

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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ERICSSON INC. AND  
NOKIA OF AMERICA CORPORATION,  
Petitioner,

v.

GODO KAISHA IP BRIDGE 1,  
Patent Owner.

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IPR2022-00726  
Patent 8,077,594 B2

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Before DAVID C. MCKONE, AMBER L. HAGY, and  
JOHN D. HAMANN, *Administrative Patent Judges*.

HAMANN, *Administrative Patent Judge*.

DECISION  
Denying Institution of *Inter Partes* Review  
35 U.S.C. § 314

## I. INTRODUCTION

Ericsson Inc. (“Ericsson”) and Nokia of America Corporation (“Nokia”) (collectively “Petitioner”) filed a petition for *inter partes* review of claims 1–13 (“the challenged claims”) of U.S. Patent No. 8,077,594 B2 (Ex. 1001, “the ’594 patent”). Paper 1 (“Pet.”). Patent Owner filed a Preliminary Response. Paper 9 (“Prelim. Resp.”).

We have authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2021). The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” For the reasons provided below, we exercise our discretion under 35 U.S.C. § 314(a), and decline to institute an *inter partes* review of the ’594 patent.

### A. *Real Parties-in-Interest*

Petitioner provides that “Nokia Solutions and Networks Oy, Nokia of America Corporation, Ericsson Inc., and Ericsson’s corporate parent Telefonaktiebolaget LM Ericsson are each a real party-in-interest.” Pet. 58. Patent Owner identifies itself as a real party-in-interest. Paper 5, 2.

### B. *Related Matters*

The parties identify the following district court proceeding<sup>1</sup> as related to the ’594 patent: *Godo Kaisha IP Bridge 1 v. Nokia Solutions*, No. 2:21-cv-00215 (E.D. Tex.) (“the Texas case”). Pet. 58–59; Paper 10, 2.

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<sup>1</sup> The parties also initially identified *Godo Kaisha IP Bridge 1 v. Telefonaktiebolaget LM Ericsson*, No. 2:21-cv-00213 (E.D. Tex.) as a related matter. Pet. 58–59; Paper 5, 2. Patent Owner states that it “no longer asserts the ’594 patent against Petitioner Ericsson.” Prelim. Resp. 14 n.2.

*C. The Challenged Patent*

The '594 patent “relates to a radio communication base station apparatus and an association setting method.” Ex. 1001, 1:8–9. First, the '594 patent discusses the transmission of Sounding Reference Signals (“SRSs”) for channel quality indicator (“CQI”) estimation. *Id.* at 1:13–21. The '594 patent discloses that a “mobile station transmits SRSs periodically (e.g., [.] at 1-subframe intervals=at 1 ms intervals), according to command from [a] base station.” *Id.* at 1:25–27. A SRS is formed, for example, “with one LB (Long Block) and the time length of the SRS is 71.4 μs including the CP (Cyclic Prefix) and the reference signal,” according to the '594 patent. *Id.* at 1:22–25.

Second, the '594 patent discusses “the use of random access preamble (hereinafter abbreviated as a ‘preamble’) for initial access of a mobile station, updating of transmission timing[,] and CQI estimation on uplink from a mobile station to a base station.” *Id.* at 1:39–43. A preamble signal “includ[es] identification information about a mobile station, and each mobile station randomly selects one of a plurality of code sequences set up in advance by a base station or selects one code sequence according to command from the base station.” *Id.* at 1:44–48. The “mobile station then transmits a preamble generated based on the selected code sequence to the base station” “periodically (e.g., [.] at 10-subframe intervals-10 ms intervals), according to command from the base station.” *Id.* at 1:48–50, 1:54–57. “[T]he preamble is formed with one subframe, for example, and the time length of the preamble is 1 ms (= 14 LBs) including the CP, the preamble[,] and the guard time, which is a non-transmission period,” according to the '594 patent. *Id.* at 1:51–54. The “guard time is set in the preamble . . . to prevent the preamble from delaying and causing interference with the signal

of the next subframe,” such as when the mobile station has not established synchronization with the base station. *Id.* at 1:63–2:3.

According to the '594 patent, a “conventional technique of performing transmission [is] by assigning the SRS to the first LB in a subframe, [and] the first LB in a subframe is more frequently used to transmit the SRS as the number of mobile stations in a cell increases.” *Id.* at 2:28–32. “Therefore, . . . when the number of mobile stations within the cell increases, communication resources available for data transmission decrease, and, as a result, the data transmission efficiency is reduced.” *Id.* at 2:34–39.

In response, the '594 patent is directed to “suppressing the amount of communication resources used for SRSs.” *Id.* at 2:40–43, 2:61–62. The '594 patent discloses “arranging the SRS in the guard time position in the preamble.” *Id.* at 5:53–55. Put differently, “the preamble and the SRS use the same transmission time field” (i.e., subframe). *Id.* at 3:47–48, 6:17–18.

Figure 5, shown below, illustrates this teaching.

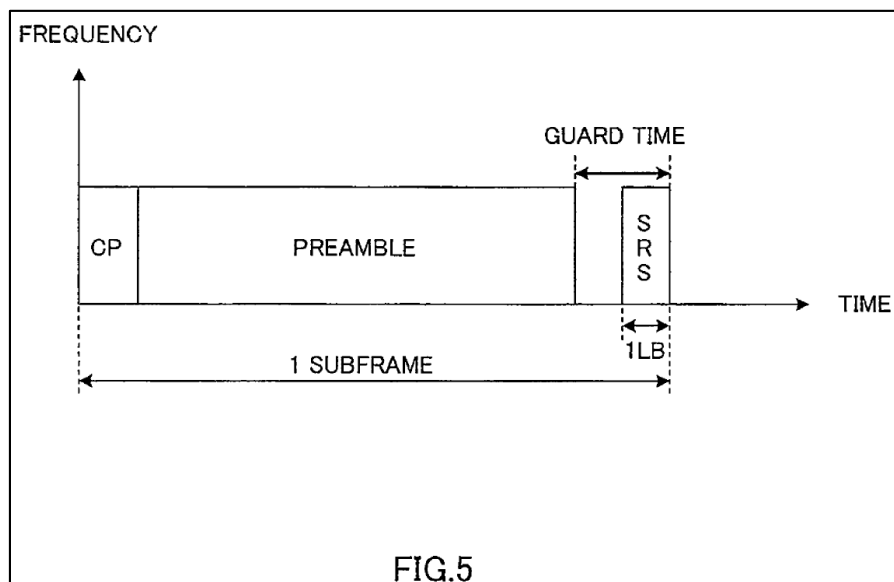


Figure 5 “is a diagram illustrating a preamble transmission time field according to” an embodiment of the '594 patent. *Id.* at 3:10–12. This figure

illustrates “arrang[ing] the SRS in the guard time of one subframe including the CP, the preamble and the guard time.” *Id.* at 6:64–66. As illustrated, the SRS is arranged “at the tail end of the subframe such that the time interval between the preamble and the SRS becomes maximum.” *Id.* at 6:66–7:2.

The ’594 patent discloses embodiments where “part of the SRS transmission time field ([e.g.,] half of the whole . . .) is transmitted using the same transmission time field as the preamble transmission time field, [and thus,] communication resources used for the SRS can be reduced.” *Id.* at 6:46–49. Also disclosed are embodiments that have “the preamble transmission time field constantly match[] the SRS transmission time field, and, consequently, the preamble transmission time field is the only communication resource used for the SRS.” *Id.* at 6:54–58.

#### *D. Illustrative Claim*

Of the challenged claims, claims 1 and 13 are independent. Claim 1 is illustrative of the challenged claims and is reproduced below.

1. A base station apparatus comprising:
  - a receiving unit configured to receive a Sounding Reference Signal (SRS) that is mapped to a position of a guard time in a subframe, in which a random access preamble is transmitted, and that is transmitted from a mobile station apparatus, the guard time during which nothing is transmitted being added to the last of the random access preamble, and a cyclic prefix being added to the beginning of the random access preamble; and
  - a demodulating unit configured to demodulate the received SRS,wherein the random access preamble is a preamble sequence selected from a set of preamble sequences, and wherein the guard time is of a given time length.

Ex. 1001, 14:6–19.

*E. Asserted Ground of Unpatentability*

Petitioner asserts that claims 1–13 of the ’594 patent are unpatentable based on the following ground:

<b>Claim(s) Challenged</b>	<b>35 U.S.C. §<sup>2</sup></b>	<b>Reference(s)/Basis</b>
1–13	103(a)	36.211 v1.2.0, <sup>3</sup> 36.300 v8.0.0, <sup>4</sup> R1-072296 <sup>5</sup>

Pet. 4, 25–55. Petitioner submits in support of its arguments the Declarations of (i) Craig Bishop (Ex. 1029), (ii) Antti Toskala (Ex. 1030), and (iii) Mark Mahon (Ex. 1031).

**II. DISCRETIONARY DENIAL UNDER 35 U.S.C. § 314**

Patent Owner argues that we should exercise our discretion and deny institution pursuant to 35 U.S.C. § 314(a) due to the parallel Texas case, which will address patentability prior to our deadline for a final written decision. Prelim. Resp. 6.

Institution of *inter partes* review is discretionary. *See Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“[T]he PTO is

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<sup>2</sup> The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the ’594 patent issued from an application having a filing date before March 16, 2013, we apply the pre-AIA version of the statutory basis for unpatentability.

<sup>3</sup> 3GPP TS 36.211 v1.2.0 (2007-06), 3rd Generation Partnership Project (“3GPP”); Technical Specification Group Radio Access Network; Physical Channels and Modulation (Release 8) (Ex. 1012, “36.211 v1.2.0”).

<sup>4</sup> 3GPP TS 36.300 v8.0.0 (2007-03) 3GPP; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (“E-UTRA”) and Evolved Universal Terrestrial Radio Access Network; Overall Description; Stage 2 (Release 8) (Ex. 1005, “36.300 v8.0.0”).

<sup>5</sup> R1-072296, 3GPP TSGRAN Working Group 1 Meeting #49; Agenda Item 7.11.2: UL Sounding (Ex. 1004, “R1-072296”).

permitted, but never compelled, to institute an IPR proceeding.”); 35 U.S.C. § 314(a). The Board has held that the advanced state of a parallel district court action is a factor that may weigh in favor of denying a petition under § 314(a). *See NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential); Patent Trial and Appeal Board, Consolidated Trial Practice Guide, 58 & n.2 (Nov. 2019) (“Trial Practice Guide”).<sup>6</sup> We consider the following factors to assess “whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding”:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board’s exercise of discretion, including the merits.

*Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5–6 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). In evaluating these factors, we “take[] a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.* at 6.

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<sup>6</sup> Available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>.

The Director has issued additional guidance on the application of *Fintiv*. See Katherine K. Vidal, *Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation* (June 21, 2022)<sup>7</sup> (“*Fintiv* Memo”).

Upon consideration of these factors and the parties’ arguments, we exercise our discretion to deny the Petition.

A. *Whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted*

“A district court stay of the litigation pending resolution of the PTAB trial allays concerns about inefficiency and duplication of efforts.” *Fintiv*, Paper 11 at 6. *Fintiv* indicated thus, in previous Board decisions, that the existence of a district court stay pending Board resolution of an *inter partes* review has weighed strongly against discretionary denial, while a denial of such a stay request sometimes weighs in favor of discretionary denial. *Id.* at 6–8.

Petitioner asserts that it has not filed a motion to stay the Texas case, but intends to do so if we institute a trial in this proceeding. Pet. 56–57. Patent Owner argues that the District Court will not stay the Texas case because a trial is scheduled in that case prior to the deadline for our institution decision. Prelim. Resp. 7.

Because neither party has requested a stay pending this proceeding, we determine that Factor 1 is neutral. See *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15 at 12 (PTAB May 13, 2020) (informative)

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<sup>7</sup> Available at [https://www.uspto.gov/sites/default/files/documents/interim\\_proc\\_discretionary\\_denials\\_aia\\_parallel\\_district\\_court\\_litigation\\_memo\\_20220621\\_.pdf](https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf)



(Institution Decision) (holding that “[t]his factor does not weigh for or against discretionary denial” when neither party requested a stay).

*B. Proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision*

The proximity factor in *Fintiv* asks us to evaluate our discretion in light of a trial date that has been set in a parallel litigation. *See Fintiv*, Paper 11 at 3, 5 (“*NHK* applies to the situation where the district court has set a trial date to occur earlier than the Board’s deadline to issue a final written decision in an instituted proceeding.”; “When the patent owner raises an argument for discretionary denial under *NHK* due to an earlier trial date, the Board’s decisions have balanced the following factors . . . .”) (citing *NHK*, Paper 8 (footnote omitted)). As noted above in the discussion of a stay, *Fintiv* has expressed concern regarding “inefficiency and duplication of efforts.” *Id.* at 6. In its analysis of the proximity factor, *Fintiv* echoes that concern in its guidance that “[i]f the court’s trial date is at or around the same time as the projected statutory deadline or even significantly after the projected statutory deadline, the decision whether to institute will likely implicate other factors discussed herein, such as the resources that have been invested in the parallel proceeding.” *Id.* at 9. Similarly, in *NHK*, the Board expressed the concern that a trial before the deadline for a final written decision addressing the same prior art and arguments would have undermined the Board’s objectives of providing an effective and efficient alternative to district court litigation. *See NHK*, Paper 8 at 20 (citing *Gen. Plastic Indus. Co., Ltd. v. Cannon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 16–17 (PTAB Sept. 6, 2017 (precedential))).

“Additionally, when considering the proximity of the district court’s trial date to the date when the PTAB final written decision will be due, the

PTAB will consider the median time from filing to disposition of the civil trial for the district in which the parallel litigation resides.” *Fintiv* Memo 3 (footnote omitted).

At the time Patent Owner filed its Preliminary Response, the jury selection in the Texas case was scheduled for October 3, 2022. Ex. 2001, 2. Petitioner acknowledges that “the parallel district court litigation’s target trial date precedes the anticipated date of the Board’s final decision,” but argues generally that target dates in initial docket control orders are often subject to settlement, delays, or stipulations, and that the COVID-19 pandemic might introduce delay. Pet. 57.

Petitioner offers no evidence that the trial in the Texas case will be delayed significantly. The parties have represented that although they are in discussions regarding settlement, trial likely will be set for December 5, 2022. There is nothing to suggest that trial in the Texas case is not imminent, if those discussions are not fruitful. We find that any likely trial date is well before a final written decision would be due in this proceeding.

Accordingly, this factor weighs heavily in favor of exercising our discretion to deny the Petition.

*C. Investment in the parallel proceeding by the court and the parties*

If, at the time of the institution decision, the district court has issued substantive orders related to the challenged patent, such as a claim construction order, this fact weighs in favor of denial. *See Fintiv*, Paper 11 at 9–10. On the other hand, if the district court has not issued such orders, this fact weighs against discretionary denial. *Id.* at 10.

Patent Owner argues that at the time of institution, all substantive motions will have been filed and all discovery and pre-trial submissions will be complete. Prelim. Resp. 10–11. Petitioner argues that, as of the

Petition's filing date, discovery was still ongoing. Pet. 56. However, *Fintiv* counsels us to consider investment at the time of our institution decision. See *Fintiv*, Paper 11 at 9–10.

Petitioner argues that it was reasonable for it to wait until it learned which claims were being asserted in the Texas case before it filed its Petition. Pet. 56–57 (citing *HP Inc. v. Slingshot Printing LLC*, IPR2020-01084, Paper 13 at 9 (PTAB Jan. 14, 2021)). Patent Owner argues that it served its Preliminary Infringement Contentions in the Texas case more than six months before the Petition. Prelim. Resp. 12. Petitioner does not explain its delay and, thus, its argument is not persuasive.

The record shows that the parties' and the District Court's investment in the Texas case has been extensive, as all work except for the trial itself appears to be complete. This factor weighs heavily in favor of exercising our discretion to deny the Petition.

*D. Overlap between issues raised in the petition and in the parallel proceeding*

“[I]f the 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*, Paper 11 at 12. “Conversely, if the petition includes materially different grounds, arguments, and/or evidence than those presented in the district court, this fact has tended to weigh against exercising discretion to deny institution under *NHK*.” *Id.* at 12–13.

In *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18–19 (PTAB Dec. 1, 2020) (precedential as to § II.A), the petitioner stipulated in a parallel district court case that it “will not pursue in this case the specific grounds . . . [in] the instituted inter parties [sic] review petition, or on any other ground . . . that was raised or could have been reasonably

*raised in an IPR (i.e., any ground that could be raised under §§ 102 or 103 on the basis of prior art patents or printed publications)*” (alterations by *Sotera* panel). The Board found that “Petitioner’s broad stipulation ensures that an *inter partes* review is a ‘true alternative’ to the district court proceeding,” and that “this factor weighs strongly in favor of not exercising discretion to deny institution under 35 U.S.C. § 314(a).” *Id.* at 19.

“Consistent with *Sotera Wireless, Inc.*, the PTAB will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB.” *Fintiv* Memo 3 (footnote omitted).

In this proceeding, “Petitioner[] stipulate[s] that [it] will not pursue invalidity against the asserted claims in the district court using the specific combination of prior art references set forth in the ground[] presented in this Petition for purposes of establishing obviousness, eliminating any overlap in issues.” Pet. 57. As Petitioner observes, *id.* at 57–58, this is similar to the stipulation provided in *Sand Revolution II, LLC v. Continental Intermodal Group—Trucking LLC*, IPR2019-01393, Paper 24 at 11–12 (PTAB June 16, 2020) (informative), which the Board found “mitigates to some degree the concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions,” and thus found “that this factor weighs marginally in favor of not exercising discretion to deny institution under 35 U.S.C. § 314(a).” Petitioner’s stipulation in this proceeding, then, is narrower than the stipulation in *Sotera*, and the *Fintiv* Memo does not suggest that we should refrain from denying the Petition on the basis of Petitioner’s narrower stipulation.

Patent Owner argues that, unlike the stipulation in *Sotera*, Petitioner’s stipulation is an “empty promise,” as Petitioner “ha[s] elected a combination of references in the district court litigations (‘R1-073172 (36.211 v1.2.0) + R1-072296’) that is substantially the same as [the ground] presented in the Petition (R1-073172 combined with 36.300 v8.0.0 and R1-072296).”

Prelim. Resp. 13–14.

We agree with Patent Owner that Petitioner’s stipulation is limited and is unlikely to significantly prevent our duplication of work that the District Court will have completed by the time a final written decision would be due in this proceeding. At best for Petitioner, this factor is neutral as to whether we should exercise our discretion to deny the Petition.

*E. Whether the petitioner and the defendant in the parallel proceeding are the same party*

If the petitioner here were unrelated to the defendant in the parallel proceeding, that might weigh against discretionary denial. *See Fintiv*, Paper 11 at 13–14. Here, however, Petitioner Nokia is the defendant in the parallel proceeding. We find that this factor weighs in favor of exercising our discretion to deny the Petition.

*F. Other circumstances that impact the Board’s exercise of discretion, including the merits*

“[I]f the merits of a ground raised in the petition seem particularly strong on the preliminary record, this fact has favored institution.” *Fintiv*, Paper 11 at 14–15. “[C]ompelling, meritorious challenges will be allowed to proceed at the PTAB even where district court litigation is proceeding in parallel. Compelling, meritorious challenges are those in which the evidence, if unrebutted in trial, would plainly lead to a conclusion that one or

more claims are unpatentable by a preponderance of the evidence.” *Fintiv*

Memo 4. As the Director has stated:

To be clear, a compelling-merits challenge is a higher standard than the reasonable likelihood required for the institution of an IPR under 35 U.S.C. § 314(a). A challenge can only “plainly lead to a conclusion that one or more claims are unpatentable” (*id.*) if it is highly likely that the petitioner would prevail with respect to at least one challenged claim. I recognize that all relevant evidence likely will not have been adduced at the point of institution; trial should produce additional evidence that may support a determination in the Final Written Decision that unpatentability has not been adequately proven. Thus, a determination of “compelling” merits should not be taken as a signal to the ultimate conclusion after trial. The Board shall provide its reasoning in determining whether the merits are compelling.

*OpenSky Indus., LLC v. VLSITech. LLC*, IPR2021-01064, Paper 102 at 49–50 (PTAB Oct. 4, 2022) (precedential, decision upon Director review) (quoting *Fintiv* Memo 4).

For the reasons given below (*infra* Section VI), Petitioner has not presented a compelling, meritorious challenge to the claims of the ’594 patent. Thus, this factor is neutral as to whether we should exercise our discretion to deny the Petition.

#### *G. Balancing the Fintiv Factors*

We have considered the circumstances and facts before us in view of the *Fintiv* factors. Because our analysis is fact driven, no single factor is determinative of whether we exercise our discretion to deny institution under § 314(a). Considering the *Fintiv* factors as part of a holistic analysis, we are persuaded that the interests of the efficiency and integrity of the system would be best served by invoking our authority under 35 U.S.C. § 314(a) to deny institution.

### III. LEVEL OF ORDINARY SKILL IN THE ART

To determine whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). In assessing the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962–63 (Fed. Cir. 1986)). “[O]ne or more factors may predominate.” *Id.*

Petitioner argues that one of ordinary skill in the art would have had “(1) the equivalent of an undergraduate degree in Electrical Engineering, Computer Science, or Computer Engineering, or equivalent; and (2) at least two years of experience in design, development, and/or testing of cellular networks.” Pet. 15 (citing Ex. 1031 ¶ 35). “Such a person would have been familiar with the public discussion and proposals made as part of the 3GPP LTE standards-setting body,” according to Petitioner. *Id.* Petitioner adds that “[a]dditional education could substitute for professional experience, and significant work experience could substitute for formal education.” *Id.* at 16 (citing Ex. 1031 ¶ 35).

Patent Owner provides a proposed assessment for the level of skill, but also states that “[w]hile Patent Owner does not agree with the specifics of Petitioner[’s] assertion, the [c]hallenged [c]laims are not disclosed or rendered obvious under either proposed level of skill.” Prelim. Resp. 21–22. Patent Owner does not identify any specific shortcoming in Petitioner’s formulation. *See id.*

For purposes of this Decision, we adopt Petitioner’s assessment of the level of skill for one of ordinary skill in the art. Pet. 15. This assessment is consistent with the ’594 patent and the asserted prior art, and we apply it in our analysis below.

#### IV. CLAIM CONSTRUCTION

Because the Petition was filed after November 13, 2018, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b). In applying such standard, claim terms are generally given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art, at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner identifies four terms for construction, including (i) “a position of a guard time in a subframe” and (ii) “subframe.” Pet. 16–23. These two terms are recited as part of the limitation for which we analyze below Petitioner’s arguments of unpatentability. *See infra* Section VI(C). The parties agree, however, that “a position of a guard time in a subframe” means “a position of a guard time in a subframe as received at the base station.” Pet. 16; Prelim. Resp. 20. As to “subframe,” the differences in the parties’ proposed constructions are not germane to our discussion for the limitation we analyze below. *See infra* Section VI(C); *see also* Pet. 22



(stating that “[s]ignificantly, the Board need not resolve this dispute,” regarding the construction of “subframe”); Prelim. Resp. 21 (“Patent Owner agrees that no construction is necessary at this stage of the IPR,” regarding the construction of “subframe”).

We determine that no express constructions are needed for us to render our Decision on Institution. *See, e.g., Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’”).

## V. PRINCIPLES OF LAW

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of non-obviousness, if present.<sup>8</sup> *See Graham*, 383 U.S. at 17–18. When evaluating a claim for obviousness, we also must “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

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<sup>8</sup> Patent Owner does not present arguments or evidence of such objective evidence of non-obviousness. *See generally* Prelim. Resp.

VI. ALLEGED OBVIOUSNESS OVER 36.211 V1.2.0,  
36.300 V8.0.0, AND R1-072296

Petitioner argues that the combination of 36.211 v1.2.0, 36.300 v8.0.0, and R1-072296 renders claims 1–13 obvious. Pet. 3, 17–31. We focus on Petitioner’s showing that a SRS is mapped to a guard time in a subframe, in which a preamble is transmitted, for which in relevant part Petitioner relies on 36.211 v1.2.0 and R1-072296. For the reasons that follow, we determine that Petitioner’s showing for this limitation is not compelling.

A. *Summary of 36.211 v1.2.0*

36.211 v1.2.0 is titled “3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Physical Channels and Modulation,” and states that it describes the physical channels for E-UTRA. Ex. 1012, 1, 6. For example, 36.211 v1.2.0 describes a type of radio frame that “is  $T_f = 307200 \times T_s = 10$  ms long and consists of 20 slots of length  $T_{\text{slot}} = 15360 \times T_s = 0.5$  ms, numbered from 0 to 19,” where “ $T_s = 1/(15000 \times 2048)$  seconds.” *Id.* at 8. 36.211 v1.2.0 further states that “[a] subframe is defined as two consecutive slots where subframe  $i$  consists of slots  $2i$  and  $2i + 1$ .” *Id.* 36.211 v1.2.0 also provides that “[t]he sounding reference signal is mapped to a long [Single Carrier – Frequency Division Multiple Access (‘SC-FDMA’)] symbol.” *Id.* at 36; Ex. 1005, 11 (defining a list of abbreviations).

In addition, 36.211v1.2.0 describes the preamble format, as illustrated in Figure 19, shown below. Ex. 1012, 37–38.

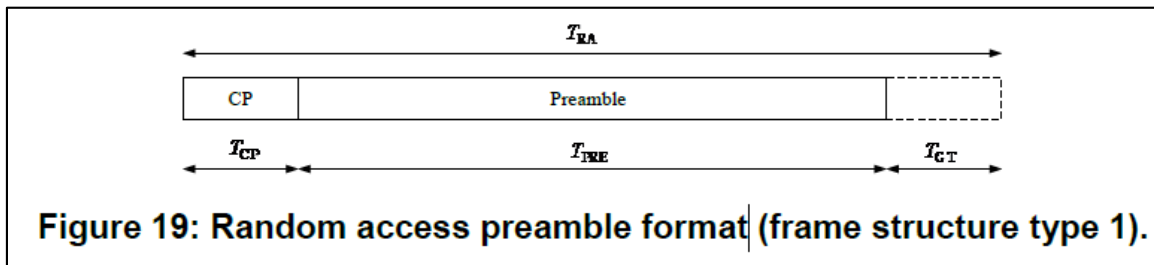


Figure 19 illustrates a random access preamble format. *Id.* at 38. More specifically, “[t]he physical layer random access burst, illustrated in Figure 19, consists of a cyclic prefix of length  $T_{CP}$ , a preamble of length  $T_{PRE}$ , and a guard time  $T_{GT}$  during which nothing is transmitted.” *Id.* at 37. 36.211 v1.2.0 states that “[t]he parameter values . . . depend on the frame structure and the random access configuration,” and include values of  $30720 \times T_s$  for  $T_{RA}$ ,  $3152 \times T_s$  for  $T_{CP}$ , and  $24576 \times T_s$  for  $T_{PRE}$  for frame structure type 1 and normal burst type. *Id.* at 38.

In addition, 36.211 v1.2.0 states that “[i]n the frequency domain, the random access burst occupies a bandwidth corresponding to 6 resource blocks for both frame structures.” *Id.* “Higher layers configure the location in frequency of the random access burst,” according to 36.211 v1.2.0. *Id.*

#### *B. Summary of R1-072296*

R1-072296 is a four-page document titled “UL sounding” and lists its source as “Nokia Siemens Networks, Nokia.” Ex. 1004, 1; Ex. 1005, 11 (providing abbreviation for uplink as “UL”). R1-072296 states that it “discusses the arrangement of UL sounding in the [Long Term Evolution (‘LTE’)] UL system.” Ex. 1004, 1; Ex. 1005, 10. According to R1-072296, “[t]here are still quite a lot of open issues related to UL sounding,” with “[t]he main questions [being] related to (1) bandwidth usage of sounding

RS[,] (2) practical arrangements for frequency hopping of sounding RS[,] and (3) signaling issues.” Ex. 1004, 1. “This contribution presents our views on these issues,” R1-072296 states. *Id.*

R1-072296 provides a “Proposed Sounding Sub-System,” as illustrated in Figure 1, shown below. *Id.* at 4.

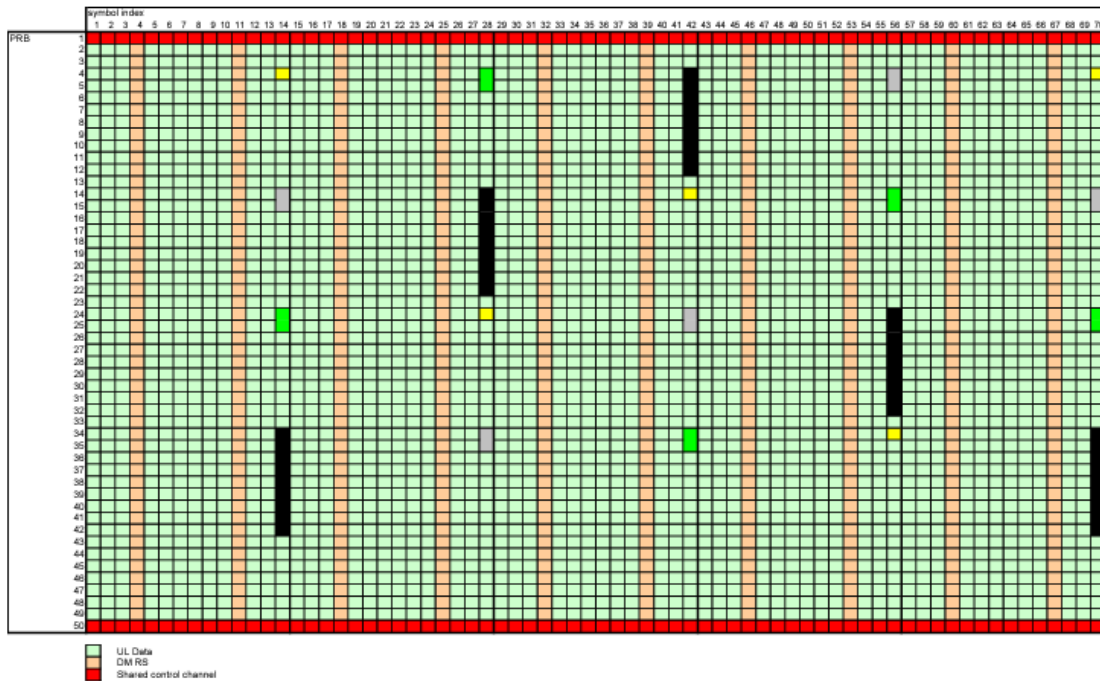


Figure 1. An example of bandwidth allocation for UL data, DM RS and sounding RS.

Figure 1 illustrates an example of bandwidth allocation for UL data and SRS. *Id.* at 4. As illustrated, Figure 1 comprises an array with the vertical access comprising 50 rows of physical resource blocks (“PRBs”) (numbered 1 to 50) and the horizontal axis comprising 70 columns of symbols (numbered 1 to 70). *Id.* at 4 (Fig. 1). UL data is shown in light green and SRSs are shown in yellow (row 4, column 14; row 24, column 28; row 14, column 42; row 34, column 56; and row 4, column 70), grey (rows 14–15, column 14; rows 34–35, column 28; rows 24–25, column 42; rows 4–5, column 56; and rows 14–15, column 70), green (rows 24–25, column 14; rows 4–5, column 28; rows 34–35, column 42; rows 14–15, column 56; and

rows 24–25, column 70), and black (rows 34–42, column 14; rows 14–22, column 28; rows 4–12, column 42; rows 24–32, column 56; and rows 34–42, column 70). *Id.*

For its proposed sounding sub-system, R1-072296 states that the “characteristics of sounding RS” include that the “BW of sounding RS is multiple of PRBs,” and that (i) “[w]e prioritize relatively narrow sounding BWs, such as 1–2 PRB . . .”; (ii) “[w]ideband sounding can be obtained via periodic [frequency hopping (“FH”)] of narrowband RS”; and (iii) “[o]nly limited number of BW options should be supported for sounding RS . . . .” *Id.* at 3. Moreover, R1-072296 states that “[o]ur preferred scheme is based on sounding with pre-defined sounding groups,” and that “UEs in the same group have a pre-defined frequency allocation supporting FH of sounding RS.” *Id.* at 4.

*C. Petitioner’s Showing for SRS Mapped to a Position of a Guard Frame is not Compelling*

Petitioner argues that 36.211 v1.2.0 combined with R1-072296 teaches “a Sounding Reference Signal (SRS) that is mapped to a position of a guard time in a subframe, in which a random access preamble is transmitted,” as recited in independent claim 1. Pet. 30–38.

As noted above, our analysis of the *Fintiv* factors suggests that we should discretionarily deny institution in view of parallel litigation. In view of the *Fintiv* Memo, we have reviewed the arguments and evidence presented to determine whether they present a compelling showing on the merits. We find that Petitioner’s showing for at least this limitation is not compelling for the reasons discussed below.

Petitioner argues that 36.211 v1.2.0 teaches that a user equipment (“UE”) transmits a preamble having a cyclic prefix added to the beginning

of the preamble and a guard time added to its end. Pet. 30–31 (citing Ex. 1012, 37–38; Ex. 1031 ¶¶ 112–114); Ex. 1005, 11. Petitioner argues that 36.211 v1.2.0 teaches that the total time for the preamble, its cyclic prefix, and its guard time is equal to the length of one subframe (i.e., 1 ms). *Id.* at 31 (citing Ex. 1012, 8, 37–38; Ex. 1031 ¶ 113). According to Petitioner, one of ordinary skill in the art would have understood that 36.211 v1.2.0 teaches that the guard time  $T_{GT}$  of the preamble “fully encompasses the last [Orthogonal Frequency Division Multiplexing (‘OFDM’)] symbol of the subframe” because the guard time  $T_{GT}$  “is the length of a normal-prefix OFDM symbol,” and “is at the end of the subframe.” *Id.* (citing Ex. 1012, 8, 31–33, 37–38; Ex. 1031 ¶ 115); Ex. 1005, 10. Petitioner adds that 36.211 v1.2.0 teaches that in the frequency domain, the preamble “occupies a bandwidth corresponding to 6 resource blocks.” Pet. 34 (citing Ex. 1012, 38; Ex. 1031 ¶ 121).

In addition, Petitioner argues that “36.211 v1.2.0 teaches including an SRS in the uplink,” but “does not teach where the SRS should be placed within a subframe.” *Id.* at 32 (citing Ex. 1012, 36; Ex. 1031 ¶ 117). On the other hand, R1-072296 teaches “that SRS should be placed in the last OFDM symbol of an uplink subframe,” according to Petitioner. *Id.* (citing Ex. 1004, Fig. 1; Ex. 1031 ¶¶ 103–106, 121–127). More specifically, Petitioner argues that one of ordinary skill in the art “would have known that a subframe consisted of 14 time-domain OFDM symbols,” and thus, “would have understood that Figure 1 of [R1-072296] discloses five consecutive subframes.” *Id.* (citing Ex. 1031 ¶¶ 64, 83–84, 118; Ex. 1012, 8, 31–33). In addition, Petitioner argues that R1-072296 teaches “that the ‘yellow, grey, green and black colo[rs] show the sounding RSs’ resource blocks.” *Id.* at 33 (citing Ex. 1004, 3; Ex. 1031 ¶ 119). Consequently, one of ordinary skill in

the art would have understood that R1-072296's Figure 1 "discloses allocating an SRS for different sounding groups in the 14<sup>th</sup>, 28<sup>th</sup>, 42<sup>nd</sup>, 56<sup>th</sup>, and 70<sup>th</sup> OFDM symbols—which correspond to the last OFDM symbol of each subframe," according to Petitioner. *Id.* (citing Ex. 1004, 3–4; Ex. 1031 ¶ 119).

In addition, Petitioner argues that one of ordinary skill in the art "would also have understood that [R1-072296's] Figure 1 discloses 'narrowband' sounding," in which "less than the entire bandwidth is used for each SRS." *Id.* (citing Ex. 1031 ¶ 120). Petitioner argues, for example, in Figure 1 "the black SRS comprises nine resource blocks; the green and gray SRSs comprise two resource blocks each; and the yellow SRS comprises one resource block." *Id.* at 33–34. Petitioner adds that "[e]ach of these 'narrowband' SRSs comprises less than the entire bandwidth (which spans 50 resource blocks)." *Id.* at 34 (citing Ex. 1031 ¶ 120).

According to Petitioner, combining 36.211 v1.2.0 with the R1-072296's "'narrowband' sounding system would have resulted in the guard time of the preamble of 36.211 [v]1.2.0 overlapping with the sounding symbol used in" R1-072296. *Id.* Petitioner argues that in Figure 1's narrowband sounding system, one of ordinary skill in the art "would have been motivated to schedule the SRS and '6 resource block' preamble at the same frequency in order to improve data efficiency." *Id.* (citing Ex. 1031 ¶ 121). According to Petitioner, one of ordinary skill in the art thus would have understood that this combination would have yielded a SRS that is mapped to a position of a guard time in a subframe, in which a random access preamble is transmitted. *Id.* at 36 (citing Ex. 1031 ¶ 123).

Additionally, Petitioner argues that R1-072296 also teaches "wideband" sounding. *Id.* (citing Ex. 1004, 1–3; Ex. 1031 ¶ 124).

According to Petitioner, “[i]n ‘wideband’ sounding, a single SRS is transmitted over the entire system bandwidth.” *Id.* (citing Ex. 1031 ¶ 124). Petitioner argues that “‘wideband’ sounding would cause any scheduling of 36.211 [v]1.2.0’s preamble to map the SRS and preamble’s guard time to the same time and frequency resources.” *Id.* at 38 (citing Ex. 1031 ¶ 126). Petitioner argues that thus one of ordinary skill in the art thus would have understood that this combination also would have yielded a SRS that is mapped to a position of a guard time in a subframe, in which a random access preamble is transmitted. *Id.* (citing Ex. 1031 ¶ 126).

We have reviewed the arguments and evidence presented. For our purposes here, we assume that Petitioner makes a sufficient showing to establish that 36.211 v1.2.0 teaches that a UE transmits a preamble where (i) the total time for the preamble, its cyclic prefix, and its guard time equals the length of one subframe; (ii) its guard time encompasses the last symbol of the subframe; and (iii) it occupies a bandwidth corresponding to six resource blocks. We also assume that Petitioner sufficiently shows that R1-072296 teaches placing a SRS in the last symbol of a subframe. For the reasons discussed below, however, we do not find compelling Petitioner’s showing for why one of ordinary skill in the art would have placed a SRS and preamble in a same subframe (i.e., mapped a SRS to a position of a guard time in a subframe, in which a random access preamble is transmitted).

First, we do not find compelling Petitioner’s argument that in R1-072296’s narrowband sounding system, one of ordinary skill in the art “would have been motivated to schedule the SRS and ‘6 resource block’ preamble at the same frequency in order to improve data efficiency.” Pet. 34 (citing Ex. 1031 ¶ 121). Petitioner’s reasoning of “improv[ing] data



efficiency” is generic, and is akin to stating in a conclusory fashion that the combination “would have been obvious.” *See In re Van Os*, 844 F.3d 1359, 1361 (Fed. Cir. 2017); *see also ActiveVideo Networks Inc. v. Verizon Comm., Inc.*, 694 F.3d 1312, 1328 (Fed. Cir. 2012) (finding expert testimony of motivation to combine “to build something better,” “more efficient, cheaper, or” something that “had more features” was generic and insufficient).

Moreover, we do not find compelling Dr. Mahon’s cited testimony, which in our view, and taken as a whole, risks using impermissible hindsight to reconstruct the invention of claim 1. *See Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017) (“[W]e cannot allow hindsight bias to be the thread that stitches together prior art patches into something that is the claimed invention.”); *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) (“It is impermissible to use the claimed invention as an instruction manual or ‘template’ to piece together the teachings of the prior art so that the claimed invention is rendered obvious.” (citation omitted)). In particular, Dr. Mahon testifies that scheduling the SRS and preamble at the same frequency “would allow much of the bandwidth for sounding in a subframe to be obtained without sacrificing resource elements otherwise useful for uplink data transmissions.” Ex. 1031 ¶ 121. Dr. Mahon’s rationale is conclusory and does not have the factual support necessary to guard against impermissible hindsight. Nor does Dr. Mahon cite, for example, prior art that uses a preamble’s guard time (or any guard time) for transmission of information, which could help guard against impermissible hindsight. *Id.*

Moreover, we do not find compelling Petitioner’s annotating R1-072296’s Figure 1 to include a preamble (and its CP and guard time) at

the same frequency band as a portion of a black SRS for that subframe. Pet. 35 (annotating Ex. 1004, Fig. 1). Rather, this annotation is akin to an argument that a skilled artisan could have mapped a SRS to a position of a guard time in a subframe, in which a random access preamble is transmitted. But that is not the proper inquiry. “[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.” *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015); *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1068–69 (Fed. Cir. 2018) (finding that “the Board focused on what a skilled artisan would have been *able* to do, rather than what a skilled artisan would have been *motivated* to do at the time of the invention”). We note that a preamble, which is six resource blocks, could be scheduled in each subframe without sharing a frequency with a SRS. *See* Ex. 1004, Fig. 1.

Second, we do not find compelling Petitioner’s arguments concerning R1-072296’s teachings for a wideband sounding system. Pet. 36–38. Simply put, Petitioner’s argument that “[i]n ‘wideband’ sounding, a single SRS is transmitted over the entire system bandwidth,” appears contrary to R1-072296’s proposed sounding sub-system shown in Figure 1 and the wideband sounding it teaches. *Compare id.* at 36 (citing Ex. 1031 ¶ 124), with Ex. 1004, 3–4. R1-072296 instead teaches that “[w]ideband sounding can be obtained via periodic FH of narrowband RS.” Ex. 1004, 3; *see also id.* at 4, Fig. 1 (showing FH for the SRSs across the subframes). Moreover, R1-072296 teaches that the “preferred scheme is based on sounding with pre-defined sounding groups,” and that “UEs in the same group have a pre-defined frequency allocation supporting FH of sounding RS.” *Id.* at 4. Having FH and sounding groups, especially those having frequency

allocation supporting FH of SRSs, is inconsistent with a single SRS being transmitted over the entire system bandwidth. In addition, R1-072296 teaches for its proposed system “prioritiz[ing] relatively narrow sounding BWs, such as 1–2 PRB.” *Id.* at 3.

Dr. Mahon’s testimony that Petitioner cites for its argument does not appear to address these teachings in R1-072296 concerning its wideband sounding. *See* Ex. 1031 ¶ 124. Nor does Dr. Mahon provide any factual support that one of ordinary skill in the art would have understood that wideband sounding for R1-072296’s Figure 1 means transmitting a single SRS over the entire system bandwidth. *Id.* We assign little weight to this testimony from Dr. Mahon, as it is inconsistent with R1-072296’s teachings and is not sufficiently explained or substantiated. *See* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”).

Petitioner’s argument that wideband sounding would cause any scheduling of a preamble to map the SRS and preamble’s guard time to the same time and frequency resources is premised on Petitioner’s argument that a single SRS is transmitted over the entire system bandwidth. Pet. 38 (citing Ex. 1031 ¶ 126). Thus, we also find this argument from Petitioner unconvincing.

In sum, we find that Petitioner’s arguments, and Dr. Mahon’s cited testimony, for this limitation are not compelling.

Accordingly, Petitioner’s showing as to independent claim 1 is less than a “compelling, meritorious challenge[.]” In addition, claims 2–12 depend from claim 1, and Petitioner’s arguments for these dependent claims do not cure the above deficiencies. Pet. 43–54. Nor does Petitioner provide separate arguments for independent claim 13, which recites substantively the

same limitation discussed above for claim 1. Thus, Petitioner's showing of unpatentability is not compelling for any of the challenged claims for the asserted ground.

#### VII. CONCLUSION

For the foregoing reasons, we exercise our discretion to deny the Petition.

#### VIII. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is denied and no trial is instituted.

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Patent 8,077,594 B2

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