codes or instructions that reside within the IC, outside of the IC, or both. A general purpose processor may be a microprocessor, but in the alternative, the processor may be any conventional processor, controller, microcontroller, or state machine. A processor may also be implemented as a combination of computing devices, e.g., a combination of a DSP and a microprocessor, a plurality of microprocessors, one or more microprocessors in conjunction with a DSP core, or any other such configuration.

As well as the "memory" and "code" terms. '359 Pat. 36:36-59

> The steps of a method or algorithm described in connection with the aspects disclosed herein may be embodied directly in hardware, in a software module executed by a processor, or in a combination of the two. A software module (e.g., including executable instructions and related data) and other data may reside in a data memory such as RAM memory, flash memory, ROM memory, EPROM memory, EEPROM memory, registers, a hard disk, a removable disk, a CD-ROM, or any other form of computer-readable storage medium known in the art. A sample storage medium may be coupled to a machine such as, for example, a computer/processor (which may be referred to herein, for convenience, as a "processor") such the processor can read information (e.g., code) from and write information to the storage medium. A sample storage medium may be integral to the processor. The processor and the storage medium may reside in an ASIC. The ASIC may reside in user equipment. In the alternative, the processor and the storage medium may reside as discrete components in user equipment. Moreover, in some aspects any suitable computer-program product may comprise a computer-readable medium comprising codes relating to one or more of the aspects of the disclosure. In some aspects a computer program product may comprise packaging materials.

These references to processors, memory, and code existing at the time of the invention provide sufficient structural detail. Indeed, Defendants' position contradicts their IPR petition on the

'359 Patent. In their IPR petition, Defendants did not argue that claim 22 subject to Section 112(f), and instead argued that the prior art disclosed the structures set forth in the claim. Ex. 19 (Defendants' IPR Petition on the '359 Patent) at 37-39 (arguing that the prior art discloses each structure set forth in the claim, including "a processor installed in the control circuit" and "a memory installed in the control circuit and coupled to the processor"). Defendants supported their IPR arguments with expert testimony, showing that based on Defendants own positions the claims "convey definite structure to the ordinarily skilled artisan." *WSOU Invs. LLC*, 2023 WL 6889033, at *4. Defendants cannot overcome the presumption that Section 112(f) does not apply.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the above and foregoing document has been served on all counsel of record via the Court's ECF system on December 11, 2024.

/s/ Robert C. Bunt
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