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 IPR2016-01229
Patent 7,881,236 B2


BOUCHER, Administrative Patent Judge.

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

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.
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.
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.
**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.


<table>
<thead>
<tr>
<th>References</th>
<th>Challenged Claim(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitazoe,1 Niu,2 and Specification 3213</td>
<td>1–4, 6–10, 12, and 13</td>
</tr>
<tr>
<td>Kitazoe, Niu, Specification 321, and Kitazoe II4</td>
<td>5</td>
</tr>
</tbody>
</table>

---

inter partes reviews: IPR2016-00757, which has been consolidated with IPR2016-01345 (both of which involve a different petitioner); and IPR2016-01228 (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. 2011. Petitioner argues that the Declaration “is entitled to no weight” because “[n]otoriously absent from Exhibit [20115] 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

5 Petitioner incorrectly refers to Dr. Cooklev’s Declaration as “Exhibit 2009” in its Reply.
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

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. 15–18; 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. 18. 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 15.6

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).

6 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.”
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 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. 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

---

7 Indeed, this is precisely the case for a child of the ’236 patent, as discussed infra.
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, 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. 2013, “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. 2014, 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:8

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).

---

8 Independent method claim 26 of the ’336 patent was added by amendment at the same time, including the “only when” language. Ex. 2014, 151.
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 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. 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. 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, 9

---

9 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.
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 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.10 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

---

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

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. 20.
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.* 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.* at 20–21. 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,[11] 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.

---

[11] 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.
**D. Scope and Content of the Prior Art**

1. **Kitazoe**

   a. **Availability as Prior Art**


      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. Niu

Niu is titled “Network Interface Device Architecture for Storing Transmit and Receive Data in a Random Access Buffer Memory Across Independent Clock Domains,” and generally describes methods and systems for buffering data in random-access memory in a network interface device. Ex. 1012, [54], col. 1, ll. 9–12, col. 2, l. 66–col. 3, l. 5. The buffer can store data “to be output onto the network” and receive data for storage. *Id.* at abst., col. 7, l. 64–col. 8, l. 9. A circuit in Niu’s network interface device “can asynchronously determine the presence of at least one stored data frame” in the transmit buffer. *Id.* at col. 11, ll. 23–27.
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, Niu, and Specification 321 teach the limitations of claims 1–4, 6–10, 12, and 13. Pet. 27–61 (citing Ex. 1003). Petitioner
additionally relies on Kitazoe II, discussed below, in addressing the further limitation of claim 5. *Id.* at 61–64.

1. **Combination of Kitazoe, Niu, and Specification 321**

Petitioner proposes to combine the teachings of Kitazoe, Niu, and Specification 321 into a system that has the following characteristics and which Petitioner contends meets all limitations of the relevant claims. Pet. 27–31. 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 27 (citing Ex. 1005, col. 13, ll. 60–66). Petitioner also observes that, in Kitazoe, the user equipment includes memory for storing “data to be transmitted,” which Petitioner equates with a “buffer.” *Id.* (citing Ex. 1005, col. 19, l. 64–col. 20, l. 1). “Similarly, Niu teaches a ‘transmit buffer’ located within a ‘random access memory’ for storing ‘transmit data to be output onto the network.’” *Id.* at 27–28 (quoting Ex. 1012, abst., col. 2, l. 66–col. 3, l. 1, col. 8, l. 5). In addition, Petitioner observes that Niu further teaches “asynchronously determin[ing] the presence of at least one stored data frame” in the transmit buffer in response to the occurrence of an event. *Id.* at 28 (quoting Ex. 1012 col. 3, ll. 58–61, col. 11, ll. 23–24).

Based on these observations, Petitioner reaches two conclusions regarding the combination of Kitazoe and Niu: (1) the Msg3 data transmitted by the user equipment, as described in Kitazoe, is stored in the “transmit buffer” described by Niu prior to transmission; and (2) to transmit the data stored in the Msg3 buffer, “the user equipment ‘determines the presence of at least one stored data frame’ in the transmit buffer when the
random access response including the UL grant signal is received,” as described in Niu. *Id.* (citing Ex. 1012, col. 3, ll. 58–61, col. 11, ll. 23–24; Ex. 1005, col. 13, ll. 60–66; Ex. 1003 ¶ 131).

Second, Petitioner observes that Specification 321 teaches that the user equipment receives the contention-resolution message on a PDCCH. *Id.* at 28 (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 28 (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 28–29 (citing Ex. 1007, § 5.4.1; Ex. 1003 ¶¶ 132). 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 ¶¶ 125–132. Petitioner 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. 29–31. This reasoning is grounded in Petitioner’s contention that the modifications would “enable ‘efficient transfer of’ the [Msg3] data.” Id. at 29 (citing Ex. 1012, col. 4, ll. 52–53). In particular, Petitioner contends that 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 a transmit buffer, as taught by Niu, and to determine that data is stored in the transmit buffer, as also taught by Niu, when the random access response including the uplink grant is received.” Id. at 29.

In explaining the rationale for combining the references, Petitioner focuses on Niu’s disclosure of a “synchronization circuit” that “enabl[es] the use of a random access memory as a buffer in a network interface device.” See Ex. 1012, col. 2. l. 66–col. 3, l. 1, col. 3, ll. 58–61. Petitioner reasons that one of skill in the art would have understood that Niu’s synchronization circuit allows a device, such as the user equipment of Kitazoe, to asynchronously determine the presence of data in a transmit buffer. Pet. 30 (citing Ex. 1012, col. 3, ll. 58–61). “This allows the operation of the device to be ‘optimized’ by enabling it to determine whether there is data in a buffer in response to an event, such as the reception of an uplink grant from the network.” Id. (citing Ex. 1012, col. 12, ll. 12–15; Ex. 1015, col. 13, ll. 60–66; Ex. 1003 ¶ 134). Because Niu teaches that such an arrangement
“enables faster, more reliable design implementation,” Petitioner argues that a person of skill in the art would have been motivated to perform the described modification to achieve this benefit, and that the results of the modification “would have been predictable because Kitazoe describes storing data to be transferred in memory (i.e., a buffer), and Niu describes one known way of implementing such functionality.” *Id.* (citing Ex. 1012, col. 13, ll. 50–53; Ex. 1005, col. 19, l. 64–col. 20, l. 1; Ex. 1003 ¶ 134).

In addressing the further combination with Specification 321, Petitioner recognizes that both Kitazoe and Specification 321 “describe wireless network systems implementing the ‘LTE’ protocol.” *Id.* (citing Ex. 1005, col. 6, l. 46; Ex. 1007 §§ 3.2, 4.3.1). This commonality, according to Petitioner, makes the result of its proposed modifications predictable, particularly to modify the operations of the user equipment of Kitazoe to conform to the LTE system standard described by Specification 321. *Id.* at 31 (citing Ex. 1003 ¶ 135). These assertions provide rational underpinning to Petitioner’s reasoning, which we find persuasive.

Patent Owner disputes this reasoning, contending that “Niu is not analogous art, or at a minimum Petitioners have not shown that it is.” PO Resp. 32. A prior-art reference is considered to be analogous to a claimed invention if it is either: (1) from the same field of endeavor, regardless of the problem addressed; or (2) reasonably pertinent to the particular problem with which the inventor is concerned, regardless of the field of endeavor. In re Bigio, 381 F.3d 1320, 1325 (Fed. Cir. 2004). In that regard, “[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one.” *KSR*, 550 U.S. at 417.
Patent Owner contends that the ’236 patent and Niu “are in different fields of endeavor” because “[t]he ’236 patent is directed to wireless systems” and “Niu, on the other hand, is directed to wired systems.” PO Resp. 34. Patent Owner also contends that “the Petition does not suggest how Niu is pertinent to the entire problem or the particular problem the inventors were trying to solve,” characterizing the “problem” as “the loss of data and the deadlock that could result[] from indiscriminately transmitting messages independent of the type of UL Grant received.” Id. (citing Circuit Check, Inc. v. QXQ Inc., 795 F.3d 1331, 1335 (Fed. Cir. 2015); Ex. 1001, col. 12, ll. 13–24, col. 13, ll. 14–18; Ex. 1003 ¶¶ 84–85).

Although we agree with Petitioner that Patent Owner characterizes the relevant fields of endeavor too narrowly by drawing an artificial distinction between wired and wireless systems—a distinction that is tenuously related to the relevance of Niu’s teachings, Reply 21–23— it is sufficient that we find Niu reasonably pertinent to the particular problem with which the ’236 patent is concerned, namely the handling of data stored in the Msg3 buffer. See id. at 23. Although Niu checks a buffer before sending a wired transmission, and Petitioner proposes to use that check before sending a wireless transmission as required by the challenged claims, the problem addressed is the same—checking a buffer before transmission. We find no evidence of a distinction as to what happens after the check. That is, the ’236 patent is explicit that “problems may occur” “if the data stored in the Msg3 buffer is transmitted in correspondence with the reception of all UL Grant signals.” Ex. 1001, col. 4, ll. 30–33. In the context of this relatively broad characterization of the problem addressed by the ’236 patent, the
teachings related to Niu’s “transmit buffer” are reasonably pertinent. See Ex. 1003 ¶ 133.

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. 31–46. Specifically, Petitioner contends that Kitazoe teaches “receiving an uplink grant (UL Grant) signal from a base station on a specific message.” Id. at 33–34 (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 ‘transmit buffer.’” Id. at 35 (quoting Ex. 1005, col. 13, ll. 6–8; citing Ex. 1012, abst., col. 2, l. 66–col. 3, l. 1, col. 8, l. 5). Petitioner’s reasoning that the limitation is met relies on Niu’s explicit disclosure that its synchronization circuit “determine[s] the presence of at least one stored data frame.” Ex. 1012, col. 11, ll. 23–24. Incorporating this disclosure into its proposed combination of teachings, Petitioner reasons that the combination includes “user equipment [that]
‘determines the presence of at least one stored data frame’ in the transmit buffer when the random access response including the UL grant signal is received in order to transmit the message 3 data.” Pet. 35 (citing Ex. 1012, col. 3, ll. 58–61, col. 11, ll. 23–24; Ex. 1005, col. 13, ll. 60–66; Ex. 1003 ¶ 127).

Patent Owner disputes this reasoning, characterizing it as “misleading” and embracing an “unexplained discrepancy . . . between ‘determining whether there is data stored’ (as required by the ’236 patent) and measuring the amount of data stored (as Niu teaches).” PO Resp. 37. But in making this argument, Patent Owner places unreasonable weight on Petitioner’s citation of Niu’s disclosure at column 3, lines 58 to 59, that “the amount of data stored in the random access transmit buffer is monitored asynchronously,” while evading Petitioner’s additional citation to Niu’s disclosure at column 11, lines 23 to 24, that “the synchronization circuit can asynchronously determine the presence of at least one stored data frame.” See Reply 25. Patent Owner’s additional hypothetical involving the presence of a partial data frame stored in the buffer does not diminish the reasonable understandings that one of skill in the art would draw from Niu. See PO Resp. 37. That is, we agree with Petitioner that Niu’s teaching of asynchronous determination of the presence of at least one stored data frame would reasonably teach one of skill in the art to determine whether there are data stored in the buffer. See Ex. 1003 ¶ 134.

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. 38 (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 38 (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 40–41. 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 40 (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 ¶ 128). 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 41 (citing Ex. 1003 ¶ 129). 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.* (citing Ex. 1003 ¶ 129). Petitioner thus shows that the combination of art meets the first “transmitting” limitation when both recited conditions are 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 45 (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 45–46.

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. 40. 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 41–42. 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 44. 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, Niu, 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. 46; 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. 47; 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. 47–48; 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. 48.

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, Niu, 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. 48–58. 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, Niu, 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. 59–60; 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. 60–61.

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, Niu, and Specification 321.

6. Claim 5:
Combination of Kitazoe, Niu, 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, Niu, Specification 321, and Kitazoe II. Pet. 61–64.

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. 9–11.

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. 62–63. 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 63–64 (citing Ex. 1003 ¶¶ 138–139). Patent Owner does not respond to these contentions.

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, Niu, 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, Niu, 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, Niu, and Specification 321; and that claim 5 is unpatentable under 35 U.S.C. § 103(a) over Kitazoe, Niu, 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.
IPR2016-01229  
Patent 7,881,236 B2

PETITIONER
Walter Renner  
IPR00035-00091P1@fr.com

Roberto Devoto  
Daniel Smith  
PTABInbound@fr.com

PATENT OWNER
Cyrus Morton  
Ryan Schultz  
ROBINS KAPLAN LLP  
cmorton@robinskaplan.com  
rschultz@robinskaplan.com