IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

Neo Wireless LLC, Plaintiff, v. Dell Technologies Inc. and Dell Inc., Defendants.	C.A. NO. 6:21-cv-0024-ADA JURY TRIAL DEMANDED

PLAINTIFF NEO WIRELESS LLC'S RESPONSIVE CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

Neo Wireless disagrees with Dell's proposed constructions, which are inconsistent with the terms' respective plain and ordinary meanings, and unsupported by any basis in the specification or prosecution history. Likewise, Dell has fallen short of its burden to show that any of the terms are indefinite. Finally, the Court should reject Dell's inconsistent position with respect to the preambles in the '517 and '908 patents.

II. ARGUMENT

A. Disputed Terms from U.S. Patent 8,467,366

1. "the ranging signal is formed from a ranging sequence selected from a set of ranging sequences [associated with the cell] for identifying the mobile station"

Dell	The ranging signal is formed from a ranging sequence selected by the mobile station from a set of ranging sequences [associated with the cell] for identifying the mobile station
Neo Wireless	Plain and ordinary meaning, and no construction necessary.

Dell's proposed construction should be rejected because it improperly limits the claim to a particular embodiment to the exclusion of others within the scope of the term's plain and ordinary meaning. In particular, Dell rewrites the claim to require a selection "by the mobile station" of the ranging sequence from the set of ranging sequences. Op. Br. at 1–3. Dell is incorrect at least because (1) the proposed construction is unnecessary to clarify the meaning of the plain language of the claim, (2) the preambles do not necessitate Dell's construction, and (3) the proposed construction improperly limits the claim to a single, cherry-picked embodiment.

The claim term says exactly what it means: that "the ranging signal is formed from a ranging sequence selected from a set of ranging sequences…." Dell does not contend that the plain language has some special meaning or requires clarification to be comprehensible to a

POSITA or the jury. In fact, Dell does not alter, omit, or replace a single word from the claim language. The *only* change Dell makes to the claim language is the insertion of a self-serving phrase: "by the mobile station." This is not only unnecessary but also completely tangential to the import of the claim term. The claim term specifies ***how*** the ranging sequence is formed, yet Dell's proposed construction attempts to narrow the claim based on ***what*** does the selecting of the ranging sequence. Thus, the Court should reject the proposed construction as unnecessary.

Nor do Dell's arguments relying on the preamble justify this arbitrary limitation on the claims. Dell argues that "all of the actions and requirements in [the asserted claims] are necessarily the actions and requirements of the mobile station." Op. Br. at 2. But this oversimplification ignores the structure of the claims. As written, the claims organize the features of the mobile device into two components/steps, each of which perform the recited actions, such as "to transmit a ranging signal." The subsequent "wherein" clauses—including the one at issue here—specify required features not of the mobile station, but of the "ranging signal" and the "ranging subchannel." Dell now asks the Court to ignore these organizational features of the claim to require "the mobile station" to perform an additional act of "selecting" "the ranging sequence." But nothing in the claim structure prohibits an entity other than the mobile station from having selected the ranging sequence prior to the mobile station's transmission of the ranging signal. Instead, this claim term merely specifies ***how*** the ranging signal is formed: "from a ranging sequence selected from a set of ranging sequences."

Further, Dell cannot justify its improper narrowing of the claims to a single embodiment on any disavowal or intention by the patentees to limit their inventions to that embodiment. Dell cites to the specification's description of a mobile station selecting a ranging sequence. But there is no disclosure in that portion of the specification (nor anywhere else in the record) that the

mobile station is *required* to make that selection. *See e.g.*, *Seabed Geosolutions (US) Inc. v. Magseis FF LLC*, 8 F.4th 1285, 1288 (Fed. Cir. 2021) ("[S]ilence does not support reading the claims to exclude [embodiment]"). Indeed, notwithstanding that preferred embodiment, when drafting the claims, the patentees chose not to include any selection step in the claimed method, and instead merely required the ranging sequence be "selected from" a set of ranging sequences. A POSITA would recognize this choice to not limit the claims to selection by the mobile station, and understand that other entities, including the recited base station, could make the selection in a variety of circumstances. Alberth Decl. at ¶¶ 22–24; *see also i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 8331, 843 (Fed. Cir. 2010) ("Had the inventors intended [the selection to be a step performed by the mobile device], they could have drafted the claims to expressly include it."). Thus, Dell's proposed construction should be rejected at least because it narrows the claim beyond the term's full scope under its plain and ordinary meaning.

Finally, Dell's construction is not necessary to find the claim definite.[1] Dell's reliance on an alleged "lack" of disclosure is not sufficient to find indefiniteness. First, it is well established that not every specific embodiment covered by the claims need be disclosed in the specification. *See e.g.*, *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1344 (Fed. Cir. 2001) ("Our case law is clear that an applicant is not required to describe in the specification every conceivable and possible future embodiment of his invention."). Further, even if the specification includes an

[1] In addition to the substantive reasons why Dell's construction should be rejected, Dell also should not have the benefit of argument by ambush by failing to disclose that it intended to argue that this term was indefinite (even if in the alternative). During the exchange of terms and proposals leading up to briefing, nowhere did Dell indicate they would argue this term is indefinite. The sole mention of Dell's contention that this term may be indefinite is in Dell's Preliminary Invalidity Contentions in a list of ten other terms, only one of which was actually selected and disclosed as being indefinite during this claim construction process. Indeed, Dell seemed capable of disclosing their positions of indefiniteness for other terms during the exchanges, but opted not to disclose this position until Dell's Opening Brief.

embodiment describing a mobile station making this selection, Dell cannot point to any disclaimer of all other ways. The only argument Dell can muster is that it is "unclear how such an embodiment would work," Op. Br. at 3, but a POSITA would readily understand how a base station could select the sequence instead of the mobile station. Alberth Decl. at ¶¶ 23–24. Indeed, it would have been well known how a base station would select a random access preamble for a mobile station to avoid contention between mobile stations that may subsequently request access to the base station. *Id.* In both scenarios where a mobile station or the base station selects the ranging sequence, the mobile station would still use the ranging signal to establish a connection with the base station. *Id.*

Dell's final argument relying on *Halliburton* is also deficient. As an initial matter, *Halliburton* predates *Nautilus* and its arguments and reasoning are based on an outdated standard of indefiniteness. *See e.g.*, *Midwest Athletics & Sports All. LLC v. Xerox Corp.,* No. 6:19-CV-06036 EAW, 2020 WL 7692767, at *16 (W.D.N.Y. Dec. 28, 2020) (recognizing *Halliburton*'s overruling); *see also Tinnus Enterprises, LLC v. Telebrands Corp.,* No. 6:16-CV-33-RWS-JDL, 2017 WL 2666254, at *2 (E.D. Tex. Feb. 14, 2017) (rejecting "[d]efendants' infringement-based test for indefiniteness [as] improper").

Further, Dell is also incorrect because a POSITA would, with reasonable certainty, be able to determine if a used ranging sequence was "selected from"[2] a set of ranging sequences. Alberth Decl. at ¶¶ 22–24. Dell fearmongers by arguing that if its own specific, self-serving limitation (the selection being performed only by the mobile station) is not adopted, then the lack of a limit on what or who does the selecting renders infringement unknowable. But Dell's

[2] Dell confuses the argument by calling the limitation the "'selected by' limitation" even though that phrase appears nowhere in the claims.

hypothetical scenario (which simply presupposes that the alleged POSITA "may" not know how the ranging sequence was selected) is inapposite. First, Dell does not allege that infringement in this case turns on such an unknowable scenario, so the Court simply need not resolve hypothetical disputes over claim scope that have no bearing on this case. Second, just because the selection of the ranging sequence may not be readily known, it does not mean the claim cannot be applied to the accused products to determine infringement with reasonable certainty. These claims do not, as in *Halliburton*, use language that is so *ambiguous* as to make infringement unknowable. *See Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1256 (Fed. Cir. 2008). Dell describes a scenario where, at worst, infringement may be hard to *prove*, not where it is uncertain. *See Invitrogen Corp. v. Biocrest Mfg., L.P.*, 424 F.3d 1374, 1384 (Fed. Cir. 2005) ("[Dell] is really talking about the difficulty of avoiding infringement, not indefiniteness of the claim. The test for indefiniteness does not depend on a potential infringer's ability to ascertain the nature of its own accused product to determine infringement, but instead on whether the claim delineates to a skilled artisan the bounds of the invention." (quotations omitted)); *Nevro Corp. v. Boston Scientific Corporation*, 955 F.3d 35, 39-40 (Fed. Cir. 2020) ("The test for indefiniteness is not whether infringement of the claim must be determined on a case-by-case basis.").

Finally, even if an unbounded set of potential "selectors" raised an indefiniteness concern (it does not), Dell still would have no basis for cherry-picking the mobile station as the sole candidate for selecting the ranging sequence. A POSITA would understand at a minimum that the claims would include a selection by another element of the OFDMA system recited in the claims, such as the serving base station, or one of the plurality of base stations within the system. Alberth Decl. at ¶¶ 23–24.

For at least these reasons, the above-recited claim term of the ’366 patent is definite and should be given its plain and ordinary meaning.

2. “exhibits a low peak-to-average power ratio in the time domain”

Dell	Indefinite.
Neo Wireless	Plain and ordinary meaning, and no construction necessary. To the extent construction is deemed necessary, “exhibits a low peak-to-average power ratio in the time domain” means “exhibits a peak-to-average power ratio in the time domain of 9dBs or less.”

Dell has not shown by clear and convincing evidence that this term is indefinite—indeed, a POSITA would, with reasonable certainty, understand the plain and ordinary meaning of this term in the context of the patented claims and specification. “Low” is a term of degree, and “[c]laim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention.” *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370 (Fed. Cir. 2014). “[A]bsolute or mathematical precision is not required.” *Id.* A POSITA would understand how to compare this claim term to real-world products and systems using the description of the patent in light of the intrinsic record.

First, Dell ignores the impact of the surrounding claim language through which the term may be understood by a POSITA. Using claim 1 as an example, the “mobile station [is] configured to communicate with a serving base station in a cell via a communication channel” “[i]n a multi-cell orthogonal frequency division multiple access (OFDMA) wireless communication system.” Accordingly, a POSITA would not have to subjectively judge how “low” a peak-to-average power ratio (“PAPR”) is in a vacuum; by contrast, he or she would

evaluate the PAPR relative to the PAPRs typically found in that specific subset of systems encompassed by the claims.

Additionally, claim 1 recites that "the ranging signal is formed from a ranging sequence." And as explained in the specification, particular ranging sequences may be applied such that the "corresponding time-domain signal [of the ranging signal] exhibits relatively low peak-to-average power ratio." '366 patent at 4:35–37. Again, this provides context to a POSITA in which to consider what a "low" PAPR is according to the claims. For instance, a POSITA would consider the types of reductions that known ranging sequences would have on a ranging signal circa the time of the patent and in the claimed cellular OFDMA system. Alberth Decl. at ¶ 27.

Furthermore, the specification provides additional objective criteria for a POSITA to determine the meaning of this term with reasonable certainty. Dell argues the disclosure that a "relatively low peak-to-average power ratio . . . improves the power efficiency of the mobile station transmission power amplifier" does not provide any objective boundaries. Op. Br. 6. But on the contrary, the Federal Circuit has rejected any requirement of a precise *numerical* boundary, and this portion of the specification still provides an objective context that a POSITA could use to understand this term. *See Braintree Laboratories, Inc. v. Novel Laboratories, Inc.*, 749 F.3d 1349, 1359–60 (Fed. Cir. 2014) ("Descriptive words like 'copious' are commonly used in patent claims, to 'avoid[] a strict numerical boundary to the specified parameter'" (quoting *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1217 (Fed. Cir. 1995)). For example, there is a practical amount of reduction in PAPR that a POSITA would consider an improvement of the efficiency of the mobile station's transmitter. Alberth Decl. at ¶¶ 27–29.This, combined with the additional context provided by the surrounding claim language, provides sufficient objective

criteria from which a POSITA would understand the scope of "exhibits a low peak-to-average power ratio in the time domain."

The cases Dell relies on are distinguishable from the facts in this case. First, the *GE Lighting* decision "is a non-precedential decision, which is not binding, and should be read as limited to the particular claim and specification at issue in that case." *Exmark Mfg. Co., Inc. v. Briggs & Stratton Pwr. Prods. Grp., LLC*, 879 F.3d 1332, 1346-47 (Fed. Cir. 2018) (finding terms analogous to those in *GE Lighting* not indefinite). Second, the phrase at issue in *Interval Licensing* was "purely subjective," 766 F.3d at 1371, in contrast to the present phrase which is an objective relative measurement of a physical value—the PAPR of wireless transmissions. The phrase "in an unobtrusive manner that does not distract a user" at issue in *Interval Licensing* cannot be measured, but only determined by the subjective personal preference of the "user." *Id.* at 1371. In contrast, as explained above, "exhibits a low peak-to-average power ratio in the time domain" is both measurable—PAPR is a numerical value, not merely a matter of personal feeling—and depends on objective criteria—the wireless transmission systems and methods at issue and the amount of PAPR reduction that would improve the transmission efficiency. Accordingly, Dell's cited authority fails to provide any support for their contention of indefiniteness.

Furthermore, the objective criteria Neo has identified—comparison with the communication systems and methods at issue and the practical measures of reducing the PAPR by applying sequences—are consistent with those used in other cases. For example, the term "low frequency portion" was construed to have its plain meaning despite not expressly describing any specific target frequencies or thresholds. *St. Lawrence Comms., LLC v. ZTE Corp.*, 2016 WL 6275390, at *57–59 (E.D. Tex. Oct. 25, 2016). In particular, the court found

that "the use of the word "low" is appropriate because the relative bandwidths and the precise manner of filtering are implementation-specific details." *Id.* (citing *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576 (Fed. Cir. 1986)). Likewise, here, the ranging signal which "exhibits a low peak-to-average power ratio in the time domain" would be understood in the objective technical context of the implementation of a certain wireless system, not merely the subjective personal preference of a user. *See also Fractus, S.A. v. AT&T Mobility LLC*, 2019 WL 1641357, at *22–24 (E.D. Tex. Apr. 16, 2019) ("Defendants have not shown, however, that the possibility of different frequency bands being defined in different ways or with different bandwidths gives rise to any lack of reasonable certainty as to the meaning of the present disputed terms. Instead, these are implementation-specific details.").

For at least these reasons, "exhibits a low peak-to-average power ratio in the time domain" should not be found indefinite, and instead, be given its plain and ordinary meaning. If the Court believes that an affirmative construction is necessary, Neo alternatively proposes that this term be construed to mean "exhibits a peak-to-average power ratio in the time domain of 9dBs or less."[3] As explained above, the patent provides objective criteria from which a POSITA can determine whether the PAPR is "low." At the time of the patent, a POSITA interpreting the claims would consider the surrounding claim language, which recites "a mobile station" (or method steps performed thereby) operating in the claimed cellular OFDMA system. Alberth Decl. at ¶¶ 27–29. For a cellular OFDMA system at the time of the patent, a baseline PAPR would be approximately 12dBs. *Id.* Further, a POSITA looking for a practical reduction in the PAPR at the time of the patent using the application of sequences, as recited in the claims, would

[3] Dell's Opening Brief does not address this alternative construction at all, but instead, only contends that the claim term is indefinite. Op. Br. at 4–7.

recognize a reduction of 3dBs or more to improve the efficiency of the transmitter. *Id.*, *see also* ¶¶ 30–33.

Accordingly, a POSITA would understand the plain and ordinary meaning of the term to mean that a "low" PAPR would be a PAPR of 9dBs or less—corresponding to a marked reduction of the PAPR that practically impacts the transmission efficiency in the contemplated systems of the patented claims. Thus, Neo's alternative construction is consistent with the term's plain and ordinary meaning and supported by the patent.

B. Disputed Terms from U.S. Patent No. 10,044,517

1. Preambles

"A method for a mobile device to receive data packets in an orthogonal frequency division multiple access (OFDMA) wireless communication system operating on multiple radio-frequency (RF) bands, the method comprising" – claim 1	
Dell	Preamble is not limiting.
Neo Wireless	Preamble is limiting.

"A mobile device in an orthogonal frequency division multiple access (OFDMA) wireless communication system operating on multiple radio-frequency (RF) bands, the mobile device comprising:" – claim 13	
Dell	Preamble is not limiting.
Neo Wireless	Preamble is limiting.

Dell agrees that the preambles for the '366, '450, and '941 patents are limiting. Yet, Dell argues that the '517 preambles merely "state an intended purpose," despite the clear parallels to the agreed-upon patent preambles. Op. Br. at 10. Dell even seems to concede that at least the term "mobile device" in the preambles is limiting, since, as in the agreed preambles, it provides antecedent basis for the body of the claim. Op Br. at 7–8. But Dell offers no reasoned basis why the mobile device should be spliced from the remainder of the preamble. On the contrary, the

mobile device of the claims does not exist in a vacuum, but is one that operates on the OFDMA system described in the remainder of the preambles. So those additional limitations, too, provide antecedent basis for the "mobile device" referenced in the body of the claims.

Moreover, the '517 preambles (just like the '366 preambles Dell agreed are limiting) also "recite essential structure" by specifying that the inventions are to operate on a multi-cell OFDMA system with given characteristics. Further still, just as the '366 preambles specify the composition of the OFDMA system, the '517 preambles specify that the OFDMA system must "operate[] on multiple [RF] bands." This provides a meaningful limitation to the apparatuses and methods recited by excluding devices and methods that can only be used on OFDMA systems operating on a single RF band. Indeed, the '517 patent specification's disclosure describes at great length the advantages of using of multiple frequency bands to allow for greater integration of wireless services. *See e.g.*, '517 patent at 5:18–19, 5:32–36, 8:57–62. This indicates that this limitation is not merely a throwaway statement of intended use, but a key aspect of the claimed invention. *See General Elec. Co. v. Nintendo Co., Ltd.*, 179 F.3d 1350, 1361–62 (Fed. Cir. 1999) (claim scope limited to "raster scanned display device" recited in preamble, rather than display systems generally, at least in part because of specification's focus on prior art problem of displaying data on a raster-scan display device).

The prosecution history confirms these preambles are limiting. In particular, the '517 preambles were expressly amended to distinguish the claimed invention from prior art. *See Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (preamble limiting where prosecution history "indicates use of the preamble to define, in part, the claimed invention"). Initially, the preamble used the term "system" instead of "wireless communication system" and did not specify that the invention operated on multiple RF bands. *See* '517 patent

file history (including the originally filed claims with Application No. 14/160,420 filed January 21, 2014). The Patent Office rejected the application in part because the asserted claims were "unpatentable over [reference Classon] in view of [reference Cai]." *Id.* at 93–96 (Non-Final Rejection dated August 14, 2015), 178–81 (Final Rejection dated May 20, 2016). In response, the claims were amended to include portions of the preamble. *Id.* at 251 ("Response to Final Office Action dated May 20, 2016," dated November 21, 2016, distinguishing references by noting that the references fail to disclose "simultaneous frame transmission *on multiple RF bands*" (emphasis added)).

Moreover, a person having ordinary skill in the art would readily recognize that the preambles recite a fundamental limitation of the invention. *See* Alberth Decl. at ¶¶ 34–36. Thus, contrary to Dell's assertions, the preambles to the '517 patent are far from mere statements of intended purpose and the preambles for the '517 patent should be deemed limiting.

2. "receiving scheduling information from a serving base station, the scheduling information indicating an allocation of airlink resources in a first RF band and a second RF band"

Dell	Receiving a singular message from a singular base station that indicates an allocation of airlink resources in a first RF band and a second RF band
Neo Wireless	Plain and ordinary meaning, and no construction necessary.

3. "receive scheduling information from a serving base station, the scheduling information indicating an allocation of airlink resources for receiving a first signal… over a first RF band and a second signal … over a second RF band"

Dell	Receiving a singular message from a singular base station that indicates an allocation of airlink resources for receiving a first signal over a first RF band and for receiving a second signal over a second RF band
Neo Wireless	Plain and ordinary meaning, and no construction necessary.

Solely to support its non-infringement position, Dell seeks to construe "scheduling information" in these two phrases to mean "a singular message." Dell asserts that the requirements for the received scheduling information "cannot be satisfied by pointing to multiple pieces of scheduling information." Op. Br. at 9. However, there is nothing in the claims, specification, or prosecution history to support that assertion, and only an unduly narrow reading of the word "information" allows Dell to make it. The Court should reject Dell's transparent attempt to re-define the claims and to limit their ordinary scope.

Dell's reliance on *Varma* and the Federal Circuit's dog analogy is misplaced. *See* Op. Br. at 9. In *Varma*, the claim term at issue was "a statistical analysis request corresponding to two or more selected investments." *In re Varma*, 816 F.3d 1352, 1362 (Fed. Cir. 2016). There, the Federal Circuit emphasized the existence of the indefinite article "a" before "statistical analysis request" in reaching its conclusion that there must be "a [singular]" request that itself corresponds to two or more selected investments. *Id*.

But the term at issue here lacks any such indefinite article, and uses the broad term "information" instead of the singular term "request." Specifically, the claims do not recite "a" scheduling information, much less "a" scheduling "message." Instead, the claims recite "information," an uncountable noun that, except in the context of a criminal law charging document, has neither a singular nor plural connotation. Dell intentionally neglects this distinction in an attempt to narrow the scope of the claims (though even Dell's own briefing has to refer to "pieces of information," implicitly acknowledging that "scheduling information" can contain multiple "pieces."). Thus, Dell is only able to draw a parallel to the Federal Circuit's dog analogy by first rewriting the claim—inserting the word "message" into its proposed construction in place of "information." The Court should reject this substitution.

Dell next argues that the specification requires the "Scheduler" to send "a *single* item of scheduling information." Op. Br. at 9–10. This is not true. For example, the specification describes sending scheduling information-related "messages," showing that there can be more than one message carrying scheduling information. '517 patent at 4:35–36. Further, the specification also uses the term "scheduling decisions," which may include scheduling information, in its plural form repeatedly.[4] Even Dell itself uses the plural term "scheduling decisions." Op. Br. at 9 ("The specification describes a 'Scheduler' that makes scheduling decisions for two channels being used for transmission . . ."). Therefore, when the claims recite "scheduling information," which does not have a singular form, a POSITA would understand that the "scheduling information" could be received from one or multiple messages or information elements. *See* Alberth Decl. at ¶¶ 37–38.

Dell's proposal should also be rejected because it incorrectly limits "a serving base station" to be "a singular base station." As an initial matter, Dell's proposed construction removes the word "serving" without any explanation. Regardless, Dell's proposed construction is contrary to established Federal Circuit law that "a" or "an" means "one or more" by default:

> This court has repeatedly emphasized that an indefinite article "a" or "an" in patent parlance carries the meaning of "one or more" in open-ended claims containing the transitional phrase "comprising." That "a" or "an" can mean "one or more" is best described as a rule, rather than merely as a presumption or even a convention. The exceptions to this rule are extremely limited: a patentee must **evince a clear intent** to limit "a" or "an" to "one."

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[4] *See* '517 patent at, *e.g.*, 6:52–58 ("A scheduling data or decision is made by the Scheduler, which consults with the Decision Making Database for system control information, and generates **scheduling decisions** based on system objectives. The Transmission Mapping Engine multiplexes the bit streams into different channels based on the **scheduling decisions**." (emphasis added)); 8:22–23 ("Scheduler - The Scheduler tries to make optimal **scheduling decisions** to achieve certain system objectives." (emphasis added)); 8:37–40 ("The **scheduling decisions** are forwarded to the Transmission Mapping Engine, which is in charge of retrieving the application bit stream and putting it into the correspondent wireless channel." (emphasis added)).

Baldwin Graphic Systems, Inc. v. Siebert, 512 F.3d 1338, 1342 (Fed. Cir. 2008) (internal quotation marks and citations omitted) (emphasis added). Despite having the burden, Dell's Opening Brief fails to even address this issue, let alone provide evidence that "evince[s] a clear intent" to limit to a "singular base station."[5]

Additionally, neither the claims nor the specification require a "singular" base station. In contrast, the specification describes scenarios where multiple base stations are used together to transmit signals.[6] Also, as explained above, the specification suggests that the scheduling information may come from more than one message and is used for transmissions on more than one RF band. *See e.g.,* '517 patent at 4:35–36. This would indicate to a skilled artisan that the claims are not limited to only one base station. Alberth Decl. at ¶¶ 39–40. Accordingly, the Court should reject Dell's proposed construction and determine that no construction is necessary.

4. "allocation of airlink resources [] for receiving a first signal with a first frame structure having first frame boundaries and a second signal with a second frame structure having second frame boundaries"

Dell	Plain and ordinary meaning, which means the first signal comprises a frame and the second signal comprises a frame.
Neo Wireless	Plain and ordinary meaning, and no construction necessary.

[5] *See also Varma*, 816 F.3d at 1362 ("'[A]' sometimes is non-restrictive as to number, permitting the presence of more than one of the objects following that indefinite article.").

[6] *See* '517 patent at, *e.g.*, 4:23–26 ("In one embodiment, multiple base stations are coordinated to transmit the same broadcast signal simultaneously."); 9:24–26 ("When SFN is used, the broadcast channels of the neighboring base stations are coordinated to transmit simultaneously."); 10:42–43 ("All the base stations are aligned in transmission time at the frame boundary."); 11:19–20 ("In one embodiment, the base stations are synchronized with each other for transmission.").

Dell's apparent position is that "a first[/second] signal with a first[/second] frame structure having first[/second] frame boundaries" requires the first/second signal to include an entire frame. Op. Br. at 10–11. Dell argues that if the signal/structure has plural "boundaries," then the signals must include a full frame. *Id.* But Dell fails to point to any specific disavowal requiring the claims to include this additional limitation of having a full frame for each of the first and second signals. *See i4i*, 598 F.3d at 843 ("Had the inventors intended [the signals to contain entire frames], they could have drafted the claims to expressly include it.").

On the contrary, a POSITA would recognize that a signal may only include part of a frame, while still having the recited "frame boundaries." *See* Alberth Decl. at ¶¶ 41–43. Dell improperly rewrites the term "frame boundaries" as "*the* boundaries of a frame," taken to mean *only* the boundaries at the end of full frames. Op. Br. at 10 ("Everyone understands that *the* boundaries of an area define the entire area."). But the claim language merely recites that the signal/structure contain "frame boundaries" (which is more akin to "boundaries within a frame"), not *the* boundaries of a full frame. To use Dell's example of a football field: one *might* argue that "*the* boundaries of a football field" likely refers only to the sidelines; but the edges of the redzone—the 20-yard line and goal line—or of any other subpart of the filed, are "football field boundaries." They are boundaries that exist within the football field, even if not the outermost boundaries.

Moreover, even under Dell's rewritten language, Dell offers nothing more than attorney argument, backed by no expert testimony, to suggest that "there are only two boundaries possible for frames in the time domain." *Id.* at 11. And in contrast to Dell's narrow view, a POSITA would understand that a signal may have a variety of boundaries, even if limited to the time domain, including internal subframe boundaries. Alberth Decl. at ¶¶ 41–43; *see also* '517 patent

at 11:41–43 (discussing "the subframe boundary" as a boundary within a frame structure). As another example, a partial frame may still have frame boundaries at the start of the partial frame and at the end of the partial frame. Alberth Decl. at ¶¶ 41–43. And a partial frame would be understood by a POSITA to still have the requisite frame structure and boundaries even if it is not a full frame. *Id.* Accordingly, the plain and ordinary meaning of the term encompasses the scenario where one or more of the first signal and the second signal comprise only a partial frame, and does not require a full frame.

Similarly, Dell's arguments based on the prosecution history should be rejected. The patentees argued that the prior art's "single-frame and single-frequency-band system" was distinguished from "the two-frame and two-frequency-band system claimed by applicant." Ex. B (February 5, 2018 Office Action Response) at 9–10 (emphasis added). The context of this statement is clear from the file history. The alleged prior art did not include the capability of sending concurrent transmissions on multiple RF bands, as recited in the claims. The reference to a "two-frame and two-frequency-band system" is not specifically tied back to this claim element, but merely provides a generic description of a system that can send multiple signals over multiple bands. *See* Alberth Decl. at ¶ 44.

Dell's argument also misses the point. The dispute is whether the recited "frame boundaries" must define a full frame or can define a partial frame. But the cited prosecution statement merely distinguishes between a "one-frame" and "two-frame" system—it does not address at all whether the word "frame" in that prosecution colloquy mandates a "full" frame (as opposed to "two" *partial* frames, which would still be distinct from a system with only a single (full or partial) frame). And in reality, in some cases, sending multiple signals would include

sending both signals each with a full frame, but in other circumstances, it would not. Alberth Decl. at ¶¶ 41–43. Without a clear disavowal, Dell's argument falls flat.

For at least these reasons, this term should be afforded its plain and ordinary meaning and Dell's additional limitation be rejected.

5. "traffic characteristics"

Dell	Indefinite, or in the alternative "the type of traffic being transmitted (e.g., voice, data, video)"
Neo Wireless	Plain and ordinary meaning, and no construction necessary.

Dell's indefiniteness attack on the term "traffic characteristics" also fails. The words carry their plain, English meaning—characteristics of the traffic associated with each of the subframe configurations—and no construction is necessary.

Dell only half-heartedly argues that this term is indefinite because the term was allegedly "coined by the prosecuting attorney and without reference to the content of the application as it was originally." Op. Br. at 12. The only support for this contention is the specification not expressly using the term "traffic characteristics." *Id.* But, there is no requirement that the claim language be recited in the specification, either explicitly or as an embodiment. *See Nalpropion Pharms., Inc. v. Actavis Labs. FL, Inc.*, 934 F.3d 1344, 1350 (Fed. Cir. 2019) ("It is not necessary that the exact terms of a claim be used *in haec verba* in the specification…."); *Kara Tech. Inc. v. Stamps.com Inc.*, 582 F.3d 1341, 1347–48 (Fed. Cir. 2009) ("The claims, not specification embodiments, define the scope of patent protection."). Moreover, merely because "traffic characteristics" may encompass a variety of characteristics does not make the claim term indefinite—after all, "[b]readth is not indefiniteness." *Ultimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp.*, 587 F.3d 1339, 1352 (Fed. Cir. 2009) (citing *Application of Gardner*, 427

F.2d 786, 788 (C.C.P.A. 1970)). Dell has not met its burden and the Court should find the term "traffic characteristics" definite.

Dell's proposed alternative construction—which belies its claim that the term is indefinite—should also be rejected. Dell asserts that based on the claims, specification, and Figure 3, "a POSITA would understand that ['traffic characteristics'] refers to the type of information (or 'traffic') being transmitted in the wireless communication." Op. Br. at 12. But Dell's attempt to limit "traffic characteristics" to a single embodiment is inappropriate. Indeed, "it is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 911 (Fed. Cir. 2004); *see also Info-Hold, Inc. v. Applied Media Techs. Corp.*, 783 F.3d 1262, 1266–68 (Fed. Cir. 2015) ("[W]e have 'expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment.'") (citation omitted).

Nowhere in the specification is "traffic characteristics" defined as Dell would have it; nowhere in the claims is there any recital of a "traffic type" (*e.g.*, voice, data, etc.); and nowhere in the patent is there any disavowal of other embodiments. *See Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1357 (Fed. Cir. 2004) ("[T]he applicant's choice to describe only a single embodiment does not mean that the patent clearly and unambiguously disavowed other embodiments . . . ."). A POSITA thus would not limit their understanding of "traffic characteristics" to that one embodiment, but would recognize that "traffic characteristics" could encompass one of a variety of characteristics of the traffic associated with the two signals, such

as different frame structures and configurations being associated with different types of channels (*e.g.*, uplink versus downlink). Alberth Decl. at ¶¶ 45–46.

For at least these reasons, the term "traffic characteristics" is definite and should be afforded its plain and ordinary meaning.

C. Disputed Terms from U.S. Patent No. 10,075,941

1. "the antenna transmission scheme comprising a transmission diversity scheme or a multiple-input multiple output (MIMO) scheme"

Dell	The antenna transmissions scheme allows for use in systems that rely on transmission diversity schemes other than MIMO and in systems that rely on MIMO
Neo Wireless	Plain and ordinary meaning, and no construction necessary. To the extent construction is deemed necessary: "the mobile-station specific transmission parameters are capable of indicating one of both (1) an antenna transmission scheme that comprises a MIMO scheme, and (2) a transmission diversity scheme other than MIMO."[7]

The parties' dispute about this term is much narrower than Dell describes in its brief. Consistent with the prosecution history cited by Dell, Neo agrees that under the explicit claim language, the term would not cover an embodiment where the mobile-station is only capable of operating within a MIMO scheme (or only a transmit diversity scheme) as a result of the serving base station only being capable of operating with a MIMO scheme (or transmit diversity scheme). But Dell's proposed construction goes well beyond what is required by that prosecution history—more than merely supporting both schemes, Dell's construction would require that the system indicate it is operating *simultaneously* on both a MIMO and a non-MIMO

[7] Neo's proposed construction, to avoid the ambiguity introduced by Dell's choice of term, proposes to construe the claim language "the mobile-station specific transmission parameters indicate an antenna transmission scheme…comprising a transmission diversity scheme or a [](MIMO) scheme…" instead of the term chosen by Dell.

transmit diversity scheme for transmission to the mobile station. As explained further below, this construction makes no sense. The dispute is therefore whether the prosecution history mandates an absurd result, or simply requires that the mobile station *can* receive an indication of either scheme. The plain and ordinary meaning of the term supports the latter, and the Court should reject Dell's overreach.

The relevant claim language states that the mobile station receives a "control message," that this message contains "transmission parameters," that these transmission parameters specify an "antenna transmission scheme," and that this scheme can be either a "transmission diversity scheme" or a "(MIMO) scheme." As Dell observes, the applicant distinguished Wilson by observing that Wilson "specifically limits its teaching to a MIMO system," whereas "applicant's system allows for its use in systems that rely on transmission diversity schemes other than MIMO." Op. Br. at 14 (citing Ex. C at 9). Thus, it is sufficient for that distinction over Wilson, and consistent with the plain and ordinary meaning of the claim language as written, that the "transmission parameters" be *capable* of indicating a scheme that is either transmission diversity or MIMO—which would allow the mobile station to operate in a "system" that supports either transmission scheme, depending on the election in the transmission parameters. To capture this concept, Neo proposed to Dell the alternative agreed construction set forth below, which preserves the distinction over Wilson while making sense within the context of the claim as a whole:

> **Term**: "the mobile-station specific transmission parameters indicate an antenna transmission scheme…comprising a transmission diversity scheme or a [](MIMO) scheme…"
> **Construction**: "the mobile-station specific transmission parameters are capable of indicating one of both (1) an antenna transmission scheme that comprises a MIMO scheme, and (2) a transmission diversity scheme other than MIMO."

See Ex. 1 (Stewart Email to Speegle).

But Dell rejected this proposal, and made clear that under its proposed construction, the antenna transmission scheme must simultaneously be both a MIMO *and* non-MIMO scheme. This interpretation would yield absurd results. A POSITA would understand that a MIMO and non-MIMO scheme are markedly different configurations, and that the claim language could not possibly be interpreted as allowing them both simultaneously. Alberth Decl. at ¶¶ 48–49. The claim language itself makes this clear as well, explicitly requiring that the antenna transmission scheme "compris[e] a transmission diversity scheme ***or*** a [MIMO] scheme." While Neo agrees, and the prosecution history makes clear, that the system must *allow for* either option (in the alternative) rather than just one, Dell would have the Court simply replace the "or" with "and," completely distorting the claim language.

To illustrate Dell's overreach, consider a sport—"tennis golf"—that is distinguished over regular golf by the argument that "unlike golf, tennis golf can be played with either a tennis ball or a golf ball." Neo's proposal (by way of the plain and ordinary meaning or its alternative construction) is that to support this distinction, the cup on each green (the transmission parameters) must be wide enough for either a tennis ball or golf ball to drop in—allowing for play with either tennis or golf ball. Dell's proposal is that, because tennis golf was distinguished over golf by reference to the ball, the ball itself (the antenna transmission scheme) must be both a tennis ball and a golf ball—whatever that means. This is a bridge too far.

To avoid the absurd results of Dell's construction while still remaining faithful to the prosecution history, the Court should adopt the plain and ordinary meaning of the term, which "preserves the distinction" of the claims over the Wilson reference. Alternatively, if the Court desires to make explicit that distinction, Neo submits the above alternative construction.

2. *"the mobile station-specific transmission parameters indicate […] a corresponding subchannel configuration […] the corresponding subchannel configuration characterized by distributed subcarriers or localized subcarriers in the frequency domain"*

Dell	The mobile station-specific transmission parameters indicate whether the subchannels are either distributed subcarriers, or localized subcarriers in the frequency domain
Neo Wireless	Plain and ordinary meaning, and no construction necessary.

As above, this term need not be construed and instead should be given its plain and ordinary meaning.

Specifically, Dell's proposal should be rejected because it adds further limitations not within the scope of the plain and ordinary meaning of the term. Contrary to Dell's interpretation, the term does not require the mobile station-specific transmission parameters to include a specific, separate parameter whose only purpose is to disclose whether the subchannels are either distributed or localized subcarriers in the frequency domain. The plain and ordinary meaning only requires mobile station-specific transmission parameters that indicate a corresponding subchannel configuration that is *characterized* by distributed subcarriers or localized subcarriers in the frequency domain. Neo does not dispute that the claim requires the parameters be capable of indicating (alternatively) both a distributed and localized subcarrier configuration. But nothing in the plain language of the claim requires a separate piece of information indicating which has been chosen. A subchannel configuration can be "characterized by distributed or localized subcarriers" merely by employing either of those configurations.

Dell's proposal is also inconsistent with the prosecution history. As described above for the previous '941 patent term, the patentee amended the claims to include the "antenna transmission scheme" and "corresponding subchannel configuration characterized by distributed subcarriers or localized subcarriers" limitations. The patentee explained:

> [A]pplicant has amended independent claims 26, 33, 35 and 42 to indicate that applicant's system transmits subchannel configuration information, including whether the subchannels are "distributed subcarriers or localized subcarriers in the frequency domain." […] In contrast, Wilson is silent as to the transmission of subchannel information as defined by the applicant. **Instead, as noted previously, Wilson is solely direct to the transmission of pilot information**.

Op. Br., Ex. C at 9 (emphasis added).

Dell argues that this represents a clear and unmistakable disavowal requiring a specific information element or field where "distributed" or "localized" must be explicitly marked. *See* Op. Br. at 17. Not so. Neo distinguished Wilson by pointing out that "Wilson is solely directed to the transmission of pilot information." Dell omitted this last sentence from its brief presumably because it eviscerates Dell's argument that Neo's argument hinged on the word "whether." Taking the prosecution history statements as a whole, it is clear that the patentee explained that the plain and ordinary meaning of the claims requires the transmission of subchannel configuration information as opposed to just pilot information. Thus, the only clear distinction made here is that pilot information alone does not encompass the subchannel configuration information required by the claims (including because pilot information could not be "characterized by distributed subcarriers or localized subcarriers," while in contrast, a subchannel configuration can be so characterized based on the allocation of resources across the subcarriers). Alberth Decl. at ¶¶ 50–51. But there is no basis in this prosecution history for further limiting the claims based on whether information about distributed versus localized subcarriers is separately communicated, since that question had no direct bearing on the distinction made over Wilson.

Finally, a POSITA, in light of the record, would not interpret the claims to require the subchannel configuration to explicitly include a "localized" or "distributed" indicator. Alberth Decl. at ¶ 52. Instead, a POSITA would recognize that the subchannel configuration sent,

according to the claims, would be "characterized" by either localized or distributed carriers, which could be determined based on the subchannel configuration itself (e.g., based on the allocation of resources across the subchannel). *Id.* Accordingly, Dell's proposal should be rejected and this term and it should be given the full scope of its plain and ordinary meaning.

D. Disputed Terms from U.S. Patent No. 10,447,450

1. "the segment having a starting time-frequency coordinate"

Dell	Information that identifies the starting time-frequency offset for the segment
Neo Wireless	Plain and ordinary meaning, and no construction necessary.

The Court should reject Dell's proposed construction because it attempts to unreasonably re-write the claim language. Dell tries to substitute the term "coordinate" with "offset" without explanation other than arguing that "coordinates identify the offsets for the starting and ending time-frequency resource relative to the zones [of the map of time-frequency resources]." Op. Br. at 18. But there is nothing unclear about the ordinary meaning of the term "coordinate." Dell itself admits that a time-frequency coordinate comprises "[a] time coordinate . . . [which] 'can be one or multiple OFDM symbols' and [a] frequency coordinate . . . [which] 'can be one or multiple subcarriers.'" Op. Br. at 19 (quoting '450 patent at 5:61–64). Dell's attempt to replace "coordinate" with "offset" serves no purpose and should be rejected by the Court. *Cf. Phoenix Licensing, L.L.C. v. AAA Life Ins. Co.*, 2015 WL 1813456, at *27 (E.D. Tex. Apr. 20, 2015) (rejecting a proposed construction that replaced a term that is "unambiguous" and "easily understandable" with "a potentially confusing phrase intended to express the same meaning").

Additionally, Dell inserts the phrase "information that identifies" at the beginning of the term to require, over and above the plain language of the claims, some explicit transmission of "an affirmative piece of information" identifying the starting time-frequency coordinate. Op. Br.

at 19. Again, this is not supported by the record. For example, the patentee could have easily written this term in the claims as a separate method step or an additional feature for which the mobile device is configured. Instead, the claim merely recites "the segment *having* a starting time-frequency coordinate" and to "recover the information from the received signal using the starting time-frequency coordinate . . . ," which a POSITA would understand as only requiring that the "segment [have] a starting time-frequency coordinate." Alberth Decl. at ¶ 53. There is a difference between "having" a certain property and "identifying" that property externally, and the claim language only requires the former.

Dell also asserts that in order for the mobile device to use the starting time-frequency coordinate, it must first receive such coordinate. Op. Br. at 19. But this is not necessarily true, and Dell provides no expert testimony or citation for this proposition—it is mere attorney argument. To the contrary, the mobile device can derive the starting time-frequency coordinate by other means. For example, the mobile device may see a signal from a base station in the mobile device's cell and determine where the signal starts. Alberth Decl. at ¶ 54. Then, by determining the starting time-frequency resource of the signal, the mobile device can determine the "starting time-frequency coordinate," th1at is, the coordinate corresponding to the start of that resource, and use that coordinate to decode the signal. *Id.*

For at least these reasons, the Court should reject Dell's proposed construction and determine that no construction is necessary.

E. Disputed Terms from U.S. Patent No. 10,833,908

1. Preambles

"A mobile station comprising" – claims 1 and 21	
Dell	Preamble is not limiting.
Neo Wireless	Preamble is limiting.

"A method performed by a mobile station, the method comprising" – claim 11	
Dell	Preamble is not limiting.
Neo Wireless	Preamble is limiting.

Again, Dell agrees that the preambles for the '366, '450, and '951 patents are limiting, but despite their similarities, argues the preamble of the asserted '908 claims are somehow different. Op. Br., at 20–21. They are not. Just as in the other preambles, the '908 preambles do not, as Dell asserts, "merely identify" the claims as apparatus or mobile claims, but instead recite the essential structure of the inventions. For example, in Claim 11, the preamble provides additional structure by specifying that the method is to be performed by a mobile station. For the other independent claims, the preamble limits the scope of the invention by specifying that the apparatus claimed must be a mobile station rather than potentially including a fixed terminal of some kind (e.g., a desktop tower) within the scope of the claims. *See* Alberth Decl. at ¶¶ 55–56.

Furthermore, as Dell admits, several dependent claims rely on the presence of the term "mobile station" in the preambles to provide the antecedent basis for terms in the claim body. The claims, in other words, *require* the claimed apparatuses to be mobile stations. This "use of preamble terms to define positive limitations in the body of claims" evinces the "inventor's

intent that the preamble limit the scope of the claim." *Shoes by Firebug LLC v. Stride Rite Children's Group, LLC*, 962 F.3d 1362, 1268 (Fed. Cir. 2020).

Moreover, the '908 patent specifically addresses problems that occur when performing wireless communications with ***mobile hardware*** and noting advantageous functions that only apply in the context of wireless communications with mobile hardware.[8] For example, the specification notes at one point that the mobile station's ability to transmit to "other base stations" is "especially helpful in hand-off processes." '908 patent at 6:26–31. Indeed, the '908 patent claims address issues with random access signaling, which is especially important for mobile stations that need to reacquire connection with base stations as they move in and out of different cell coverages. Alberth Decl. at ¶ 57. The specification also delves into means by which interference between several mobile stations can be cancelled out. '908 patent at 7:8–23. This further evinces the inventor's intent that the claimed invention apply only to mobile stations, as interference is far less of a problem with fixed stations, whose locations can be predetermined to avoid interference issues.

Accordingly, the patentees chose to include "mobile station" in the preamble as a limitation and the Court should respectfully find the preambles for the '908 patent limiting.

III. CONCLUSION

For the foregoing reasons, Neo asks that the Court reject Dell's proposed constructions and indefiniteness contentions. Neo Wireless further respectfully submits for the Court's approval the parties' submission of agreed constructions of six terms in Dell's Exhibit A.

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[8] *See e.g.,* the numerous references to "a mobile station" in the specification: '908 patent at 5:36, 5:64, 5:67, 6:26, 6:29, 6:38, 6:48, 8:35, 8:39, 8:41, 8:43, 8:46, 8:48, 8:49, 8:55, 8:57, 8:65, 9:1, 9:5, 9:11, 9:25, 9:30, 9:36, 9:38, 10:14, 10:18, 10:20, 10:59, 10:61–62, 10:63, and 10:67.

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The undersigned certifies that the foregoing document was filed electronically with the Clerk of the Court using the CM/ECF system which will send notification of such filing to all counsel registered as Filing Users on this 18th day of November, 2021.

/s/ *Jason D. Cassady*
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