

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORP., ERICSSON INC.,
AT&T SERVICES, INC., CELLCO PARTNERSHIP d/b/a
VERIZON WIRELESS, and T-MOBILE USA, INC.,
Petitioners,

v.

WIRELESS ALLIANCE LLC,
Patent Owner.

IPR2024-00619
Patent 10,045,383 B2

Before MICHELLE N. WORMMEESTER, AMBER L. HAGY, and
ANDREW L. NALVEN, *Administrative Patent Judges*.

NALVEN, *Administrative Patent Judge*.

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

I. INTRODUCTION

Nokia of America Corp., Ericsson Inc., AT&T Services, Inc., Cellco Partnership d/b/a Verizon Wireless, and T-Mobile USA, Inc. (collectively, “Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–8 of U.S. Patent No. 10,054,383 B2 (Ex. 1001, “the ’383 patent”). Wireless Alliance LLC (“Patent Owner”) filed a Preliminary Response (Paper 13, “Prelim. Resp.”). With our authorization (Paper 16), Petitioner filed a Reply to the Preliminary Response (Paper 17, “Pet. Reply”) and Patent Owner filed a Sur-Reply to the Reply (Paper 18, “Sur-Reply”).

We have authority under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a). Pursuant to 35 U.S.C. § 314(a), 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 that follow, we institute an *inter partes* review.

II. BACKGROUND

A. *Real Parties in Interest*

Petitioner identifies Nokia of America Corporation, Ericsson Inc., AT&T Services, Inc., AT&T Corp., AT&T Mobility LLC, Cellco Partnership d/b/a Verizon Wireless, and T-Mobile USA, Inc., as real parties in interest. Pet. 2. Patent Owner identifies Wireless Alliance, LLC, and Golden Wave Partners Co. Ltd., as real parties in interest. Paper 11, 2 (Patent Owner’s Updated Mandatory Notice).

B. *Related Proceedings*

The parties identify the following related cases: *Wireless Alliance, LLC v. AT&T Mobility LLC et al.*, No. 2:23-cv-00095 (E.D. Tex.) (hereafter,

“the District Court Litigation”)¹; *Wireless Alliance, LLC v. T-Mobile US, Inc. et al.*, No. 2:23-cv-00096 (E.D. Tex.); and *Wireless Alliance, LLC v. Verizon Communications, Inc. et al.*, No. 2:23-cv-00097 (E.D. Tex.). See Pet. 2; Paper 11, 2.

C. The '383 Patent

The '383 patent describes a system for providing separated uplink and downlink connections in a cellular network. Ex. 1001, code (57), 1:29–35. The '383 patent describes that in heterogenous cellular networks, there may be a difference in transmission power and antenna gain among base stations. *Id.* at 1:29–31. The '383 patent explains that base stations may have differences in coverage areas due to their differences in transmission power and antenna gain. *Id.* at 1:36–41. For example, a macrocell base station may have a larger coverage and allow a larger number of connections than a femtocell base station. *Id.* at 1:42–49. Further, the '383 patent explains that “[c]overage of a cell association based on a downlink signal may differ from coverage of a cell association based on an uplink.” *Id.* at 1:50–52. As a result, a terminal that performs a cell association with a single base station based on the downlink signal may experience unfairness between the signal to interference noise ratio (SINR) of the downlink and uplink. *Id.* at 1:55–62. To address this issue, the '383 patent proposes determining separate cell associations for uplink and downlink communications. *Id.* at 1:63–2:5.

¹ A review of the docket sheets for these matters indicates that, as of July 6, 2023, they were consolidated for all pretrial issues, with the lead case being designated as Case No. 2:23-cv-00095. Throughout this Decision, references to the District Court Litigation are to the consolidated cases.

Figure 3 of the '383 patent, reproduced below, illustrates a connection method that separates an uplink from a downlink connection. *Id.* at 3:47–49.

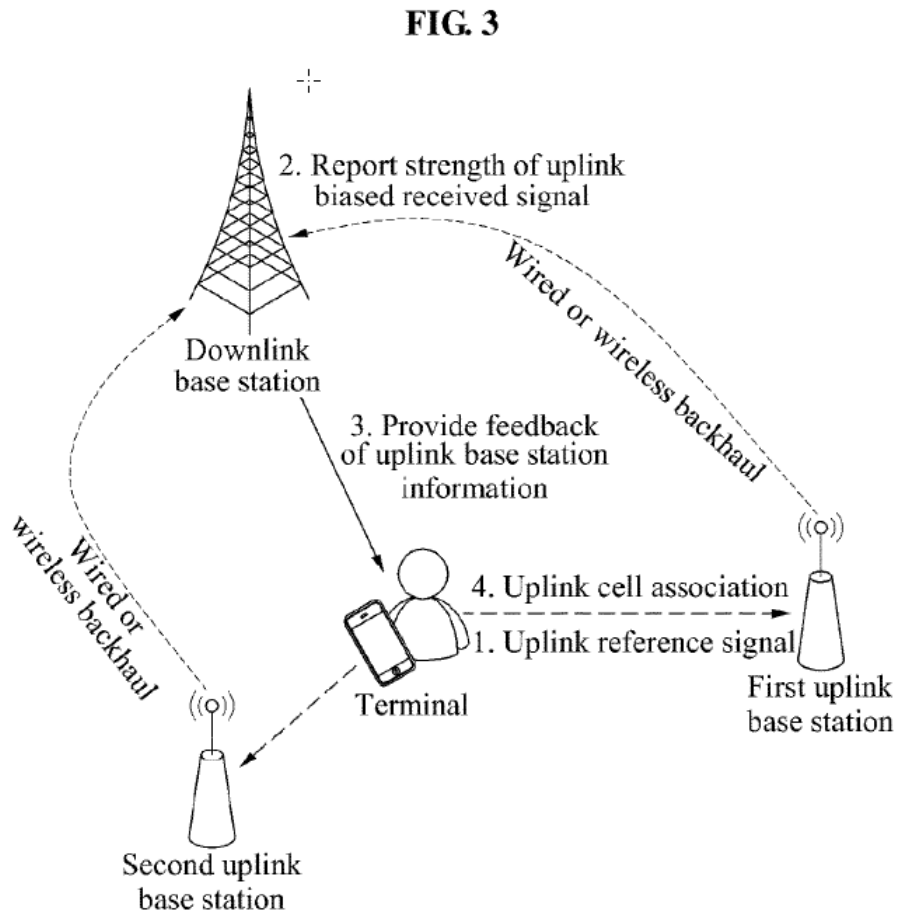


Figure 3 depicts a terminal, downlink base station, first uplink base station, and second uplink base station. Ex. 1001, Fig. 3. The '383 patent states that a terminal transmits an uplink reference signal to the uplink base station candidate group, depicted in Figure 3 as the first uplink base station and second uplink base station. *Id.* at 5:58–62. The uplink reference signal may include an identifier of a downlink base station and a reference signal flag variable that is associated with the terminal. *Id.* at 5:63–6:5.

Following the reception of the uplink reference signal, the candidate uplink base stations each measure the signal strength of the uplink reference signal and transmit the measured signal strength over a backhaul connection to the downlink base station associated with the terminal. *Id.* at 6:11–20. The downlink base station collects that signal strength information and provides the terminal uplink base station information. *Id.* at 6:14–28. Based on the uplink base station information, the terminal may establish an uplink cell association with one of the candidate uplink base stations. *Id.* at 6:21–28.

D. Illustrative Claim

Petitioner challenges claims 1–8 of the '383 patent, where claims 1, 6, and 8 are independent claims. Claim 1 is illustrative of the claimed invention and is reproduced below.

1. An operating method of a network comprising at least a base station, the method comprising:
transmitting, performed by each of base stations, a downlink reference signal to a terminal;
receiving, performed by a first base station, a strength of the downlink reference signal from the terminal;
establishing, performed by the first base station, a downlink cell association with the terminal;
determining, performed by the first base station, an identifier of a second base station providing an uplink control channel;
transmitting, performed by the first base station, the identifier of a second base station through the downlink cell association;
and
establishing, performed by the second base station, an uplink cell association with the terminal.

Ex. 1001, 13:50–14:11.

E. Asserted Challenge to Patentability

Petitioner challenges claims 1–8 of the ’383 patent as follows.

Pet. 25–71.

Claims Challenged	35 U.S.C. § ²	References/Basis
1–8	103	Yu ³ , Acharya ⁴

In support of its challenge, Petitioner relies on a Declaration of Joseph Camp, Ph.D. (Ex. 1005).

III. DISCRETIONARY DENIAL

A. Request for Denial Based on Fintiv

As noted above, the ’383 patent is the subject of three related district court proceedings, which are scheduled for trial in early November 2024.⁵ Pet. 2; Paper 11, 2. Patent Owner contends the Board should deny the Petition under § 314(a) because “[t]he Board should not waste its limited resources instituting an IPR petition on a patent that will go to trial just 5 weeks after institution.” Prelim. Resp. 12. Petitioner argues we should not

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103 effective March 16, 2013. Because the application from which the ’383 patent issued claims priority after this date, the AIA version of § 103 applies.

³ Yu et al., U.S. Publ’n No. 2011/0223900 A1, published September 15, 2011 (“Yu,” Ex. 1003).

⁴ Acharya, U.S. Publ’n No. 2013/0089034 A1, filed on October 5, 2011, and published April 11, 2013 (“Acharya,” Ex. 1004).

⁵ Patent Owner provides a First Amended Docket Control Order, dated May 2, 2024, which provides for jury selection on November 4, 2024. Ex. 2001. A review of the docket sheet reveals that a Third Amended Docket Control Order was entered on July 19, 2024, which alters some pretrial deadlines, but maintains the November 4, 2024, jury selection date. *See Wireless Alliance, LLC v. AT&T Mobility LLC*, CA No. 2:23-cv-00095, Dkt. No. 102 (E.D. Tex. July 19, 2024).

discretionarily deny institution. Pet. 71–74. For the reasons discussed below, we decline to exercise discretion to deny institution because we determine that the Petition presents compelling evidence of unpatentability.

The Board’s precedential decision in *Apple Inc. v. Fintiv Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”), identifies a non-exclusive list of factors we may consider when there is a related, parallel district court action to determine whether such action provides any basis for discretionary denial. *Fintiv*, Paper 11 at 5–16. Those factors include:

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.

Id. at 5–6. In evaluating the *Fintiv* factors, we take “a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review,” recognizing that “there is some overlap among these factors” and that “[s]ome facts may be relevant to more than one factor.” *Id.* at 6.

On June 21, 2022, the Director of the United States Patent and Trademark Office issued a Memorandum setting forth an “Interim Procedure for Discretionary Denials in AIA Post Grant Proceedings with Parallel

District Court Litigation” (“Guidance Memo”).⁶ The Director’s Guidance Memo states that “to benefit the patent system and the public good, the PTAB will not rely on the *Fintiv* factors to discretionarily deny institution in view of parallel district court litigation where a petition presents compelling evidence of unpatentability.” Guidance Memo 2. “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.” *Id.* at 4.

For the following reasons, we determine that *Fintiv* factors 1–5 weigh in favor of denying institution. However, because we further determine that the Petition presents compelling evidence of unpatentability, we decline to exercise our discretion to deny the Petition. *See* Guidance Memo 2, 4; *see CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 at 5 (PTAB Feb. 27, 2023) (precedential) (“In circumstances where . . . the Board’s analysis of *Fintiv* factors 1–5 favors denial of institution, the Board shall then assess compelling merits.”). We begin with the application of the *Fintiv* factors to this case.

B. Evaluation of Fintiv Factors

1. Likelihood of a Stay (Factor 1)

A district court stay of parallel litigation pending resolution of an *inter partes* review allays concerns about inefficiency and duplication of efforts, and strongly weighs against exercising our authority to deny institution. *Fintiv*, Paper 11 at 6.

⁶ Available at: https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf.

Petitioner has not sought to stay the District Court Litigation pending in the Eastern District of Texas. *See* Pet. 71 (noting that consideration of this factor is “neutral because no party has requested a stay”).

Patent Owner asserts that due to the late stage of this case, “the record overwhelmingly suggests that no stay will be granted.” Prelim. Resp. 5–8.

Although Patent Owner is likely correct that no stay would be granted even if requested at this late date, we decline to speculate as to whether the district court would grant a stay if requested. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15 at 12 (PTAB May 13, 2020) (informative) (“We decline to infer, based on actions taken in different cases with different facts, how the District Court would rule should a stay be requested by the parties in the parallel case here.”). Accordingly, we weigh this factor as neutral.

2. Proximity of Trial Date to Projected Statutory Deadline (Factor 2)

If a district court’s trial date is earlier than the Board’s projected statutory deadline for a final written decision, the Board generally has weighed this fact in favor of exercising discretion to deny institution. *Fintiv*, Paper 11 at 9.

Patent Owner indicates that trial in the district court is scheduled to begin on November 4, 2024. Prelim. Resp. 8–9 (citing Ex. 2001). Petitioner states that the trial begins as early as October 21, 2024. Pet. 72 (citing Ex. 1012, 1). Petitioner contends, however, that “[b]ecause much can change in six months, the current trial date does not support denial.” *Id.* (citing *Dish Network v. Broadband iTV*, IPR2020-01280, Paper 17 at 16 (PTAB Feb. 4, 2021)). Using Patent Owner’s asserted later date, trial would precede the final written decision by approximately 10 months. Prelim. Resp. 9.

Based on the arguments and evidence presented by the parties in light of the present record, we find that factor 2 weighs in favor of exercising discretion to deny institution. As noted above, the district court currently has set a trial date of November 4, 2024, which is over 10 months before the final written decision in this IPR would be due in mid-September 2025. The Guidance Memo provides that the parties may also present the most recent statistics on median time-to-trial for civil actions in the relevant district court. Guidance Memo 8–9. Although neither party has presented such statistics, our review of relevant data reveals that, as of December 2023, the median time to trial for the Eastern District of Texas is 21.4 months.⁷ Applying this median time-to-trial period to the Complaint’s filing date of March 7, 2023 (*see* Pet. 2), would put the estimated trial date in December 2024, shortly after the scheduled trial date of November 4, 2024. Even this slightly later projected date is nine months before our final written decision would be due.

Whether we accept Petitioner’s assertions that the trial date may change, or Patent Owner’s asserted timeline, the amount of time by which the court’s trial date precedes the Board’s projected statutory deadline for a final written decision is significant. Accordingly, we weigh this factor as favoring exercising our discretion to deny the Petition.

3. Investment in the Parallel Proceeding (Factor 3)

We consider now the amount and type of work that will have already been completed in the parallel litigation by the court and the parties at the time of our institution decision. *See Fintiv*, Paper 11 at 9.

⁷ Those statistics are available at https://www.uscourts.gov/sites/default/files/fcms_na_distprofile1231.2023_0.pdf.

Petitioner contends that “discovery is still in the preliminary stages, the Defendants served their invalidity contentions in September 2023, and Claim Construction is not scheduled until April 10, 2024.” Pet. 72.

Petitioner also asserts that, as of the filing of the Petition, “the district court will not invest significant resources or issue substantive orders related to the challenged patent prior to the issuance of an institution decision.” *Id.*

Patent Owner contends that “the parties have already invested heavily in the litigations, including serving infringement and invalidity contentions, filing discovery motions, completing fact discovery, and serving opening expert reports on infringement, damages, and invalidity.” Prelim. Resp. 9 (citing Ex. 2001, 2–3; Ex. 2006). In particular, Patent Owner asserts that “*Markman* briefing and ruling were already completed by April 2024,” and that “[b]y the deadline for an institution decision on September 27, 2024, the parties will have further served rebuttal expert reports, completed expert discovery, fully briefed dispositive motions, fully briefed *Daubert* motions, filed motions *in limine*, filed a joint pretrial order, filed proposed jury instructions, filed proposed verdict forms, filed exhibit lists, filed witness lists, and filed deposition designations.” *Id.* at 9–10 (citing Exs. 2006, 2007).

We agree with Patent Owner’s assessment that work by the parties and the district court is at an advanced stage. The district court held a *Markman* hearing and issued a claim construction order. Ex. 2006. The scheduled dates for completion of fact discovery, expert discovery, filing dispositive motions, and filing motions to strike expert testimony have passed. *See* Ex. 2001, 3. Therefore, we agree with Patent Owner that

significant resources have already been invested in the District Court Litigation, which favors exercising our discretion to deny the Petition.

4. Overlap of Issues (Factor 4)

Patent Owner argues that this factor is neutral at best.

Prelim. Resp. 10. Patent Owner contends that “Petitioners’ invalidity contentions assert the same two references (Yu and Acharya) among 12 patents/publications, 120 works of non-patent literature, and 3 systems. Numerically, this is less than a 2% overlap.” *Id.* at 10–11 (citing Ex. 2002, 54–66). Petitioner stipulates 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 this Petition for the purposes of establishing obviousness.” Pet. 73 (citing *Sand Revolution II LLC v. Continental Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24 at 11–12 (PTAB June 16, 2020)). In view of this stipulation, Petitioner contends that this factor weighs against exercising discretion to deny institution. *Id.*

In response, Patent Owner argues that Petitioner’s stipulation is not a *Sotera*-type stipulation and “a stipulation not to assert one specific combination involving less than 2% of the 135 different prior art reserved for trial is essentially a meaningless, empty promise.” Prelim. Resp. 11.

We agree with Patent Owner that Petitioner’s proffered stipulation falls short of the more extensive *Sotera* stipulation cited approvingly in the Guidance Memo at 7 (citing *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12, at 18 (Dec. 1, 2020) (precedential)). Petitioner’s stipulation not to pursue only the specific grounds in the Petition leaves open the possibility of duplication of efforts. *See* Guidance Memo at 7 (“[T]he PTAB will not discretionarily deny institution . . . where a petitioner

stipulates not to pursue in a parallel district court proceeding the same grounds as in the petition or any grounds that could have reasonably been raised in the petition.”). Thus, while the new stipulation “mitigates to some degree the concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions” (*Sand Revolution*, Paper 24 at 12), it does not remove them. Accordingly, this factor weighs only slightly against discretionary denial.

5. Factor 5 (Petitioner and Defendant are Same Party)

Petitioner and Patent Owner agree that factor 5 is neutral because it is “far from an unusual circumstance that a petitioner in *inter partes* review and a defendant in a parallel district court proceeding are the same.” Pet. 73 (citing *Sand Revolution II*, IPR2019-01393, Paper 24 at 12–13); Prelim. Resp. 11.

Although the parties view this factor as neutral, we determine, applying Board precedent, that this factor weighs in favor of a discretionary denial. *See Sotera*, Paper 12 at 19 (determining that where the parties in the parallel litigation are “the same” as in the *inter partes* proceeding, “this factor supports denying institution”) (citing *Fintiv*, Paper 15 (informative) at 15; *Sand Revolution*, Paper 24 at 12–13).

6. Factor 6 (Other Circumstances, Including the Merits)

As discussed above, we determine that factor 1 is neutral, factors 2, 3, and 5 weigh in favor of discretionary denial of institution, and factor 4 weighs slightly against discretionary denial. We, therefore, conclude that the evidence of record on factors 1–5, overall, favors exercising our discretion to deny institution of an *inter partes* review.

The sixth *Fintiv* factor takes into account other circumstances that may bear on the decision to exercise discretion to deny, such as the merits of the patentability challenges. *Fintiv*, Paper 11 at 14–16. Under this factor, if we determine that the other *Fintiv* factors favor discretionary denial, as we do here, we must also consider whether the Petition presents compelling merits. *CommScope*, Paper 23 at 5. As discussed above, “[c]ompelling, 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.” Guidance Memo at 4. Accordingly, we first discuss the merits of the Petition. We then discuss our conclusion that the merits are compelling.

C. Conclusion on Fintiv Factors

In summary, on balance, the first five *Fintiv* factors weigh in favor of a discretionary denial in this proceeding. We now turn to an analysis of Petitioner’s challenges on the merits and consideration of whether the Petition presents compelling merits.

IV. DISCUSSION

A. Principles of Law

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to the patent owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A claim is unpatentable under § 103 “if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103; *see 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 skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).⁸

We consider Petitioner’s asserted challenges with the above-noted principles in mind.

B. Claim Construction

In an *inter partes* review proceeding, we construe a claim of a patent “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b). That standard involves construing claims in accordance with the ordinary and customary meaning of such claims as would have been understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

Petitioner asserts that the term “uplink control channel” requires construction. Petitioner contends that “[a] POSITA would understand that

⁸ Neither party presents evidence of secondary considerations at this stage.

an uplink control channel is sent in the uplink direction, consistent with its plain and ordinary meaning.” Pet. 25 (citing Ex. 1005 ¶ 94). Petitioner further asserts that its proposed construction is consistent with Patent Owner’s identification of a “Physical Uplink Control Channel (PUCCH)—which is an uplink channel containing information sent from a UE to a base station—as satisfying the claim limitations requiring an ‘uplink control channel’ in its infringement contentions.” *Id.* (citing Ex. 1007, 10). Patent Owner makes no comment on claim construction. *See generally* Prelim. Resp.

Only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). After reviewing the record, at this stage, we determine that no term requires express construction for purposes of this Decision.

C. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art (“POSITA”) would have had “a Bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and at least two years of experience . . . with telecommunications and networking, radio-access networking, and/or service provisioning in wireless networks.” Pet. 6 (citing Ex. 1005 ¶ 30). Patent Owner does not offer a position as to the level of ordinary skill in the art. *See generally* Prelim. Resp.

For purposes of this Decision, we adopt Petitioner’s assessment, which is consistent with the level of skill reflected in the Specification and asserted prior art.

D. Alleged Obviousness over the Combination of Yu and Acharya

Petitioner asserts that claims 1–8 of the '383 patent would have been obvious over the combination of Yu and Acharya. Pet. 25–70. Patent Owner argues that “the Petition is unlikely to succeed because Petitioners failed to show that Acharya is prior art,” under its asserted ground of obviousness. Prelim. Resp. 1–4; *see generally* Sur-Reply. For the reasons explained below, we determine that Petitioner has demonstrated compelling evidence of unpatentability as to at least independent claims 1 and 6.

Before addressing the parties’ arguments, we provide an overview of the Yu and Acharya references.

1. Overview of Yu

Yu describes a wireless communication network and “the use of supplemental wireless communication network nodes to improve uplink and downlink wireless transmissions between the network and wireless user equipment.” Ex. 1003 ¶ 1. According to Yu, typical wireless communication systems provide wireless transmission between wireless user equipment (UE) such as a cellular telephone or other device using wireless technology and nodes of the wireless communication network. *Id.* ¶ 3. Yu explains that a wireless network may include different types of network nodes that may provide different levels of transmission power between the UE and network nodes. *Id.* ¶ 22. Yu’s system “recognize[s] and take[s] into account that an uplink/downlink reception imbalance may make it difficult for user equipment to select the best node, either a standard node or a relay node, as the serving node for its uplink and downlink communications needs.” *Id.* ¶ 23. Because “it is important for the user equipment to have both good downlink and uplink signal power,” Yu describes a method “that

enables the user equipment to have both the best available downlink and uplink signal power.” *Id.* ¶¶ 23–24.

Figure 6 of Yu, reproduced below, illustrates message flows in a method for selecting an uplink supplemental node in accordance with an illustrative embodiment. *Id.* ¶ 12.

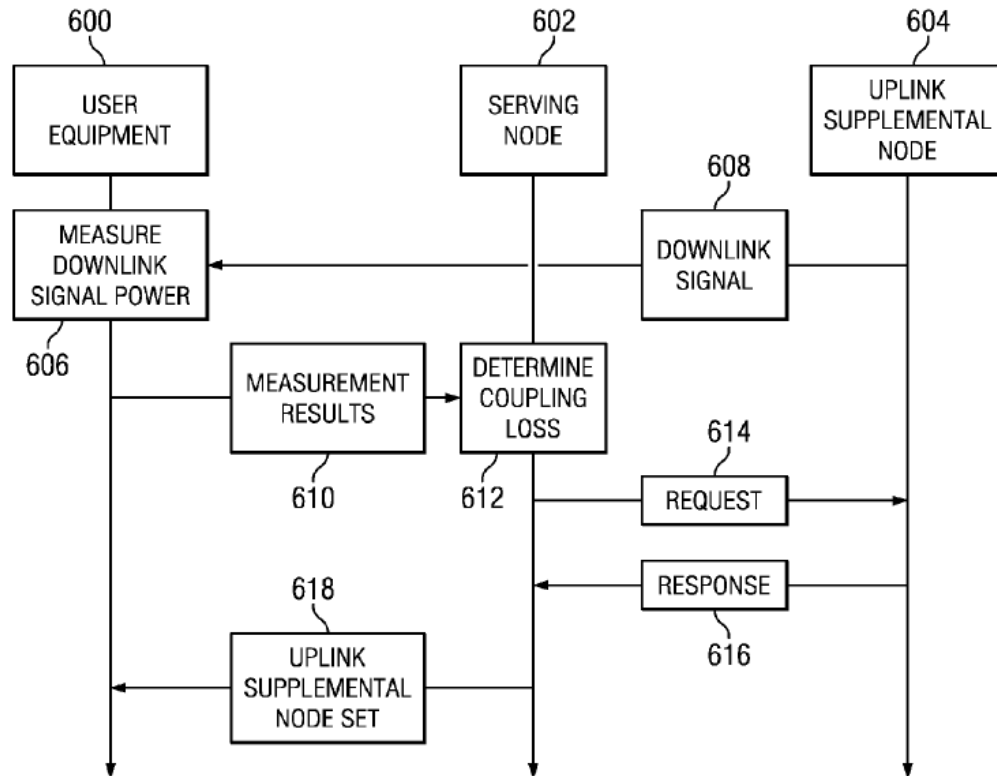


FIG. 6

Figure 6 of Yu depicts UE 600, serving node 602, and uplink supplemental node 604. Ex. 1003 ¶ 84. The message flow shown in Figure 6 begins after the UE 600 has selected and established communication with downlink serving node 602. *Id.* First, in step 606, UE 600 measures the downlink signal power received from network nodes under consideration as uplink supplemental nodes. *Id.* ¶ 85. The UE may perform signal power measurements for a certain time or until a certain level is satisfied. *Id.* The

UE then reports the measurement results to serving node 602. *Id.* at Fig. 6, step 610, ¶ 86. From measurement results 610 received from user equipment 600, serving node 602 determines coupling loss 612 from user equipment 600 to the nodes. *Id.* ¶ 87. Based on the coupling loss, the serving node then determines candidate uplink supplemental nodes. *Id.* ¶ 88. Yu states that “[a]fter the uplink supplemental node candidate set is determined, serving node 602 sends request 614 to each candidate uplink supplemental node to determine whether or not it is appropriate for the node to operate as uplink supplemental node 604 for user equipment 600.” *Id.* ¶ 90. Candidate nodes that can operate as an uplink supplemental node inform the serving node via response 616. *Id.* Following this query-response procedure, uplink supplemental node 618 is determined. *Id.* ¶ 91.

2. Overview of Acharya

Acharya describes a cellular system allowing a UE to associate with different base stations for its uplink and downlink communications. Ex. 1004, Abstract. Acharya explains that a UE may associate with a base station to handle downlink communications and a separate base station to handle uplink communications. *Id.* According to Acharya, choosing different base stations may avoid problems with signal to noise ratio (SNR) or SINR. *Id.* ¶¶ 4, 48.

Figure 2 of Acharya depicts the content of communication between a base station and UE as including control and data transmissions. *Id.* ¶ 50.

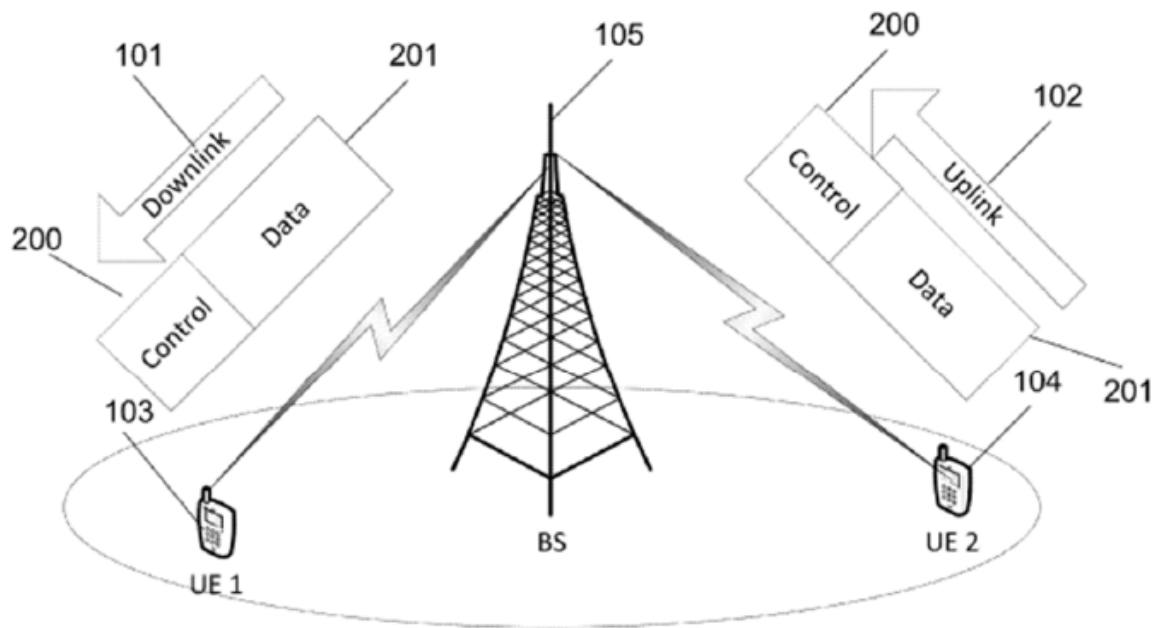


Figure 2

Figure 2 of Acharya shows base station 105 in communication with UE 103 and UE 104. *Id.* ¶ 67. Communication between base station 105 and both UE 103 and UE 104 includes both data and control information. *Id.*

Figure 8 of Acharya depicts a UE associating with different base stations for uplink and downlink communications. *Id.* ¶ 56.

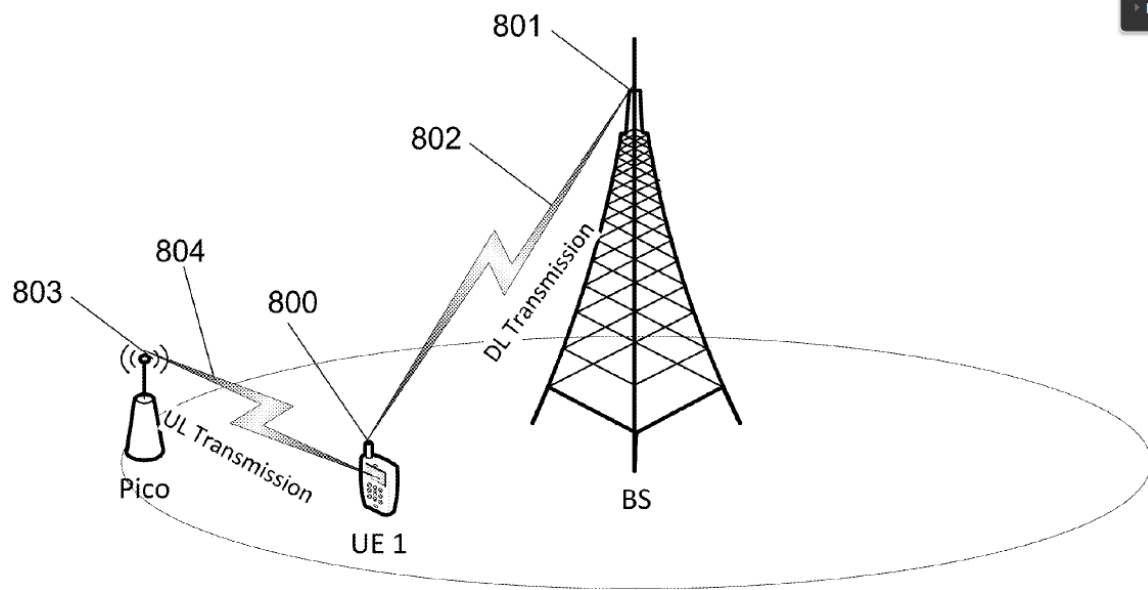


Figure 8

Figure 8 of Acharya shows UE 800 in communication with both pico station 803 and base station 801. *Id.* ¶ 65. UE 800 communicates via uplink transmission 804 with pico station 803 and via downlink transmission 802 with base station 801. *Id.* Acharya explains that a downlink base station transmits a downlink channel to the UE where the downlink channel includes downlink data and control information for both the uplink and downlink transmissions. *Id.* ¶ 69. Similarly, the UE transmits uplink channels to the uplink base station where the transmission includes data and control information. *Id.*

3. Acharya's Prior Art Status

The Petition states that Acharya “was filed on October 5, 2011 and published on April 11, 2013 . . . [t]hus, Acharya is prior art under at least 35 U.S.C. § 102(a)(1) (AIA).” Pet. 5. In the Preliminary Response, Patent Owner argues that Acharya is not prior art under 35 U.S.C. § 102(a)(1)

because it was published after the effective filing date of the '383 patent. Prelim. Resp. 2–3. Patent Owner argues that because Acharya is not prior art under § 102(a)(1), denial of institution is appropriate because Petitioner cannot demonstrate a reasonable likelihood of prevailing with respect to at least 1 of the claims without Acharya. *Id.* at 1–4. Patent Owner further argues that 35 U.S.C. § 312(a)(3) does not authorize a Petitioner to modify its invalidity theory and grounds for challenging the claim. *Id.* at 4–5. We authorized additional briefing on this issue. Paper 16.

In response, Petitioner argues that Acharya is prior art under 35 U.S.C. § 102(a)(2) and that the Petition “expressly states the relevant facts about Acharya that establish it as prior art.” Pet. Reply 2. Petitioner contends that the Petition did not limit its analysis to § 102(a)(1), but instead indicated that “Acharya is prior art under *at least* 35 U.S.C. § 102(a)(1).” *Id.* According to Petitioner, the “at least” language provides notice to Patent Owner of the correct statutory basis. *Id.* at 2–3. Nevertheless, Petitioner argues that failing to list the correct sub-part is immaterial “because relying on the reference is full and fair notice that the Petitioner is applying the reference regardless of the listed sub-part.” *Id.* at 3–4 (citing *Purdue Pharma, L.P., v. Depomed, Inc.*, IPR2014-00377, Paper 72 at 14 (PTAB July 8, 2015)).

Patent Owner contends that Petitioner failed to meet its burden under 35 U.S.C. § 312(a)(3) because the Petition does not articulate with particularity the reasons why Acharya is prior art. Sur-Reply 1. More specifically, Patent Owner argues that the Petition failed to identify “the specific statutory grounds under 35 U.S.C. 102” and that interpreting the Petition’s assertion that Acharya is prior art under “at least 102(a)(1)” as

102(a)(2) contradicts 35 U.S.C. § 312(a)(3) and case law. *Id.* at 1–3 (citing *Microsoft Corp. v. FG SRC, LLC*, 860 F. App’x 708, 712–13 (Fed. Cir. 2021); *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016)). Patent Owner further argues that permitting a change in statutory grounds here would be unfairly prejudicial because “Patent Owner would have submitted a POPR addressing the many substantive failings of the Petition . . . [but] Patent Owner did not do so in the POPR because there was no need to.” *Id.* at 4–5.

As background, we note that 35 U.S.C. § 102 describes prior art in two sub-sections. Section 102(a)(1) describes prior art in which “the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.” Section 102(a)(2) describes prior art in which “the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.”

Here, Acharya was filed on October 5, 2011, and was published as an application on April 11, 2013. Ex. 1004, codes (22), (43). The ’383 patent issued on August 7, 2018, and the earliest claimed priority date for the ’383 patent is March 28, 2013. Ex. 1001, codes (45), (63), (30). Thus, Acharya qualifies as prior art under § 102(a)(2) because it was filed on October 5, 2011, and thus was “effectively filed before the effective filing date” of the ’383 patent.

Despite the Petitioner’s citation to the wrong sub-part of section 102, we agree with Petitioner that the Petition sufficiently provides notice to Patent Owner of the basis of the challenge. As noted above, the Petition sets forth the evidence necessary to establish that Acharya is prior art under section 102(a)(2) by noting that Acharya’s application was filed before the earliest priority date of the ’383 patent. Pet. 5 (“[T]he earliest priority date of the ’383 patent is March 28, 2013 . . . Acharya . . . was filed on October 5, 2011 and published on April 11, 2013.”). This information is relevant only to an assertion of prior art under § 102(a)(2), not § 102(a)(1). The Petition further includes argument, with citations to the prior art and evidence, as to how the prior art renders each challenged claim unpatentable. Pet. 25–70. Patent Owner does not dispute that Acharya is prior art under 35 U.S.C. § 102(a)(2), nor does Patent Owner assert that the Petition failed to set forth with particularity how the challenged ground addresses each claim element. *See generally* Sur-Reply. Based on the evidence presented in the Petition (Pet. 5, 25–70), we determine that the Petition sufficiently articulates, with particularity, the evidence that supports the grounds for the challenge to each claim.

The facts here are distinguishable from the *Intelligent Bio-Sys.* and *Microsoft* cases cited by Patent Owner. As stated by Patent Owner, in *Microsoft* the “the Federal Circuit upheld a Board decision holding the petitioner to the § 102 arguments expressly made in the petition, despite ambiguous references to § 103 arguments, and despite the patent owner’s acknowledgement of the obviousness arguments.” Sur-Reply 2 (citing *Microsoft*, 860 F. App’x at 712–13). In *Intelligent Bio-Sys.*, the Federal Circuit held that new arguments may not be raised in reply. *Id.* (citing

Intelligent Bio-Sys., 821 F.3d at 1369). Thus, both *Intelligent Bio-Sys.* and *Microsoft* address cases where there is an ambiguity in the asserted ground or a change in argument from the petition to the reply. Here, in contrast, Petitioner has clearly articulated a case for obviousness, and has cited the necessary prior art references and evidence, but simply cited the wrong statutory sub-section as the basis for prior-art status as to one of the references. Given that Petitioner clearly articulated an obviousness challenge including Acharya as prior art under 35 U.S.C. § 102(a)(2), we view the Petition’s citation to § 102(a)(1) as an inconsequential clerical error.

We are also not persuaded that our determining the Petition complies with 35 U.S.C. § 312(a)(3) would prejudice Patent Owner in this proceeding. Patent Owner states that it could not substantively respond to the grounds in its Sur-Reply. Sur-Reply 5. We disagree. Patent Owner was on notice as to the asserted obviousness ground combining Yu and Acharya, and was also on notice of all information relevant to Acharya’s status as prior art under § 102(a)(2). Patent Owner had the opportunity to respond substantively in the Preliminary Response, but chose not to do so. *See* Sur-Reply 4–5.

4. Analysis of Claims 1 and 6

a. Independent Claim 1

Claim 1 is directed to an “operating method of a network comprising a base station.” In addition to the preamble, which Petitioner designates as Preamble 1.0, claim 1 recites various limitations, which Petitioner designates as limitations 1.1 through 1.6. We address the preamble and each limitation in turn.

i. *Preamble 1.0: “An operating method of a network comprising at least a base station”*

The preamble of claim 1 recites “[a]n operating method of a network comprising at least a base station.” Petitioner asserts that Yu discloses the use of supplemental wireless communication network nodes to improve uplink and downlink wireless transmissions between a UE and the network. Pet. 28 (citing Ex. 1003 ¶ 1). Petitioner asserts that Yu teaches wireless communication networks with different types of network nodes. *Id.* (citing Ex. 1003 ¶ 4). For example, according to Petitioner, Yu discloses that Long Term Evolution Advanced networks employ regular nodes and relay nodes. *Id.*

Neither party takes a position on whether the preamble is limiting. At this stage of the proceeding, we do not determine whether the preamble is limiting, as we find Petitioner sufficiently shows that Yu discloses the subject matter of the preamble.

ii. *1.1: “transmitting, performed by each of base stations, a downlink reference signal to a terminal”*

Claim 1 further recites “transmitting, performed by each of base stations, a downlink reference signal to a terminal.” For this claim element, Petitioner asserts that Yu discloses “select[ing] both the initial ‘serving node’ and the subsequent ‘supplemental node’ by measuring downlink reference signals sent by both base stations.” Pet. 29. In particular, Petitioner contends that Yu’s “user equipment may select the network node from which the user equipment *receives the strongest reference signal* receive power, RSRP, to be the serving node.” *Id.* at 29–30 (quoting Ex. 1003 ¶ 79 (emphasis by Petitioner); citing Ex. 1003 ¶ 82). Petitioner, relying on the declaration testimony of Dr. Camp, asserts that RSRP is a

well-known measurement that reports signal strength based on received downlink cell-specific reference signals. *Id.* at 30 (citing Ex. 1005 ¶ 73). According to Petitioner, Yu’s use of RSRP necessarily means that each network node transmits a downlink reference signal. *Id.*

Petitioner further contends that Figure 6 of Yu depicts uplink supplemental node 604 sending a downlink signal 604 to the UE. Pet. 30–31 (citing Ex. 1003 ¶ 85, Fig. 6). According to Petitioner, downlink signal 604 includes the downlink reference signal. *Id.* Petitioner asserts that “a POSITA would have understood that for the UE to measure the reference signal receive power, the base station (e.g., uplink supplemental node 604 . . .) must have sent the downlink reference signal to be measured in the downlink signal. *Id.* at 32 (citing Ex. 1005 ¶ 76).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

At this stage of the proceeding, we find Petitioner sufficiently shows that Yu discloses the subject matter of this limitation.

iii. 1.2: “receiving, performed by a first base station, a strength of the downlink reference signal from the terminal”

Claim 1 further recites “receiving, performed by a first base station, a strength of the downlink reference signal from the terminal.” For this claim element, Petitioner identifies Yu’s disclosure of measurement results 610 sent from the UE to the serving node. Pet. 32 (citing Ex. 1003 ¶ 86, Fig. 6; Ex. 1005 ¶ 78). Petitioner further contends that Yu discloses “[d]ownlink signal power measurements for one or more nodes are received by the serving node from the user equipment (step 802).” *Id.* at 33 (quoting Ex. 1003 ¶ 106). Petitioner asserts that Yu teaches similar steps for the

selection of a downlink base station, specifically, by disclosing “user equipment 404 may select serving node 412 as the one of network nodes 410 providing the strongest received downlink signal at user equipment 404.” *Id.* at 34 (quoting Ex. 1003 ¶ 71; citing Ex. 1003 ¶ 72; Ex. 1005 ¶ 81).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

At this stage of the proceeding, we find Petitioner sufficiently shows that Yu discloses the subject matter of this limitation.

iv. *1.3: “establishing, performed by the first base station, a downlink cell association with the terminal”*

Claim 1 further recites “establishing, performed by the first base station, a downlink cell association with the terminal.” For this claim element, Petitioner contends that “Yu describes that node 108 is the serving node and that ‘[s]uch a node performs many functions, including radio resource management, admission control, scheduling, enforcement of negotiated uplink quality of service, cell information broadcast, ciphering and deciphering of user and control data, and compression and decompression of downlink and uplink user packet headers.’” *Id.* at 34–35 (quoting Ex. 1003 ¶ 32; citing Ex. 1005 ¶ 83). Petitioner, relying on the declaration testimony of Dr. Camp, asserts that a POSITA would have understood that a serving node uses these disclosed functions to establish a downlink cell association. *Id.* at 35 (citing Ex. 1005 ¶ 84).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

At this stage of the proceeding, we find Petitioner sufficiently shows that Yu discloses the subject matter of this limitation.

- v. 1.4: “determining, performed by the first base station, an identifier of a second base station providing an uplink control channel”

Claim 1 further recites “determining, performed by the first base station, an identifier of a second base station providing an uplink control channel.” For this claim element, Petitioner contends that Yu discloses an “embodiment in which the serving node with a downlink cell association with the UE identifies and selects the supplemental uplink node(s) to serve the same UE.” Pet. 36 (citing Ex. 1003 ¶ 74; Ex. 1005 ¶ 87). According to Petitioner, Yu’s serving node selects the supplemental node to provide uplink transmissions by disclosing that “serving node 412 selects supplemental node 418 for transmission assistance in order to provide the best available downlink transmissions on downlink channel 406 and uplink transmissions on uplink channel 408 between network 402 and user equipment 404.” *Id.* (quoting Ex. 1003 ¶ 74).⁹

Petitioner contends that a POSITA would have recognized that the assignment and identification of the base station must be communicated to the UE. *Id.* More specifically, Petitioner asserts that Yu’s Figure 6 depicts UE 600 reporting measurement results of the downlink signal power of possible uplink supplemental nodes to the serving node. *Id.* (citing Ex. 1003 ¶ 86). Based on the measurement results, the serving node identifies candidate uplink supplemental nodes. *Id.* at 37 (citing Ex. 1003 ¶ 92). The serving node then selects one candidate uplink supplemental node and in step 618, the serving node sends an identification of the uplink supplemental node to the UE. *Id.* (citing Ex. 1003 ¶¶ 74, 75, 88, 90, Fig. 6). Petitioner

⁹ The Petition incorrectly cites to paragraph 85 of Yu. We understand the cited quote to refer to paragraph 74.

contends that the “uplink supplemental node set 618 is an identifier of a second base station providing a channel for uplink transmission.” *Id.* (citing Ex. 1003 ¶ 88; Ex. 1005 ¶ 90).

Petitioner contends that Acharya also discloses “determining, performed by the first base station, an identifier of a second base station,” by disclosing “a first base station that . . . [includes] a selection module *that assigns a second base station* selected from a group of neighboring base stations on the basis of a highest signal strength value from the plurality of reception signal strength values to handle uplink traffic for the UE.” *Id.* at 37–38 (citing Ex. 1005 ¶ 91, Ex. 1004 ¶ 43). Petitioner argues that Acharya’s disclosure is nearly identical to the disclosure of the ’383 patent, which discloses that each base station in a candidate group measures the strength of an uplink received signal, transmits the measurements to the downlink base station, and the downlink base station then determines the uplink base station from the group based on the strength of the uplink reference signal. *Id.* at 38 (citing Ex. 1001, 6:11–18, 8:12–15; Ex. 1005 ¶ 92).

Petitioner further asserts that Yu discloses “a second base station providing an uplink control channel” because Yu’s UE sends channel quality data to the uplink supplemental node. *Id.* at 38–39 (citing Ex. 1003 ¶¶ 72, 76, Fig. 4; Ex. 1005 ¶¶ 93, 95, 96).¹⁰ Petitioner asserts that Yu discloses using PUCCH, which is typically used to transmit uplink control information such as channel quality data between the UE and base station.

¹⁰ The Petition incorrectly cites to paragraph 76 of Acharya. We treat that as a typographical error, and we understand the citation to refer to Yu.

Id. at 39 (citing Ex. 1003 ¶ 29). Petitioner asserts that a “POSITA would have understood that one way for the supplemental node to acquire channel quality data is through UE measurements, which would be sent to the supplemental node by the UE through an uplink control channel such as the disclosed PUCCH.” *Id.* at 40 (citing Ex. 1005 ¶ 97). Petitioner argues, relying on the declaration testimony of Dr. Camp, that a POSITA would have understood Yu as disclosing an uplink control channel between the UE and supplemental base station. *Id.* (citing Ex. 1005 ¶¶ 93, 97).

Alternatively, Petitioner asserts that Acharya discloses signaling procedures for data or control information for separate uplink and downlink base stations. *Id.* (citing Ex. 1004, ¶¶ 67–69; Ex. 1005 ¶ 99). According to Petitioner, Acharya discloses transmitting channel quality control information to the uplink base station passed via the uplink. *Id.* at 40–41 (citing Ex. 1005 ¶ 99). Specifically, Acharya discloses the “UE may want to pass some control information to BSDL (*such as measured DL channel quality*) but since it can transmit only to BSUL, BSUL has to in turn pass the control information to BSDL.” *Id.* (quoting Ex. 1004 ¶ 68). Further, Petitioner contends that Acharya explicitly lists a PUCCH uplink channel for carrying control information to a downlink base station (BSDL) via the uplink base station (BSUL). *Id.* at 41–42 (citing Ex. 1004 ¶¶ 66–69, Table 2; Ex. 1005 ¶ 100).

Petitioner contends “[n]ot only does Yu disclose the PUCCH . . . , but Yu also teaches the same type of system taught by Acharya with separate associations between a UE and multiple base stations for transmissions on uplink and downlink.” Pet. 42 (citing Ex. 1005 ¶ 101). Considering the similarities, Petitioner argues that “a POSITA looking for further

implementation details for the types of channels to be used with the disclosure of Yu would be motivated to combine Yu with Acharya to determine the use of LTE channels between the node serving the downlink transmissions and the node for uplink transmission.” *Id.* (citing Ex. 1005 ¶ 101).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

At this stage of the proceeding, we find Petitioner sufficiently shows that the combination of Yu and Acharya discloses the subject matter of this limitation. We further find, on this record, that Petitioner’s proffered reasoning for modifying Yu with Acharya, specifically, to provide implementation details for the types of communication channels to be used with the disclosure of Yu, shows that a person of ordinary skill in the art would have been motivated to combine Yu and Acharya. *See id.* (citing Ex. 1005 ¶ 101 (“A POSITA would understand that the second base station providing an uplink control channel, or BSUL in Acharya, could be included in the supplemental uplink node set determined for the UE by the serving node in Yu.”)).

- vi. 1.5: “*transmitting, performed by the first base station, the identifier of a second base station through the downlink cell association*”

Claim 1 further recites “transmitting, performed by the first base station, the identifier of a second base station through the downlink cell association.” For this limitation, Petitioner identifies the uplink supplemental node set 618 in Figure 6 of Yu. Pet. 43–44 (citing Ex. 1003 ¶ 91, Fig. 6; Ex. 1005 ¶ 103). More specifically, Petitioner contends that Yu discloses “that the uplink supplemental node set for UE 600 ‘includes each

candidate node that was determined to be appropriate for operation as an uplink supplemental node for user equipment 600” and that the “*uplink supplemental node set 618 may . . . be transmitted to UE 600.*” *Id.* at 43 (quoting Ex. 1003 ¶¶ 91, 93). Petitioner, relying on the declaration testimony of Dr. Camp, asserts that a POSITA would have understood that the identity of the uplink supplemental node would be transmitted in the uplink supplemental node set 618. *Id.* at 44 (citing Ex. 1003 ¶ 93; Ex. 1005 ¶ 105).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

At this stage of the proceeding, we find Petitioner sufficiently shows that Yu discloses the subject matter of this limitation.

vii. 1.6: “*establishing, performed by the second base station, an uplink cell association with the terminal*”

Claim 1 further recites “establishing, performed by the second base station, an uplink cell association with the terminal.” For this limitation, Petitioner asserts that following the selection of an uplink supplemental node as detailed in Figure 6 of Yu, the UE uses the supplemental node for uplink transmission. Pet. 45 (citing Ex. 1003 ¶¶ 93–95, Fig. 7; Ex. 1005 ¶ 108). Petitioner contends that the UE performs an uplink transmission after receiving an uplink scheduling grant. *Id.* at 45–46 (citing Ex. 1007, Fig. 7). Relying on the declaration testimony of Dr. Camp, Petitioner asserts that “[r]eception of an uplink transmission and the successful decoding of that transmission would indicate an uplink cell association to a POSITA.” *Id.* at 46 (citing Ex. 1005 ¶ 109).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

At this stage of the proceeding, we find Petitioner sufficiently shows that Yu discloses the subject matter of this limitation.

viii. Compelling Merits

“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.” Guidance Memo at 4. For the reasons given above, we determine that Petitioner’s arguments and evidence, if unrebutted at trial, would plainly lead to a conclusion of unpatentability for claim 1.

For example, Petitioner demonstrates that Yu teaches a method of operating a network comprising a base station as required by preamble 1.0 by disclosing a wireless communication network with different types of network nodes. Pet. 28–29 (citing Ex. 1003 ¶¶ 1, 4). Further, Petitioner demonstrates that Yu teaches a base station transmitting a downlink reference signal to a terminal as required by limitation 1.1 by disclosing a terminal measuring the reference signal receive power. *Id.* at 29–30 (citing Ex. 1003 ¶¶ 79, 82). Further, Petitioner demonstrates that Yu teaches a base station receiving a strength of the downlink reference signal from the terminal as required by limitation 1.2 by disclosing a terminal sending the reference signal receive power to the base station. *Id.* at 32–33 (citing Ex. 1003 ¶¶ 86, 105, 106, Fig. 6, step 610).

The Petition further demonstrates that Yu plainly teaches a base station establishing a downlink cell association with the terminal, as required by limitation 1.3, by disclosing a serving node, or base station, that provides transmissions in a first direction. *Id.* at 34–35 (citing Ex. 1003 ¶ 84). Similarly, the Petition plainly shows that Yu and Acharya disclose a base

station determining a second base station identifier that provides an uplink control channel by disclosing a base station selecting a supplemental node to provide uplink transmission where the uplink transmission includes control data. *Id.* at 36–42 (citing Ex. 1003 ¶¶ 72, 76, Fig. 4; Ex. 1004 ¶¶ 67, 68, Table 2). The Petition further describes how Yu discloses transmitting the identifier of the second base station through the downlink cell association to the terminal as required by limitation 1.5 by disclosing an uplink supplemental node set 618 step that informs the UE which supplemental node has been selected. *Id.* at 43 (citing Ex. 1003 ¶¶ 91, 93, Fig. 6). Finally, the Petition shows that Yu discloses establishing an uplink cell association between the terminal and second base station as required by limitation 1.6 by disclosing the establishing of a connection and scheduling of transmission. *Id.* at 44–45 (citing Ex. 1003 ¶¶ 93–95, Fig. 7).

Accordingly, we find that Petitioner has presented a compelling, meritorious challenge to claim 1 of the '383 patent. *See* Guidance Memo 4 (“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.” (emphasis added)), 5 (“[T]he PTAB will not deny institution based on *Fintiv* if there is compelling evidence of unpatentability.”).

b. Independent Claim 6

Claim 6 sets forth similar limitations to claim 1, but is directed to a “base station.” In addition to the preamble, claim 6 recites various limitations, which Petitioner designates as limitations 6.1 through 6.4. We address the preamble and each limitation in turn.

i. Preamble 6.0: “a base station”

The preamble of claim 6 recites “[a] base station.” For this recitation, Petitioner identifies node 108 in Yu as a base station. Pet. 50–51 (citing Ex. 1003 ¶ 31; Ex. 1005 ¶ 125). Petitioner contends that Yu’s node 108 may be a radio access node that provides an interface between the wireless network and a UE. *Id.* (citing Ex. 1003 ¶ 31, Fig. 1).

Neither party takes a position whether the preamble is limiting. At this stage of the proceeding, we do not determine whether the preamble is limiting, as we find Petitioner sufficiently shows that Yu discloses the subject matter of the preamble.

ii. 6.1: “a networking unit configured to transmit a downlink reference signal to a terminal”

Claim 6 further recites “a networking unit configured to transmit a downlink reference signal to a terminal.” For the preamble, Petitioner refers to the discussion of limitation 1.1 regarding Yu disclosing transmitting a downlink reference signal to a terminal. Pet. 52–53 (citing Ex. 1003 ¶ 32, Fig. 1; Ex. 1005 ¶ 127). Petitioner further asserts that Yu discloses a networking unit configured for carrying out the functionality of the node, such as transmitting a downlink reference signal to a terminal, as discussed above in limitation 1.1. *Id.* at 52–55 (citing Ex. 1003 ¶¶ 32, 57, Figs. 1, 3; Ex. 1005 ¶¶ 128, 129, 131). Petitioner relies on Figure 1 of Yu, which is reproduced below.

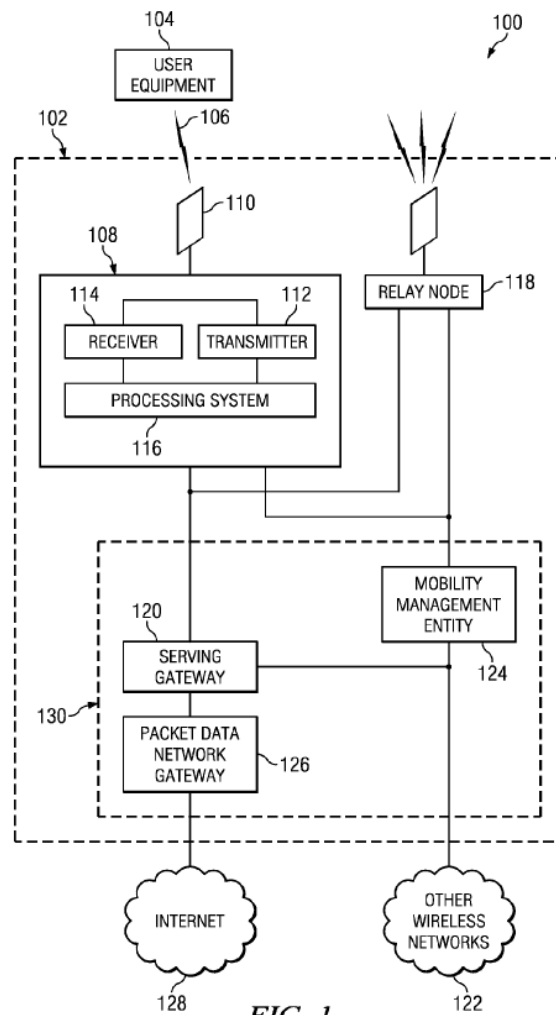


FIG. 1

Figure 1 of Yu depicts a block diagram of a wireless network. Ex. 1003 ¶ 7. User equipment 104 communicates with wireless network 102 via node 108. *Id.* ¶ 31. Node 108 is a radio access node or base transceiver station that includes one or more radio frequency transmitters 112 and receivers 114 coupled to one or more antennas 110 to communicate directly with user equipment 104 and processing systems 116 for implementing functionality provided by the node. *Id.* ¶¶ 31–32. Core network 130 includes serving gateway 120, mobility management entity 124, and packet data network gateway 126. *Id.* ¶¶ 34–37. Petitioner, relying on the declaration testimony of Dr. Camp, asserts that “these transmitters, in

connection with the processing system of the base station, would be used to carry out functionality disclosed in Yu, such as transmitting a downlink reference signal to a UE.” Pet. 53 (citing Ex. 1005 ¶ 128).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

At this stage of the proceeding, we find Petitioner sufficiently shows that Yu discloses the subject matter of this limitation.

iii. 6.2: “a processor configured to establish a downlink cell association with the terminal”

Claim 6 further recites “a processor configured to establish a downlink cell association with the terminal.” For this limitation, Petitioner refers to the discussion of limitation 1.3 above regarding Yu disclosing establishing a downlink cell association. Pet. 55. Petitioner further identifies Yu’s processor unit 304 as the claimed processor. *Id.* at 56–58 (citing Ex. 1003 ¶ 55, Fig. 3; Ex. 1005 ¶ 133). In particular, Petitioner asserts that “a POSITA would understand that the processor unit 304 shown in Figure 3 of Yu is a processor configured to execute the communications and networking functions of the methods disclosed in Yu, such as establish a downlink cell association with the terminal.” *Id.* at 56 (citing Ex. 1005 ¶ 133).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

At this stage of the proceeding, we find Petitioner sufficiently shows that Yu discloses the subject matter of this limitation.

- iv. 6.3: “wherein the processor further configured to determine an identifier of a second base station providing an uplink control channel”

Claim 6 further recites “wherein the processor further configured to determine an identifier of a second base station providing an uplink control channel.” For this limitation, Petitioner refers to the discussion of limitation 1.4 above regarding the combination of Yu and Acharya disclosing determining an identifier of a second base station providing an uplink control channel. Pet. 58. Petitioner, relying on the declaration testimony of Dr. Camp, further asserts that Yu discloses “a processor configured to execute the communications and networking functions of the methods disclosed in Yu, such as determine an identifier of a second base station providing an uplink control channel discussed in claim element [1.4].” *Id.* at 58 (citing Ex. 1005 ¶ 135).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

At this stage of the proceeding, we find Petitioner sufficiently shows that the combination of Yu and Acharya discloses the subject matter of this limitation.

- v. 6.4: “wherein the networking unit further configured to receive a strength of the downlink reference signal from the terminal, and to transmit the identifier of the second base station through the downlink cell association”

Claim 6 further recites “wherein the networking unit further configured to receive a strength of the downlink reference signal from the terminal, and to transmit the identifier of the second base station through the downlink cell association.” For this limitation, Petitioner refers to the Petition’s discussion of Yu’s disclosure of the subject matter of limitations

1.2, 1.5., 6.0, and 6.1. Pet. 59. Petitioner also asserts that Yu discloses a base station comprising a networking unit that is configured for carrying out the functionality of the node, such as receiving a strength of the downlink reference signal from the terminal and transmitting the identifier of the second base station through the downlink cell association. *Id.* (citing Ex. 1003 ¶ 32, Fig. 1; Ex. 1005 ¶ 137).

Patent Owner does not, at this stage, substantively challenge Petitioner's showing as to this limitation.

At this stage of the proceeding, we find Petitioner sufficiently shows that Yu discloses the subject matter of this limitation.

vi. Compelling Merits

As noted, at this stage of the proceeding, Patent Owner does not offer arguments challenging Petitioner's analysis for any limitation of claim 6. Based on the current record, we are persuaded by Petitioner's showing for preamble 6.0 and limitations 6.1 through 6.4. Because claim 6 provides substantially similar limitations to claim 1, we determine that under the higher compelling-merits standard, Petitioner's arguments and evidence, if unrebutted at trial, would plainly lead to a conclusion of unpatentability for claim 6 for the same reasons described above. *See* § IV.D.4.a.viii.

c. Conclusion as to Claims 1 and 6

For the reasons described above, based on the current record, we are persuaded that the Petition presents compelling evidence of unpatentability for claims 1 and 6. As a result, we decline to exercise discretion to deny institution under § 314(a). *See* Guidance Memo 5 (“[T]he PTAB will not deny institution based on *Fintiv* if there is compelling evidence of unpatentability.”).

5. *Analysis of Claim 8*

Having determined that the Petition meets the compelling merits standard for at least one claim, we now address claim 8 to provide guidance for the trial.

Claim 8 sets forth similar limitations to claim 1, but is directed to a “[a]n operating method of a terminal performed by the terminal.” In addition to the preamble, which Petitioner designates as Preamble 8.0, claim 8 recites various limitations associated with these claim elements, which Petitioner designates as limitations 8.1 through 8.6. We address the preamble and each limitation in turn.

i. Preamble 8.0: “an operating method of a terminal performed by the terminal”

The preamble of claim 8 recites “[a]n operating method of a terminal performed by the terminal.” Petitioner contends that Yu identifies examples of UE including pagers, cellular phones, cellular smartphones, wireless organizers, personal digital assistants, computer, and laptops. Pet. 61. Petitioner further asserts Yu describes known wireless communication networks with different types of network nodes providing wireless communication with a UE including a supplemental node selection procedure. *Id.* (citing Ex. 1003 ¶¶ 4, 85, Fig. 6).

Neither party takes a position whether the preamble is limiting. At this stage of the proceeding, we do not determine whether the preamble is limiting, as we find Petitioner sufficiently shows that Yu discloses the subject matter of the preamble.

- ii. 8.1 and 8.2: “receiving a downlink reference signal from each of base stations,” and “measuring a strength of the downlink reference signal”

Claim 8 further recites “receiving a downlink reference signal from each of base stations” and “measuring a strength of the downlink reference signal.” For these limitations, Petitioner contends that Yu’s system selects the initial serving node and subsequent supplemental node based on the UE’s measurements of the downlink reference signal received from each base station. Pet. 62 (citing Ex. 1003 Fig 5; Ex. 1005 ¶ 142). In particular, Petitioner contends that Yu discloses “user equipment may select the network node from which the user equipment *receives the strongest reference signal* receive power, RSRP, to be the serving node.” *Id.* at 62–63 (citing Ex. 1003 ¶¶ 79, 82). Petitioner, relying on the declaration testimony of Dr. Camp, asserts that “the fact that Yu discloses the step of selecting amongst various network nodes based upon their RSRP necessarily means that the UE is measuring the downlink reference signal from each of the base stations.” *Id.* at 63 (citing Ex. 1005 ¶ 144).

Petitioner identifies Figure 6 of Yu as depicting the message flows for selecting an uplink supplemental node. In particular, Petitioner identifies step 610 of Yu’s Figure 6 as showing the UE sending measurement results to the serving node. *Id.* (citing Ex. 1003, Fig. 6). Petitioner contends that the UE measures the downlink signal power received in downlink signals from network nodes under consideration as an uplink supplemental node. *Id.* at 64 (citing Ex. 1003 ¶ 85). According to Petitioner, Yu’s UE performs measurements for a period of time or until a measurement threshold is met. *Id.* (citing Ex. 1003 ¶ 85). The UE then transmits measurement results 610 that may include reference signal receive power for the candidate

supplemental nodes. *Id.* (citing Ex. 1003 ¶¶ 85–86). Petitioner, relying on the declaration testimony of Dr. Camp, asserts that “a POSITA would have understood that for the UE to measure the reference signal receive power, the base station (e.g., uplink supplemental node 604 . . .) must have sent the downlink reference signal to be measured in the downlink signal.” *Id.* (citing Ex. 1005 ¶ 146).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to these limitations.

At this stage of the proceeding, we find Petitioner sufficiently shows that Yu discloses the subject matter of these limitations.

iii. 8.3: “*updating a base station candidate group by adding at least one base station among the base stations to the base station candidate group*”

Claim 8 further recites “updating a base station candidate group by adding at least one base station among the base stations to the base station candidate group.” For this limitation, Petitioner asserts that Yu’s “user equipment 600 . . . measures the downlink signal power 606 in downlink signal 608 received from network nodes that may be considered for operations as uplink supplemental node 602.” Pet. 65 (quoting Ex. 1003 ¶ 85). Petitioner further asserts that after Yu’s UE signal strength measurement reaches a certain threshold or after a time interval expires, the UE reports the measurements results to the serving node for supplemental node selection. *Id.* (citing Ex. 1003 ¶¶ 85–86). Petitioner contends, relying on the declaration testimony of Dr. Camp, that “it would have been obvious to a POSITA that a UE is ‘updating’ the base station candidate group and adding a base station to the base station candidate group by reporting its measurement of the downlink signal strength of possible supplemental nodes

until a certain threshold or for a certain period of time, and subsequently reporting those results to the serving node.” *Id.* (citing Ex. 1005 ¶ 149).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

At this stage of the proceeding, we find Petitioner sufficiently shows that Yu discloses the subject matter of this limitation.

iv. 8.4: “*establishing a downlink cell association with a first base station*”

Claim 8 further recites “establishing a downlink cell association with a first base station.” For this limitation, Petitioner contends that Yu’s node 108 is a serving node and performs functions including “radio resource management, admission control, scheduling, enforcement of negotiated uplink quality of service, cell information broadcast, ciphering and deciphering of user and control data, and compression and decompression of downlink and uplink user packet headers.” Pet. 66 (quoting Ex. 1003 ¶ 32). Petitioner contends, relying on the declaration testimony of Dr. Camp, that a POSITA would recognize that functions such as radio resource management, admission control, and scheduling are used to establish a downlink cell association with a terminal because the functions “perform[] the control plane procedures, including connection management, between the base station and the UE.” *Id.* (citing Ex. 1005 ¶ 151).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

At this stage of the proceeding, we find Petitioner sufficiently shows that Yu discloses the subject matter of this limitation.

- v. 8.5: *“receiving an identifier of a second base station providing an uplink control channel from the first base station through the downlink cell association, wherein the second base station is selected by the first base station”*

Claim 8 further recites “receiving an identifier of a second base station providing an uplink control channel from the first base station through the downlink cell association, wherein the second base station is selected by the first base station.” Petitioner asserts this limitation would have been obvious over Yu and Acharya. Pet. 67–69. Petitioner contends that Yu discloses “after the serving node determines the candidate uplink supplemental nodes, the serving node and candidate uplink supplemental node set perform the query-response procedure, and an uplink supplemental node set shown in 618 in Figure 6 is determined at the conclusion of this procedure by the serving node.” Pet. 67 (citing Ex. 1003 ¶ 91). Petitioner further asserts that Yu’s uplink supplemental node set is transmitted to the UE and “includes each candidate node that was determined to be appropriate for operation as an uplink supplemental node for user equipment 600.” *Id.* (quoting Ex. 1003 ¶ 91; citing Ex. 1003 ¶ 93). Petitioner asserts that Yu’s radio resource control signaling is used to inform the UE of the identity of the uplink supplemental node as shown in Figure 6 step 618. *Id.* (citing Ex. 1003 ¶ 93, Fig. 6; Ex. 1005 ¶ 155).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

We note that although Petitioner states that “Yu in view of Acharya renders obvious” limitation 8.5 and references prior statements “[a]s explain[ed] above” (Pet. 67), Petitioner does not specifically identify any portions of Acharya or the specific prior discussions involving Acharya for

this claim element. Although we are persuaded, on this record, that Yu teaches this limitation, it is not clear how Petitioner is relying on Acharya.

- vi. 8.6: “*establishing an uplink cell association with the second base station based on the identifier of the second base station*”

Claim 8 further recites “establishing an uplink cell association with the second base station based on the identifier of the second base station.” For this limitation, Petitioner contends that following the selection of an uplink supplemental node, Yu’s UE initiates use of the supplemental node for uplink transmission. Pet. 69 (citing Ex. 1003 ¶¶ 93–95, Fig. 7; Ex. 1005 ¶ 157). Petitioner contends that Yu discloses “that uplink supplement node may be transmitted to the UE [and] [a]s a result, the UE sends scheduling requests to the resultant supplemental nodes.” *Id.* (citing Ex. 1003 ¶¶ 92–95). Petitioner further asserts that Yu discloses that the UE performs an uplink transmission after receiving an uplink scheduling grant. *Id.* at 70 (citing Ex. 1007, Fig. 7). Petitioner, relying on the declaration testimony of Dr. Camp, contends that “[r]eception of an uplink transmission and the successful decoding of that transmission would indicate an uplink cell association to a POSITA.” *Id.* (citing Ex. 1005 ¶ 159).

Patent Owner does not, at this stage, substantively challenge Petitioner’s showing as to this limitation.

We find Petitioner sufficiently shows that Yu discloses the subject matter of this limitation.

i. *Conclusion as to Claim 8*

At this stage of the proceeding, as noted, Patent Owner does not offer arguments challenging Petitioner’s analysis for any limitation of claim 8. Based on the current record, we are persuaded by Petitioner’s showing for

preamble 8.0 and limitations 8.1 through 8.4, and limitation 8.6. However, as noted above, Petitioner does not specifically identify any portions of Acharya when discussing claim element 8.5. Whether the Petition sufficiently shows that the proposed combination of Acharya and Yu meets limitation 8.5 may be resolved on a full trial record.

6. *Summary*

For the foregoing reasons, we find that Petitioner has presented compelling evidence that at least independent claims 1 and 6 would have been obvious over the combination of Yu and Acharya. Patent Owner provides no substantive counter-arguments or evidence at this stage. Rather, Patent Owner contends the Board should deny the Petition under § 314(a) and addresses the merits of Petitioner’s showing only by asserting that Petitioner failed to qualify Acharya as prior art. *See generally* Prelim. Resp. As discussed above, we disagree with Patent Owner’s contentions in that regard.

V. CONCLUSION

As we explain above, we determine that Petitioner has presented a compelling, meritorious challenge to at least claims 1 and 6 of the ’383 patent. Based on the foregoing, we institute an *inter partes* review.

Because an institution decision is an “all or nothing” decision, and our decision to institute on at least independent claims 1 and 6 means that we will institute on all claims in the Petition, we need not undertake a fulsome analysis of all challenged claims in this Decision. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1353 (2018) (“The agency cannot curate the claims at issue but must decide them all.”); *see also* 37 C.F.R. § 42.108(a) (“When instituting . . . review, the Board will authorize the review to proceed on all

of the challenged claims and on all grounds of unpatentability asserted for each claim.”).

VI. ORDER

For the reasons given, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review of the ’383 patent is hereby instituted for all of the challenged claims on all of the asserted grounds; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this Decision.

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