

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC., MICROSOFT CORPORATION,
MICROSOFT MOBILE OY, and
MICROSOFT MOBILE INC. (F/K/A/ NOKIA INC.),
Petitioner,

v.

EVOLVED WIRELESS LLC,
Patent Owner.

Case IPR2016-01228
Patent 7,881,236 B2

PATENT OWNER'S NOTICE OF APPEAL

Pursuant to 35 U.S.C. §§ 141, 142, and 319, and in accordance with 37 C.F.R. §§ 90.2-90.3, Patent Owner Evolved Wireless LLC (“Evolved”) appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision of the Patent Trial and Appeal Board (“Board”) entered on November 30, 2017 in Case IPR2016-01228 (Paper 27) (“Final Written Decision”), and the Decision Denying Patent Owner’s Request for Rehearing (“Decision Denying Rehearing”) (Paper 32) entered on March 26, 2018, and from all underlying findings, determinations, rulings, opinions, orders, and decisions regarding that *inter partes* review of U.S. Patent No. 7,881,236. This Notice of Appeal is timely filed within 63 days of the Decision Denying Rehearing.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), Patent Owner states that the issues for appeal include, but are not limited to: the Board’s determination that claims 1-10, 12, and 13 of U.S. Patent No. 7,881,236 have been shown to be unpatentable as recited in the Final Written Decision and the Decision Denying Rehearing; the Board’s consideration of the expert testimony, prior art, and other evidence in the record; the Board’s determinations in the institution decision; and the Board’s factual findings, conclusions of law, or other determinations supporting or relating to the above issues.

This Notice of Appeal is being e-filed with the Clerk’s Office for the United States Court of Appeals for the Federal Circuit, along with payment of the

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required docketing fees. In addition, a copy of this Notice of Appeal is being filed simultaneously with the Patent Trial and Appeal Board and with the Director of the United States Patent and Trademark Office.

Dated: May 24, 2018

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CERTIFICATE OF SERVICE

The undersigned certifies that, in addition to being filed electronically through the Patent Trial and Appeal Board's E2E, the foregoing Notice of Appeal was filed by Express Mail on May 24, 2018, with the Director of the United States Patent and Trademark Office, at the following address:

Director of the United States Patent and Trademark Office
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The undersigned certifies that a copy of the foregoing Notice of Appeal, along with the required docket fee, was filed on May 24, 2018, with the Clerk's Office for the United States Court of Appeals for the Federal Circuit through the Court's CM/ECF filing system.

The undersigned certifies service pursuant to 37 C.F.R. § 42.6(e) of a copy of this Notice of Appeal by electronic mail on May 24, 2018, on the counsel of record for Petitioners at the following addresses:

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APPLE INC., MICROSOFT CORPORATION,
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Before WILLAM V. SAINDON, PATRICK M. BOUCHER, and
TERRENCE W. McMILLIN, *Administrative Patent Judges*.

BOUCHER, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

In response to a Petition (Paper 2, “Pet.”) filed by Apple Inc., Microsoft Corporation, Microsoft Mobile Oy, and Microsoft Mobile Inc. (f/k/a Nokia Inc.) (collectively, “Petitioner”), we instituted an *inter partes* review of claims 1–10, 12, and 13 of U.S. Patent No. 7,881,236 B2 (“the ’236 patent”). Paper 8 (“Dec.”), 21. During the trial, Evolved Wireless LLC (“Patent Owner”) timely filed a Response (Paper 14, “PO Resp.”), to which Petitioner timely filed a Reply (Paper 16, “Reply”). An oral hearing was held on September 15, 2017, and a copy of the transcript was entered into the record. Paper 22 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the claims on which we instituted trial. Based on the record before us, Petitioner has shown, by a preponderance of the evidence, that claims 1–10, 12, and 13 are unpatentable.

I. BACKGROUND

A. *The ’236 Patent*

The ’236 patent “relates to a mobile communication technology.” Ex. 1001, col. 1, ll. 17–18. In particular, the patent describes a random access procedure for user equipment (“UE”) and a base station in a telecommunication system. *Id.* at col. 3, ll. 42–59. Figure 1 of the ’236 patent illustrates a particular example of such a telecommunication system—the Evolved Universal Mobile Telecommunication System (“E-UMTS”), and is reproduced below.

FIG. 1

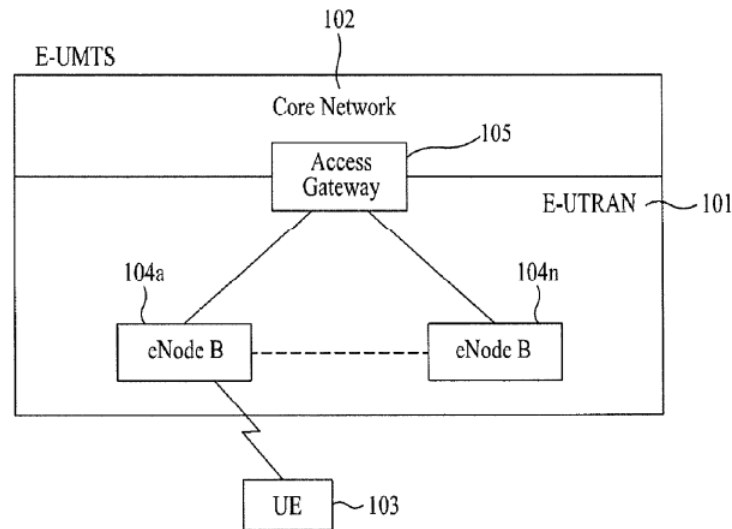


Figure 1 provides a schematic view of a network architecture for the E-UMTS, which may be conceived in terms of two component networks: Evolved UMTS Terrestrial Radio Access Network (“E-UTRAN”) 101 and Core Network 102. *Id.* at col. 1, ll. 26–35. The first of these, E-UTRAN 101, may include user equipment (“UE”) 103, multiple base stations 104 (referred to in the ’236 patent as “eNode B” or “eNB”), and Access Gateway (“AG”) 105. *Id.* at col. 1, ll. 35–39. Access Gateway 105 is positioned at the end of the network and connected to an external network, and can include a portion for processing user traffic and a portion for processing control traffic. *Id.* at col. 1, ll. 38–41.

As the ’236 patent describes, “a UE performs the random access procedure” in a number of instances, including “when the UE performs initial access” to a base station and “when there is uplink data transmission in a situation where uplink time synchronization is not aligned or where a

specific radio resource used for requesting radio resources is not allocated.”
Id. at col. 3, ll. 42–57. A version of Figure 5 of the ’236 patent annotated by
Petitioner is reproduced below.

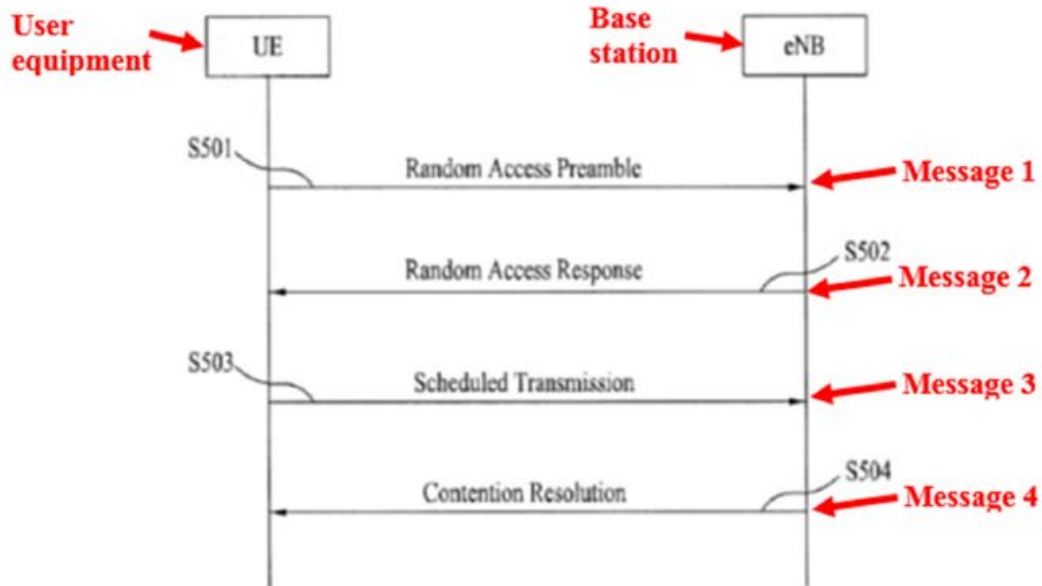


Figure 5 shows an example of a random access procedure performed between user equipment UE and base station eNB. *Id.* at col. 6, ll. 53–55. The procedure begins with transmission of a “random access preamble” from the UE to the base station at step S501 (referred to as a “message 1” transmitting step). *Id.* at col. 4, ll. 3–7. The UE receives a “random access response” from the base station at step S502 “in correspondence with the transmitted random access preamble” (referred to as a “message 2” receiving step). *Id.* at col. 4, ll. 7–11. Of particular relevance, the UE then transmits an uplink message to the base station at step S503 (referred to as a “message 3” or “Msg3” transmitting step). *Id.* at col. 4, ll. 11–14. The UE receives a corresponding “contention resolution” message from the base station at step S504 (referred to as a “message 4” receiving step). *Id.* at col. 4, ll. 14–17.

In the random access procedure, the UE stores data to be transmitted via the message 3 in a “Msg3 buffer” and transmits the stored data “in correspondence with the reception of an Uplink (UL) Grant signal.” *Id.* at col. 4, ll. 18–21. The UL Grant signal indicates information about uplink radio resources that may be used when the UE transmits a signal to the base station. *Id.* at col. 4, ll. 21–26. According to the ’236 patent, then-current Long-Term Evolution (“LTE”) system standards provided that data stored in the Msg3 buffer of the UE would be transmitted to the base station “*regardless of the reception mode of the UL Grant signal,*” and that “if the data stored in the Msg3 buffer is transmitted in correspondence with the reception of *all* UL Grant signals, problems may occur.” *Id.* at col. 4, ll. 26–32 (emphases added). The ’236 patent purports to solve such problems. *Id.* at col. 4, ll. 33–34.

Figure 9 of the ’236 patent is reproduced below.

FIG. 9

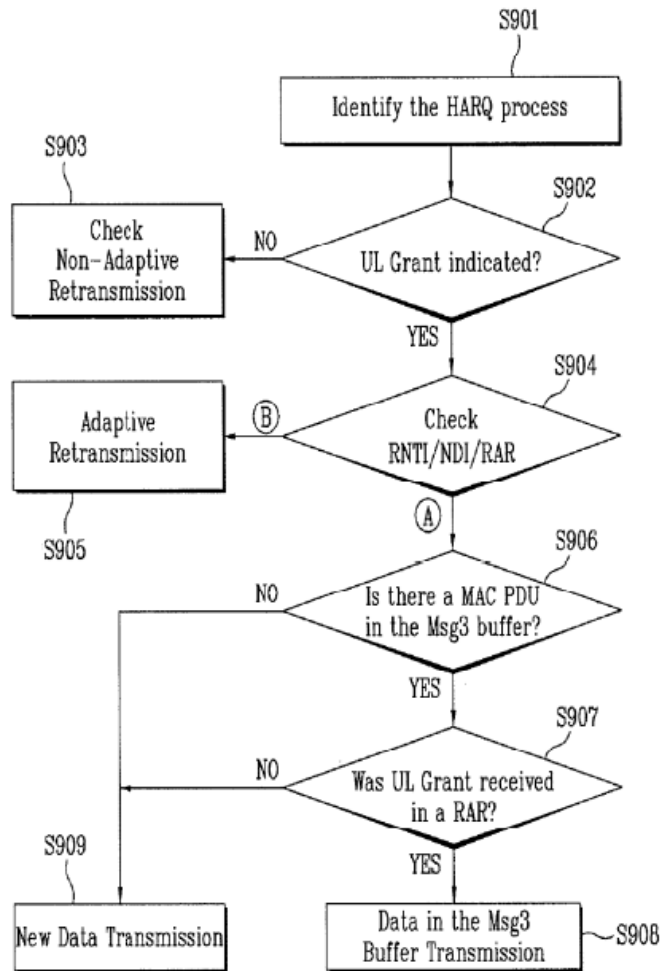


Figure 9 is a flowchart of the method described by the '236 patent, showing the operation of an uplink Hybrid Automatic Repeat Request (“HARQ”) entity in a UE. *Id.* at col. 13, ll. 35–39. After a UL grant signal is received from the base station at step 902, the UE determines at step 906 whether there are data in the Msg3 buffer. *Id.* at col. 13, ll. 42–44, 66–67. If so, a further determination is made at step 907 whether the received UL grant signal is on a random access response (“RAR”) message. *Id.* at col. 13, l.

66–col. 14, l. 3. The UE transmits the data in the Msg3 buffer to the base station “only when” both conditions are met, i.e., “only when there is data in the Msg3 buffer when receiving the UL Grant signal and the UL Grant signal is received on the random access response message (S908).” *Id.* at col. 14, ll. 3–7. Conversely, if either condition is not met, i.e. there are no data in the Msg3 buffer or the UL Grant signal is not on a random access response message, then the UE determines that the base station is making a request for transmission of new data and performs new-data transmission at step 909. *Id.* at col. 14, ll. 7–13.

B. Illustrative Claims

Claims 1 and 7 of the '236 patent, reproduced below, are independent claims respectively directed at the above-described method and at user equipment that implements the above-described method.

1. A method of transmitting data by a user equipment through an uplink, the method comprising:
 - receiving an uplink grant (UL Grant) signal from a base station on a specific message;
 - determining whether there is data stored in a message 3 (Msg3) buffer when receiving the UL Grant signal on the specific message;
 - determining whether the specific message is a random access response message;
 - transmitting the data stored in the Msg3 buffer to the base station using the UL Grant signal received on the specific message, if there is data stored in the Msg3 buffer when receiving the UL Grant signal on the specific message and the specific message is the random access response message; and
 - transmitting new data to the base station in correspondence with the UL Grant signal received on the specific message, if there is no data stored in the Msg3 buffer when receiving the UL Grant signal on the specific message or the specific message is not the random access response message.

7. A user equipment, comprising:
- a reception module adapted to receive an uplink grant (UL Grant) signal from a base station on a specific message;
 - a transmission module adapted to transmit data to the base station using the UL Grant signal received on the specific message;
 - a message 3 (Msg3) buffer adapted to store UL data to be transmitted in a random access procedure;
 - a Hybrid Automatic Repeat Request (HARQ) entity adapted to determine whether there is data stored in the Msg3 buffer when the reception module receives the UL Grant signal and the specific message is a random access response message, acquiring the data stored in the Msg3 buffer if there is data stored in the Msg3 buffer when the reception module receives the UL Grant signal and the specific message is the random access response message, and controlling the transmission module to transmit the data stored in the Msg3 buffer to the base station using the UL Grant signal received by the reception module on the specific message; and
 - a multiplexing and assembly entity used for transmission of new data,
- wherein the HARQ entity acquires the new data to be transmitted from the multiplexing and assembly entity if there is no data stored in the Msg3 buffer when the reception module receives the UL Grant signal on the specific message or the received message is not the random access response message, and controls the transmission module to transmit the new data acquired from the multiplexing and assembly entity using the UL Grant signal received by the reception module on the specific message.

C. Instituted Grounds of Unpatentability

We instituted trial for challenges under 35 U.S.C. § 103(a) over the following combinations of references. Dec. 21.

References	Challenged Claim(s)
Kitazoe, ¹ Prior art described in the '236 patent, ² and Specification 321 ³	1–4, 6–10, 12, and 13
Kitazoe, Prior art described in the '236 patent, Specification 321, and Kitazoe II ⁴	5

D. Real Parties in Interest and Related Proceedings

Petitioner identifies Apple Inc., Microsoft Corporation, Microsoft Mobile Oy, Microsoft Mobile Inc. (f/k/a Nokia Inc.), Microsoft Luxembourg International Mobile SARL, and Microsoft Luxembourg USA Mobile SARL as real parties in interest. Pet. 1. Petitioner asserts that “[t]he Microsoft entities have numerous affiliated and/or related entities,” but that “no unnamed Microsoft entity is funding or controlling this Petition or any resulting IPR.” *Id.* Patent Owner identifies only itself as a real party in interest. Paper 5, 2.

The parties indicate that the '236 patent is the subject of several district-court litigations: *Evolved Wireless, LLC v. Apple, Inc.*, No. 1:15-cv-542 (D. Del.); *Evolved Wireless, LLC v. HTC Corp.*, No. 1:15-cv-543 (D. Del.); *Evolved Wireless, LLC v. Lenovo Group Ltd.*, 1:15-cv-544 (D. Del.); *Evolved Wireless, LLC v. Samsung Electronics Co. Ltd.*, 1:15-cv-545 (D. Del.); *Evolved Wireless, LLC v. ZTE Corp.*, 1:15-cv-546 (D. Del.); *Evolved Wireless LLC v. Microsoft Corp.*, 1:15-cv-547 (D. Del.). Pet. 1–2;

¹ U.S. Patent No. 8,180,058 B2, filed June 10, 2008, issued May 15, 2012 (Ex. 1005, “Kitazoe”).

² See “Discussion of the Related Art,” U.S. Patent No. 7,881,236 (Ex. 1001).

³ 3GPP Technical Specification 36.321 V8.1.0 (March 2008) (Ex. 1007, “Specification 321”).

⁴ U.S. Patent Publication No. 2009/0163211 A1, filed Dec. 17, 2008, published June 25, 2009 (Ex. 1009, “Kitazoe II”).

Paper 5, 2–3. In addition, the '236 patent is the subject of the following *inter partes* reviews: IPR2016-00757, which has been consolidated with IPR2016-01345 (both of which involve a different petitioner); and IPR2016-01229 (which involves this Petitioner on different grounds).

E. Cooklev Declaration

Patent Owner proffers a Declaration by Todor Cooklev, Ph.D., as evidentiary support of its claim-construction and substantive arguments. Ex. 2009. Petitioner argues that the Declaration “is entitled to no weight” because “[n]otoriously absent from Exhibit 2009 is any indication that the declarant was ‘warned that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001),’ or a statement by the declarant that ‘all statements made of the declarant’s own knowledge are true and that all statements made on information and belief are believed to be true.’ See 37 CFR 1.68.” Reply 2–3. We agree with Petitioner that Dr. Cooklev’s Declaration is defective and can be accorded no weight.

In an *inter partes* review proceeding, evidence includes “affidavits,” which are defined in our regulations by reference to the provisions of 37 C.F.R. § 1.68 and 28 U.S.C. § 1746. See 37 C.F.R. § 42.2. The former of these, i.e., 37 C.F.R. § 1.68, requires that a declarant be warned, on the same document, that “willful false statements and the like are punishable by fine or imprisonment, or both.” The latter, i.e., 28 U.S.C. § 1746, provides that unsworn declarations may substitute for sworn declarations if accompanied by a statement in substantially the form, “I declare . . . under penalty of perjury under the laws of the United States of America that the foregoing is

true and correct.” To give weight to Dr. Cooklev’s statements would thwart the purpose of these provisions. *See Intel Corp. v. Alacritech, Inc.*, Case IPR2017-01402, slip op. at 6 (PTAB Nov. 6, 2017) (Paper 8).

At the oral hearing, Patent Owner conceded that Dr. Cooklev’s Declaration is defective. Tr. 36:16–17 (“Well, yes, he did not swear under the penalty of perjury”). Indeed, Patent Owner had notice of the defect in Dr. Cooklev’s Declaration at least as early as the filing of Petitioner’s Reply on July 26, 2017. Reply 2–3. Nevertheless, Patent Owner took no affirmative steps to cure the defect. Although we recognize that Petitioner may well have capitalized tactically on the defect by forgoing cross-examination in which Dr. Cooklev may have provided sworn testimony consistent with his Declaration, we cannot simply ignore the regulatory and statutory requirements that render that Declaration defective. To give weight to the Declaration would require us to surmise that Dr. Cooklev would swear to the statements in his Declaration, and we are in no position to do so.

Accordingly, we give no weight to Dr. Cooklev’s Declaration.

II. ANALYSIS

A. *Claim Construction*

The Board interprets claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012).

1. “*transmitting . . . if*”

A claim-construction disagreement between the parties is grounded in use of the word “if” in the two “transmitting” limitations of independent claims 1 and 7. *See* Pet. 17–21; PO Resp. 10–32; Reply 3–21. Those limitations implicate two conditions, resulting in different data being transmitted depending on whether both conditions are satisfied or not. The first condition is whether “there is data stored in the Msg3 buffer when receiving the UL Grant signal on the specific message,” and the second condition is whether “the specific message is the random access response message.” Ex. 1001, col. 16, l. 59–col. 17, l. 3; col. 17, l. 38–col. 18, l. 7. “If” both conditions are satisfied, the “data stored in the Msg3 buffer” are transmitted to the base station; and “if” either condition is not satisfied, “new data” are transmitted to the base station. *Id.*

Petitioner presents an argument that effectively addresses each “transmitting” limitation in isolation, contending that “the claim language . . . speaks for itself,” and that “the term ‘if’ is used to indicate that the action occurs in the presence of the condition, but possibly also at other times.” Pet. 20–21. That is, Petitioner contends that “if” in each “transmitting” limitation should be construed as introducing a *sufficient* condition.

Patent Owner presents a counterargument that considers an interplay between the two “transmitting” limitations, correctly observing that the two conditions “are independent of one another” and that the recitations in the two “transmitting” limitations are “logical opposite[s].” PO Resp. 10–15. As Patent Owner asserts, “both limitations cannot, at the same time, be true.” *Id.* at 14. In considering this logical interplay, Patent Owner contends

that “if” in each “transmitting” limitation should therefore be construed as introducing a *necessary* condition: “The proper claim construction is one that follows the claim’s plain language . . . ; that is Msg3 data is transmitted if [both conditions are] met . . . and new data are transmitted if [either condition] is not met.” *Id.* at 15.⁵

We have considered the positions of both parties and conclude that Patent Owner presents the more compelling reading of the claim. In isolation, the plain and ordinary meaning of “if” is amenable to both *sufficient-condition* and *necessary-condition* constructions. Indeed, it is trivial to construct English sentences in which a listener would naturally understand one of those constructions to be implicated. For instance, “If there is smoke, there is fire” is naturally understood not to preclude the possibility of fire if there is no smoke (sufficient if). Conversely, “If you take another step, I’ll shoot,” is naturally understood to mean that the speaker will not shoot if the listener does not take another step (necessary if).

To resolve the ambiguity, we look, as we must, to the context provided by the claims themselves, as well as to the Specification in whose light they must be considered under the broadest-reasonable-interpretation

⁵ Patent Owner characterizes its position as equivalent to reciting “but not transmitting the new data” as part of the first “transmitting” limitation, i.e., when both conditions are met; and to reciting “but not transmitting any data stored in the Msg3 buffer” as part of the second “transmitting” limitation, i.e., when at least one of the conditions is not met. PO Resp. 12–13. Although such additional language is logically consistent with Patent Owner’s position, we find it unnecessary to incorporate such negative limitations into the claims; the proper construction can be resolved by correctly construing the meaning of “if.”

standard. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) (“the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms”). We agree with Patent Owner’s characterization of Petitioner’s position as improperly including the optional possibility of transmitting data stored in the Msg3 buffer even when both conditions are not satisfied. *See* PO Resp. 14–15. Such an optional possibility is a logical consequence of a sufficient-if construction, and we acknowledge that such a reading would be tenable if the claim included only the first “transmitting” step.⁶ But the claim explicitly answers the question of what occurs when at least one of the conditions is not satisfied: “new data” are transmitted to the base station. Ex. 1001, col. 16, l. 16–col. 17, l. 3; col. 17, l. 52–col. 18, l. 7. By isolating the “transmitting” limitations, Petitioner improperly reaches too broad a construction of the claim as a whole.

Furthermore, Patent Owner’s proposed construction is consistent with the Specification of the ’236 patent. For example, in motivating its disclosure, the Specification observes that, in the prior art, “if the UL Grant signal is received in a state in which data is stored in the Msg3 buffer, the data stored in the Msg3 buffer is transmitted *regardless of* the reception mode of the UL Grant signal.” *Id.* at col. 4, ll. 26–30 (emphasis added). The Specification purports to resolve such a deficiency because “if the data stored in the Msg3 buffer is transmitted in correspondence with the reception of *all* UL Grant signals, problems may occur.” *Id.* col. 4, ll. 30–34 (emphasis added). In addition, the description of Figure 9 of the patent,

⁶ Indeed, this is precisely the case for a child of the ’236 patent, as discussed *infra*.

reproduced above, explicitly explains that data in the Msg3 buffer are transmitted to the base station “only when” both conditions recited in the claims are met, i.e., they are necessary conditions. *Id.* at col. 14, ll. 3–8.

The parties also address the relevance of the prosecution history of a child of the ’236 patent. PO Resp. 25–27; Reply 20–21. During prosecution of U.S. Patent No. 9,532,336 B2 (Ex. 2011, “the ’336 patent”), which shares the same written description as the ’236 patent, explicit language was included in the independent method claims to require transmission of data stored in the Msg3 buffer “only when” such data are stored in the Msg3 buffer and the UL Grant was received on the random access response message. Ex. 2012, 146. Such “only when” language did not appear in the claims as originally filed, and was added in response to a rejection in which the Examiner made the following remarks:⁷

Claim 1 recites the limitation “if there is data stored in the Msg3 buffer and if the UL Grant signal was received on the random access response.” The limitation is directed to the action to transmit the UL Grant, however, *there is no language to limit the claim to only this scenario* or the claim language *does not provide an alternative for what if the statement is not true*. The Applicant’s invention is not being claimed in independent claims 1 and 9.

Id. at 139 (emphases added).

Importantly, the claims in the ’336 patent do not include language that corresponds to the second “transmitting” limitation of the claims at issue in this proceeding—the “only when” language was added to a limitation that corresponds to the first “transmitting” limitation. We agree with Patent

⁷ Independent method claim 26 of the ’336 patent was added by amendment at the same time, including the “only when” language. Ex. 2012, 151.

Owner's characterization of the relevance of these facts and of the Examiner's prior basis for rejection of unamended claims of the '336 patent. That is "the Examiner specifically rejected a claim without the 'only when' language *because there was no alternative recited in the claim . . . if the condition[s were] not met.*" PO Resp. 27. The addition of the "only when" language in the '336 patent resolves the ambiguity, recognized by the Examiner, that is otherwise resolved in the claims at issue in this proceeding by the presence of the second "transmitting" limitation.

We disagree with Petitioner's contention that "the Examiner's reasoning is flawed because . . . a comprising claim is open-ended and may cover additional, unrecited actions (such as actions performed when a condition is not met)." Reply 20. In making his remarks, the Examiner had rejected the claim for indefiniteness, and nothing in the amendment that resolved the indefiniteness to the Examiner's satisfaction, i.e., reciting "only when," precludes additional, unrecited actions when the conditions are not met. In light of the difference in the claims in the two patents, we are also not persuaded by Petitioner's contention that "the cited portions of the child patent's file history reinforce Petitioner's argument that the term 'if' in the claims of the '236 patent means 'if.'" *Id.* As indicated above, the word "if," in isolation and without more, is ambiguous whether it introduces a sufficient or necessary condition. That ambiguity was resolved by additional language in the claims of the '336 patent and is resolved in the claims of the '236 patent through the logical interplay of express limitations.

For these reasons, we agree with Patent Owner that "if" in the "transmitting" limitations of independent claims 1 and 7 is properly construed, under the broadest-reasonable-interpretation standard, as

introducing *necessary* conditions, rather than sufficient conditions.⁸ We adopt such a construction for purposes of this Decision.

2. Other Terms

The Petition addresses the construction of certain other terms recited in independent claim 7, taking the position that such terms should not be construed as means-plus-function limitations—a position different than that taken by Petitioner in related litigation where a different claim-construction standard is applied. Pet. 21. Patent Owner does not respond to Petitioner’s position and does not proffer its own construction of those terms.

Given that the identified terms do not recite the word “means,” and given that Patent Owner does not challenge Petitioner’s position, we find it unnecessary to construe the terms expressly. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc) (“the failure to use the word ‘means’ also creates a rebuttable presumption—this time that § 112, para. 6 does not apply”); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the

⁸ This construction is consistent with the reasoning of *Ex Parte Schulhauser*, Appeal No. 2013-007847, slip op. (PTAB Apr. 28, 2016) (precedential). Similar to the claims at issue in this proceeding, *Schulhauser* considered a claim that recited “mutually exclusive” steps. *Schulhauser*, slip op. at 6. The Board held that, under the broadest reasonable interpretation, the claim “covers at least two methods, one in which the prerequisite condition for the [first] step is met and one in which the prerequisite condition for the [second] step is met.” *Id.* at 8. The Board did not thereby hold that the language of one of the steps could simply be read out of the claim (as Petitioner’s argument would effectively require) nor that that language could not properly inform construction of the other of the steps.

controversy.”). We accord the terms their ordinary and customary meaning, without resort to the provisions of 35 U.S.C. § 112, ¶ 6.

B. Legal Principles

A claim is unpatentable for obviousness under 35 U.S.C. § 103 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 skill in the art; and (4) objective evidence of non-obviousness, i.e., secondary considerations.⁹ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)); see *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016) (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006)).

⁹ The parties do not address secondary considerations, which, accordingly, do not form part of our analysis.

To prevail on its challenges, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “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”)). The burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review). Furthermore, Petitioner does not satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

C. *Level of Skill in the Art*

Petitioner contends that a person of ordinary skill in the art “would have had a Master’s of Science Degree in an academic area emphasizing electrical engineering, physics, computer engineering, or an equivalent field (or a similar technical Master’s Degree, or higher degree) with a concentration in wireless communication and networking systems.” Pet. 22–23. Alternatively, according to Petitioner, a person of ordinary skill “would have had a Bachelor’s Degree (or higher degree) in an academic area emphasizing electrical engineering, physics, or computer engineering and having two or more years of experience in wireless communication and

networking systems.” *Id.* at 23. Petitioner asserts that “[a]dditional education in a relevant field, such as computer engineering, physics, or electrical engineering, or industry experience may compensate for a deficit in one of the other aspects of the requirements stated above.” *Id.* In addition, Petitioner contends that a person of ordinary skill “would also have had experience with the wireless Standard Setting Organizations such as ETSI, IEEE, and 3GPP^[10], and would have been familiar with relevant standards and draft standards directed to wireless communications.” *Id.* Petitioner’s declarant, Jonathan Wells, Ph.D., makes substantially the same statements as appear in the Petition. Ex. 1003 ¶ 39.

Patent Owner does not directly address the level of skill possessed by a person of ordinary skill in the art in its Response.

For purposes of this Decision, we agree with and adopt the level of skill proposed by Petitioner.

D. Scope and Content of the Prior Art

1. Kitazoe

a. Availability as Prior Art

The ’236 patent was filed on August 10, 2009, claiming the benefit of the August 11, 2008, filing date of U.S. Prov. Appl. No. 61/087,988 under 35 U.S.C. § 119(e), and claiming priority under 35 U.S.C. § 119(a) to Korean patent application 10-2009-0057128, filed June 25, 2009. Ex. 1001

¹⁰ The Third Generation Partnership Project (“3GPP”), which published Specification 321, is a standards-setting organization for mobile communications and was developing the LTE cellular communication system. *See* Pet. 33; PO Resp. 2; Ex. 1001, col. 1, ll. 22–25.

at [60], [30]. Petitioner “does not acknowledge that the ’236 patent is entitled to its proclaimed priority date.” Pet. 4, n.1. Patent Owner does not address this issue in its Response.

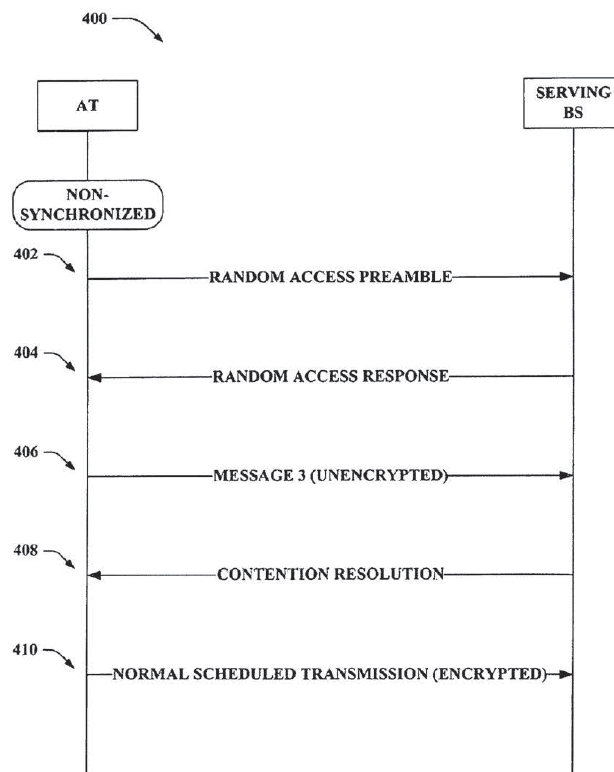
Kitazoe was filed on June 10, 2008, claiming the benefit of the August 14, 2007, filing date of U.S. Prov. Appl. No. 60/955,867 under 35 U.S.C. § 119(e). Ex. 1005 at [60]. Petitioner contends that “at least one claim of the Kitazoe patent is supported by disclosure in the Kitazoe Provisional,” and that Kitazoe is therefore “entitled to the earlier priority date of the Kitazoe Provisional” application. Pet. 4–8. Patent Owner does not dispute this contention in its Response.

Petitioner presents arguments that Kitazoe’s claims are supported by the disclosure of U.S. Prov. Appl. No. 60/955,867 so that its teachings are available as prior art as of August 14, 2007. *Id.* We do not reach these arguments. Patent Owner has not presented antedating evidence that might bear on the availability of Kitazoe as prior art to the ’236 patent. Even if Petitioner’s arguments fail, Kitazoe still qualifies as prior art under 35 U.S.C. § 102(e) by virtue of its June 10, 2008, filing date, which precedes the August 11, 2008, earliest potential effective filing date for the challenged claims.

b. Disclosure of Kitazoe

Kitazoe is titled “Encryption of the Scheduled Uplink Message in Random Access Procedure,” and generally discloses a system and method for selectively encrypting uplink messages from access terminals to base stations in random-access procedures to gain access to wireless communications systems, such as LTE systems. Ex. 1005, [54], abst., col. 1,

ll. 23–26, col. 1, ll. 45–46, col. 2, ll. 13–15, col. 6, ll. 27–48. Kitazoe describes a “random access procedure that leverages encrypted and/or unencrypted data in a scheduled uplink message.” *Id.* at abst. The scheduled uplink message can be referred to as a “message 3,” and access terminals include “cellular phones, smart phones . . . and/or any other suitable device” for communicating over wireless systems. *Id.* at col. 8, ll. 31–34, col. 7, ll. 46–50. Figure 4 of Kitazoe is reproduced below.



In Figure 4, signaling diagram 400 illustrates uplink message transmission by an access terminal (“AT”). *Id.* at col. 5, ll. 25–28, col. 12, ll. 58–60. At step 402, the access terminal transmits a random-access preamble to a serving base station (“Serving BS”). *Id.* at col. 12, ll. 63–64. At step 404, a random-access response is sent by the serving base station to the access terminal, which, at step 406, can use the uplink grant to transmit unencrypted message 3 to the base station. *Id.* at col. 13, ll. 1–8. In

response to message 3, at step 408, the base station can send a contention-resolution message to the access terminal, which, at step 410, transmits a “normal scheduled” encrypted message to the base station. *Id.* at col. 13, ll. 12–14, col. 13, ll. 21–24. The access terminal can include memory that can store data to be transmitted.

2. *Prior Art Described in the '236 Patent*

Petitioner contends that statements in the “Discussion of the Related Art” section of the '236 patent “include[] a detailed description of a random access procedure in an LTE system” that constitutes admissions of the scope and content of the prior art. Pet. 13–15; *see* Ex. 1001, col. 1, l. 21–col. 4, l. 34. In particular, Petitioner asserts that, although the '236 patent does not use the term “prior art” to describe the disclosures, the section title, “Discussion of the Related Art,” alone indicates a description of “prior art related to the disclosure of the '236 patent.” *Id.* at 15; *see Ex parte Ji-Young Lee*, 2006 WL 4075454 at *20 (BPAI Feb. 23, 2007) (“where terms such as ‘background art, or ‘related art,’ or ‘conventional’” appear in a patent’s specification, they should be “presume[d]” to denote admissions of prior art even if the specification does not specifically use the term “prior art”). Petitioner further asserts that the section describes the current state of LTE systems as of the filing of the '236 patent. *Id.*; *see* Ex. 1001, col. 1, ll. 30–32 (“The E-UMTS is evolved from the existing UMTS and has been currently standardized in the 3GPP”), col. 4, ll. 26–30 (“According to the current LTE system standard . . .”).

Patent Owner does not contest that prior art described in the '236 patent can be properly considered in this *inter partes* review proceeding, and

several panels of the Board have held admissions of the scope and content of the prior art in a patent's specification are available as prior art for the purposes of *inter partes* review proceedings. *E.g.*, *Ericsson v. Intellectual Ventures*, Case IPR2014-01330, slip op. at 2, n.3 (PTAB Feb. 19, 2016) (Paper 29); *Apple v. Yosmot 33*, Case IPR2015-00761, slip op. at 11 (PTAB July 29, 2015) (Paper 5); *Intri-Plex Tech. v. Saint-Gobain Performance Plastics*, Case IPR2014-00309, slip op. at 19–21 (PTAB Mar. 23, 2014) (Paper 83).

The prior art described in the '236 patent includes disclosure of a random-access procedure in an LTE system where the UE stores data to be transmitted in a Msg3 buffer, and transmits the data “in correspondence with” receipt from the base station of a UL grant signal that contains information about radio resources. Ex. 1001, col. 4, ll. 18–26. “According to the current LTE system standard, it is defined that, if the UL Grant signal is received in a state in which data is stored in the Msg3 buffer, the data stored in the Msg3 buffer is transmitted.” *Id.* at col. 4, ll. 26–29.

3. Specification 321

Specification 321 is a technical specification published by the 3GPP and describes the “Medium Access Control” (“MAC”) architecture in an LTE system, used for “[d]ata transfer” and for “[r]adio resource allocation.” Ex. 1007, 8. Detailed procedures involving the MAC architecture are described in Section 5 of the reference, *id.* at 11–22, and several specific aspects of these procedures are relevant to Petitioner's challenges.

For example, Sections 5.1.4 and 5.1.5 describe procedures in which user equipment monitors a Physical Downlink Control Channel (“PDCCH”)

for certain messages. *Id.* at 12–14. As described in Section 5.1.4, once the random-access preamble is transmitted, the user equipment monitors the PDCCH in a time window (referred to as a “TTI” or “transmission time interval”) for random-access responses. *Id.* at 12. The user equipment may stop such monitoring after successfully receiving a random-access response that corresponds to the random-access preamble transmission. *Id.* As part of a contention-resolution procedure described in Section 5.1.5, the user equipment also monitors the PDCCH for a contention-resolution message after an uplink message, such as message 3, is transmitted. *Id.* at 13 (“Once the uplink message . . . is transmitted, the UE shall . . . monitor the PDCCH until the Contention Resolution Timer expires.”) (bracketing in original omitted). As set forth in Section 5.4.1, the user equipment includes a “HARQ entity” that controls transmission and reception of messages by the user equipment, including the random-access response message, and dictates which transmissions use which uplink grants. *Id.* at 16; *see* Ex. 1003 ¶ 79.

The HARQ entity is described in detail in Section 5.4.2.1, which explains that “[t]here is one HARQ entity at the [user equipment],” and that “[a] number of parallel HARQ processes are used in the [user equipment] to support the HARQ entity, allowing transmissions to take place continuously while waiting for the feedback on the successful or unsuccessful reception of previous transmissions.” *Id.* at 17. Each such HARQ process “is associated with a HARQ buffer.” *Id.* (Section 5.4.2.2).

Of particular relevance is Section 5.4.2.1’s enumeration of the conditions under which, at a given transmission time interval, the HARQ entity transmits a new payload, generates a retransmission, or has its associated buffer flushed. First, if an uplink grant indicates a “new

transmission” for the transmission time interval *and* an “uplink prioritisation” entity indicates the need for a new transmission, the protocol data unit (“PDU”) to be transmitted is obtained from a “Multiplexing and assembly” entity *and* the HARQ process is instructed to trigger transmission of the new payload using identified parameters. *Id.* Second, if an uplink grant indicates a “new transmission” but the uplink prioritization entity does *not* indicate the need for a new transmission, the HARQ buffer is flushed. *Id.* Third, if an uplink grant does *not* indicate a new transmission, the HARQ entity is instructed to generate a retransmission under two circumstances: (a) the uplink grant indicates a retransmission, *or* (b) the HARQ buffer of the corresponding HARQ process is not empty. *Id.*

E. Analysis

Petitioner relies on Dr. Wells’s testimony in explaining how the combination of Kitazoe, the prior art described in the ’236 patent, and Specification 321 teach the limitations of claims 1–4, 6–10, 12, and 13. Pet. 30–62 (citing Ex. 1003). Petitioner additionally relies on Kitazoe II, discussed below, in addressing the further limitation of claim 5. *Id.* at 62–65.

1. Combination of Kitazoe, Prior Art Described in the ’236 Patent, and Specification 321

Petitioner proposes to combine the teachings of Kitazoe, the prior art described in the ’236 patent, and Specification 321 into a system that has the following characteristics and which Petitioner contends meets all limitations of the relevant claims. Pet. 30–34. First, Petitioner observes that Kitazoe

describes transmitting an unencrypted Msg3 to the target base station during a random access procedure “in response to [a] received random access response.” *Id.* at 30 (citing Ex. 1005, col. 13, ll. 60–66). Petitioner also observes that the prior art described in the ’236 patent includes storing data to be transmitted via the Msg3 in a Msg3 buffer and includes transmitting the data stored in the Msg3 buffer “in correspondence with” reception of an uplink grant signal. *Id.* at 30–31 (citing Ex. 1001, col. 4, ll. 18–21). Based on these observations, Petitioner reaches two conclusions regarding the combination of Kitazoe and the prior art described in the ’236 patent: (1) the Msg3 data transmitted by the user equipment, as described in Kitazoe, is stored in a Msg3 buffer, described as prior art in the ’236 patent; and (2) to transmit the data stored in the Msg3 buffer, “the user equipment makes a determination that there is data stored in the Msg3 buffer when the UL grant signal is received,” described as prior art in the ’236 patent. *Id.* at 31 (citing Ex. 1001, col. 4, ll. 18–29; Ex. 1003 ¶ 88).

Second, Petitioner observes that Specification 321 teaches that the user equipment receives the contention-resolution message on a PDCCH. *Id.* at 31 (citing Ex. 1007 § 5.1.5). Coupled with Kitazoe’s teaching of user equipment receiving a contention-resolution message, Petitioner reasons that, in the combined system, the contention-resolution message of Kitazoe is received on a PDCCH. *Id.* at 31 (citing Ex. 1005, col. 13, ll. 24–26, Fig. 4; Ex. 1007 § 5.1.5; Ex. 1003 ¶ 106).

Third, Petitioner observes that Specification 321 teaches that the user equipment in an LTE system like that taught by Kitazoe includes a HARQ entity that controls transmission and reception of messages by the user equipment. *Id.* at 31–32 (citing Ex. 1007, § 5.4.1; Ex. 1003 ¶¶ 114–115).

Petitioner reasons that the HARQ entity taught by Specification 321, and its functionality, would be included in the user equipment of Kitazoe:

In the combination, the reception of messages from the base station (such as the random access response), the transmission of messages to the base station (such as the [Msg3] and new data), and the processing of uplink grants received by the user equipment are performed by the HARQ entity and the HARQ processes taught by [Specification 321]. The user equipment of the combination also monitors the downlink for random access responses sent by the base station, and ceases monitoring “after successful reception of a Random Access Response corresponding to the Random Access Preamble transmission.” . . . Also in the combination, new data to be transmitted by the user equipment to the base station is acquired from a “Multiplexing and assembly entity” by the HARQ entity.

Id. (citing Ex. 1007 §§ 5.4.1, 5.4.2.1). Petitioner supports this reasoning with testimony by Dr. Wells, which we credit. Ex. 1003 ¶¶ 83–116.

Petitioner’s analysis reasonably identifies corresponding elements among the references in proposing the combination.

Petitioner also provides explicit reasoning why a person of skill in the art would have combined the references’ teachings in the proposed manner. Pet. 32–34. As Petitioner recognizes, Kitazoe, the prior art described in the ’236 patent, and Specification 321 “all describe wireless network systems implementing the ‘LTE’ protocol.” *Id.* at 32–33 (citing Ex. 1005, col. 6, l. 46; Ex. 1001, col. 1, ll. 20–32; Ex. 1007 §§ 3.2, 4.3.1). This commonality, according to Petitioner, makes the result of its proposed modifications predictable because “the common technology of all three disclosures indicates that the proposed modification would be straightforward for a [person of ordinary skill in the art] to implement.” *Id.* at 33 (citing Ex. 1005,

col. 6, l. 46; Ex. 1001, col. 1, ll. 20–32; Ex. 1007 §§ 3.2, 4.3.1; Ex. 1003

¶ 118). As Petitioner asserts, a person of ordinary skill in the art

would have modified the user equipment described in Kitazoe to store [Msg3] data to be transmitted in the [Msg3] buffer described by the [prior art described in the '236 patent], to determine that data is store[d] in the [Msg3] buffer when an uplink grant is received, and to include a HARQ entity and its associated components to handle message processing as taught by [Specification 321], in order to conform the user equipment to the current LTE system standard.

Pet. 32. These assertions provide rational underpinning to Petitioner's reasoning, which we find persuasive.

Patent Owner disputes this reasoning, referring to the art described in the '236 patent that is relied on by Petitioner as “cited in the '236 patent as 3GPP TS 36.321 V8.2.0” and asserting that “the current LTE system standard” referred to in the '236 patent “encompasses V8.2.0, not V8.1.0 (which is Petitioners' Exhibit 1007).” PO Resp. 43. Although Patent Owner is correct that the references cited on the face of the '236 patent include the V8.2.0 version of the standard (and do not include the V8.1.0 version applied in Petitioner's challenges), the argument is unpersuasive.¹¹ The mere identification of one version of the standard in the list of references made of record during prosecution does not impute the degree of meaning to the phrase “the current LTE system standard” that Patent Owner attempts to impose. Rather, we agree with Petitioner that “Patent Owner provides no evidence or explanation to support its conclusion that ‘the “current LTE

¹¹ We note that the V8.2.0 version of the standard is applied in challenges by other petitioners in IPR2016-00757 and IPR2016-01345 (consolidated).

system standard” . . . encompasses V8.2.0, not V8.1.0.” Reply 23 (quoting PO Resp. 43).

Accordingly, we conclude that Petitioner articulates sufficient reasoning for combining the references’ teachings, in accordance with the principles set forth in *KSR*.

2. *Independent Claim 1*

For independent claim 1, Petitioner relies on the structure of its proposed combination in contending that all limitations are met, and identifies specific references that disclose individual teachings. Pet. 34–48. Specifically, Petitioner contends that Kitazoe teaches “receiving an uplink grant (UL Grant) signal from a base station on a specific message.” *Id.* at 35–37 (citing Ex. 1005, col. 17, ll. 27–28, col. 13, ll. 1–8, col. 16, ll. 41–43, col. 13, ll. 11–16).

For the limitation of “determining whether there is data stored in a message 3 (Msg3) buffer when receiving the UL Grant signal on the specific message,” Petitioner observes that, in its proposed combination, “the user equipment ‘utilize[s] the uplink grant’ received in the random access response ‘to transmit message 3’ to the base station,” and that “[t]he [‘]data to be transmitted via the message 3 [is stored] in a message 3 (Msg3) buffer.”” *Id.* at 37–38 (quoting Ex. 1005, col. 13, ll. 6–8; Ex. 1001, col. 4, ll. 18–21) (alterations by Petitioner except for addition of omitted quotation mark). Petitioner’s reasoning that the limitation is met relies on the inference that “in order to transmit the data stored in the Msg3 buffer ‘if the UL Grant signal is received in a state in which data is stored in the Msg3 buffer,’ the user equipment must determine whether there is data stored in

the Msg3 buffer when the UL grant signal is received.” *Id.* (quoting Ex. 1001, col. 4, ll. 26–29).

Patent Owner disputes this inference, characterizing it as “just an assumption” “that data cannot be transmitted unless some entity has determined that there is data to send.” PO Resp. 37. Although we agree that the art cited by Petitioner is not explicit on the point, an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418. In this instance, Dr. Wells testifies in support of Petitioner’s position that a person of skill in the art “would have understood that, in order to transmit the data stored in the Msg3 buffer ‘if the UL Grant signal is received in a state in which data is stored in the Msg3 buffer,’ the user equipment must necessarily determine whether there is data stored in the Msg3 buffer when the UL grant signal is received.” Ex. 1003 ¶ 75 (citing Ex. 1001, col. 4, ll. 18–29). We credit this testimony, which we find reasonable, and conclude that Petitioner adequately demonstrates that the limitation is met by the combination of art.

With respect to the limitation of “determining whether the specific message is a random access response message,” Petitioner makes a sufficient showing through its observation that Kitazoe “teaches that the user equipment determines ‘non-security-critical’ information ‘that can be transmitted as part of the . . . unencrypted message 3,’ and determines ‘security-critical information’ that can be transmitted as part of the later encrypted message.” Pet. 40 (quoting Ex. 1005, col. 11, ll. 20–27) (alteration by Petitioner). Supported by testimony of Dr. Wells, Petitioner

reasons that “[i]n order to determine whether to send ‘non-security-critical’ or ‘security-critical’ information in response to a specific message, the user equipment determines whether the specific message including the uplink grant is a random access response message.” *Id.* at 40 (citing Ex. 1003 ¶ 93). Patent Owner does not dispute this argument.

For the two “transmitting” limitations, in addition to addressing the claim construction that Petitioner advocates, Petitioner alternatively addresses the claim construction we adopt for this Decision. *Id.* at 42–44. Specifically, Petitioner identifies Kitazoe’s teaching that “the term ‘message 3’ refers to the scheduled transmission sent by the access terminal to [the] base station [] as granted by the random access response message from [the] base station.” *Id.* at 43 (quoting Ex. 1005, col. 8, ll. 32–35) (alterations by Petitioner). Supported by testimony of Dr. Wells, Petitioner reasons that “[t]his indicates that message 3 is only sent using the uplink grant included in the random access response,” and that “[b]ecause the message 3 is sent when this particular uplink grant is received and this particular uplink grant is only included in the random access response . . . , Kitazoe teaches that message 3 is sent only when the random access response is received (i.e., only when ‘the specific message is the random access response message’).” *Id.* (citing Ex. 1003 ¶ 98). This reasoning is persuasive.

Furthermore, also supported by testimony of Dr. Wells, Petitioner contends that a person of ordinary skill in the art “would have understood that the data in the Msg3 buffer can be transmitted ‘only when’ there is data stored in the Msg3 buffer.” *Id.* at 43–44 (citing Ex. 1003 ¶ 99). We agree with Petitioner’s and Dr. Well’s reasonable inference that a person of skill in

the art would have understood that “if there is no data stored in the Msg3 buffer, . . . there would have been nothing to transmit.” *Id.* at 44 (citing Ex. 1003 ¶ 99). Petitioner thus shows that the combination of art meets the first “transmitting” limitation, with both recited conditions satisfied.

For the converse case, when at least one of the recited conditions is not met, Petitioner makes two relevant observations. First, “Kitazoe teaches that the user equipment ‘transmits a normal scheduled transmission message, which is encrypted, to the base station’ after the random access procedure is completed.” *Id.* at 47 (quoting Ex. 1005, col. 13, ll. 21–26) (alteration by Petitioner). Second, “Kitazoe further teaches that encrypted messages (such as this) cannot be sent in response to the random access response message (i.e., before message 3 is received by the base station), because the base station determines a ‘security configuration’ for the UE based on the information included in message 3.” *Id.* (citing Ex. 1005, col. 10, ll. 65–67). That is, Kitazoe teaches that encrypted messages cannot be sent to the base station before determining the security configuration, “because the base station ‘would not know which security configuration to apply in order to decrypt such encrypted message[s]’ and thus ‘would be unable to decipher the encrypted’ messages.” *Id.* (citing Ex. 1005, col. 10, l. 65–col. 11, l. 1). We agree with Petitioner’s reasoning that these disclosures teach that the encrypted scheduled transmission message, i.e., the “new data,” is transmitted only after the random access procedure is complete. *See id.* at 47–48.

Patent Owner “does not dispute” that Kitazoe “shows transmission of the Msg3 buffer data (the Scheduled Transmission) taking place after receipt of a random access response.” PO Resp. 39. Nevertheless, Patent Owner

contends that “Kitazoe takes a narrow view of what can occur during a random access procedure” and “does not consider the more complex case” in which a “UL Grant is not in a random access response message but is instead contained in a PDCCH communication.” *Id.* at 40–41. In such a “more complex case,” Patent Owner argues, “the Msg3 buffer data is sent responsive to a [different message], an UL Grant *not* in a random access response.” *Id.* at 42. Patent Owner contends that such a “more complex case” illustrates an example in which Msg3 buffer data are transmitted even when the (necessary) conditions recited in the first “transmitting” step are not satisfied. *Id.*

Patent Owner’s argument is not persuasive. Patent Owner’s reliance on its “more complex case” is unavailing. As Dr. Wells testifies, this complex case is a “contrived hypothetical” that does not “relate[] to what is described in Kitazoe,” Ex. 2010, 60:21–22, 61:6–8. The fact that Patent Owner can hypothesize a system that is more complex than Kitazoe that does not teach or suggest the claim limitation does not negate the fact that the system described in Kitazoe does.

We conclude that Petitioner demonstrates, by a preponderance of the evidence, that independent claim 1 is unpatentable under 35 U.S.C. § 103(a) over Kitazoe, prior art described in the ’236 patent, and Specification 321.

3. Dependent Claims 2–4 and 6

Each of claims 2–4 and 6 depends directly from independent claim 1. Patent Owner does not contest any aspect of Petitioner’s challenge to these claims apart from its arguments directed at underlying claim 1. For each of

these claims, we agree with Petitioner's reasoning, which is summarized below.

Claim 2 recites that the second "transmitting" limitation of claim 1 includes "acquiring a Medium Access Control Protocol Data Unit (MAC PDU) from a multiplexing and assembly entity" and "transmitting the MAC PDU to the base station." Ex. 1001, col. 17, ll. 4–9. For these additional limitations, Petitioner identifies Specification 321's disclosure of user equipment that "obtain[s] the MAC PDU to transmit from the 'Multiplexing and assembly' entity" and for "instruct[ing] the HARQ process . . . to trigger the transmission of this new payload." Pet. 48; Ex. 1007, 17 (§ 5.4.2.1).

Claim 3 recites that the UL Grant signal received on the specific message "is a UL Grant signal received on a Physical Downlink Control Channel (PDCCH)" and that "the user equipment transmits new data in correspondence with the UL Grant signal received on the PDCCH." Ex. 1001, col. 17, ll. 10–16. For these limitations, Petitioner relies on its identification of new data transmitted to the base station in correspondence with the UL grant signal received in the contention resolution message from the base station, as taught by Specification 321. Pet. 48–49; Ex. 1007, 13–14 (§ 5.1.5).

Claim 4 recites that the data stored in the Msg3 buffer "is a Medium Access Control Protocol Data Unit (MAC PDU) including a user equipment identifier." Ex. 1001, col. 17, ll. 17–20. For this limitation, Petitioner identifies Kitazoe's disclosure that "a MAC layer PDU can be used for the . . . message 3" and that the message 3 can include an "access terminal identifier," which "can also be called a . . . user equipment (UE)." Pet. 49; Ex. 1005, col. 16, ll. 30–32, col. 6, ll. 62–66, col. 9, ll. 22–23.

Claim 6 recites that the UL Grant signal received on the specific message “is either a UL Grant signal received on a Physical Downlink Control Channel (PDCCH) or a UL Grant signal received on the random access response message.” Ex. 1001, col. 17, ll. 25–29. By again pointing to Specification 321’s disclosure related to a contention-resolution message, Petitioner identifies a teaching of the second of these recitations, i.e., “a UL Grant signal received on the random access response message.” Pet. 49–50.

Based on these identifications, which are not contested by Patent Owner, we conclude that Petitioner demonstrates, by a preponderance of the evidence, that claims 2–4 and 6 are unpatentable under 35 U.S.C. § 103(a) over Kitazoe, prior art described in the ’236 patent, and Specification 321.

4. Independent Claim 7

Independent claim 7 recites “user equipment” with limitations that generally parallel those of independent method claim 1, but specifying that functions are performed by “a reception module,” “a transmission module,” “a message 3 (Msg3) buffer,” a “Hybrid Automatic Repeat Request (HARQ) entity,” and “a multiplexing and assembly entity used for transmission of new data.” Ex. 1001, col. 17, l. 30–col. 18, l. 7. As Patent Owner acknowledges, “[i]n large part, claim 7 claims an apparatus that performs the method claimed in claim 1” by “includ[ing] entities adapted to carry out the steps like those of claim 1.” PO Resp. 9–10, 30.

We have referred to each of these structural elements above in the context of Petitioner’s proposed combination of art, and therefore agree with Petitioner that such structural elements are met by the combination. *See* Pet. 50–59. For the functionality performed by such structural elements,

Petitioner advances arguments that parallel those made for independent claim 1. *See id.* For the same reasons discussed above, we conclude that Petitioner makes a sufficient showing of such functionality. Patent Owner does not contest Petitioner's arguments apart from its arguments directed at claim 1.

We conclude that Petitioner demonstrates, by a preponderance of the evidence, that claim 7 is unpatentable under 35 U.S.C. § 103(a) over Kitazoe, prior art described in the '236 patent, and Specification 321.

5. Dependent Claims 8–10, 12, and 13

Each of claims 8–10, 12, and 13 depends, directly or indirectly, from independent claim 7. Patent Owner does not contest any aspect of Petitioner's challenge to these claims apart from its arguments directed at corresponding independent method claim 1. For each of these claims, we agree with Petitioner's reasoning, which is summarized below.

Claim 8 recites “one or more HARQ processes” and “HARQ buffers respectively corresponding to the one or more HARQ processes,” with specific limitations on data transmission by “the HARQ entity” recited in claim 7. Ex. 1001, col. 18, ll. 8–19. Claim 9 depends from claim 8 and further recites additional data-transmission limitations by the HARQ processes of claim 8. For both of these claims, Petitioner relies on the description of HARQ entities described in Specification 321, discussed above, and its related description of data transmission by such HARQ entities. Pet. 60–61; Ex. 1007, 17 (§ 5.4.2.1). We agree with Petitioner that the limitations are met by that disclosure.

Claims 10, 12, and 13 respectively parallel claims 3, 4, and 6, but include structural limitations consistent with their status as apparatus claims directed to “user equipment.” Ex. 1001, col. 18, ll. 27–33. For each of these claims, Petitioner relies on the same disclosure, discussed above, as it does for the corresponding method claims. Pet. 61–62.

Based on Petitioner’s identifications, which are not contested by Patent Owner, we conclude that Petitioner demonstrates, by a preponderance of the evidence, that claims 8–10, 12, and 13 are unpatentable under 35 U.S.C. § 103(a) over Kitazoe, prior art described in the ’236 patent, and Specification 321.

*6. Claim 5:
Combination of Kitazoe, Prior Art Described in the ’236 Patent,
Specification 321, and Kitazoe II*

Claim 5 depends from claim 4 and recites that “the data stored in the Msg3 buffer further includes information about a buffer status report (BSR) if the user equipment starts a random access procedure for the BSR.” Ex. 1001, col. 17, ll. 21–24. Petitioner challenges claim 5 as unpatentable under 35 U.S.C. § 103(a) over Kitazoe, prior art described in the ’236 patent, Specification 321, and Kitazoe II. Pet. 62–65.

a. Availability of Kitazoe II as Prior Art

Kitazoe II was filed on December 17, 2008, claiming the benefit of the December 19, 2007, filing date of U.S. Prov. Appl. No. 61/015,159 under 35 U.S.C. § 119(e). Ex. 1009 at [22], [60]. Petitioner contends that “at least one claim of the Kitazoe-II patent is supported by disclosure in the

Kitazoe-II Provisional,” and that Kitazoe-II is therefore “entitled to the earlier priority date of the Kitazoe-II Provisional” application. Pet. 8–11.

Petitioner presents arguments that Kitazoe II’s claims are supported by the disclosure of U.S. Prov. Appl. No. 61/015,159, so that Kitazoe II’s teachings are available as prior art as of December 19, 2017. *Id.* For example, Petitioner asserts the limitations recited in claim 1 and in thirty-eight other claims of Kitazoe II are described in the Kitazoe II provisional application. *Id.* Patent Owner does not respond to these contentions and does not present any antedating evidence that might bear on the availability of Kitazoe II as prior art to the ’236 patent. On the record before us, we are persuaded for purposes of this Decision that Kitazoe II is entitled to the earlier effective filing date of the Kitazoe II provisional application, and is prior art to the ’236 patent under 35 U.S.C. § 102(e).

b. Disclosure of Kitazoe II

Kitazoe II is titled, “Method and Apparatus for Transfer of a Message on a Common Control Channel for Random Access in a Wireless Communication Network,” and describes “[t]echniques for sending a message for random access by a user equipment.” Ex. 1009 at [54], abst. Kitazoe II discloses that the user equipment may send a message for random access that includes a buffer status report. *Id.* at abst., ¶ 72.

c. Analysis

Petitioner contends that the limitation of dependent claim 5 is met by Kitazoe II, which describes that the user equipment may send a buffer-status-report message in Msg3. Pet. 63–64 (citing Ex. 1009, abst., ¶ 72). In

addition, Petitioner contends that one of ordinary skill would have combined this teaching with those of the other references. Pet. 63–64. Petitioner contends that the combination would “increase the data efficiency of the random access procedure, as taught by Kitazoe-II,” which “would have been predictable because” the references “describe techniques related to wireless networks using the ‘LTE’ protocol.” *Id.* at 64 (citing Ex. 1003 ¶¶ 122–123). Patent Owner does not respond to these contentions. *See* PO Resp. 45 (relying on arguments directed at claim 1).

We are persuaded that Petitioner both identifies relevant disclosure in Kitazoe II that meets the limitation of claim 5 and provides sufficient articulated reasoning with rational underpinning for combining the teachings of Kitazoe, prior art described in the ’236 patent, and Specification 321 with that of Kitazoe II. That is, Petitioner’s analysis for claims 1 and 4 sufficiently establishes that those claims are unpatentable for the reasons discussed above, and that one of skill in the art would additionally store information about a buffer status report in the data stored in the Msg3 buffer in accordance with the teachings of Kitazoe II. Accordingly, we conclude that Petitioner demonstrates, by a preponderance of the evidence, that claim 5 is unpatentable under 35 U.S.C. § 103(a) over Kitazoe, prior art described in the ’236 patent, Specification 321, and Kitazoe II.

III. CONCLUSION

We conclude that Petitioner demonstrates, by a preponderance of the evidence, that claims 1–4, 6–10, 12, and 13 are unpatentable under 35 U.S.C. § 103(a) over Kitazoe, prior art described in the ’236 patent, and Specification 321; and that claim 5 is unpatentable under 35 U.S.C. § 103(a)

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over Kitazoe, prior art described in the '236 patent, Specification 321, and Kitazoe II.

IV. ORDER

It is

ORDERED that, based on a preponderance of the evidence, claims 1–10, 12, and 13 of U.S. Patent No. 7,881,236 B2 are held to be unpatentable; and

FURTHER ORDERED that, because this is a final written decision, parties to this proceeding seeking judicial review of our decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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