

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LG ELECTRONICS INC.,
Petitioner,

v.

PANTECH CORPORATION,
Patent Owner.

IPR2023-01269
Patent 9,854,545 B2

Before THU A. DANG, DANIEL J. GALLIGAN, and
SCOTT B. HOWARD, *Administrative Patent Judges*.

GALLIGAN, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

LG Electronics Inc. (“Petitioner”) filed a petition for *inter partes* review (Paper 1 (“Pet.” or “Petition”)) challenging claims 2 and 3 of U.S. Patent 9,854,545 B2 (Ex. 1001 (the “’545 patent”)). Pantech Corporation (“Patent Owner”) filed a Preliminary Response. Paper 22 (“Prelim. Resp.”). Petitioner filed an authorized Reply to Patent Owner’s Preliminary Response (Paper 24), and Patent Owner filed a Sur-reply to Petitioner’s Preliminary Reply (Paper 26).

Under 37 C.F.R. § 42.4(a), we have authority to determine whether to institute review. 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 the information presented in the Petition and the Preliminary Response shows “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 explained below, we institute an *inter partes* review of all challenged claims on all grounds raised in the Petition.

B. Related Matters

As required by 37 C.F.R. § 42.8(b)(2), the parties identify various related matters. Pet. 4; Paper 3 at 1.

C. Real Parties in Interest

Petitioner identifies itself and LG Electronics U.S.A., Inc. as the real parties in interest. Pet. 4. Patent Owner identifies itself as the real party in interest. Paper 3 at 1.

D. The '545 Patent and Illustrative Claim

The '545 patent relates to establishing an uplink (UL) synchronization in a wireless communication system. Ex. 1001, 1:23–27. Claim 2 is reproduced below with Petitioner's limitation identifiers in brackets. *See* Pet. xii.

2. A method for establishing an uplink (UL) synchronization by a User Equipment (UE), the method comprising:

[2.a] receiving a Radio Resource Control (RRC) signaling including a UL timing group information set, which has been set by an evolved NodeB (eNB);

[2.b] configuring one or more UL timing groups based on the UL timing group information set, the one or more UL timing groups each comprising one or more UL CCs;

[2.c] transmitting a Random Access Preamble (RAP) through one or more UL CCs, each of the one or more UL CCs transmitting an RAP being set as a delegate CC in the respective UL timing group;

[2.d] receiving a Random Access Response (RAR) including a Timing Advanced (TA) value for UL CCs in the respective UL timing group, wherein each TA value is transmitted from the eNB for the respective UL timing group based on the transmitted RAP associated with a delegate CC of the respective UL timing group; and

[2.e] applying each TA value to CCs in the respective UL timing group.

E. Asserted Grounds of Unpatentability

Petitioner presents the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
2, 3	102(a), (e) ¹	Tenny ²
2, 3	103(a)	Tenny
2, 3	103(a)	Qualcomm, ³ TS36.331 ⁴
2, 3	103(a)	Tenny, TS36.300 ⁵
2, 3	103(a)	Qualcomm, TS36.331, TS36.300
3	103(a)	Tenny, Fan ⁶
3	103(a)	Qualcomm, TS36.331, Fan
3	103(a)	Tenny, TS36.300, Fan
3	103(a)	Qualcomm, TS36.331, TS36.300, Fan

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. §§ 102 and 103, effective March 16, 2013. Petitioner asserts unpatentability under pre-AIA §§ 102 and 103. Pet. 6–9.

² US 2011/0158116 A1, filed June 17, 2010, published June 30, 2011 (Ex. 1005), claiming priority to, among others, provisional application 61/218,769, filed on June 19, 2009 (Ex. 1006).

³ Document titled “Supporting multiple timing advance groups” (Ex. 1007). Petitioner presents un rebutted evidence that Qualcomm was made available to the public no later than January 22, 2010. Ex. 1004 ¶¶ 96–100.

⁴ 3GPP Technical Specification 36.331 v9.0.0 (2009-09) (Ex. 1009). Petitioner presents un rebutted evidence that TS36.331 was made available to the public no later than September 29, 2009. Ex. 1004 ¶¶ 122–140.

⁵ 3GPP Technical Specification 36.300 v8.11.0 (2009-12) (Ex. 1008). Petitioner presents un rebutted evidence that TS36.300 was made available to the public no later than January 5, 2010. Ex. 1004 ¶¶ 102–121.

⁶ US 2010/0260136 A1, filed April 10, 2009, published Oct. 14, 2010 (Ex. 1010).

II. ANALYSIS

A. *Discretionary Denial*

1. 35 U.S.C. § 314(a)

Patent Owner argues that we should exercise discretion to deny institution under 35 U.S.C. § 314(a) because the factors identified in *Apple, Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential), weigh in favor of denying institution in view of the district court litigation. Prelim. Resp. 20–32.

A Memorandum from Director Vidal titled *Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation* (USPTO June 21, 2022) (“Interim Procedure”)⁷ provides that “the PTAB will not deny institution of an IPR or PGR under *Fintiv* . . . 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.” Interim Procedure 9. Petitioner has submitted such a stipulation. Ex. 1300; Paper 24 at 1. Thus, we do *not* exercise discretion to deny institution under 35 U.S.C. § 314(a).

2. 35 U.S.C. § 325(d)

Patent Owner argues that we should exercise discretion to deny institution under 35 U.S.C. § 325(d) because, according to Patent Owner, the same or substantially the same prior art previously was presented to the Office. Prelim. Resp. 32–41; Paper 26 at 1–3. For the reasons stated below, we decline to exercise discretion to deny on this basis.

⁷ Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621.pdf.

Section 325 of Title 35 of the United States Code addresses the relationship of proceedings before the Board with other proceedings in the Office, and provides, in part, that

[i]n determining whether to institute or order a proceeding under this chapter, chapter 30, or chapter 31,^[8] the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.

In evaluating arguments under Section 325(d), we use a two-part framework, determining, first, “whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office.” *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). If either condition of the first part of the framework is satisfied, we then determine “whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Id.*

When deciding whether to exercise our discretion under Section 325(d) in view of the *Advanced Bionics* framework, we weigh the following nonexclusive factors:

- (a) the similarities and material differences between the asserted references and the prior art involved during prosecution;
- (b) the cumulative nature of the asserted references and the prior art evaluated during prosecution;
- (c) the extent to which the asserted references were evaluated during prosecution, including whether a rejection rested on any reference;

⁸ Chapter 31 (35 U.S.C. §§ 311–319) relates to *inter partes* review.

- (d) the extent of overlap between the arguments made during prosecution and Petitioner's reliance on the asserted references or Patent Owner's contentions concerning them;
- (e) whether Petitioner has pointed out sufficiently how the Examiner erred in analyzing the asserted references; and
- (f) the extent to which additional evidence and facts presented in the petition warrant reconsideration of the asserted references or arguments.

See Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017-01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph) (formatting altered); *see also Advanced Bionics*, Paper 6 at 9–11 (noting that the Board considers the *Becton Dickinson* factors in an *Advanced Bionics* analysis).

We focus our analysis on Tenny, which Patent Owner asserts “is cumulative to the Yoo-Marinier-Narasimha combination considered and relied on by the Examiner during prosecution.” Prelim. Resp. 35. For the reasons explained below, we determine that, even if Tenny were cumulative of the combined teachings of Yoo-Marinier-Narashima, the Examiner erred by allowing the claims over that combination.

Patent Owner argues that the claims were allowed after the applicant argued that the asserted combination did not teach certain subject matter. Prelim. Resp. 35 (citing Ex. 1002 ('545 file history) at 474–76). Patent Owner contends that “Petitioner fails to argue that the Office committed any material error in confirming the patentability of the challenged claims over substantially similar art considered during prosecution.” Prelim. Resp. 39–40. Petitioner responds that, if Tenny is cumulative to the art examined during prosecution, then “the Examiner materially erred in

reviewing the references and failing to fully apply them to the '545 Challenged Claims.” Paper 24 at 3.

We have considered the relevant file history and determine that the Examiner erred for the reasons explained below.

The Examiner rejected claims 1–3, which are the same as the issued claims, as obvious over the combination of Yoo,⁹ Marinier,¹⁰ and Narasimha¹¹ in an Office Action dated December 30, 2016. The Examiner relied on Yoo for much of the subject matter of claim 2 but determined that “Yoo does not explicitly disclose configuring one or more UL timing groups based on the UL timing group information set, the one or more UL timing groups each comprising one or more UL CCs.” Ex. 1002 at 421. The Examiner found the following:

Marinier . . . discloses the timing advance (TA) value used by the WTRU [(wireless transmit/receive unit)] for uplink (UL) time alignment is provided by the network in either the RACH [(random access channel)] response to the WTRU's RACH request message and perform a method of maintaining time alignment with multiple UL carriers wherein a group of carriers operating with the same TA is referred to as a UL control carrier (CC) set and apply different TA values for different UL CC sets.

Ex. 1002 at 421 (citing Marinier ¶¶ 21–29). It appears that the Examiner cited paragraphs in a provisional application to which Marinier claims priority. *See* Ex. 1002 at 418 (“For citation purposes, hereinafter, the Office Action refers to the cited by Marinier et al. with provisional 61/293271,

⁹ US 2009/0279495 A1, published Nov. 12, 2009 (Ex. 2017).

¹⁰ US 2012/0008600 A1, published Jan. 12, 2012 (Ex. 1013).

¹¹ US 2008/0268850 A1, published Oct. 30, 2008 (Ex. 2019).

which qualifies as prior art date.”). That provisional is Exhibit 1014 (“Marinier provisional”).

In response to the Office Action, the applicant argued in relevant part:

Marinier discloses in FIG. 2, that at 204, the WTRU may be configured to determine one or more uplink component carrier sets (UL CC sets) which may comprise one or more of the uplink carriers which may be capable of operating with the same Timing Advance (TA). Marinier, para. [0104]. At 206, the WTRU may also be configured to select at least one UL CC set and, at 208, identify at least one of the one or more uplink carriers that may be capable of random access channel (RACH) communication for the selected at least one UL CC set. *Id.* At 210, the WTRU may be configured to initiate a RACH communication on at least one of the identified one or more uplink carriers for the selected at least one UL CC set and, at 212, to receive a TA value in response to the RACH communication. *Id.* The WTRU may be further configured, at 214, to apply the TA value to each of the one or more uplink carriers that comprise the selected at least one UL CC set. *Id.* As such, Marinier teaches that the WTRU may be configured to receive a Time Advance (TA) value and apply the TA value to each of the one or more “uplink carriers” that comprise the selected UL CC. However, Marinier fails to disclose or teach at least the RRC including a “UL timing group information set” comprising “one or more UL timing groups,” the one or more UL timing groups each comprising one or more UL CCs. Accordingly, Marinier also fails to disclose or teach “each TA value is configured to be applied to CCs in the respective UL timing group,” as recited in claim 1.

Ex. 1002 at 474–75.

In a May 11, 2017, Notice of Allowance, the Examiner allowed claim 2, stating that it was “allowable because the Prior Art of record, singly or in combination fails to teach the feature of claim(s) limitations in the context of claim as a whole,” and the Examiner reproduced the text of

claim 2. Ex. 1002 at 529. The Examiner did the same for claims 1 and 3.
Ex. 1002 at 528–530.

This prosecution history does not provide much insight into why the claims were allowed in light of the applicant’s arguments because the applicant’s arguments addressed paragraph 104 of Marinier, which the Examiner did not cite. Ex. 1002 at 421–22, 474–75. Rather, as noted above, the Examiner cited paragraphs 21–29 of the Marinier provisional, which disclose, in part:

One way of identifying UL carriers that use the same TA is to define a group index of a few bits for each UL CC set, which can possibly be a single bit if there is a maximum of two UL CC sets. The WTRU may obtain the group index of the UL CC set to which an UL carrier belongs when this UL carrier is being configured by the network (in the radio resource control (RRC) message).

Ex. 1014 ¶ 27; *see* Ex. 1002 at 421–22. This disclosure of including a group index for each UL CC timing set in an RRC message appears to contradict the applicant’s argument that “Marinier fails to disclose or teach at least the RRC including a ‘UL timing group information set’ comprising ‘one or more UL timing groups,’ the one or more UL timing groups each comprising one or more UL CCs.” *See* Ex. 1002 at 475. Thus, it is not clear, on this record, why the applicant’s argument about paragraph 104 in Marinier persuaded the Examiner to allow the claims.

Patent Owner’s arguments regarding § 325(d) direct us to disclosures in Marinier that indicate that Marinier suggests much, if not all, of the subject matter of claim 2. *See* Prelim. Resp. 35–37 (citing Ex. 1013 ¶¶ 5–7, 73, 75).

For claim 2’s step of “receiving a Radio Resource Control (RRC) signaling including a UL timing group information set, which has been set

by an evolved NodeB (eNB),” Marinier discloses “identify[ing] UL carriers that use the same timing advance by defining a group index of a few bits for each UL CC set (possibly a single bit if there is a maximum of 2 UL CC sets).” Ex. 1013 ¶ 73. Marinier discloses that the wireless transmit/receive unit (WTRU) “may obtain the group index of the UL CC set to which an UL carrier belongs when this UL carrier is being configured by the network (e.g., in the RRC message).” Ex. 1013 ¶ 73. Furthermore, Marinier discloses that “an evolved Node B (eNodeB)” may determine the group index. Ex. 1013 ¶ 10.

Marinier discloses the following random access procedure to obtain a timing advance (TA) value that appears to suggest the claim 2’s steps 2.b–2.e:

Embodiments contemplate that a WTRU may apply different TA values for different UL CC sets. Each UL CC set may operate with a separate Time Alignment Timer (TAT). In accordance with this method, in one embodiment, initial timing alignment may be achieved using a Random Access Channel (RACH) procedure wherein the TA value may be provided by the network to the WTRU using the RACH response message. In case of an UL CC set where all the carriers (or a subset) of the set are configured for RACH, the WTRU may select one of the carriers that can be used for RACH and trigger the Random Access procedure. The Timing Advance Command received in the Random Access Response message may then be used to apply the TA value to some or each UL carrier of the UL CC set, and the WTRU may start/restart the TAT associated with the UL CC set.

In some embodiments only one carrier in the UL CC set may be configured for RACH. In such embodiments, the WTRU may trigger the Random Access procedure on this carrier, apply the TA value obtained in the corresponding Random Access Response message to each UL carrier of the UL CC set, and start/restart the TAT associated with the UL CC

set.

Ex. 1013 ¶¶ 75–76. Elsewhere, Marinier suggests the use of a preamble in a random access communication. Ex. 1013 ¶¶ 100 (“RACH preamble”), 6 (“random access channel (RACH)”).

In view of Marinier’s disclosures and in view of the Examiner’s allowance of the claims despite the Examiner’s findings and the applicant’s apparent failure to respond to those findings during prosecution, we determine that the Office erred in a manner material to the patentability of the challenged claims by allowing the claims over Marinier in combination with Yoo and Narasimha, and we do not deny institution under 35 U.S.C. § 325(d).

B. Principles of Law

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008). Although the elements must be arranged or combined in the same way as in the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., terminology need not be identical. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (citing *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990)).

A patent 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 the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *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) any secondary considerations, if in evidence.¹² *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966).

C. Level of Ordinary Skill in the Art

Petitioner argues that a person of ordinary skill in the art “would have had a bachelor’s degree in electrical or computer engineering, computer science, or the equivalent thereof, and at least two years of experience with wireless communication systems.” Pet. 16 (citing Ex. 1003 ¶¶ 47–50). Petitioner also contends that “[m]ore education can supplement practical experience, and vice-versa.” Pet. 16 (citing Ex. 1003 ¶¶ 47–50).

Patent Owner does not comment on the level of ordinary skill in the Preliminary Response.

To the extent necessary, and for purposes of this Decision, we accept the uncontested assessment offered by Petitioner, which appears consistent with the ’545 patent and the asserted prior art, except that we delete the qualifier “at least” to eliminate vagueness as to the amount of experience. The qualifier expands the range indefinitely without an upper bound, and thus precludes a meaningful indication of the level of ordinary skill in the art.

D. Claim Construction

Neither party proposes any claim terms for construction. On this record, we determine that no terms need express construction. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only

¹² Patent Owner has not introduced secondary considerations evidence.

to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

*E. Alleged Unpatentability Based on Tenny
(Claims 2, 3)*

Petitioner asserts that claims 2 and 3 are unpatentable as anticipated by Tenny, obvious over Tenny, and obvious over the combination of Tenny and TS36.300. Pet. 9, 17–47, 67–70. Patent Owner opposes. Prelim. Resp. 41–46, 49.

1. Overview of the Prior Art

Tenny “relates generally to wireless communications, and more particularly to methods and apparatuses that facilitate maintaining timing synchronization for user equipment in a multicarrier Long Term Evolution-Advanced (LTE-A) system.” Ex. 1005 ¶ 3.

TS36.300 outlines a random access procedure, as discussed below. Ex. 1008 at 52.

We discuss additional pertinent details of the references in our analysis below.

2. Claim 2

a) Preamble, 2.a, 2.b

Claim 2 is directed to a “method for establishing an uplink (UL) synchronization by a User Equipment (UE).” Petitioner argues that Tenny discloses the preamble. Pet. 24–25 (citing Ex. 1005 ¶¶ 2–3, 12, 58, Fig. 3; Ex. 1006 ¶¶ 13, 16–17, 34–35, 37–38, 40–41, Figs. 1, 3, Appx. A (1:2–3, 1:17–19, 2:8–10, Figs. 1–3, claims 1, 5, 6); Ex. 1003 ¶¶ 76–78). Patent Owner does not dispute this contention. On this record, we agree with Petitioner that Tenny discloses the preamble, and, thus, we need not decide whether the preamble is limiting. *See* Ex. 1005 ¶ 12 (disclosing

“maintaining timing synchronization for user equipment in a LTE-A system”).

Claim 2 recites “receiving a Radio Resource Control (RRC) signaling including a UL timing group information set, which has been set by an evolved NodeB (eNB)” (2.a). Petitioner argues that Tenny discloses that an evolved NodeB network element communicates a group identifier to a UE using RRC. Pet. 25–28 (citing Ex. 1005 ¶¶ 40, 70, 79, Fig. 3, claims 26, 31, 33–34, 37, 38, 62, 63, 66, 67; Ex. 1006 ¶¶ 16, 27, 32, 34–35, Appx. A (1:2–3, 1:17–19, 1:29–32, 5:3–10, Figs. 1, claims 27, 31, 33–38); Ex. 1003 ¶¶ 79–81). Patent Owner does not dispute this contention. On this record, we agree with Petitioner that Tenny discloses limitation 2.a because Tenny discloses sending a TA for a timing group identified by a “group identifier,” which “could be sent with a small number of bits (e.g., as an index into the set of timing groups with which the UE was configured)” and discloses that “[s]uch a mapping could be established by explicit signaling (in higher layers such as the Radio Resource Control) at the time the UE is configured with particular carriers.” Ex. 1005 ¶ 70; *see also* Ex. 1005 ¶ 40 (“A base station can be utilized for communicating with access terminal(s) and can also be referred to as an access point, Node B, Evolved Node B (eNodeB), access point base station, or some other terminology.”).

Claim 2 recites “configuring one or more UL timing groups based on the UL timing group information set, the one or more UL timing groups each comprising one or more UL CCs” (2.b). Petitioner argues that Tenny discloses that the UE configures a timing group by choosing a carrier in the group to use for random access. Pet. 29 (citing Ex. 1006 ¶¶ 36, 39–40, Fig. 4; Ex. 1003 ¶ 87); *see also* Pet. 28–31 (additional discussion of this limitation, citing Ex. 1005 ¶¶ 44, 56, 60–61, 70, 78–79, 82, 84, claims 30,

35, Figs. 6, 7; Ex. 1006 ¶¶ 34–36, 39–40, Figs. 3, 4 Appx. A (1:17–49, 2:6, 2:23–3:17, 4:15–25, 5:3–10, claims 1, 3, 6, 8, 15, 17, Fig. 1); Ex. 1003 ¶¶ 83–87). Patent Owner does not dispute Petitioner’s contention. On this record, we agree with Petitioner that Tenny discloses configuring a timing group as recited in limitation 2.b by its disclosure that “the UE is assigned to carriers in a particular timing group, wherein the network provides the UE with instructions regarding which carrier in that group to use for random access.” Ex. 1005 ¶ 60; *see also* Ex. 1006 ¶ 39 (“FIG. 4 illustrates an example methodology 400 that facilitates grouping carriers and performing group-based timing updates. At 402, a plurality of carriers can be associated into one or more timing groups.”).

b) 2.c

Claim 2 recites “transmitting a Random Access Preamble (RAP) through one or more UL CCs, each of the one or more UL CCs transmitting an RAP being set as a delegate CC in the respective UL timing group” (2.c). For this limitation, Petitioner cites Tenny’s disclosure of using a random access procedure to update timing information. Pet. 31–35 (citing Ex. 1005 ¶¶ 58, 60–61, 80, 82, 84, Fig. 6, claims 2–4, 52; Ex. 1006 ¶¶ 2, 3, 34, 36, 37, 39, Figs. 3, 4, Appx. A (1:2–3, 1:17–19, 2:7–25, claims 5, 6); Ex. 1003 ¶¶ 88–92). For example, Tenny discloses that, “within each timing group, a UE may occasionally perform random access to update its timing,” which “only needs to be performed with one carrier of each timing group.” Ex. 1005 ¶ 58. Therefore, “the UE is configured to avoid performing unnecessary timing updates (i.e., to select a single carrier from the timing group to use for its timing control).” Ex. 1005 ¶ 58; *see also* Ex. 1006 ¶¶ 39–40 (“At 404, a candidate carrier can be assigned in a given timing group for receiving timing updates. . . . At 406, a timing offset can be

received from the candidate carrier during the timing update. This can be in response to a random access procedure . . .”).

Patent Owner argues that Tenny’s disclosure of random access is insufficient to show an anticipatory disclosure of a RAP. Prelim. Resp. 41–43. Patent Owner argues that Petitioner’s anticipation contentions fail because Petitioner acknowledges that Tenny does not explicitly disclose using a RAP and Petitioner does not argue that Tenny inherently discloses using a RAP. Prelim. Resp. 42–43 (citing Pet. 69).

For the reasons discussed below, we find Petitioner’s contentions of obviousness sufficiently persuasive, and, therefore, we need not rely on Petitioner’s anticipation contentions. Nevertheless, we provide the following guidance to the parties for trial.

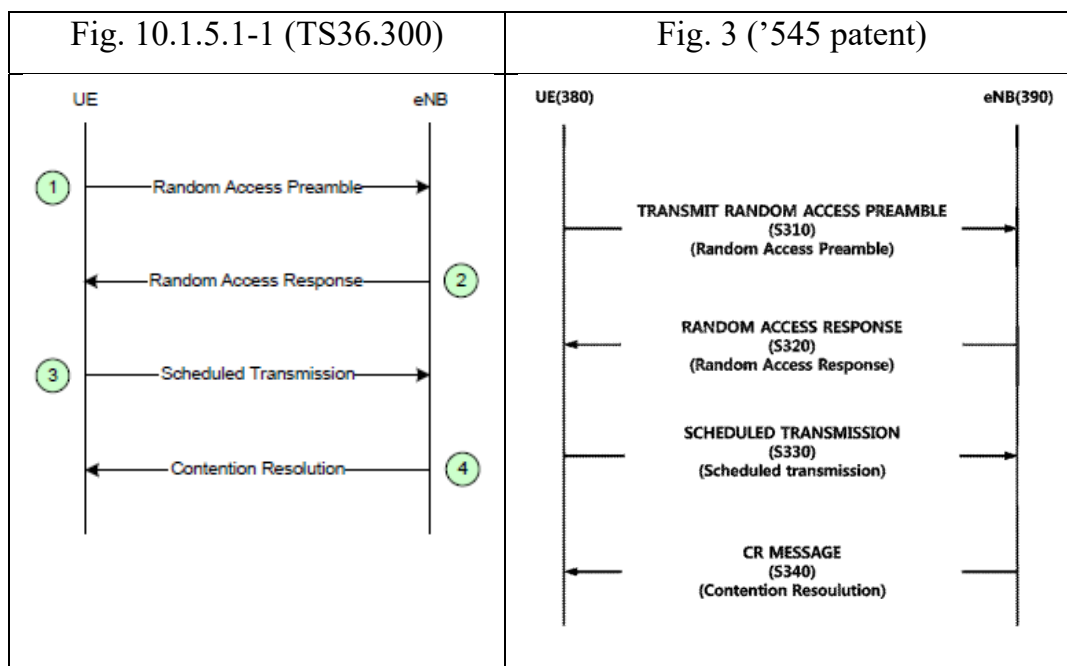
Petitioner argues that Tenny “do[es] not explicitly state that [its] UEs use a RAP and RAR to acquire timing information as part of [its] disclosed LTE random access procedure.” Pet. 69. Patent Owner considers this a concession that there is no explicit disclosure and that Petitioner must rely on, but does not argue, inherency. Prelim. Resp. 42. On this record, we view Petitioner’s statement as an acknowledgement that Tenny does not “explicitly state” something, namely the use of a RAP. Pet. 69. Anticipation, however, does not require an explicit statement of a limitation; rather, “[a]nticipation is established when one skilled in the art would reasonably understand or infer from the prior art reference’s teaching that every claim [limitation] was disclosed in that single reference.” *Genentech, Inc. v. Hospira, Inc.*, 946 F.3d 1333, 1340 (Fed. Cir. 2020) (quotations and citations omitted; second alteration in original). Petitioner’s contention is that Tenny discloses using a random access procedure in LTE to update timing information. Pet. 32; *see* Ex. 1005 ¶ 58 (“[W]ithin each timing

group, a UE may occasionally perform random access to update its timing (e.g., if timing is maintained through a separate procedure for each timing group).”). Petitioner’s technical declarant, Daniel van der Weide, Ph.D., testifies that Tenny’s disclosure of using a random access procedure to update timing would have been understood by a person of ordinary skill in the art as involving the transmission of a RAP. Ex. 1003 ¶ 91 (citing Ex. 1008 at 52; Ex. 1015 at 432). As support, Dr. van der Weide cites TS36.300, which he testifies “expressly discloses the LTE protocol for performing the random access procedure” of Tenny. Ex. 1003 ¶ 180. As Dr. van der Weide testifies (Ex. 1003 ¶¶ 180–183), TS36.300 discloses two types of random access procedures—contention based and non-contention based—both of which involve transmission of a RAP from a UE and reception of a random access response at a UE. Ex. 1008 at 52, 54.

We need not resolve whether the evidence discussed above shows anticipation because we determine that it sufficiently supports Petitioner’s contention that transmitting a RAP would have been obvious to a person of ordinary skill in the art. *See* Pet. 67–70. Tenny is directed to “maintaining timing synchronization for user equipment in a multicarrier Long Term Evolution-Advanced (LTE-A) system.” Ex. 1005 ¶ 3. Petitioner argues that a person of ordinary skill in the art “would have been motivated to implement Tenny’s . . . random access procedure according to the ‘Random Access Procedure’ specified in LTE specification TS36.300 because . . . Tenny’s . . . system w[as] designed to operate in an ‘LTE-A’ network, and TS36.300 provides the LTE protocol for performing the Random Access Procedure.” Pet. 69–70 (citing Ex. 1003 ¶ 186). Patent Owner contends that Petitioner’s rationale to combine Tenny and TS36.300 “suffers from a failure to adequately explain why a [person of ordinary skill in the art]

would find it obvious to combine the references in a manner that cures Tenny’s deficiencies.” On this record, we disagree because Tenny’s disclosure of a random access procedure in LTE provides a motivation to consult documentation explaining LTE random access procedures, such as TS36.300. Ex. 1003 ¶ 180.

We further note that Figure 3 of the ’545 patent is the same in substance as Figure 10.1.5.1-1 in TS36.300, both of which are reproduced side-by-side below.



On the left in the table above is Figure 10.1.5.1-1 of TS36.300, which shows a contention based random access procedure (Ex. 1008 at 52), and on the right above is Figure 3 of the ’545 patent, which also shows a random access procedure (Ex. 1001, 6:46–48). Each of the figures above shows the same steps. First, the UE transmits a Random Access Preamble to the eNB. Second, the eNB transmits a Random Access Response to the UE. Third, the UE transmits a Scheduled Transmission to the eNB. Fourth, the eNB

transmits a Contention Resolution message to the UE. To the extent Petitioner's contentions based on Tenny do not show transmission of a RAP in a random access procedure, we find Petitioner's reliance on TS36.300's prior disclosure of the same random access procedure sufficient to fill that gap.

For the reasons explained above, we are sufficiently persuaded that the combination of Tenny and TS36.300 teaches "transmitting a Random Access Preamble (RAP) through one or more UL CCs, each of the one or more UL CCs transmitting an RAP being set as a delegate CC in the respective UL timing group," and that a person of ordinary skill in the art would have combined the teachings of Tenny and TS36.300 with a reasonable expectation of success.

c) 2.d, 2.e

Claim 2 recites "receiving a Random Access Response (RAR) including a Timing Advanced (TA) value for UL CCs in the respective UL timing group, wherein each TA value is transmitted from the eNB for the respective UL timing group based on the transmitted RAP associated with a delegate CC of the respective UL timing group" (2.d) and "applying each TA value to CCs in the respective UL timing group" (2.e). Petitioner argues that Tenny, alone or in combination with TS36.300, teaches receiving a timing advance value as part of the random access procedure discussed for limitation 2.c and applying that value to carriers in the timing group. Pet. 35–41 (citing Ex. 1005 ¶¶ 9, 40, 57–58, 61, 65–67, 69–70, 77, 80, 82, Figs. 3–5, claims 27, 48, 56; Ex. 1006 ¶¶ 16, 33–34, 36–37, 39–40, Figs. 3, 4, Appx. A (1:9–32, 2:8–10, 3:26–4:8, 4:15–17, Figs. 1–3, claims 1, 3, 5, 6, 28); Ex. 1003 ¶¶ 94–104). As noted above, Tenny discloses that, "within each timing group, a UE may occasionally perform random access to update

its timing,” which “only needs to be performed with one carrier of each timing group.” Ex. 1005 ¶ 58. Therefore, “the UE is configured to avoid performing unnecessary timing updates (i.e., to select a single carrier from the timing group to use for its timing control).” Ex. 1005 ¶ 58; *see also* Ex. 1005 ¶ 77 (“[I]t should be noted that the received timing message may be a timing advance command”); Ex. 1006 ¶ 40 (“At 408, timing can be updated for each carrier in the timing group based on the timing offset.”).

Patent Owner argues that Tenny’s disclosures of random access procedures do not teach a random access response. Prelim. Resp. 44–45. This argument is similar to Patent Owner’s argument for limitation 2.c, and we find it unavailing on this record as to Petitioner’s challenge based on the combination of Tenny and TS36.300 because TS36.300 teaches a random access procedure that involves transmission of a RAP from a UE and reception of a random access response at a UE, as discussed above. Ex. 1008 at 52 (Fig. 10.1.5.1-1). On this record, we are sufficiently persuaded that the combination of Tenny and TS36.300 teaches receiving and applying a timing advance value using a random access response.

d) Determination for Claim 2

For the reasons discussed above and based on Petitioner’s contentions and evidence, summarized above, we are persuaded, on this record, that Petitioner shows a reasonable likelihood of prevailing in demonstrating that claim 2 is unpatentable as obvious over the combined teachings of Tenny and TS36.300. Because we are sufficiently persuaded by Petitioner’s obviousness showing, we need not rely on Petitioner’s anticipation ground based on Tenny, which we address above.

3. *Claim 3*

Claim 3 is directed a “User Equipment (UE) to establish an uplink (UL) synchronization in a wireless communication system” comprising a transceiver and controller, and the claim recites subject matter that corresponds to the method steps of claim 2. Petitioner’s contentions refer to its contentions for similar subject matter of claim 2 and account for the structural subject matter of claim 3. Pet. 41–47. Patent Owner refers to its claim 2 arguments. Prelim. Resp. 45–46.

For the reasons discussed above and based on Petitioner’s contentions and evidence, summarized above, we are persuaded, on this record, that Petitioner shows a reasonable likelihood of prevailing in demonstrating that claim 3 is unpatentable as obvious over the combined teachings of Tenny and TS36.300.

F. Additional Grounds

Having determined that the Petition meets the threshold for institution (reasonable likelihood of prevailing as to at least one of the challenged claims) based on the Tenny and TS36.300 obviousness ground, we address the parties’ disputes for the Qualcomm obviousness grounds.

Petitioner asserts that Qualcomm teaches transmitting a RAP and receiving a RAR with a timing advance value. Pet. 58–61. Qualcomm discloses that, “[i]n order to obtain a timing advance, the UE has to send a RACH” and that the “UE initiates RACH (either with a randomly selected RACH preamble, or with a RACH preamble assigned by the network).” Ex. 1007 at 2. As with Tenny, Petitioner also relies on Qualcomm’s teachings in combination with TS36.300. Pet. 67–70.

Patent Owner argues: “Qualcomm does not specifically refer to or otherwise discuss a RAR. And Qualcomm’s statements that the UE ‘sends’

or ‘initiates’ a RACH do not disclose any action taken by the eNB after receiving the RACH, nor any information received by the UE in response to the RACH.” Prelim. Resp. 47. Patent Owner notes Qualcomm’s disclosure that the “timing advance is delivered to the UE using a DL MAC control element” (Ex. 1007 at 2) and argues that Petitioner does not explain how a RAR would use a DL MAC control element to deliver the timing advance. Prelim. Resp. 47–48; *see also* Prelim. Resp. 49 (similar arguments for Qualcomm in combination with TS36.300).

On this record, we find Petitioner’s contentions sufficiently persuasive given Qualcomm’s express disclosure of sending a random access channel (RACH) preamble to obtain a timing advance. Ex. 1007 at 2. As discussed above in § II.E.2.b, TS36.300 discloses that random access procedures include a random access response. Ex. 1008 at 52 (Fig. 10.1.5.1-1). Thus, we are sufficiently persuaded that the combination of Qualcomm and TS36.300 teaches receiving a timing advance in a random access response after a random access preamble is sent. We also find Petitioner’s reasons to combine sufficiently persuasive because, like Tenny, Qualcomm relates to LTE and TS36.300 includes random access procedures for LTE. Ex. 1007 at 1 (“In this paper, we describe a design for multiple timing advances, and recommend adoption of this design in case multiple timing advances are adopted in LTE-A.”).

We have reviewed Petitioner’s Qualcomm grounds and its grounds that include Fan, and we find them sufficiently persuasive on this record.

III. CONCLUSION

For the foregoing reasons, we determine that the information presented in the Petition establishes that there is a reasonable likelihood that

Petitioner would prevail in challenging at least one claim of the '545 patent, and we institute *inter partes* review of all challenged claims on all grounds raised in the Petition. *See* 37 C.F.R. 42.108(a) (“When instituting *inter partes* 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.”). At this stage of the proceeding, we have not made a final determination with respect to the patentability of any of the challenged claims or the construction of any claim term.

IV. ORDER

Accordingly, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a) and 37 C.F.R. § 42.4, an *inter partes* review is hereby instituted as to claims 2 and 3 of the '545 patent on all challenges raised in the Petition; 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, which will commence on the entry date of this decision.

IPR2023-01269
Patent 9,854,545 B2

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