UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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DELL INC. and DELL TECHNOLOGIES INC.,
Petitioner,

v.

NEO WIRELESS LLC,
Patent Owner.

_____

Case IPR2021-01486
Patent 10,447,450

_____

PATENT OWNER'S PRELIMINARY RESPONSE

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I. INTRODUCTION

Petitioner has not met its burden to show in the Petition sufficient likelihood that it will prevail at trial, on its single raised ground, as to any claim of the patent.

Focusing on the elements of claim 1, this Response explains in Section III why Petitioner has not met its burden of prevailing on any challenged claim under the sole Ground in the Petition. Section IV explains why the Petition should also be denied under 35 U.S.C. § 325(d) because the Petition presents the same art and arguments described and distinguished in the ’450 patent itself. Next, Section V explains why, separate and aside from those fatal defects, there is another strong basis to deny the Petition under 35 U.S.C. § 314(a) considering the advanced stage of the co-pending litigation between Petitioner and Patent Owner based on the patent. Finally, Section VI presents further reasons why the Petition should be denied because of Petitioner’s inconsistent positions on how the claim must be construed.

The technical arguments in this Response, while themselves sufficient in view of the other evidence in the record to show that the Petition does not meet the criteria for institution, are still further supported by the expert testimony of Dr. Alberth (Ex. 2001).

For the reasons summarized above, as further detailed below, the institution of a trial based on the Petition should be denied under 35 U.S.C. § 314(a) and/or § 325(d), and the binding precedent of the Office and courts that applies.

II. CLAIM CONSTRUCTION

In the co-pending litigation, Patent Owner contends that the claim term "the segment having a starting time-frequency coordinate" is entitled to its plain and ordinary meaning. Ex. 2014 [Responsive Claim Construction Br.] 25-26.

III. THE PETITION FAILS TO ESTABLISH A REASONABLE LIKELIHOOD OF SUCCESS AS TO ANY CHALLENGED CLAIM.

The Petition concedes that the claimed invention is novel, mounting only a single proposed ground of unpatentability against the claims based on a theory of obviousness under pre-AIA 35 U.S.C. § 103. The art references raised by that Ground, however, do not even suggest the one-dimensional "time-frequency" approach to allocation that is at or near the heart of the claimed invention. For that reason, as well as others that could be demonstrated if necessary, should further review of the claims be called for, the Petition's sole Ground fails on the merits to satisfy the minimum standard for institution of review under 35 U.S.C. § 314(a).

Although this discussion focuses on the limitations of independent claim 1, these arguments apply equally to independent claims 7 and 13, which include analogous limitations. The Petition does not present independent arguments

regarding claims 7 and 13 as to these limitations, referring instead only to its arguments presented as to the analogous limitations in claim 1. Pet, 78-82. Petitioner therefore concedes that if institution is not supported as to these limitations for claim 1, they are therefore not supported as to claims 7 and 13.

A. The Inventors Introduced An Innovative One-Dimensional "Time-Frequency Resource Unit" Defined By "A Starting Time-Frequency Coordinate" That Reduces The Overhead Previously Required To Transmit And Recover Data In A Multi-Carrier Packet Communication System.

As an initial matter, it is helpful to orient the Board as to the reasons the inventors of the Patent addressed the use of the recited "time-frequency resource units" and "starting time-frequency coordinate" in the way they did.

"[I]n a wireless system based on the IEEE 802.16 standard ('WiMAX'), multiple packet streams are established for each mobile station to support different applications." Ex. 1001 ['450 Patent] 1:42-45; *accord id.*, 5:34-37. How are resources ordinarily allocated for those streams? The patent explains that "[a]t the medium access control (MAC) layer, each packet stream is mapped onto a wireless connection," and the "MAC scheduler allocates wireless airlink resources to these connections." *Id.*, 1:45-48; *accord id.*, 5:36-39. So, "various applications carried in packet streams may be spread throughout the available time-frequency resource." *Id.*, 5:39-41. And "[d]ue to the fact that different applications have

different resource requirements, ***the allocated resource region is irregular from connection to connection***."[1] *Id.*, 1:66-2:2.

To accommodate this "irregular[ity]" under the IEEE 802.16 standard, *id.*, *four* parameters are used to allocate resources in the *two* independent dimensions of frequency and time. Ex. 2001 [Alberth Decl.] ¶ 25. "[R]esource allocation is identified in the ***time*** domain scale with a start symbol offset (8 bits) and a symbol length (7 bits) and in the ***frequency*** domain scale with a start logical subchannel offset (6 bits) and a number of allocated subchannels (6 bits)." Ex. 1001 ['450 Patent] 1:62-66.

The inventors appreciated the "significant control overhead" needed to communicate these values from a base station to mobile stations. *See id.*, 1:51-52; Ex. 2001 [Alberth Decl.] ¶ 26. Addressing these issues, they conceived as an aspect of their invention "an alternative way of managing multiple packet streams" to "overcome the inefficiencies associated with maintaining" mappings under the IEEE 802.16 standard. Ex. 1001 ['450 Patent] 5:41-43; Ex. 2001 [Alberth Decl.] ¶ 26.

Instead of spreading the various applications carried in packet streams throughout the available resource region, per the IEEE 802.16 standard, the

[1] All emphasis in this Paper has been added, unless stated otherwise.

inventors took a different approach: they "group[ed] like applications together." Ex. 1001 ['450 Patent] 5:43-53. The '450 patent's FIG. 6, reproduced here, illustrates this innovative grouping approach:

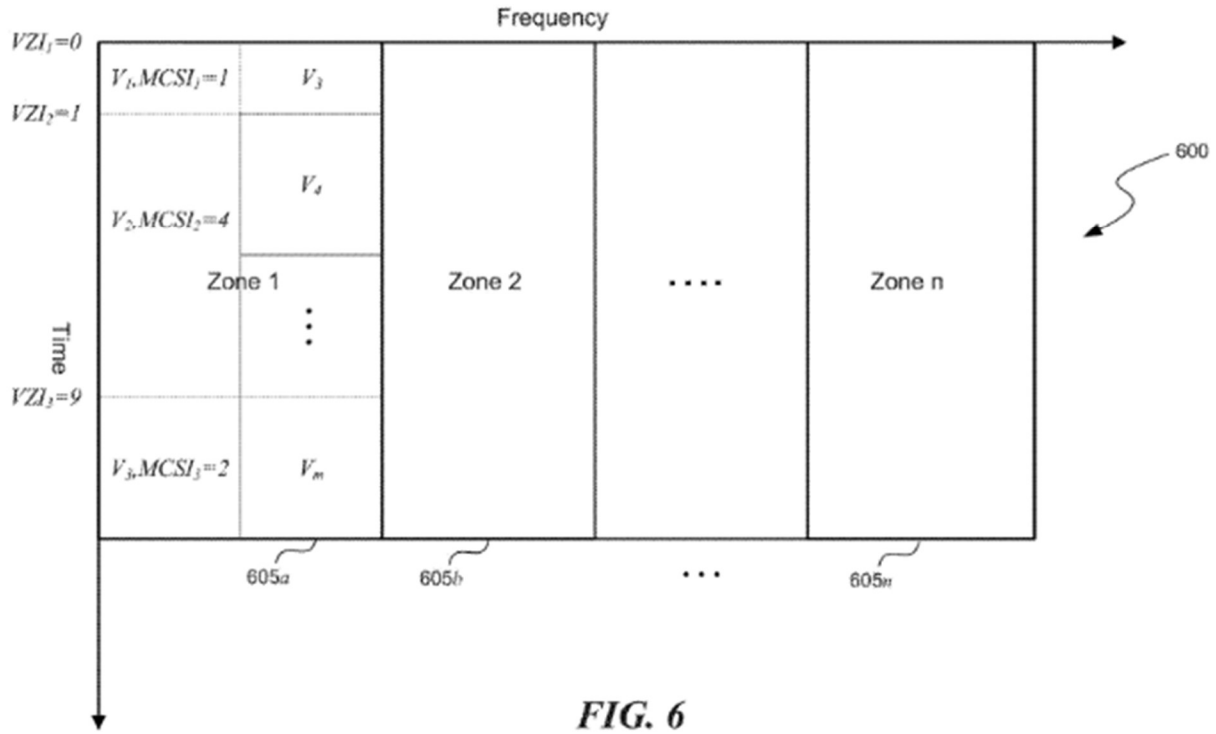


FIG. 6

Ex. 2001 [Alberth Decl.] ¶ 27. As shown above, "zones" are designated for particular applications. Ex. 1001 ['450 Patent] 2:48-49. In this example, Zone 1 (605a) is associated with voice applications and Zone 2 (605b) is associated with video applications. Ex. 2001 [Alberth Decl.] ¶ 28; Ex. 1001 ['450 Patent] 5:46-49.

The innovative grouping by common applications was a crucial insight that allowed the inventors to reduce control overhead. Ex. 2001 [Alberth Decl.] ¶ 29. Grouping by common application allowed the inventors to establish common

resource requirements among all users, which in turn allowed the inventors to map the time-frequency resource by one-dimensional "time-frequency resource units" designed to fit these common resource requirements. *Id.*

The inventors realized that, by grouping like applications, they could effectively transform two independent dimensions (time and frequency) into a single dimension (time-frequency) measured in *basic resource units* configured to fit the application resource requirements. *Id.* (citing Ex. 1001 ['450 Patent] 6:49-50, 7:12-30). As shown in FIG. 6 of the '450 patent, Zone 1 is "further subdivided into time-frequency [resource] segments," V_1, V_2, V_3, V_4, …, V_m, each representing a packet stream associated with an application for Zone 1. Ex. 1001 ['450 Patent] 6:3-6, 6:10-11, 6:22-23. Each time-frequency resource segment can be expressed in terms of a number (N) of "basic resource unit[s]," each having a fixed number of symbols and subcarriers. *Id.*, 6:9-10, 6:49-50. In the example embodiment, for instance, a basic resource unit has 80 raw symbols in a certain number of subcarriers. *Id.*, 6:9-10, TABLE 1; Ex. 2001 [Alberth Decl.] ¶ 30.

As a non-limiting example, TABLE 1 of the '450 patent, reproduced below, provides a value (an "MCS index" or MCSI) that indicates how many basic resource units ("Units") are in any given time-frequency resource segment as used in a VOIP application:

MCSI	Modulation	Coding rate	Information bits	Raw symbols	Units
1	16QAM	½	160	80	1
2	QPSK	½	160	160	2
3	QPSK	¼	160	320	4
4	QPSK	⅛	160	640	8

Ex. 1001 ['450 Patent] 6:56-58 ("For a known vocoder, MCSI … implies the number of … resource units required for a voice packet."). FIG. 6, above, shows, for example, that time-frequency resource segment V_1 has an MCS index $MCSI_1$ of 1. If one follows MCSI over to Units in TABLE 1, one sees that this corresponds with **one** basic resource unit. Ex. 2001 [Alberth Decl.] ¶ 31. As for time-frequency resource segment V_2, it has an MCS index $MCSI_2$ of 4. That corresponds with **eight** basic resource units, as shown. *Id.*

In this example embodiment, the number of Units N=2, 4, or 8 refers to a case where the packet stream corresponding to the time-frequency resource segment is transmitted using QPSK modulation using rate-1/2, 1/4, or 1/8 coding. Ex. 1001 ['450 Patent] 6:45-62; Ex. 2001 [Alberth Decl.] ¶ 32.

In the voice context, "[f]or applications such as voice-over-IP (VOIP), the payload of an 8 Kbps voice codec is 20 bytes in every 20 ms." Ex. 1001 ['450 Patent] 2:8-10. TABLE 1, above, shows a specific manner to utilize the invention to make time-frequency resource units that support the VOIP requirements faced

by each VOIP user. Ex. 2001 [Alberth Decl.] ¶ 35; *see generally* Ex. 1001 ['450 Patent] 7:28-54. And for TABLE 1, the time-frequency resource units are said to be designed to carry a single VOIP packet that comprises 160 information bits. Ex. 1001 ['450 Patent] 6:56-58; *see also* Ex. 2001 [Alberth Decl.] ¶ 35. Granularity in allocating resources at a smaller scale than a single VOIP packet is not required in a VOIP application and is wasted overhead. Ex. 2001 [Alberth Decl.] ¶ 35. Creating a time-frequency resource unit that perfectly fits a VOIP packet for voice applications *and* allows a one-dimensional allocation strikes the balance between the exact amount of precision required for the VOIP application with the minimum amount of overhead, as discussed next. *Id.*

By effectively transforming the two independent dimensions of time and frequency into one time-frequency dimension measured by a basic resource unit having a fixed number of symbols in a fixed number of subcarriers that fits the resource requirements of a given application, the inventors achieved an advantageous reduction in the amount of data required to allocate resources. Ex. 1001 ['450 Patent] 7:28-30 ("Using basic resource units as the granularity of a location offset to the packet stream reduces the number of bits required to represent its location with[in] the zone 605a."); Ex. 2001 [Alberth Decl.] ¶ 36. In the foregoing example, provided one knows the identity (*m*) of the relevant packet stream (Ex. 1001 ['450 Patent] 6:3-21), one can fully describe the packet stream

with **(1)** the value of its one-dimensional time-frequency starting coordinate (VZI_m), which defines where the packet stream's associated time-frequency resource segment (V_m) starts in the zone both in time *and* frequency (*id.*, 7:10-27); and **(2)** the number of time-frequency basic resource units in the time-frequency resource segment (based on $MCSI_m$), which defines where V_m ends, again both in time *and* frequency (*id.*, 7:7-39). Ex. 2001 [Alberth Decl.] ¶ 37. In contrast, as seen above, the pre-existing IEEE 802.16 standard required *four* parameters in two independent dimensions to allocate resources: a start symbol offset and a symbol length in the time dimension, and a start logical subchannel offset and a number of allocated subchannels in the frequency dimension. Ex. 1001 ['450 Patent] 1:62-66.

The invention's one-dimensional basic resource unit or "time-frequency resource unit," as recited in the independent claims, significantly and innovatively reduced the overhead previously required to transmit and recover data in a multi-carrier packet communication system. Ex. 2001 [Alberth Decl.] ¶ 38. A time-frequency resource unit is not an arbitrary combination of time and frequency units and is instead designed according to the application requirements of the application that is being grouped. *Id.* The inventors intentionally chose to forego the flexibility of irregular resource allocation at the lowest granularity level (requiring multidimensional allocation) to create, instead, regularly shaped time-frequency resource units allocated at the application granularity level, using a single

dimension, to provide the control overhead reduction. *Id.* The regularity of the time-frequency resource unit only became unlocked due to the similar resource requirements as between users of the same application. *Id.*

As discussed more fully below, in Sections III.B and III.C, no "time-frequency coordinate" or "time-frequency resource unit" is shown to be taught or suggested by the combination of Kim and IEEE802.16-2004. Just as in the IEEE 802.16 standard expressly distinguished in the background of the patent, these two references merely describe time units (symbols) and frequency units (subchannels) and suggest no "time-frequency" resource unit that transforms the time and frequency units into one combined dimension as disclosed and claimed by the '450 patent. In contrast, by transforming time and frequency to a single dimension—time-frequency—measured in time-frequency resource units, the invention can use two parameters to map a packet stream: the starting time-frequency coordinate and N, the number of time-frequency resource units. Ex. 1001 ['450 Patent] 6:3-21, 7:7-39. Because there is no time-frequency dimension taught in Kim or IEEE802.16-2004, the combination lacks both innovative parameters. Instead, the combination of Kim and IEEE802.16-2004 uses an independent time dimension and an independent frequency dimension and requires four parameters to map a packet stream, just like the prior art distinguished in the Background of the '450 patent. Ex. 2001 [Alberth Decl.] ¶ 39.

B. The Combination Of Kim And IEEE802.16-2004 Fails To Teach A "Segment Of Time-Frequency Resource, The Segment Having A Starting Time-Frequency Coordinate …."

The combination of Kim and IEEE802.16-2004 does not teach "a starting time-frequency coordinate," as recited in element 1.3.

As just discussed in Section III.A, the patent provides affirmative examples of starting time-frequency coordinates for resource segments according to the claimed invention. In the embodiment of FIG. 6, reproduced below with color annotations added, the one-dimensional time-frequency starting coordinate (VZI_m), e.g., 0, 1, 9, etc., highlighted in **yellow**, defines where a packet stream's associated time-frequency resource segment (V_m) starts in a zone both in time *and* frequency. Ex. 1001 ['450 Patent] 7:10-27; Ex. 2001 [Alberth Decl.] ¶¶ 33-34.

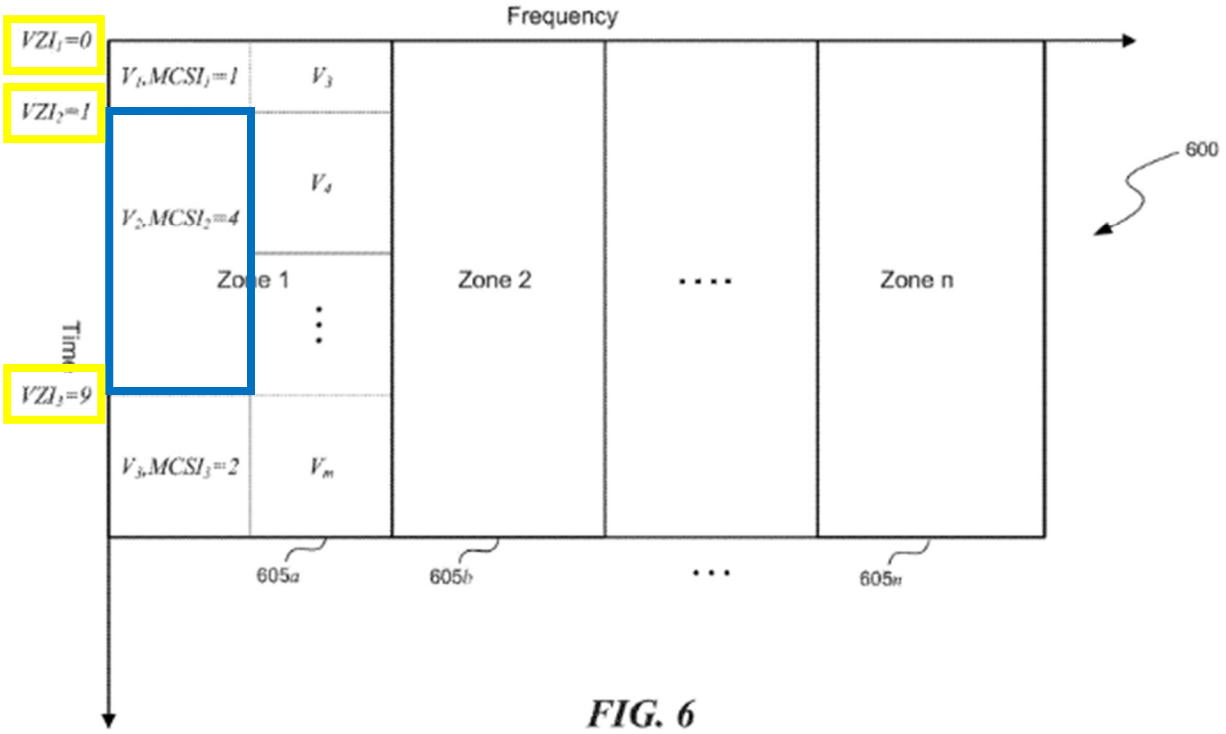


FIG. 6

FIG. 6 does not show using a time coordinate and an independent frequency coordinate to specify V_2, highlighted in **blue**. Rather, consistent with the invention's objective of reducing control overhead, FIG. 6 shows that only one time-frequency coordinate, VZI_2=1, is needed to specify where V_2 starts in both time *and* frequency. Ex. 2001 [Alberth Decl.] ¶ 34.

The Petition's sole Ground can only attempt to find the claimed "starting time-frequency coordinate" by tacitly reconstruing its plain language to say something it doesn't. The Petition incorrectly proposes that the word "coordinate" allows for a combination of *two* coordinates and, specifically, "a starting time-frequency coordinate" be interpreted to encompass a *time* coordinate plus a

frequency coordinate. Pet., 5; Ex. 2001 [Alberth Decl.] ¶ 49 (summarizing corresponding argument in Dr. Ding's declaration). But the claim does not recite a time coordinate and a frequency coordinate; it recites *a starting time-frequency coordinate*. So, the construction contravenes the plain meaning. Based on that erroneous construction, Petitioner concludes that IEEE802.16-2004's disclosure of "a start symbol offset (8 bits)" plus "a start logical subchannel offset (6 bits)" satisfies the recited "starting time-frequency coordinate." Pet., 44 (emphasis removed); *accord id.* ("a resource allocation that is identified in time by a start symbol offset, and is identified in frequency by a start logical subchannel offset" is "collectively, the claimed 'starting time-frequency coordinate'") (emphasis removed in parenthetical).

This is not how the patent describes the claimed invention's time-frequency coordinate. The specification makes clear that one "index" specifies where a resource segment V_m starts in both time ***and*** frequency:

> If a [sic] MCS from Table 1 is selected for each packet stream contained in a particular zone, the offset to a segment representing a particular packet stream may be easily calculated. ***For example, an index VZI_1, VZI_2, … VZI_m is shown at the origin of each segment that is contained in the zone 605a.*** The index for any selected packet stream is defined as the sum of all basic resource units associated with each packet stream preceding the selected packet stream, with an

> optional adjustment depending on the location where the division of the time-frequency resource is started (typically no adjustment is required since the division starts at the origin of the zone). ***For example, the location index for the first voice packet stream is VZI_1=0 since it starts at the origin of the zone 605a. The first packet stream has an MCS of 1, which implies that one basic resource unit is used. As a result, the index for the second voice packet stream is VZI_2=1. The second packet stream has an MCS of 4, which implies that eight basic resource units are used. As a result, the index for the third voice packet stream is VZI_3=9, arrived by summing the basic resource units used for the preceding first and second packet streams.***

Ex. 1001 ['450 Patent] 7:7-27; *see* Ex. 2001 [Alberth Decl.] ¶ 50.

In fact, the first portion of the '450 patent specification that Petitioner relies on for this erroneous construction is the patent's description of the four parameters previously required to allocate a resource in the prior art, and not the inventive *time-frequency* coordinate. Pet., 44 (citing Ex. 1001 ['450 Patent] 1:60-66); Ex. 2001 [Alberth Decl.] ¶ 51. The Background states:

> As another example, each connection includes the identification of an airlink resource that can correspond to any time/frequency region that is allocated for communication. The resource allocation is identified in the time domain scale with a start symbol offset (8 bits) and a symbol length (7 bits) and in the frequency domain scale with a start logical subchannel offset (6 bits) and a number of allocated subchannels (6 bits).

Ex. 1001 ['450 Patent] 1:59-66. As shown here, this passage does not mention any time-frequency coordinate. Ex. 2001 [Alberth Decl.] ¶ 51. Indeed, that the inventors knew of the prior art that utilized a "start symbol offset" and an independent "start logical subchannel offset" and intentionally chose to recite the inventive "starting time-frequency coordinate" is evidence that Petitioner's construction, merging the two independent coordinates into one coordinate, is wrong.

There is also a short discussion of the "starting time-frequency coordinate" in Section II.A of the Petition (which purports to provide a "Brief Description" of the '450 patent) citing a passage at Ex. 1001 ['450 Patent] 5:57-63. Petitioner does not allege, however, that this passage supports its special construction of "starting time-frequency coordinate" and, indeed, it does not. The cited passage reads:

> In some embodiments, the identification of the time-frequency segment associated with a particular packet stream can be indicated by the starting time-frequency coordinate and the ending time-frequency coordinate relative to the starting point of the zone. The granularity in the time coordinates can be one or multiple OFDM symbols, and that in the frequency coordinates can be one or multiple subcarriers.

Ex. 1001 ['450 Patent] 5:57-64. The patent does not define "time-frequency coordinate" to mean the combination of an independent time coordinate and an independent frequency coordinate in this, or any other, passage. Ex. 2001 [Alberth

Decl.] ¶ 52. As acknowledged in the Petition (at 5), this passage is discussing *granularity*. *Id.* As discussed above, the actual starting time-frequency coordinate is the VZI and is represented by a single index, to accomplish the reduction in control overhead. *Id.* ¶¶ 33-34, 50.

One way to illustrate the error in Petitioner's position is to consider another unit of measurement, torque. *Id.* ¶ 53. Like the claimed time-frequency resource unit, torque transforms two independent dimensions (force and distance) into one dimension. One can change the granularity of torque's force component and torque's distance component, to express torque, for example, in terms of ounce-inches instead of foot-pounds. That does not mean, however, that one specifies a torque merely by specifying an independent force and an independent distance. In a similar way, the granularity of the time-frequency coordinate can be specified in different ways, e.g., by reducing the number of subchannels in a time-frequency so that it is more granular in frequency and less granular in time, but this does not mean one may specify the claimed time-frequency coordinate by specifying a time coordinate and an independent frequency coordinate. *Id.*

In any event, this passage cited in the "Brief Description" at Section II.A of the Petition (at 5) relates to an unclaimed embodiment. *Id.* ¶ 54. This portion of column 5 of the '450 patent's specification describes an embodiment that requires specifying "the starting time-frequency coordinate and *the ending time-frequency*

coordinate relative to the starting point of the zone," and does not use N, as claimed. Ex. 1001 ['450 Patent] 5:57-61. This embodiment, unlike the claimed invention, uses two *coordinates* to map packet streams, and does not use a number of time-frequency resource units, here given the name "N." *Id.*, 6:23-29; Ex. 2001 [Alberth Decl.] ¶ 54.

In contrast to this unclaimed embodiment, largely described in column 5, the embodiment corresponding to the claims uses "basic resource units" or "time-frequency resource units" "as the granularity of a location offset to the packet stream" to "reduce[] the number of bits required to represent its location with[in] the zone …." Ex. 1001 ['450 patent] 7:28-30. So, even if the "granularity" in the unclaimed embodiment did refer to "time" and "frequency" separately, the granularity of the claimed embodiment decidedly does not. Ex. 2001 [Alberth Decl.] ¶ 54.

Unlike the claimed invention, Petitioner's combination does not teach a way to reduce the number of bits necessary to map a packet stream, a fact that confirms, if confirmation were needed, that their combination does not teach using a time-frequency coordinate to perform the mapping. Ex. 2001 [Alberth Decl.] ¶ 55. For this reason, Petitioner fails to satisfy its burden to show a reasonable likelihood of success at trial as to any claim.

C. The Combination Of Kim And IEEE802.16-2004 Fails To Teach A "Segment Of Time-Frequency Resource" "Comprising N Time-Frequency Resource Units Within A Time Interval," "Where N=2, 4, Or 8 …."

As discussed in Section III.B, Kim-IEEE802.16-2004 does not teach "a starting time-frequency coordinate." This combination also does not teach a multiple of N "time-frequency resource units within a time interval," as recited in element 1.4. Indeed, the combination of the starting time-frequency coordinate and N time-frequency resource units are inextricably tied in the patent and provide the innovation that reduces control overhead. Ex. 1001 ['450 Patent] 6:22-7:54. So, it is unsurprising that Kim-IEEE802.16.2004, which fails to teach the recited time-frequency coordinate, also fails to teach N time-frequency resource units.

As demonstrated in Section III.A, above, the '450 patent describes a segment of time-frequency resource (V_m) comprising a number N (the number of "Units" in TABLE 1 corresponding to $MCSI_m$) of time-frequency resource units ("basic resource units") within a time interval, as shown in FIG. 6:

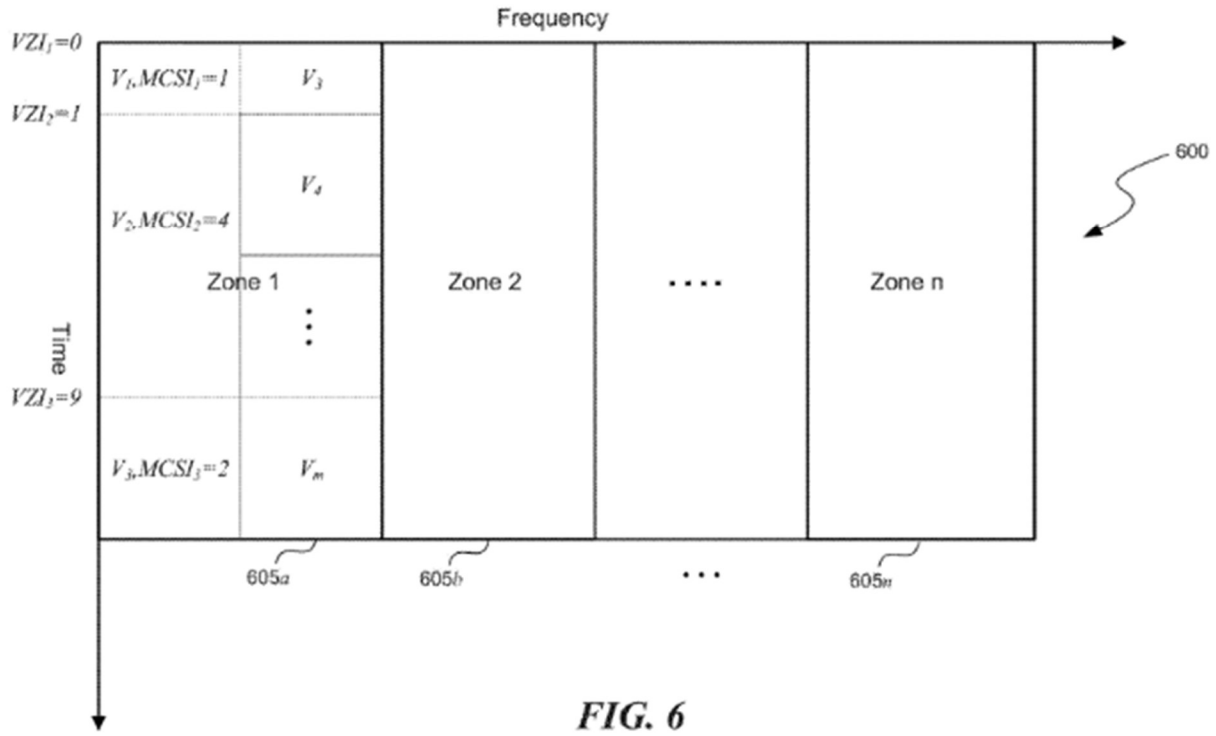


FIG. 6

By defining a resource using innovative "time-frequency resource units," the invention alleviates the need to allocate resources by specifying four parameters, namely, (1) start time, (2) end time, (3) start frequency, and (4) end frequency. Ex. 2001 [Alberth Decl.] ¶¶ 25, 38. Instead, using the new dimension of "time-frequency" defined by time-frequency resource units, "each … containing a set of frequency subcarriers in a group of OFDM symbols," one can specify a resource in two parameters: a starting time-frequency coordinate and the number of time-frequency resource units in a time-frequency resource segment, as claimed. *Id.* ¶ 37.

The combination of Kim-IEEE802.16-2004 does not teach any "time-frequency resource units," as shown below. Instead, for this limitation, the Petition identifies an alleged frequency unit ("a single subchannel"). Pet., 48. It identifies an alleged time unit ("a single slot (in time)"). *Id.* It even alleges that the identified frequency unit can be assigned a corresponding time unit ("an integer number ('N') of subchannels per slot"). *Id.* 51. But it does not show any unifying ***time-frequency*** resource unit that transforms the dimensions of time and frequency into one dimension of time-frequency to achieve the reduction in control overhead that is central to the invention. Ex. 2001 [Alberth Decl.] ¶¶ 38-39, 41.

In fact, rather than describe the invention's time-frequency units, the Kim and IEEE802.16-2004 references in the combination merely describe the same IEEE 802.16 prior art distinguished in the '450 patent's Background section. *Id.* ¶ 44. The patent explains that the existing IEEE 802.16 standard required *four* parameters in two independent dimensions to allocate resources: a start symbol offset (8 bits) and a symbol length (7 bits) in the time dimension and a start logical subchannel offset (6 bits) and a number of allocated subchannels (6 bits) in the frequency dimension. Ex. 1001 ['450 Patent] 1:62-66. Sure enough, the teachings of the IEEE802.16-2004 reference require those very four parameters, as can be seen by consulting IEEE802.16-2004's Table 275 reproduced in the Petition itself (Ex. 2001 [Alberth Decl.] ¶ 44):

Table 275—OFDMA DL-MAP_IE format

Syntax	Size	Notes
DL-MAP_IE() {		
DIUC	4 bits	
if (DIUC == 15) {		
Extended DIUC dependent IE	*variable*	See subclauses following 8.4.5.3.1
} else {		
if (INC_CID == 1) {		The DL-MAP starts with INC_CID =0. INC_CID is toggled between 0 and 1 by the CID-SWITCH_IE() (8.4.5.3.7)
N_CID	8 bits	Number of CIDs assigned for this IE
for (*n*=0; *n*< N_CID; *n*++) {		
CID	16 bits	
}		
}		
OFDMA Symbol offset	8 bits	
Subchannel offset	6 bits	
Boosting	3 bits	000: normal (not boosted); 001: +6dB; 010: -6dB; 011: +9dB; 100: +3dB; 101: -3dB; 110: -9dB; 111: -12dB;
No. OFDMA Symbols	7 bits	
No. Subchannels	6 bits	
Repetition Coding Indication	2 bits	0b00 – No repetition coding 0b01 – Repetition coding of 2 used 0b10 – Repetition coding of 4 used 0b11– Repetition coding of 6 used

Start symbol offset

Start logical channel offset

Symbol length

Number of allocated subchannels

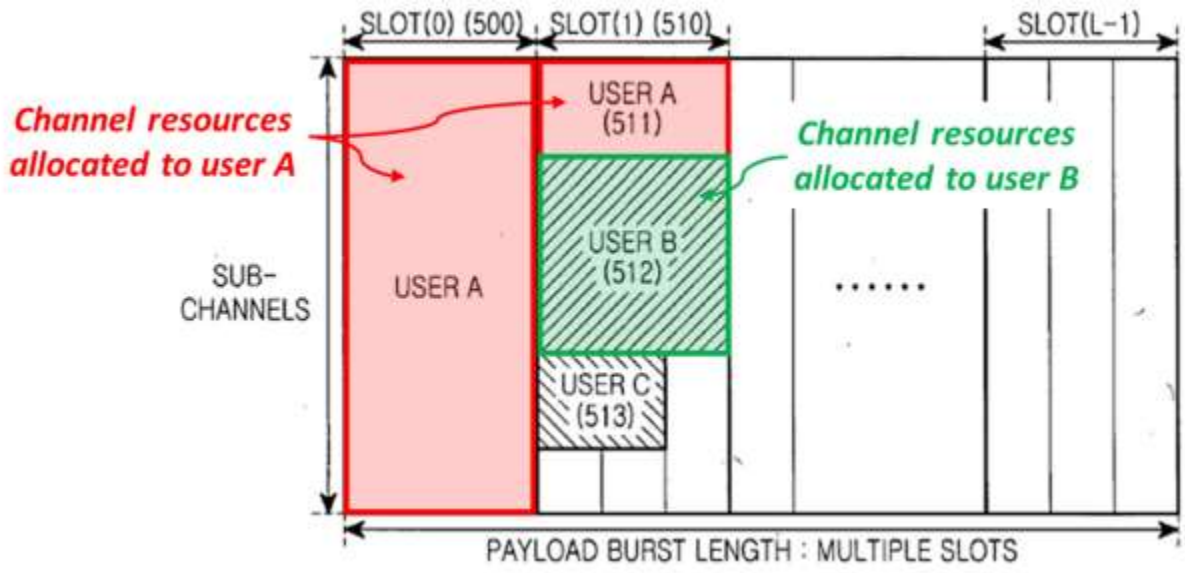
Pet., 23 (annotating IEEE802.16-2004 Table 275) (blue annotations added, other colorization and annotation original).

The reason that IEEE802.16-2004 must use these four parameters is precisely because the reference solely teaches defining the resource in two independent dimensions of time and frequency. In other words, IEEE802.16-2004 lacks the innovative one-dimensional "time-frequency resource units" recited in the claims and cannot support such "time-frequency resource units" because

IEEE802.16-2004 does not group users by application and is therefore required to support flexible intermixing of applications where an individual user resource requirement may fluctuate widely. Ex. 2001 [Alberth Decl.] ¶ 45.

Kim does not disclose a different configuration. *Id.* ¶ 46. Indeed, the Petition relies on the theory that Kim and IEEE802.16-2004 both rely on the *same* configuration. As the Petition expressly acknowledges, Kim does not "provide details of how the 'location information' indicates 'where used data is multiplexed every transmission frame." Pet., 27. For that, the Petition turns to IEEE802.16-2004, arguing that the combination is obvious in part because "Kim describes an 'IEEE 802.16a' system …." *Id.*, 24. The Petition argues that "IEEE802.16-2004 is an updated version of the IEEE 802.16a standard, … retaining all modes and major features without adding modes," and therefore, the Petition argues, supplies the routine details associated with that standard that are missing from Kim's express disclosure. *Id.*, 24, 27 ("Although Kim does not provide details of how the 'location information' indicates 'where user data is multiplexed every transmission frame,' a POSITA would have understood that such details are provided in IEEE802.16-2004."). In short, the Petition does not argue that Kim departs from the IEEE802.16 configuration details, such as the two-dimensional four-parameter set allegedly described in IEEE802.16-2004; on the contrary, the Petition's theory relies on Kim operating the *same* way as IEEE802.16-2004. *Id.*

And sure enough, Kim adds nothing to IEEE802.16-2004 when it comes to using the claims' novel one-dimensional parameters. The POSITA at the time of the claimed invention would have understood that Kim does not teach time-frequency resource units for transforming the two independent dimensions of time and frequency into a single dimension of "time-frequency." Ex. 2001 [Alberth Decl.] ¶ 46. In fact, Kim reveals why it is impossible to use time-frequency resource units and N in Kim and IEEE.802.16-2004, because Kim's FIG. 5 shows that the system must accommodate a variety of irregularly shaped blocks that are positioned in time and frequency according to a user's exact needs, which may vary greatly depending on the application being performed at that time.



Pet., 13 (annotating Kim Figure 5) (annotations by Petitioner). User C's block supports a HARQ application that has different resource granularity requirements, and thereby different dimensions in time and frequency, than the application being

performed in User B's block, for example, as shown above. Ex. 2001 [Alberth Decl.] ¶ 46; *see* Ex. 1005 [Kim] ¶ 53.

This is not the invention disclosed and claimed in the '450 patent: just the opposite, this is the exact problem with IEEE 802.16 discussed in the *Background* of the '450 patent: "[d]ue to the fact that different applications have different resource requirements, the allocated resource region is ***irregular from connection to connection***." Ex. 1001 ['450 Patent] 1:66-2:2; *see* Ex. 2001 [Alberth Decl.] ¶ 47. And, as a result of that irregularity, in order to fully specify each User's blocks Kim needs to pin down frequency *and* time in two independent dimensions—exactly like IEEE802.16-2004, and exactly like the IEEE 802.16 standard discussed in the '450 patent Background and expressly improved upon by the claimed invention. Ex. 1008 [IEEE802.16-2004] 557 (TABLE 275) (reproduced at Pet., 23); Ex. 1001 ['450 Patent] 1:59-66, 5:34-41; Ex. 2001 [Alberth Decl.] ¶¶ 47-48.

The fact that Kim adds nothing in this respect to the prior art expressly distinguished by the patent from the invention is consistent with the Petition's allegation that Kim's "location information" is taught in IEEE802.16-2004. Pet., 24, 27. Kim and IEEE802.16-2004 use the same inefficient mapping as that disadvantageous prior art.

Furthermore, as explained next, the Petition's argument, while it *purports* to identify a "resource unit" defined as one subchannel in one time slot (see Pet., 48), *actually* defines the resource unit merely as one subchannel and fails to consider any time component. Put simply, there is no "time-frequency resource unit" in either Kim or IEEE802.16-2004, so the Petition must rely on the same independent time and frequency units utilized in the IEEE 802.16 standard upon which the invention is said to improve. Ex. 2001 [Alberth Decl.] ¶ 39. The Petition's sole ground relies on the allegation that "each resource unit [is] defined by a single subchannel (in frequency) and a single slot (in time)." Pet., 48 (citing Ex. 1003 [Ding Decl.] ¶ 129). It then alleges that "Kim discloses allocating resources … that include an integer number ('N') of subchannels per slot (the claimed 'resource units') …." *Id.*, 51 (emphases removed) (citing Ex. 1003 [Ding Decl.] ¶ 132). This disclosure, according to Petitioner, discloses the claimed time-frequency resource units. Regarding the additional claim language "within a time interval," the Petition identifies the "time interval" as, again, "a single time slot." *Id.*, 54 ("[T]he Kim-IEEE802.16-2004 network allocates resources based on multiples (the claimed 'N') of a 'channel resource' which is a 'minimum possible data allocation unit' (the claimed 'resource unit') ***within a single time slot (the claimed 'time interval')***.") (emphasis removed in parenthetical and new emphasis added) (citing Ex. 1003 [Ding Decl.] ¶ 140); *see generally* Ex. 2001 [Alberth Decl.] ¶ 40

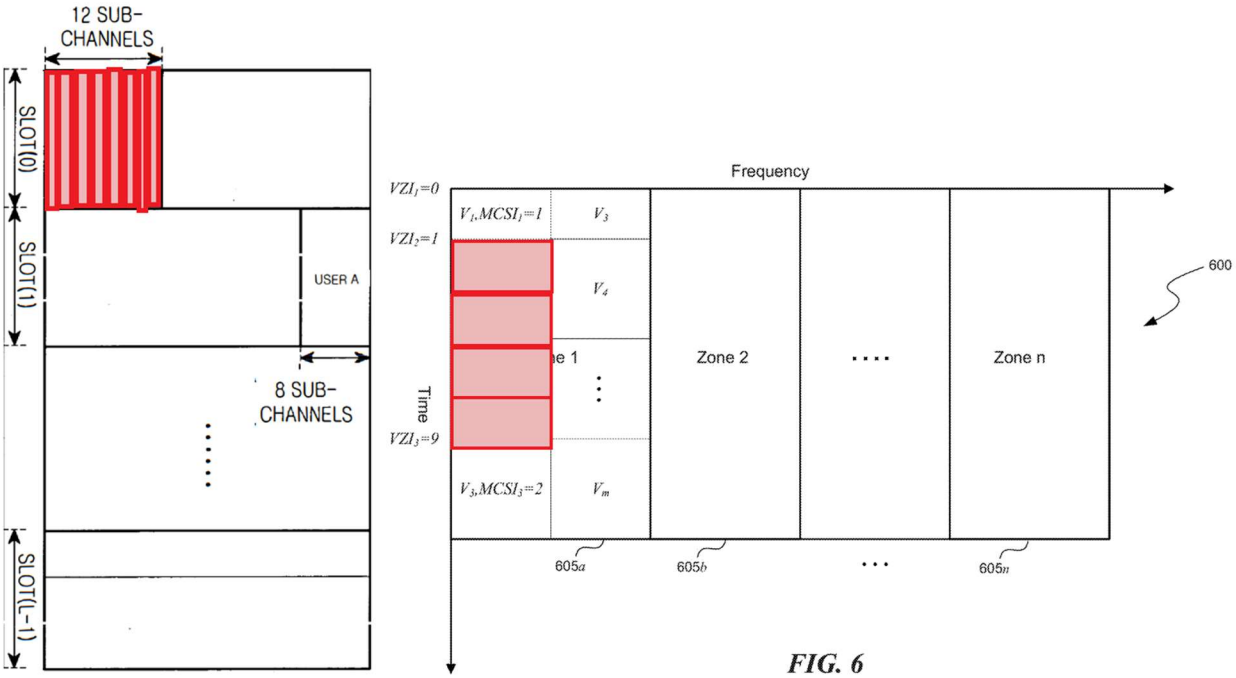
(summarizing corresponding arguments from Dr. Ding's declaration). That is, the recited "time-frequency resource unit[] within a time interval" is said to be a subchannel in a single time slot in the same single time slot. *Id.*, 51, 54; Ex. 2001 [Alberth Decl.] ¶ 42.

The "single time slot" in Petitioner's argument *both* defines a time dimension of the alleged time-frequency resource unit *and* provides the time interval for the alleged N time-frequency resource units. Pet., 48, 51, 54. By defining the time-frequency resource unit and time interval in this way and alleging that the resource units can be satisfied by the number of subchannels per time slot, Petitioner collapses the time-frequency resource unit to a frequency unit only (one subchannel), removing the dimension of time from "time-frequency." Ex. 2001 [Alberth Decl.] ¶ 42. Thus, Petitioner's alleged "time-frequency resource unit" is simply the frequency unit of the prior art. *Id.* ¶¶ 43-44.

As shown below in a side-by-side comparison of Kim's FIG. 7[2] and the '450 patent's FIG. 6, FIG. 6 of the '450 patent has time-frequency resource units within

[2] In the following figure, Kim has been altered to line up the time and frequency axes for easier comparison. Kim's FIG. 7 has been rotated, the "slot" axis label has been moved to the left side of the figure (replacing other text), and the "12 subchannels" label has been rotated for legibility.

a time interval that is tied to the number (N) of resource units, while Petitioner's theory has an arbitrary number of subchannels stacked side by side, with the time interval (a single time slot) having no relationship with the number of subchannels. Ex. 2001 [Alberth Decl.] ¶ 42.



Kim, FIG. 7 (altered) **'450 patent, FIG. 6 (altered)**

Petitioner's analysis of this term, equating subchannels with time-frequency resource units, cannot possibly be correct, because it conflates the term "time-frequency" with "frequency" in a way that renders the word "time" recited in the claims superfluous. *Id.* ¶ 43. To see why, consider what would change if the claim instead recited "N *frequency* resource units [rather than *time-frequency* resource units] within a time interval." Even though the claim language changes, the

Petition's theory does not change *at all*. The Petition would still allege that "Kim discloses … an integer number ('N') of subchannels per slot"—frequency resource units (subchannels) within a time interval (a slot). Pet., 51. With this approach, Petitioner is effectively rewriting the claim so that it reads: "a segment of time-frequency resource" "comprising N ~~time-~~frequency resource units within a time interval," "where N=2, 4, or 8 …."

A subchannel within a time slot cannot be both a *frequency* resource unit within a time interval and a *time-frequency* resource unit within a time interval. Such a reading, by improperly rendering the word "time" in the term "time-frequency" superfluous, would violate the canon of construction that "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970); *see also In re Power Integrations, Inc.*, 884 F.3d 1370, 1376 (Fed. Cir. 2018) (reversing Board's claim construction that "renders claim language meaningless").

Crucially, the Petition fails to address this problem with its theory. In fact, the Petition's analysis leaves out any meaningful discussion of the term "time-frequency" in the claims, referring instead generically to "resource units" without addressing the "time-frequency" language also recited. Pet., 48, 51, 54. This is not an accident, because the innovative time-frequency dimension that provides the

reduction in control overhead is not taught in Kim or IEEE802.16-2004. Ex. 2001 [Alberth Decl.] ¶ 44.

In sum, Kim and IEEE802.16-2004, and the combination thereof, simply teach the same two independent dimensions of time and frequency and known configuration of frequency units and independently mapped time units distinguished in the Background of the '450 patent. Ex. 2001 [Alberth Decl.] ¶ 48. Kim-IEEE802.16-2004 fails to teach any *time-frequency* resource units and N. *Id.* Accordingly, the Petition has not satisfied its burden to show a reasonable likelihood of success of its sole Ground as to any claim.

IV. THE PETITION SHOULD BE DENIED UNDER 35 U.S.C. § 325(d) FOR PRESENTING THE SAME ART/ARGUMENTS PREVIOUSLY PRESENTED TO THE OFFICE IN THE BACKGROUND OF THE CHALLENGED PATENT.

Even if the Petition's sole ground were assumed to have a reasonable likelihood of success, it should be denied institution as a matter of discretion because it is substantially the same as the art and arguments already before the Office and distinguished from the invention in the file wrapper—indeed, in the specification of the patent application.

Section 325(d) provides that, "[i]n determining whether to institute or order a proceeding under this chapter … the Director may take into account whether, and reject the petition … because, the same or substantially the same prior art or

arguments previously were presented to the Office." Petitioner's art and arguments are substantially the same as those previously presented in the Office in the Background of the '450 patent.

It is true that some of the Board's past decisions on the Director's behalf, *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8, 17-18 (Dec. 15, 2017) (precedential) and *Advanced Bionics, LLC v. MED-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6, 11 (Feb. 13, 2020) (precedential), have reasoned that it is appropriate under § 325(d) to favorably consider "the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection." Yet, the Board has previously noted that "a rejection applying a reference … is not a prerequisite to a finding that the reference was already presented to the Office under § 325(d)." *Boragen, Inc. v. Syngenta Participations AG*, IPR2020-00124, Paper 16, 21-22 (May 5, 2020). And the Federal Circuit's recent precedent *In re Vivint, Inc.*, 14 F.4th 1342 (Fed. Cir. 2021) makes clear that non-institution under § 325(d) does not *require* that the Office have expressly discussed the art or arguments, let alone made them the basis of rejection, during prosecution.

In *Vivint*, the Board denied institution of an IPR petition under § 314(a), without reaching the merits, because the petition, the third against that patent, was an example of undesirable, incremental petitioning. *Vivint*, 14 F.4th at 1346. The

Office then granted an ex parte reexamination that mirrored the rejected petition, in which "vast swaths of the ex parte reexamination request [were] copied, almost word for word," (*id.*, 1347) from the rejected petition. On appeal, the Federal Circuit reversed and held that the decision to grant reexamination should never have been made. *Id.*, 1351. Importantly, the Federal Circuit found that, though the rejected IPR petition's grounds against the *Vivint* patent were never considered on the merits, they were nonetheless "presented" to the Office for purposes of discretionary denial of requests for IPR or reexamination under § 325(d). *Id.*, 1350. Therefore, the Federal Circuit concluded, the Office had "abused its discretion and acted arbitrarily and capriciously by ordering reexamination, and thereafter, refusing to terminate that proceeding" in view of § 325(d). *Id.*, 1345; *accord id.*, 1351 ("it was arbitrary and capricious for the Patent Office to order reexamination over § 325(d), or, at a minimum, refuse to terminate reexamination …"). That was true even though the Office had not evaluated the asserted art during examination, and the asserted art was not the basis for rejection. That the art was previously *presented* to the Office was sufficient to support—indeed compel—discretionary denial of the *Vivint* reexamination request.

The present IPR Petition, and its sole alleged ground of unpatentability, are a paradigmatic example of a petition that rehashes art previously presented to the Office in contravention of *Vivint* and the purposes animating § 325(d). The

rehashing here is even more egregious than in the run-of-the-mill § 325(d) case. The Petition presents the same or substantially the same art and arguments as those ***expressly presented and distinguished by the patent's own written description***, in its first two columns, and again in column 5.

The patent identifies as prior art "the IEEE 802.16 standard (WiMAX)." Ex. 1001 ['450 Patent] 1:42-45. It explains that, in that prior art standard, "various applications carrier in packet streams may be spread throughout the available time-frequency resource." *Id.*, 5:39-41; *accord id.*, 1:66-2:2 ("Due to the fact that different applications have different resource requirements, the allocated resource region is irregular from connection to connection."). The patent explains that, in this prior art, four parameters are accordingly required to map a packet stream in time and frequency:

> [E]ach connection includes the identification of an airlink resource that can correspond to any time/frequency region that is allocated for communication. The resource allocation is identified in the time domain scale with a start symbol offset (8 bits) and a symbol length (7 bits) and in the frequency domain scale with a start logical subchannel offset (6 bits) and a number of allocated subchannels (6 bits).

Id., 1:60-66. This resource allocation is linked to the "significant control overhead" in the MAP scheduling message. *Id.*, 1:51-52, 1:59.

The invention sets out to minimize that undesirable control overhead. *Id.*, Abstract. One approach described and claimed in the ’450 patent uses innovative “time-frequency resource units” that collapse the two independent dimensions of time and frequency into one dimension, “time-frequency,” and so require less control information to map packet streams. *Id.*, 7:28-30 (“Using basic resource units as the granularity of a location offset to the packet stream reduces the number of bits required to represent its location with[in] the zone ….”).

The prior art presented in the Petition is indistinguishable from the art characterized and distinguished as the undesirable Background of the invention. The patent describes IEEE 802.16, also called WiMAX, and distinguishes it from the claimed invention. Ex. 1001 [’450 Patent] 1:33-2:16, 5:32-53. As Petitioner admits, Kim and IEEE802.16-2004 are “prior 802.16 or WiMAX publications.” Pet., 7. Kim plainly shows, in its FIG. 5, that its packet streams are spread throughout the available time-frequency resource. And as already discussed above, Kim and IEEE802.16-2004 have the same control message overhead disadvantage as the IEEE 802.16 art distinguished in the patent. *See supra* Sections III.B-.C. Indeed, these references did not even recognize that control message overhead was a problem that needed to be solved, let alone propose any method to solve it. Ex. 2001 [Alberth Decl.] ¶ 39. Nothing but hindsight based on the ’450 patent even suggests trying to solve this problem based on the

combination, which does not even recognize the problem's existence. *See, e.g., Leo Pharms. Prods., Ltd. v. Rea*, 726 F.3d 1346, 1356-1357 (Fed. Cir. 2013) (finding non-obviousness where "[t]he problem was not known" and "ordinary artisans would not have thought to try at all because they would not have recognized the problem").

That the Office did not apply that art in the Petition to reject the claims does not indicate that the Examiner made any error. Rather, it is emblematic of how far these references are from the invention. The fact that the Examiner did not use such prior art in a rejection of these claims is nothing more than a sign that the Examiner read the patent's disclosure expressly distinguishing such art from the invention and understand how the invention improved over the identified prior art. That is not error; it is competent examination.

This Petition should be denied under § 325(d) as merely rehashing art and arguments previously presented to the Office in the patent itself.

V. THE PETITION SHOULD BE DENIED IN LIGHT OF THE ADVANCED STATE OF THE PARTIES' PENDING LITIGATION.

Even setting aside the Petition's defective merits detailed above, the Petition should also be denied as a matter of the Director's discretion for yet another independently sufficient reason. As detailed below, the six binding *Fintiv* factors heavily favor denying institution. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019,

Paper 11 (PTAB Mar. 20, 2020) (precedential) ("*Fintiv*"). Most importantly, because a district court trial will occur before any final written decision would issue, instituting IPR would be duplicative of the parallel litigation and would raise the specter of the two tribunals reaching inconsistent results.

A. Factor 1 Favors Denial Because The Parallel Litigation Is Not Stayed And The Evidence Indicates The District Court Will Not Grant A Stay.

Factor 1 favors denial because the parallel litigation has not been stayed and the Petition presents no evidence that a stay may be granted.

In fact, evidence indicates the district court would not grant a stay even if the Board were to institute review. For example, in another recent case in the Western District of Texas, where the co-pending litigation is venued, the trial court judge declined to stay a case in which an IPR was instituted nearly a year before his scheduled trial date. Ex. 2003 [*MV3* Tr.] 53:9-13 ("… ***I'm not going to stay the case based on the IPR institution*** and we are set for trial in [June 2020].") (emphasis added in parenthetical); *see also, e.g.*, Ex. 2004 [*MCM* Order] 3-7 (denying motion to stay pending IPRs). There is no indication whatsoever that the judge's views have changed regarding stays.

Moreover, Patent Owner will oppose any motion to stay, and the trial court would accordingly deny any such motion under its own precedent. For example, the trial court's Order dated July 22, 2020, in *Continental Intermodal Group-*

Trucking LLC v. Sand Revolution LLC, followed on the heels of the Board instituting review in *Sand Revolution II, LLC v. Continental Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24 (June 16, 2020) (informative). Despite the instituted IPR, the Court denied Defendants' motion to stay because, among other reasons, the "Plaintiff opposes the stay." Ex. 2005 [*Continental* Order] 1.

Because a stay has not been granted in the parallel litigation and the evidence indicates no stay would be granted even if the Board instituted review, this factor favors denial in view of the earlier trial date.

B. Factor 2 Favors Denial Because The District Court Trial Would Begin Before The Board's Final Decision And Director's Review.

Factor 2 also favors denial, because the underlying trial will begin before the deadline for the final written decision, to say nothing of the subsequent Director review. When "the court's trial date is earlier than the projected statutory deadline, the Board generally has weighed this fact in favor of exercising authority to deny institution under *NHK*." *Fintiv*, 9. "This proximity inquiry is a proxy for the likelihood that the trial court will reach a decision on validity issues before the Board reaches a final written decision." *Philip Morris Prods., S.A. v. RAI Strategic Holdings, Inc.*, IPR2020-00921, Paper 9, 16 (Nov. 16, 2020).

Here, the trial date is set for **January 17, 2023**, while the final written decision, if trial were instituted, would issue by **March 15, 2023**. A request for Director review will still further extend the finality of this date.

Several Board decisions, including the Board's informative Decision Denying Institution in *Fintiv* (following the precedential Order in *Fintiv*), have held that trial scheduled prior to the FWD deadline favors denying institution. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15, 12-13 (May 13, 2020) (informative) ("*Fintiv II*") (two months); *E-One, Inc. v. Oshkosh Corp.*, IPR2019-00161, Paper 16, 6 (May 15, 2019) (one month); *E-One, Inc. v. Oshkosh Corp.*, IPR2019-00162, Paper 16, 12 (June 5, 2019) (one month); *Netflix, Inc. v. Uniloc 2017 LLC*, IPR2020-00008, Paper 13, 9-10 (Apr. 13, 2020) (two months); *Next Caller Inc. v. TRUSTID, Inc.*, IPR2019-00961, Paper 10, 14-15 (Oct. 16, 2019) (three months); *Next Caller Inc. v. TRUSTID, Inc.*, IPR2019-00962, Paper 10, 14-15 (Oct. 16, 2019) (three months); *Next Caller Inc. v. TRUSTID, Inc.*, IPR2019-00963, Paper 8, 13-14 (Oct. 28, 2019) (three months); *see also Fitbit, Inc. v. Philips N. Am. LLC*, IPR2020-00828, Paper 13, 8-11 (Nov. 3, 2020) (considering two litigations, one between patent owner Philips and Fitbit, the other between Philips and Garmin, and finding that although the Fitbit trial date was not set, the Garmin trial "will … take place several months prior to the final decision").

There is no reason to doubt that the District Court trial between Petitioner and Patent Owner will begin as scheduled. The trial court prides itself on its "fast[] average time to trial …." Ex. 2013 [*HD Silicon* Order] 12. And the trial court has declared that it moves trial dates only in response to a ***joint*** request from the litigants: "The Court has moved a couple of trial dates, and I think 100 percent of the time, it was because the parties jointly requested us to do so." Ex. 2006 [*BBITV* Tr.] 8:10-13. Patent Owner does not intend to request to move this trial date.

Petitioner concedes that trial in the parallel litigation would precede a FWD in this proceeding. Pet., 85. Moreover, the Board "generally take[s] courts' trial schedules at face value absent some strong evidence to the contrary." *Fintiv II*, 13; *see also Supercell Oy v. GREE, Inc.*, PGR2020-00038, Paper 14, 11 (Sept. 3, 2020) ("We recognize that some uncertainty exists, in theory, due to the COVID-19 pandemic. But the record lacks specific, non-speculative evidence to suggest that further delay of the trial date is likely in the parallel proceeding at issue here."). The trial court has not ordered any stay or transfer in the parallel litigation or indicated any inclination to do so. Moreover, the trial court has been conducting in-person patent jury trials since October 2020 with virus safety measures. *EcoFactor, Inc. v. Google LLC*, No. 6:20-CV-00075-ADA, 2021 U.S. Dist. LEXIS

74187, at *16 (W.D. Tex. Apr. 16, 2021). All evidence indicates that trial in the underlying litigation will, in fact, occur prior to the FWD.

Because the district court's trial date is set to occur before the FWD statutory deadline, the finality of which will be still further extended by Director review, Factor 2 also favors denial.

C. Factor 3 Favors Denial Because The Parties And District Court Will Have Significantly Invested In The Litigation Before Any Institution.

Factor 3 likewise favors denial. This factor considers "the amount and type of work already completed in the parallel litigation by the court and the parties at the time of the institution decision." *Fintiv*, 9. Here, the parallel litigation is tracking the trial court's scheduling order. As such, significant time and resources have been, and continue to be, expended.

Petitioner's analysis of Factor 3 asserts that "Petitioner filed this petition at a very early stage of the litigation …." Pet., 86. That may have been true when Petitioner filed the Petition; but circumstances have changed. The parties have served infringement contentions and invalidity contentions, and both parties have submitted claim construction briefing for the trial court's consideration. Ex. 2007 [Scheduling Order] 2-3. Indeed, by the time the Decision on Institution issues, around March 15, 2022, **(1)** claim construction briefing will have completed; **(2)** the deadline for final infringement and invalidity contentions will have passed;

and **(3)** fact discovery will have been underway for a little over two months. *Id.* The *Markman* hearing will also occur a little over two months before the institution deadline, such that the Court will have invested significant time and resources in reviewing the *Markman* briefing, and the Court's *Markman* order will either be issued or well underway. *Id.* These significant endeavors indicate that institution would lead to significant duplicative costs.

When considering the significant work that will be completed and undertaken at the time of institution, Factor 3 favors denial.

D. Factor 4 Favors Denial Because There Is Significant Overlap Between The Issues Raised In This Proceeding And In The Parallel Court Case.

Factor 4 also favors denial. When a "petition includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel proceeding, this fact has favored denial." *Fintiv*, 12.

The Petition presents one ground: Kim in view of IEEE802.16-2004 (claims 1-18). Pet., 1. Petitioner advances substantially the same grounds, arguments, and evidence in its invalidity contentions in the co-pending litigation. Ex. 2017 [Invalidity Contentions] 37. The invalidity contentions respond only to asserted claims 7-8 and 10-11 and include contentions based on Kim and 802.16-2004.

So, although Petitioner asserts "there is no overlap in issues between the litigation and any IPR resulting from this Petition," Pet., 87, that is blatantly untrue. The alleged Ground overlaps completely with the invalidity contentions.

To be sure, the Petition challenges more claims than the invalidity contentions (claims 1-18 challenged in the Petition vs. claims 7-8 and 10-11 identified in the invalidity contentions). But the strategic inclusion of additional claims does not favor institution, particularly in light of the weakness of the Petition's challenge to the independent claims. *See Apple Inc. v. Maxell, Ltd.*, IPR2020-00203, Paper 12, 15 (July 6, 2020) (denying institution where petition presented additional claim not raised in invalidity contentions where "the weakness of [p]etitioner's showing with respect to [the additional claim] counterbalances any efficiency that might be gained from *inter partes* review of that claim").

The invalidity contentions also present other combinations challenging the asserted claims. That, too, does not favor institution. *Intel Corp. v. VLSI Tech. LLC*, IPR2020-00498, Paper 16, 8 (Aug. 19, 2020) ("Although Petitioner's Final Invalidity Contentions include other combinations of references challenging overlapping claims, … that difference alone does not negate that the same combinations of references asserted in the Petition also are asserted in Petitioner's Final Invalidity Contentions."); *Google LLC v. Uniloc 2017 LLC*, IPR2020-00115, Paper 8, 8 (Mar. 27, 2020) (denying institution under *Fintiv* where petitioner raised

many more obviousness combinations in parallel district court action); *Sand Revolution II, LLC, v. Cont'l Intermodal Grp.-Trucking LLC*, IPR2019-01393, Paper 12, 16-17 (Feb. 5, 2020) (denying institution where petitioner's litigation defenses raised 16 additional combinations relying upon different aspects of references than IPR).

Petitioner's only meaningful argument regarding this factor is an alleged stipulation that it will not pursue invalidity in the parallel litigation based on any instituted IPR ground. Pet., 87. But Petitioner has not made any such stipulation before the trial court and has not informed Patent Owner it intends to make such a stipulation. Indeed, there is no showing that Patent Owner could even enforce the supposed stipulation in the underlying litigation even if it were to be submitted there. It should therefore be disregarded by the Board.

Even if the Board credits Petitioner's alleged stipulation "not [to] pursue district court invalidity challenges based on the primary or secondary references asserted in [the] Petition," there would still be overlapping issues because Petitioner's arguments are based on ordinary application of the 802.16 (WiMAX) standard. Petitioner's invalidity contentions are also based on 802.16 references. If the Board has any doubt of the similarity in subject matter, the Eklund reference in the contentions is expressly titled "IEEE Standard 802.16." Ex. 2017 [Invalidity Contentions] 36. That Title alone shows the striking similarities between Eklund

and IEEE802.16-2004. So, while Petitioner is narrowly agreeing not to pursue two specific references in the District Court; it fully intends to raise the same *arguments* in both forums.

There would also be overlapping (and indeed conflicting) issues concerning claim constructions. *See* Section VI, *infra*. In the Petition, the Petitioner asserts that "no formal claim constructions are necessary …." Pet., 8. But that is not what the Petitioner told the District Court. There, Petitioner argues that the Court should construe "the segment having a starting time-frequency coordinate" alternatively to mean "information that identifies the starting time-frequency offset for the segment" or "a piece of information identifying the starting time and starting frequency for the segment." Ex. 2011 [Opening Claim Construction Br.] 17; Ex. 2017 [Reply Claim Construction Br.] 14-15.

While Patent Owner generally disagrees with Petitioner's proposed constructions in District Court, the point is that Petitioner is not being candid or consistent with its claim construction positions before the Board. The Board should reject Petitioner's strategic decision to apply different constructions in these two forums. It is undisputed that the Petition fails to demonstrate any likelihood of success under Petitioner's proposed constructions in the parallel proceeding. Petitioner should not be allowed to pick different theories in different forums.

Claim construction proceedings are well underway in the district court, and the Board should exercise its discretion to avoid duplicating this work.

E. Factor 5 Favors Denial Because Petitioner Is Challenging The Same Patent Both Here And In Court.

Factor 5 clearly favors denial because the Petitioner in this IPR, Dell, is the defendant in the parallel district court proceeding. *Fintiv II*, 15 ("Because the petitioner and the defendant in the parallel proceeding are the same party, this factor weighs in favor of discretionary denial.").

Petitioner argues that this factor is neutral. That is incorrect. Identity of the parties is the precise inquiry of this factor. Therefore, because the parties are the same this factor weighs in favor of discretionary denial. *See id.*

F. Factor 6 Favors Denial Because The Merits Of The Petition Are Weak And Petitioner Has Failed To Support Its Arguments With Evidence.

Factor 6 also favors denial. Factor 6 is a catchall requiring consideration of any "other circumstances that impact the Board's exercise of discretion, including the merits." *Fintiv*, 14. "[I]f the merits of the grounds raised in the petition are a close[] call, then that fact has favored denying institution when other factors

favoring denial are present." *Id.*, 14-15.[3] As shown in Section III, above, the Petition's invalidity arguments suffer from many fatal flaws, and still more would be identified if a trial were to be instituted. That time spent would be time wasted.

Accordingly, ***all six*** of the *Fintiv* factors support denying institution. In taking a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review, the Board should deny institution.

VI. THE PETITION SHOULD BE DENIED BECAUSE IT FAILS TO DISCLOSE OR APPLY PETITIONER'S CLAIM CONSTRUCTION POSITIONS IN THE PARALLEL COURT ACTION AND REFUSES TO IDENTIFY ANY APPLICABLE CLAIM CONSTRUCTION.

As noted in Section V, Petitioner challenges the '450 patent's validity both here and in *Neo Wireless, LLC v. Dell Technologies Inc.*, No. 6:21-cv-00024 (W.D. Tex.). As Section V.D explains above, the same claim construction standard should apply in both proceedings. 37 C.F.R. § 42.100(b). The Petition in

[3] Even if the Board preliminarily disagrees on the merits, strong merits alone are not enough to save a petition from discretionary denial. *Supercell Oy v. GREE, Inc.*, IPR2020-00310, Paper 13, 19 (June 18, 2020) ("Despite Petitioner's strong case on the merits, we determine that the facts underlying factors 2-5 collectively outweigh the facts underlying factor 6."); *see also Garmin Int'l, Inc. v. Koninklijke Philips N.V.*, IPR2020-00754, Paper 11, 16-19 (Oct. 27, 2020) (similar).

this case, however, did not follow that precept. In fact, contrary to the command of 37 C.F.R. § 42.104(b)(3), the Petition refuses to take *any* position on claim construction. Petitioner does not even propose that the claims should be given their plain meaning.

In District Court, Petitioner is presently asking the Court for constructions of "the segment having a starting time-frequency coordinate." *See infra* Section VI.A. The Petition, however, neither mentions nor applies its District Court constructions regarding this claim language. *Compare* Ex. 2011 [Opening Claim Construction Br.] 17-20 and Ex. 2016 [Reply Claim Construction Br.] 14-15 *with* Pet., 8. In fact, contrary to the requirement in 37 C.F.R. § 42.104(b)(3) requiring Petitioner to identify "[h]ow the challenged claim is to be construed," Petitioner remains silent. Instead, the Petition only says "no formal claim constructions are necessary …." Pet., 8. Apparently hoping to keep its options entirely open, the Petition does not even allege that ***plain meaning*** should apply. *Id.*

As discussed in Section VI.B below, even before the Office's shift to the *Phillips* standard, many Board panels found that a petitioner could not take inconsistent positions before the Board and the district court. The question whether a petitioner could take conflicting claim construction positions, however, was resolved by the Office in connection with the rulemaking. In its formal

responses to public comments, the Office made clear that the new, aligned claim construction standard was intended to promote consistency and, in significant part, to prevent a petitioner from taking inconsistent claim construction positions in the district court and before the Board. By proffering inconsistent claim construction positions, Petitioner has failed to comply with the Office's rules concerning claim construction and has, consequently, failed to demonstrate a reasonable likelihood of success as to any of the challenged claims. Indeed, by failing to take any construction at all, Petitioner has not complied with Rule 42.104(b)(3).

A. Petitioner Is Maintaining Inconsistent Positions.

A petitioner is required to present a case for unpatentability under the claim construction that it believes to be correct. *See Hologic, Inc., v. Enzo Life Scis., Inc.*, IPR2018-00019, Paper 17, 6-8 (Apr. 18, 2018). Petitioner did not do that here. Instead, it offers specific constructions to the District Court (either "[i]nformation that identifies the starting time-frequency offset for the segment" or "a piece of information identifying the starting time and starting frequency for the segment") but takes no position on claim construction, whatsoever, before the Board ("no formal claim constructions are necessary"). *Compare* Ex. 2011 [Opening Claim Construction Br.] 17 *with* Pet., 8.

B. IPR Rules Preclude Petitioner From Taking Inconsistent Claim Construction Positions From Those In The District Court.

The Board's rules require Petitioner to set forth in the Petition "how the challenged claim is to be construed" and "how the construed claim is unpatentable." 37 C.F.R. § 42.104(b)(3)-(4). Even before the Office's rulemaking in connection with 37 C.F.R. § 42.100(b), many Board panels found that a petitioner must provide the constructions it believes "[are] the correct construction[s] under applicable law" and "take ownership" of those constructions. *Toyota Motor Corp. v. Blitzsafe Tex., LLC,* IPR2016-00422, Paper 12, 26 (July 6, 2016) ("[t]he 'construction' referred to by 37 C.F.R. § 42.104(b)(3) is the construction proposed by the Petitioner, ***one that Petitioner believes is the correct construction under applicable law*** and should apply in the involved proceeding.… Petitioner ***does not take ownership*** of the district court's constructions by indicating, in some way, that it agrees with, proposes, or adopts the construction of this district court.") (emphasis added in parenthetical); *see also Carefusion Corp. v. Baxter Int'l, Inc.*, IPR2016-01456, Paper 9, 7 (Feb. 6, 2017) ("Petitioner states that it relies on constructions advanced by Patent Owner in the related litigation; ***remarkably, however, Petitioner also states that it does not agree that those constructions are in fact correct***.") (emphasis added in parenthetical); *Hologic, Inc., v. Enzo Life Scis., Inc.*, IPR2018-00019, Paper 17, 9 (Apr. 18, 2018) ("…

Petitioner was free to advocate unpatentability under a claim construction it considered to be correct. It did not do so.”).

On October 11, 2018, after a five-month notice and comment process, the Office issued a final rule (§ 42.100(b)) that aligned the claim construction standard for PTAB trials, including IPRs, with the standard employed by district courts. The Preamble to the final rule, was published in the Federal Register and set forth the Office’s rationale for the new rule and how it should be interpreted. The rule’s purpose was clear: to ensure greater fairness, consistency, and predictability in the patent system. Significantly, the Preamble made clear that the rule was intended to prevent petitioners from taking inconsistent positions on claim construction.

The Preamble[4] discusses the rationale for and effect of the new claim construction rule. By applying the district court claim construction standard in

[4] The Federal rules require that an “agency submitting a proposed or final rule document for publication shall prepare a preamble which will inform the reader, who is not an expert in the subject area, of the basis and purpose for the rule or proposal.” 1 C.F.R. § 18.12(a). This preamble shall contain “supplementary information” which may include “a discussion of the background and major issues involved” and “a response to substantive public comments received.” 1 C.F.R. § 18.12(b)-(c).

IPRs, the Office explained that its "goal is to implement a balanced approach, providing greater predictability and certainty in the patent system." 83 Fed. Reg. 51,342-51,343 (Oct. 11, 2018). Importantly, the Preamble repeatedly confirms that a petitioner may not assert inconsistent claim construction positions. In a comment and response section of the preamble entitled "fairness," the Office explained it "agrees with [] comments" that "that harmonizing the claim construction standards would prevent parties from taking inconsistent [claim construction] positions." *Id.*, 51,350. Furthermore, a patent challenger "will [] be required to choose a single claim construction that best captures the true meaning of the claim." *Id.* Similarly, in a section titled "consistency," the Office again agreed with comments that the rule change would "prevent[] parties from taking inconsistent positions, such as a patent challenger arguing for a broad scope in a PTAB proceeding (under BRI) and a narrow scope (under *Phillips*) in district court to avoid a finding of infringement." *Id.*, 51,347-51,348. Further driving home the point, the Office warned that "the possibility of differing constructions for the same claim term is troubling, especially when claim construction takes place at the same time in parallel district court proceedings and USPTO proceedings." *Id.*, 51,342.

The Office's contemporaneous guidance with the new rules, reflecting a complete, deliberative process, should be followed. Preambles are the "most important form of guidance about the meaning and application of regulations" and

"have undeniable importance to law and governance in the United States." Ex. 2012 [Stack] 1255-1256. Preambles are entitled to considerable deference. *Id.*, 1284 ("As a class, preambles provide the agency's most detailed explanation and reasoning in the exercise of its expertise and political judgment. … [A]s the agency's most carefully considered and vetted statements, preamble guidance is entitled to greater deference or weight than other forms of guidance."); *Fidelity Fed. Sav. & Loan Ass'n v. de la Cuesta*, 458 U.S. 141, 158 n.13 (1982) ("[W]e look to the preamble . . . for the administrative construction of the regulation, to which 'deference is . . . clearly in order.'"); *Halo v. Yale Health Plan*, 819 F.3d 42, 53 (2nd Cir. 2016) ("We conclude that the Department's interpretation of its own regulation as contained in the regulation's preamble is entitled to substantial deference …").

In accord and significantly for present purposes, the Board has deferred to the preamble and precluded a party from taking inconsistent claim constructions in IPR:

> If we were to adopt Petitioner's claim construction as presented in the Petition, and if the district court were to adopt Petitioner's claim constructions as proposed there, the subsequent decisions issued in reliance on these inconsistent claim constructions may lack 'uniformity' between us and the district court and may undermine the 'predictability' of the…patent's claim scope and the 'integrity of the

> patent system' overall. Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. at 51,342. Petitioner has not provided us with any arguments as to why such problems are not present here, much less provided any reason behind its inconsistent claim constructions in general.

KioSoft Tech. LLC v. PayRange Inc., CBM2020-00026, Paper 11, 17 (Mar. 22, 2021).

Here, the Board should follow the Preamble's repeated confirmation that a petitioner may no longer take inconsistent claim construction positions. That guidance is entitled to deference, as the Board has repeatedly recognized. Indeed, since the revised § 42.100(b) has taken effect, the Board has repeatedly declined institution where a petitioner, like here, maintains inconsistent claim constructions. *See Orthopediatrics Corp. v. K2M Inc.*, IPR2018-01546, Paper 10, 10-12 (Feb. 14, 2019) ("Petitioner's failure to provide a claim construction is … further compounded by the fact that Petitioner takes an inconsistent position before the District Court ... By failing to reconcile its proffered claim construction here with its very different construction proffered in District Court … Petitioner fails to satisfy [its] burden") (denying institution); *see also Samsung Elecs. Co.. v. Ancora Techs., Inc.*, IPR2020-01184, Paper 11, 27 (Jan. 5, 2021) ("Significantly, Petitioner's [claim construction] argument … seems to be inconsistent with its

position advanced in the parallel litigation and the Federal Circuit's interpretation ....") (denying institution); *KioSoft*, 16-18 (denying institution); *Ford Motor Co. v. MIT*, IPR2020-00010, Paper 9, 15-16 (Mar. 26, 2020) ("[I]n order for us to rule in Petitioner's favor in this *inter partes* review, we would have to issue a preliminary claim construction ruling directly opposite that of the District Court.") (denying institution).

***

The Petition, thus, fails to provide its actual claim construction positions (contravening Rule 42.104) or justify its inconsistent positions. This is in violation of the Board's rules governing claim construction and, in accordance with the numerous Board decisions cited above, the Petition fails to demonstrate a reasonable likelihood of success as to any of the challenged claims and institution should be denied. At a minimum, the Board should deny the Petition for failing to comply with Rule 42.104(b)(3).

VII. CONCLUSION

Any of the bases in Sections III-VI provides an independent reason to deny the Petition, and Patent Owner respectfully requests the same.

Respectfully submitted,

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Date: December 20, 2021

CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITS

This Patent Owner Preliminary Response (the "POPR") consists of 11,078 words, excluding table of contents, table of authorities, certificate of service, this certificate, or table of exhibits. The POPR complies with the type-volume limitation of 14,000 words as mandated in 37 C.F.R. § 42.24. In preparing this certificate, counsel has relied on the word count of the word-processing system used to prepare the paper (Microsoft Word).

Respectfully submitted,

/ Bridget A. Smith /

Date: December 20, 2021

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the following documents were served by electronic service, by agreement between the parties, on the date below:

PATENT OWNER PRELIMINARY RESPONSE

EXHIBITS 2001, 2003-2007, 2011-2014, 2016-2017

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