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

NEO WIRELESS, LLC,	§	
	§	
Plaintiff	§	
	§	
v.	§	NO. 6:21-cv-024-ADA
	§	
DELL TECHNOLOGIES INC. and DELL INC.,	§	
	§	
	§	
Defendants.	§	

DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEF

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The asserted patents in this case come from the work of inventors at Neocific, Inc. and relate to wireless communications. Specifically, the inventors at Neocific were involved in the development of wireless technology related to the 802.16, which is known as the "WiMAX" standard. *See* Dkt. 18 at Par. 26. The current owner of the patents, Plaintiff Neo Wireless LLC ("Neo"), is asserting five patents against Dell's LTE and 5G products.

Defendants Dell Inc. and Dell Technologies Inc. (collectively "Dell") disagree with Neo's understanding of the claims of the asserted patents, and the parties have identified several specific claim terms below for which there is a dispute for the Court to resolve. In particular, and for the reasons explained below, Dell does not agree that Neo's proposed "plain and ordinary meaning" construction resolves the parties' disputes and will aid the jury in understanding the scope of the claims.

The parties have also reached agreement on six terms, and Dell asks that the Court approve the stipulated meanings of these six terms as set out in Exhibit A.

I. ARGUMENT

A. Disputed Terms from U.S. Patent No. 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"*

"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" – claims 1 and 17	
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

The parties dispute the interpretation of the passive-voice "selected from" phrase in claims 1 and 17 of the '366 patent. A POSITA would understand that "selected from" in the phrase refers

to the selection of a ranging sequence ***by the mobile station***. Neo would prefer the Court issue no construction so that the claim is ambiguous as to the entity that performs the selection.

In the terminology of cellular transmission patents, mobile stations are the phones in customer's pockets; base stations communicate with mobile stations and are part of the network infrastructure that is typically not seen by everyday users of mobile stations. Claim 1 is an apparatus claim (directed to "a mobile station") and claim 17 is a method claim (directed to "a method for signal transmission by a mobile station"). The parties have agreed that the preambles for these claims, including references to the "mobile station," are limiting. As a result, the claims are directed to the mobile station (claim 1) or the actions taken by the mobile station (claim 17).

Although the claims also recite a "base station" in the preamble (which, again, the parties agree is limiting), the body of the claims are specifically drawn to the mobile station. '366 patent at 7:6-7 ("the mobile station comprising:"), 8:40-41 ("a method for signal transmission by a mobile station"). Thus, all of the actions and requirements in the body of claims 1 and 17 are necessarily the actions and requirements of the mobile station — including the requirement that the ranging signal "is formed from a ranging sequence *selected from* a set of ranging sequences." *Id*. at 7:16-17 and 8:49-50. As a matter of both law and logic — and considering that the claim limitations are set out in the body of a claim directed to a "mobile station" — the "selected from" action must necessarily be performed by the mobile station.

After the preamble, the only other device that is referenced in the body of the claims is the "serving base station." *Id*. at 7:8-9 and 8:43-44. But even though the claims refer to the "serving base station" as the ***target*** for transmissions described in the claims, the actions in the body of the claims are specifically performed by the "mobile station." Consistent with the claim language, the specification also states that the mobile station selects the ranging sequence. '366 patent at 3:45-

47 ("A mobile station chooses a ranging sequence for random access and uses the sequence to identify itself in the initial communication with a base station."). To be clear, this is not just one embodiment among many. The above-quoted passage in column 3 is the ***only*** disclosure for selecting (or choosing) the ranging sequence. Accordingly, because "the claims cannot be of broader scope than the invention that is set forth in the specification," the claims must also be understood such that the "selected by" requirement in the claims is performed by the mobile station. *See On Demand Mach. Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1340 (Fed. Cir. 2006).

In the alternative, if "selected from" is interpreted to include selection by a device ***other than*** the mobile station, claims 1 and 17 would be indefinite under Section 112. *See Ruckus Wireless, Inc. v. Innovative Wireless Sols., LLC*, 824 F.3d 999, 1004 (Fed. Cir. 2016) ("Because the specification makes no mention of wireless communications, construing the instant claims to encompass that subject matter would likely render the claims invalid for lack of written description."). First, there is no disclosure in the patent of an embodiment in which a device *other than the mobile station* selects the ranging sequence, and there is certainly no disclosure in the patent of how such a device would operate. An open-ended construction in which any device could select the ranging sequence would result in claims 1 and 17 that do not have written description support in and are not enabled by the specification. *Id.*; *see also AK Steel Corp. v. Sollac & Ugine*, 344 F.3d 1234, 1241 (Fed. Cir. 2003) ("a patent specification must enable the full scope of a claimed invention"). Indeed, it is unclear how such an embodiment would work because the "ranging sequence" is used to ***establish*** a connection with a base station. *See* '366 patent at 1: 24-27 ("ranging" is one of the two typical steps in "random access for establishing communication with a base station"). Before the "ranging" step is performed and a connection is established, it is unclear how the base station could "select" the ranging sequence for the mobile station to use.

Second, if the mobile station does not perform the selecting step, a POSITA would not know with any certainty if a given ranging sequence used by the mobile station would meet the "selected by" limitation and claims 1 and 17 would be indefinite. *See Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1255 (Fed. Cir. 2008) ("When a proposed construction requires that an artisan make a separate infringement determination for every set of circumstances in which the composition may be used, and when such determinations are likely to result in differing outcomes (sometimes infringing and sometimes not), that construction is likely to be indefinite."). Consider, for example, a mobile station with a pre-programmed specific "ranging sequence" used for all "ranging signals" — a POSITA could not know whether that "ranging sequence" had been "selected from a set of ranging sequences" by the programmer (or by anything else). Because the full history and origin of a given "ranging sequence" may not be known under Neo's construction, a POSITA could not determine with reasonable certainty whether a device or method would infringe the claims, and the claim would be indefinite as a result. To avoid Section 112 indefiniteness and remain true to the language of the claims and the specification, Dell respectfully submits that "selected from" should be understood to require that the mobile station select the ranging sequence.

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

"exhibits a low peak-to-average power ratio in the time domain" – claims 1 and 17	
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."

"Low" is a term of degree. Ex. D, Declaration of James Proctor in Support of Defendants' Opening Claim Construction Brief ("Proctor Decl.") at Par. 23. Whether a particular parameter is

low enough (or too high) to qualify as "low" cannot be determined unless there is some standard in the patent itself for making that determination. "Although terms of degree are not inherently indefinite, the patent must provide some standard for measuring that degree such that the claim language provides enough certainty to one of skill in the art when read in the context of the invention." *GE Lighting Sols., LLC v. Lights of Am., Inc.*, 663 F. App'x 938, 940 (Fed. Cir. 2016) (internal quotations and alterations omitted, quoting *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015)). In particular, the patent must provide an "objective boundary" for the term of degree. *Id.*; *see also Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370–71 (Fed. Cir. 2014). Here, the '366 patent does not provide an objective boundary for determining if the peak-to-average power ratio is "low," and the claim is indefinite as a result. Proctor Decl. at Pars. 24-28. There is no guidance in the claims or the specification for the meaning of "low" or whether a peak-to-average power ratio in the time domain qualifies as "low."

Beginning with the claims, neither claim explains what "low" means. Claims 1 and 17 only recite "exhibit[ing] a low peak-to-average power ratio in the time domain" as one of four requirements for the claimed "ranging signal." '366 patent at 7:13-26 and 8:49-59. The other three requirements in the claim for the "ranging signal" are all unrelated to the peak-to-average power ratio for the ranging signal. Proctor Decl. at Par. 24. Thus, the claims themselves do not include an objective boundary for determining whether the peak-to-average power ratio in the time domain is "low." *Id.*

The specification also does not provide any guidance. The only discussion of this feature in the specification is in two sentences in column four:

> In one embodiment of the implementation, the ranging sequence is designed such that its corresponding time-domain signal exhibits relatively low peak-to-average power ratio. This improves the power efficiency of the mobile station transmission power amplifier.

’366 patent at 4:34-38. Again, there is nothing here that would provide an objective boundary to evaluate whether a peak-to-average power ratio in the time domain is “low.” Proctor Decl. at Par. 25. Instead, this language actually emphasizes the inherent subjectivity in the use of “low” by referring to a “relatively low” ratio. This, of course, raises the question: relative to what? The patent does not tell us.

Similarly, the statement in the specification that the “relatively low” peak-to-average power ratio “improves the power efficiency” does not provide an objective boundary for the claimed “low peak-to-average power ratio.” First, the described benefit is only associated with “relatively low” ratios, and it is not clear whether the claimed standard of “low” would be the same as “relatively low.” Second, even assuming that the claimed “low” is coextensive with “relatively low” in the specification, this stated benefit does not give any objective boundary to “low” because the benefit, “improv[ing] power efficiency,” is itself a statement of relative degree. Proctor Decl. at Par. 26. Because there is no guidance about what improvement in power efficiency would be sufficient, the statement in the specification about power efficiency does not add any certainty as to the meaning of “low.”

There is no other discussion in the specification of peak-to-average power ratios. Although the specification does describe examples of ranging sequences (*see* Table 1 at 4:24-31), there is nothing in the specification that indicates whether or not these sequences would be considered to have a “low” peak-to-average power ratio. Proctor Decl. at Pars. 27-28. Without a more certain connection between these examples and the idea of a “low” peak-to-average power ratio, these examples do not provide an objective boundary. *See Interval Licensing*, 766 F.3d at 1373 (finding that term of degree lacked an “objective boundary” where the “phrase has too uncertain a relationship to the patents’ embodiments.”). Because the ’366 patent does not provide any

objective boundary for the claimed term of degree, "low," the claims of the '366 patent that include the phrase "low peak-to-average power ratio in the time domain" are indefinite.

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

The parties agree that the preambles for the '366, '450, and '941 patents are limiting. However, unlike those patents, the preambles for the '517 patent do not "breathe[] life and meaning into the claim." *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1118 (Fed. Cir. 2004). Instead, these preambles state an intended purpose, and statements of intended purpose are not limiting. *See Arctic Cat Inc. v. GEP Power Prod., Inc.*, 919 F.3d 1320, 1328 (Fed. Cir. 2019) ("In particular, the rule against giving invention-defining effect to intended-use preamble language reflects a longstanding substantive aspect of the patent statute—specifically, the well settled fundamental principle that the recitation of a new intended use for an old product does not make a claim to that old product patentable." (internal quotation marks omitted)). Finally, although claims 1 and 13 both include "a mobile device" in the preamble and "the mobile device" in the body of the claims, "antecedent basis alone is not determinative of whether a preamble is

limiting." *Shoes by Firebug LLC v. Stride Rite Children's Grp., LLC*, 962 F.3d 1362, 1368 (Fed. Cir. 2020). At a minimum, the use of the phrase "a mobile device" in the preamble as an antecedent basis for "the mobile device" in the body of the claim would not automatically cause the entire preamble to be limiting. *See Cochlear Bone Anchored Sols. AB v. Oticon Med. AB*, 958 F.3d 1348, 1355 (Fed. Cir. 2020) ("Although the preamble term 'a patient' may provide antecedent basis for claim 1's later recitation of 'the patient,' that is not the preamble language [the patent owner] argues is limiting."). At most, the only portion of the preamble that would become limiting because of the use of "the mobile device" in the body of the claim is the phrase "mobile device" in the preamble.

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"

"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" – claim 1	
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"

"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" – claim 13	
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

Dell's proposed constructions for these two similar phrases are necessary to explain that these claims recite multiple requirements for the received "scheduling information," and these multiple requirements cannot be satisfied by pointing to multiple different pieces of scheduling information. The Federal Circuit has aptly explained this issue by analogy: "For a dog owner to have 'a dog that rolls over and fetches sticks,' it does not suffice that he have two dogs, each able to perform just one of the tasks. *In re Varma*, 816 F.3d 1352, 1363 (Fed. Cir. 2016). To continue the Federal Circuit's analogy, the dog in this claim is the singular "scheduling information" that must meet three requirements: (1) it must be "from a serving base station," (2) it must "indicat[e] an allocation of airlink resources" for the "first RF band," and (3) it must "indicat[e] an allocation of airlink resources" for the "second RF band." It is not sufficient for multiple different pieces of scheduling information collectively to satisfy these requirements: the claims require that ***the*** scheduling information meet all three.

Neo, however, has taken the position that multiple different pieces of scheduling information can satisfy these requirements. That is, Neo contends that one piece of scheduling information can indicate the allocation for resources in the first RF band, while a second piece of information can indicate the allocation of resources. This interpretation of the claim language is foreclosed by *In re Varma*, and we request that the Court reject Neo's interpretation of the claim.

Dell's proposed construction is also supported by the specification. The specification describes a "Scheduler" that makes scheduling decisions for two channels being used for transmission: a "broadcast channel" and a "regular channel." '517 patent at 8:23-35. This scheduler "allocates the air link resources to ***both*** channels." *Id*. at 8:31-32 (emphasis added). The description in the specification of a single "scheduler" to allocate resource for two channels is

consistent with the language in the claims requiring a single item of scheduling information that allocates resource on the first and second RF bands.

Dell's proposed constructions clarify that the claims require a single item of "scheduling information" that meets all three requirements in the claims: (1) "from a serving base station," (2) "indicating an allocation of airlink resources" for the "first RF band," and (3) "indicating an allocation of airlink resources" for the "second RF band."

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"

"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" – claims 1 and 13	
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

The parties disagree about the significance of the "frame boundaries" phrase in this claim term. Under the plain and ordinary meaning of "frame structure having [] frame boundaries" occurring in two separate signals, the two recited signals must each include a frame. The claims require two complete frames: one in the first signal and one in the second signal. The claim language also concerns the "boundaries" of a frame. Everyone understands that the boundaries of an area define the entire area. For example, the boundaries of a football field or a baseball diamond define the area of the football field or baseball diamond. Thus, if the "boundaries" of the frame are included in the frame structure, then it must naturally be the case that an entire frame is in that frame structure. This understanding is entirely logical and matches the common usage of the words in the claim.

Here, the claimed frame boundaries are defined in the time domain, and that the claims recite "first frame boundaries" ***plural*** and "second frame boundaries" ***plural.*** '517 patent at 18:40-43 and 20:20-23 (boundaries are "aligned in time.") There are only two boundaries possible for frames in the time domain; a beginning of the frame at one point in time, and an end of the frame at some later point in time. And, because the claims require the frame structures to each have a plurality of time-domain boundaries, the frame structure necessarily includes both the beginning and the ending of these frames, meaning that the first and second signal must each include a complete frame. The specification also confirms that "boundary" is not used in any way that is unusual or extraordinary. Rather, the specification also confirms that "frame boundary" is being used in its ordinary sense in the '517 patent, to describe the edges of a complete frame. *See* '517 patent at 11:15-16 ("All the base stations are aligned in transmission time at the frame boundary.").

Lastly, the prosecution history confirms that the "frame boundaries" terminology in the claims was meant to indicate that the first and second signals must each include at least one complete frame. Specifically, in its February 5, 2018 Office Action response, the applicant distinguished the prior art's "single-frame and single-frequency-band system" 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 only logical basis for the applicant's assertion during prosecution that the pending claims recite a "two-frame […] system" is the reference in the claims to the "first frame boundaries" and "second frame boundaries." And, given that the patentee used the "two-frame" nature of the claimed invention to distinguish cited art, the claims must be understood to include a "two-frame" system. *See Poly-Am., L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1137 (Fed. Cir. 2016) (finding "a clear and unmistakable disavowal" where patentee relied on a feature to distinguish cited prior art).

5. "traffic characteristics"

"traffic characteristics" – claims 1 and 13	
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

A POSITA would not understand the phrase "traffic characteristics" with reasonable certainty. The specification of the '517 patent does not use the phrase "traffic characteristic." The only reference to "traffic" is for "applications with a variety of traffic patterns" ('517 patent at 5:11-12), and the only use of "characteristics" is in reference to "channel characteristics" (*id.* at 7:54 and 9:30). *See also* 1:52-54 (". . . channels that have different characteristics"), 4:13-14 (". . . channels have different characteristics"), 9:16-17 (". . . channels in the Cellular System have different characteristics."). It is apparent that the term "traffic characteristics" was coined by the prosecuting attorney and without reference to the content of the application as it was originally filed.

To the extent the "traffic characteristics" can be understood, a POSITA would understand that this term refers to the type of information (or "traffic") being transmitted in the wireless communication. This understanding comes first from the language of the claims, which states that the "first subframe configuration being associated with different traffic characteristics than the second subframe configuration." The emphasis in the claim on "*different* traffic characteristics" between two subframes indicates to the reader that the subframes do not have the same traffic types. In addition, as shown in Figure 3, the subframes in the specification are specifically associated with different types of traffic, *e.g.*, voice, data, or video. *See* '517 patent at 5:19-21. Thus, if "traffic characteristics" has any meaning, it must refer to the type of traffic being transmitted, as shown in Figure 3.

Although Neo does not disagree that "traffic" refers to the information being transmitted, Neo maintains that "characteristics" should not be limited to any specific meaning and may comprise any feature of the information being transmitted. Dell's construction, however, uses "traffic" in the same way as that term is used in the specification, which is to describe the *type* of traffic at issue. To the extent that the Court construes "traffic characteristics" as not indefinite and having an understandable meaning, "traffic characteristics" should be construed as "the type of traffic being transmitted (e.g., voice, data, video)."

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"

"the antenna transmission scheme comprising a transmission diversity scheme or a multiple-input multiple-output (MIMO) scheme" – claims 8 and 13	
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

Dell's proposed construction for "the antenna transmission scheme comprising a transmission diversity scheme or a multiple-input multiple-output (MIMO) scheme" is necessary to reflect statements by the applicants about the meaning of claim amendments made during prosecution of the '941 patent. During prosecution, the applicants amended all pending claims as set out below:

> the mobile station-specific transmission parameters indicate an ~~multiple-input multiple-output (MIMO)~~antenna transmission scheme and a corresponding subchannel configuration, the antenna transmission scheme comprising a transmission diversity scheme or a multiple-input multiple-output (MIMO) scheme and the corresponding subchannel configuration characterized by distributed subcarriers or localized subcarriers in the frequency domain; and

Ex. C (April 12, 2018 Office Action Response) at 2-6. This amendment had at least two effects. First, instead of the "transmission parameters" indicating a MIMO scheme (only), the "transmission parameters" indicate an "antenna transmission scheme" that comprises "a transmission diversity scheme" ***or*** a MIMO scheme. Second, the amendment specified that the indicated "subchannel configuration" must be "characterized by distributed subcarriers or localized subcarriers in the frequency domain."

The patentee explained that these amendments were made to distinguish the claimed invention from the cited Wilson prior. With respect to the "antenna transmission scheme," the patentee explained the purpose as follows:

> Wilson specifically limits its teaching to a MIMO system. In contrast, applicant has amended the pending independent claims 26, 33, 35 and 42 to indicate that applicant's system transmits an "antenna transmission scheme," wherein the antenna transmission scheme comprises "a transmission diversity scheme or a multiple-input multiple-output (MIMO) scheme." In other words, applicant's system allows for its use in systems that rely on transmission diversity schemes other than MIMO.

Ex. C at 9. The applicant explained that the purpose of the amendments was to overcome the Wilson prior art. The applicant identified Wilson specifically and provided a clear and understandable explanation of how the amended claims were different from Wilson.

With respect to the "antenna transmission scheme" part of the amendment, the intent is unmistakable: the applicants stated that the purpose of these amendments was to distinguish the claimed invention from the Wilson system that was limited to MIMO. Ex. C at 9. In this lawsuit, Neo is refusing to abide by the amendment made during prosecution to distinguish Wilson. Instead, Neo is proposing a "plain and ordinary meaning" construction in this lawsuit so that Neo can rely on the "or" in the claim language for an argument that the claims are satisfied if the antenna transmission supports a MIMO scheme, *regardless* of whether the antenna transmission supports a "transmission diversity scheme." Neo's interpretation would nullify the amendment and the argument made by the applicants to distinguish Wilson. *Id.* ("Wilson specifically limits its teaching to a MIMO system."). If Dell's construction is not adopted, the applicants (and Neo) will have succeeded in both (a) narrowing its claims for the sake of allowance; and (b) later broadening those claims in a way that does not respect and ignores the narrowing amendment. This conduct should not stand.

Importantly, Dell's construction is taken nearly verbatim from the patentee's own description of this amendment: "In other words, applicant's system allows for its use in systems that rely on transmission diversity schemes other than MIMO." *Id.* Dell's proposed construction confirms that the antenna transmission scheme supports use in both a MIMO and non-MIMO setting. This modification is appropriate to be consistent with the language of the claim, which refers to both transmission diversity scheme and a multiple-input multiple-output (MIMO), and the applicant's explanation offered with the amendment. Although the patentee distinguished the claimed invention from MIMO-only prior art, the overall purpose of the amendment was to confirm that the claimed invention must support MIMO *and* other schemes.

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"*

"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" – claims 8 and 13	
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

Dell's proposed construction for "the corresponding subchannel configuration characterized by distributed subcarriers or localized subcarriers in the frequency domain" is necessary to conform the claim scope to the patentee's stated intent during prosecution. As noted above, the patentee added this language to all of the independent claims during prosecution:

> the mobile station-specific transmission parameters indicate an ~~multiple-input-multiple-output (MIMO)~~antenna transmission scheme and a corresponding subchannel configuration, the antenna transmission scheme comprising a transmission diversity scheme or a multiple-input multiple-output (MIMO) scheme and the corresponding subchannel configuration characterized by distributed subcarriers or localized subcarriers in the frequency domain; and

Ex. C at 2-6. The patentee then explained that the purpose of adding a description of "the corresponding subchannel configuration" was to distinguish the cited Wilson reference:

> [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.

Ex. C at 9. This statement by the patentee confirms that the new "characterized by" language describing the "corresponding subchannel configuration" was intended to specify the content of subchannel configuration information transmitted by the system.

Neo's proposal to rely on the plain and ordinary meaning of the claims would potentially contravene this plain statement of the patentee's intent. Although the claim requires the transmission parameters to indicate the subchannel configuration, there is concern that Neo is advancing a "plain and ordinary meaning" construction to give Neo flexibility to argue that the "subchannel configuration" need not identify "whether the subchannels are distributed subcarriers or localized subcarriers in the frequency domain." *See* Ex. C at 9. This would improperly ignore the patentee's attempt to distinguish the Wilson prior art on this feature, and again it would allow the patentee to narrow the claim for allowance while still seeking to enforce the claim broadly. In contrast, Dell's construction correctly preserves the distinction that the applicant introduced between the cited prior art and the claims.

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

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

"the segment having a starting time-frequency coordinate" – claim 7	
Dell	Information that identifies the starting time-frequency offset for the segment
Neo Wireless	Plain and ordinary meaning, and no construction necessary

The parties dispute whether the claims require an identifier of the starting point for each time-frequency segment. A POSITA would understand that the claims do in fact require the use of a piece of information identifying the starting time and starting frequency for the segment. Thus, the recited "time-frequency coordinate" is a particular identifier of the segment.

The specification of the ’450 patent explains that “time-frequency coordinates” are used to characterize “time-frequency resources.” *See* ’450 patent at 5:54-6:2. “Time-frequency resources” refers to airlink resources for wireless communications, which can be grouped together or logically mapped. *See id.* at 5:6-22. These physical resources can be grouped together into “segments” and “zones.” *Id.* at 5:43-47 and 6:12-13 (“For example, V_1 is the resource segment to be used for the first voice packet stream…”). An example map of these time-frequency resources, arranged into “zones” and “segments” is shown in Figure 6 of the ’450 patent:

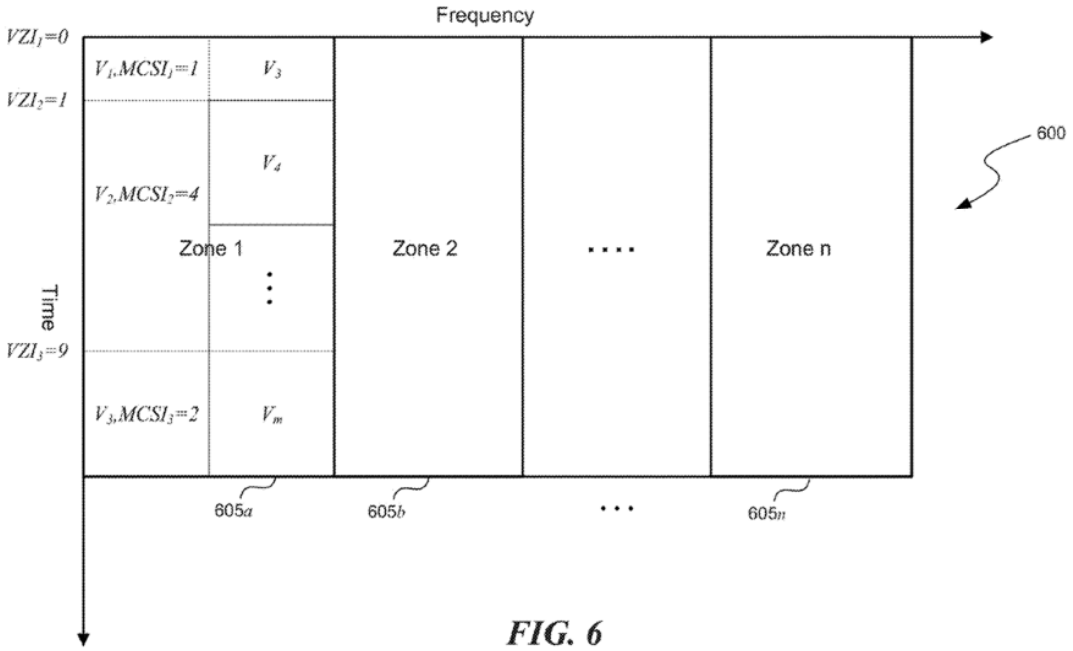

FIG. 6

The specification explains that a “starting time-frequency coordinate” (along with the “ending time-frequency coordinate”) can be used to identify the packet streams associated with different zones of resources. *Id.* at 5:57-61. These coordinates identify the offsets for the starting and ending time-frequency resource relative to the zone. *See id.* at 6:24-29 (describing use of starting and ending time-frequency coordinates as two-dimensional offset). The specification

states that the time coordinate used "can be one or multiple OFDM symbols" and the frequency coordinate used "can be one or multiple subcarriers." *Id*. at 61-64.

In the '450 patent "time-frequency resources" and "time-frequency coordinates" are not the same. A "time-frequency resource" is a physical resource unit in the '450 that can be used for communication. '450 patent at 4:16-27 and 5:17-22. In contrast, a "time-frequency coordinate," is a location on a logical map (*e.g.*, Figure 6). The coordinate is information ***describing*** a physical time-frequency resource. *Id*. at 5:54-64. Put another way, every segment of time-frequency resources naturally has to have a starting time-frequency resource, which is the first physical resource in that segment. The starting time-frequency coordinate for a segment is a piece of information that identifies the starting time-frequency resource for the segment.

The claims use "starting time-frequency coordinate" in the same way: as a piece of information that describes something about the wireless transmission. This is made clear from the way the claims repeatedly refer to the "starting time-frequency coordinate" as something the mobile station uses to determine features of a transmission. Independent claim 7 requires that the mobile station must be configured to "recover the information from the received signal ***using the starting time-frequency coordinate*** and N in conjunction with the received identifier." '450 patent at 13:31-34. Dependent claims 8, 9, and 10 similarly require that the "starting time-frequency coordinate indicates" various features of the segment. *Id*. at 13:34-42. Logically, in order for the mobile station to use the "starting time-frequency coordinate" in this way (and consistent with the specification), the mobile station must first receive the "starting time-frequency coordinate" as an affirmative piece of information.

Neo's suggestion to rely on the "plain and ordinary meaning" of "starting time-frequency coordinate" opens the possibility of confusing the "starting time-frequency coordinate" with the

"starting time-frequency ***resource***." As explained above, the '450 patent does not describe any use of the starting ***resource*** as an identifier for other features of the transmission; the patent requires using the starting ***coordinate***. *Id.* at 5:57-64. In this way, the claims are not satisfied merely by the fact that a segment must contain a first time-frequency resource. There must be some information identifying the starting time-frequency offsets for that first resource. That relative position on the time-frequency map is what the '450 patent is referring to as a "time-frequency coordinate."

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

Similar to the preambles for the '517 patent, Dell again disagrees that the preambles for the '908 patent "breathe[] life and meaning into the claim." *Innova/Pure Water*, 381 F.3d at 1118. Instead these short preambles merely identify the claims as apparatus claims or method claims, respectively. *See Arctic Cat.*, 919 F.3d at 1328 (explaining basis for rule against finding preambles limiting where preamble is used "only to state a purpose or intended use for the invention"). This is not sufficient to make these preambles limiting.

Although claims 5, 15 and 21 in the '908 patent, recite "the mobile station," and thus these dependent claims appear to rely on the preambles for antecedent basis, "antecedent basis alone is not determinative of whether a preamble is limiting." *Shoes by Firebug*, 962 F.3d at 1368. Moreover, most of the claims do ***not*** rely on the preamble to provide antecedent basis for anything in the body of the claims. *See* '908 patent at claims 1-4, 6, 9-14, 16, and 19-20. Even if the preamble is held to be limiting for claims 5, 15, and 21 because those claims recite "the mobile station," that analysis is not applicable to the remaining claims. *See Arctic Cat*, 919 F.3d at 1329 n.5 (declining to address whether other claims relying on similar preamble statements for antecedent basis caused those other preambles to be limiting).

II. CONCLUSION

For the foregoing reasons, Dell asks that the Court enter Dell's proposed constructions and the parties' stipulated constructions.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that all counsel of record who are deemed to have consented to electronic service are being served October 28, 2021, with a copy of this document via the Court's CM/ECF system.

/s/ *Roger Fulghum*
Roger Fulghum