

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

G+ COMMUNICATIONS, LLC,
Patent Owner.

IPR2023-00441
Patent 10,448,430 B2

Before GREGG I. ANDERSON, SCOTT B. HOWARD, and
JASON M. REPKO, *Administrative Patent Judges*.

ANDERSON, *Administrative Patent Judge*.

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

I. INTRODUCTION

Samsung Electronics Co. Ltd., (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–15 and 17–18 of U.S. Patent No. 10,448,430 B2 (Ex. 1001, “the ’430 patent”). Paper 1, 2–3 (“Pet.”). G+ Communications, LLC (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Per our authorization, Petitioner filed a Preliminary Reply to Patent Owner’s Preliminary Response (Paper 8, “Pet. Prelim. Reply”) directed to discretionary denial, which is discussed in Sections III.A and B below. As we also authorized, Patent Owner responded with its Preliminary Sur-Reply (Paper 9, “PO Prelim. Sur-Reply”).

We have authority under 35 U.S.C. § 314. Upon considering the record developed thus far, for reasons discussed below, we institute *inter partes* review.

II. BACKGROUND

A. *Real Parties in Interest*

Petitioner states it and Samsung Electronics America, Inc. are the real parties in interest. Pet. 1. Patent Owner asserts it is the real party in interest. Paper 4, 1 (Patent Owner’s Mandatory Notices).

B. *Related Matters*

Both parties list a lawsuit filed by Patent Owner asserting the ’430 patent against Petitioner in the Eastern District of Texas captioned *G+ Communications, LLC v. Samsung Electronics Co., Ltd., et al.*, Case No. 2:22-cv-00078-JRG (E.D. Tex.) (“Texas Litigation”). Pet. 1; Paper 4, 1. Two related *inter partes* review proceedings between these same parties are also identified: *Samsung Electronics Co., Ltd. V G+ Communications LLC*, IPR2022-01598 (“’1598 IPR”), which challenges U.S. Patent No. 10,594,443 B2; and *Samsung Electronics Co., Ltd. V G+ Communications*

LLC, IPR2023-00171 (“’171 IPR”), which challenges U.S. Patent No. 10,736,130 B2). Pet. 1, Paper 4, 1. Trial was instituted in both the ’1598 and the ’171 IPRs. ’1598 IPR, Paper 10; ’171 IPR, Paper 10.

C. The ’430 Patent

The application for the ’430 patent was filed as national stage application No. 15/738,233 on May 13, 2016, from PCT/CN2016/082087 filed on December 20, 2017. Ex. 1001, codes (21, 22, 86). The PCT application claims priority to Chinese application 2015 1 0368321 (“’321 application”), filed June 26, 2015. *Id.* at code (30).

1. Background Technology

“A Machine Type Communication (MTC) User Equipment (UE or terminal) is also referred to as a Machine to Machine (M2M) user communication device, which is a main application form of a current internet of things.” Ex. 1001, 1:11–15. The ’431 patent relates to Long-Term Evolution (LTE)/Long-Term Evolution Advance (LTE-Advance or LTE-A) systems, which are broadband wireless communication systems. *Id.* at 1:16–20. “In the LTE system, a random access is a basic function, and a UE can be scheduled by the system to perform uplink transmission only after uplink synchronization with the system via a random access process.” *Id.* at 1:22–25.

In a contention based random access process a UE randomly selects and then sends an available preamble to an evolved Node B or eNB (an evolved base station). Ex. 1001, 1:28–41. When the eNB detects a preamble sequence sent by the UE the eNB sends a Random Access Response (RAR). *Id.* at 1:32–34. “[A] response will be sent over a Downlink-Synchronization Channel (DL-SCH), the response including: an index number of the detected preamble, time adjustment information for

uplink synchronization, initial uplink resource allocation (used for sending a subsequent message).” *Id.* at 1:34–40. The index number includes a Temporary Cell Radio Network Temporary Identity (TC-RNTI). *Id.* at 40–41. Contention resolution occurs when it is “decided whether the TC-RNTI is converted into a permanent C-RNTI.” *Id.* at 1:41–44.

In the contested random access process, the “UE needs to monitor an RAR message over a Physical Downlink Control Channel (PDCCH) by using a Random Access RNTI (RA-RNTI),” which is determined according to the following formula: $RA-RNTI = 1 + t_id + 10 * f_id$. *Id.* at 1:42–46. The t_id term “refers to an index number of a first subframe of a Physical Random Access Channel (PRACH) for sending a preamble ($0 \leq t_id < 10$).” *Id.* at 1:46–50. Similarly, f_id is a PRACH index for a frequency domain position index. *Id.* at 1:51–53.

In the contention based random access process, “it cannot be determined that the RAR message is sent to the UE itself instead of other UEs.” Ex. 1001, 1:55–59. The UE “is unable to know whether other UEs make a random access by using the same resource” and thus “needs to resolve such a random access contention via the subsequent message 3 and message 4.” *Id.* at 1:63–67. Message 4 is a contention resolution message indicating a UE identified in message 3’s UE Identifier “wins this random access contention” and is successful. *Id.* at 2:1–11.

In “contention-free random access” the preamble sent by the UE uplink synchronization is completed after the time adjustment information is sent by the eNB over the DL-SCH. Ex. 1001, 2:12–14. A contention resolution process is not executed. *Id.* at 2:14–15.

Future communications demands will require “tens of thousands” of UEs will be required to meet demand. Ex. 1001, 2:16–21. Even if the UEs

are uniformly accessed, which is not the case, “at least hundreds of times of PRACH resources are needed in accordance with a random access mode in the related art.” *Id.* at 2:21–26.

2. The “random access” method of the ’430 patent

The ’430 patent describes and claims a random access method where “[a] first UE in a UE group sends a preamble to an eNB over a time-frequency resource, the time-frequency resource including a time domain resource and a frequency domain resource.” Ex. 1001, 2:44–47.

Figure 1 of the ’430 patent is reproduced below.

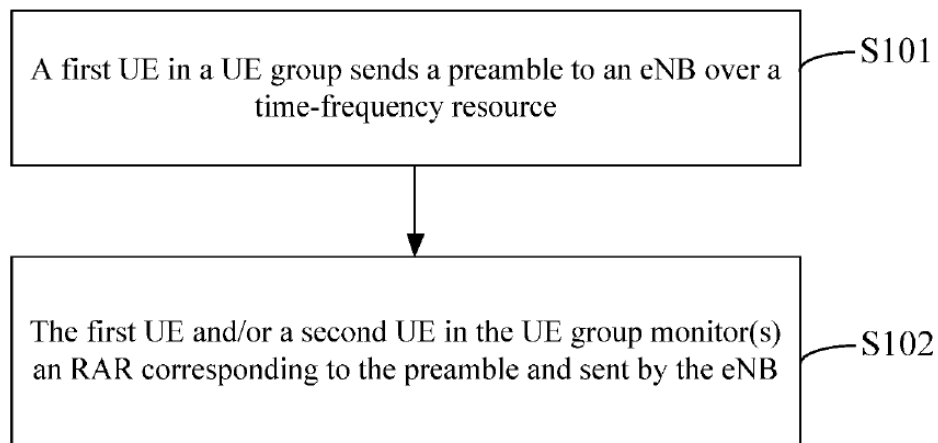


FIG. 1

Figure 1 is a flowchart of a random access method according to one embodiment.

Ex. 1001, 8:66–67. Referring to Figure 1, the method is applied to a UE side at step S101 “a first UE in a UE group sends a preamble to an eNB over a time-frequency resource, the time-frequency resource including a time domain resource and a frequency domain resource.” *Id.* at 9:29–32. At step

S102 “the first UE and/or a second UE in the UE group monitor(s) an RAR corresponding to the preamble and sent by the eNB.” *Id.* at 9:33–35.

Herein, the first UE may be at least one UE in the UE group, and the first UE can be representative of the UE group. The second UE may be all or some UEs in the UE group, i.e., UEs having random access requests.

Therefore, the second UE may include the first UE.

It is important to note that the first UE may be at least one of the following:

at least one fixed UE; or,

at least one UE determined according to a pre-set rule;
or,

at least one UE notified by the eNB.

Moreover, the preamble and/or the time domain resource and/or the frequency domain resource may be pre-set, or may be determined by a group ID of the UE group, or may be notified by the eNB.

Ex. 1001, 9:37–50.

Figure 2 of the '430 patent is reproduced below.

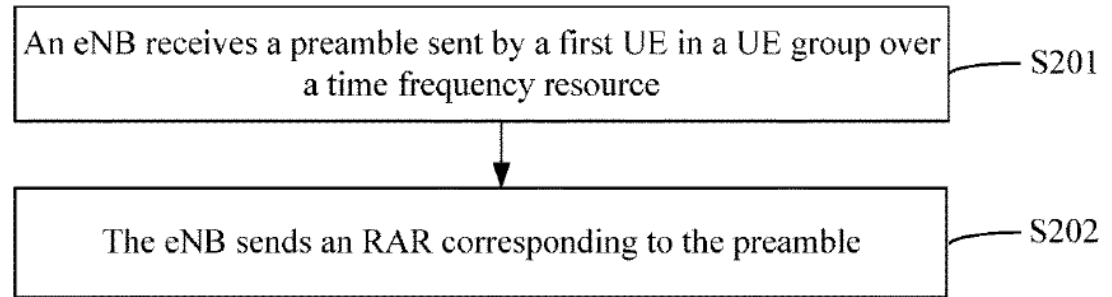


FIG. 2

Figure 2 is a flowchart of a random access method according to another embodiment.

Ex. 1001, 9:1–2. Referring to Figure 2, the method is applied to the eNB side at step S201, “an eNB receives a preamble sent by a first UE in a UE group over a time-frequency resource, herein the time-frequency resource includes a time domain resource and a frequency domain resource.” *Id.* at 11:41–47. At step S202, the eNB sends an RAR corresponding to the preamble. *Id.* at 11:48–49. The UE then responds to the RAR by sending a message 3 identifying itself with a unique ID. *Id.* at 12:1–6. The eNB then sends back a confirmation message 4. *Id.* at 12:21–34.

D. Illustrative Claim

Claims 1–15 and 17–18 of the ’430 patent are challenged. Pet. 1, 2–3. Claims 1 and 18 are independent and claim a method and a “User Equipment” respectively. Claims 2–15 and 17 depend directly or indirectly from claim 1. Claim 1 is illustrative and is reproduced below.

[1.pre]¹ A random access method, comprising:

[1.a] sending, by a first User Equipment (UE) in a UE group, a preamble to an evolved Node B (eNB) over a time frequency resource,

[1.b] the time-frequency resource comprising a time domain resource and a frequency domain resource;

[1.c] monitoring, by at least one of the first UE or a second UE in the UE group, a RandomAccess Response (RAR) corresponding to the preamble and sent by the eNB,

[1.d] wherein the first UE is at least one UE in the UE group, and the second UE is all or some UEs in the UE group; and

[1.e] after monitoring, by at least one of the first UE or the second UE, the RAR corresponding to the preamble and sent by the eNB, sending, by at least one of the first UE or the second UE, a message **3** according to a Uplink (UL) grant allocated thereto,

[1.f] wherein the message **3** comprises a number of UEs having random access requests in the UE group or a number of UEs contained in the UE group or a pre-set UE number.

Ex. 1001, 30:10–30.

E. Evidence of Record

This proceeding relies on the following prior art reference and

Expert testimony:

Li, US 2013/0155894 A1, published June 20, 2013 (Ex. 1005, “Li”);

¹ Petitioner uses the claim number followed by “pre” for preamble or letters for the limitations. *See, e.g.,* Pet. 9 (1.pre). We adopt this format for this Decision.

Lee, U.S. Patent No. 10,034,308 B2, issued July 24, 2018 (Ex. 1007, “Lee”);

Zhao, US 2014/0362794 A1, published December 11, 2014 (Ex. 1012, “Zhao”);

Jiang, CN 102917433 A, published February 6, 2013 (Ex. 1006, “Jiang”);

Kim, US 2016/0374068 A1, published December 22, 2016 (Ex. 1011, “Kim”); and

Petitioner relies on the Declaration of Dr. Zhi Ding in Support of Petition for Inter Partes Review of U.S. Patent No. 10,448,430 (Ex. 1002, “Ding Declaration”).

F. Asserted Grounds

Claim(s) Challenged	35 U.S.C.² §	Reference(s)/Basis
13, 7, 11, 13–15, 18	102	Li
5–6, 8–10	103	Li, Lee
12	103	Li, Zhao
17	103	Li, Jiang
1–4, 7, 13	103	Kim, Li
5–6, 8–10	103	Kim, Li, Lee
12	103	Kim, Li, Zhao
17	103	Kim, Li, Jiang

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-129, 125 Stat. 284, 285–288 (2011), revised 35 U.S.C. §§ 102 and 103 effective March 16, 2013. Because the challenged patent was filed after March 16, 2013, we refer to the current version of these statutes. The findings and analysis in this Decision would be the same under the pre-AIA versions.

Claim(s) Challenged	35 U.S.C. ² §	Reference(s)/Basis
18	102	Kim

III. DISCRETIONARY ISSUES

The Board has discretion not to institute trial. *See* 35 U.S.C. § 314(a) (authorizing institution of a trial under particular circumstances, but not requiring institution under any circumstances); *cf. Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016) (“[T]he agency’s decision to deny a petition is a matter committed to the Patent Office’s discretion.”); *Harmonic Inc. v. Avid Tech, Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (explaining that under § 314(a), “the PTO is permitted, but never compelled, to institute an [inter partes review] proceeding”).

Both parties address discretionary denial under 35 U.S.C. §§ 325(d) and 314(a). *See* Pet. 4–6; Pet. Prelim. Reply 1–2; Prelim. Resp. 16–23; PO Prelim. Sur-Reply 1–3 (§ 325(d)); Pet. 63–65; Pet. Prelim. Reply 2–3; Prelim. Resp. 24–32; PO Prelim. Sur-Reply 3 (§ 314(a)). These issues are addressed below in Sections III.A and B respectively.

A. 35 U.S.C. § 325(d)

Regarding prior examination of the application for the ’430 patent, 35 U.S.C. § 325(d) provides that “the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” Our analysis for discretionary denial under 35 U.S.C. § 325(d) is set forth in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017) (precedential), and *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6

(PTAB Feb. 13, 2020) (precedential). *Advanced Bionics* sets out the following two-part framework:

- (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and
- (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, Paper 6 at 8.

1. Prosecution History

Application claim 1 and dependent claims 4 and 7 were rejected in an Office Action dated December 12, 2018, as obvious over Li and Yang (US 2014/01333430 A1); claim 7 was also rejected as obvious in further view of Webb (US 2013/0279412 A1). Ex. 1004, 52–54, 57. The Examiner determined that each claim was not patentable. *Id.* As to claim 7, the Examiner found that the combination of Li and Yang “does not explicitly disclose comprising: after monitoring, by the first UE and/or the second UE, the RAR corresponding to the preamble and sent by the eNB,” but nevertheless determined that this missing limitation of claim 7 was disclosed by Webb’s teachings associated with the disclosed “message 3” step. *Id.* at 57 (citing Webb ¶ 51).

In that same Office Action, the Examiner found that dependent application claim 21 contained allowable subject matter. Ex. 1004, 58. Claim 21 depended from application claim 7, which depended from application claim 4, which depended from application claim 1. *Id.* at 387–388 (claims 4 and 7), 391 (claim 21). Claim 21 recited “wherein the message 3 comprises a number of UEs having random access requests in the

UE group or a number of UEs contained in the UE group or a pre-set UE number.” *Id.* at 391. Claim 21 recites the subject matter of limitation [1.f]. *Compare* Ex. 1001, 30:27–30 *with* Ex. 1004, 391. The Examiner thus determined that limitation [1.f] was not taught by Li, the primary reference relied on in rejecting application claims 1, 4, and 7.

Patent Owner, the applicant, filed a Reply to the Office Action and “amended independent claim 1 to include the subject matter of allowable claim 21 and intervening claim 7.” Ex. 1004, 38. A Notice of Allowability found amended application claim 1 allowable. *Id.* at 16–17. The Examiner’s Reasons for Allowance identified the “closest prior art” as NPL-CN 102378302 (“’302 publication”).³ *Id.* at 18 (identifying the ’302 publication), 196 (abstract of ’302 publication). Amended application claim 1 became claim 1 of the ’430 patent. *Compare* Ex. 1004, 40 (amended claim 1) *with* Ex. 1001, 30:10–30 (issued claim 1).

2. Patent Owner’s 325(d) Argument

Relying on *Advanced Bionics*, Patent Owner alleges that because “[a]t the very least, reasonable minds can disagree regarding the purported treatment of the art, . . . it cannot be said that the Office erred in a manner material to patentability.” Prelim. Resp. 17 (citing *Advanced Bionics*, Paper 6 at 9). Patent Owner further alleges that, because the Examiner found

³ Li is entirely in English whereas the ’302 publication includes only an English abstract, the remainder being in Chinese. Ex. 1004, 196–214 (’302 publication). Li and the ’302 publication have the same inventors, claim priority to the same application, and the two abstracts are almost identical. *Compare* Ex. 1005, 1 *with* Ex. 1004, 196. We do not have a complete English translation of the ’302 publication but it appears reasonably likely that the Examiner found the two are the same. Regardless, it does not change the result here.

original application claim 21 contained allowable subject matter, “the Examiner determined that Li did not disclose at least that message 3 comprises a ‘pre-set UE number’ as recited in issued claim 1.” *Id.* at 18. As discussed above in connection with the prosecution history, the “preset number” language was originally presented in application claim 7.

Patent Owner argues specifically that Petitioner’s argument and evidence regarding limitation [1.f] do not show material error. Prelim. Resp. 19–21. Limitation [1.f] is reproduced below.

[1.f] wherein the message **3** comprises a number of UEs having random access requests in the UE group or a number of UEs contained in the UE group or a pre-set UE number.

See Section II.D above. Patent Owner argues “[t]he Petition lacks any explanation as to why Li’s terminal ID would be considered a ‘pre-set UE number’ as recited in claim 1, which would be required to show that the Office overlooked such a teaching and erred in a manner materially related to patentability.” *Id.* at 19 (citing Pet. 19 (argument and evidence regarding limitation [1.f])). Patent Owner argues that limitation [1.f] was originally presented in application claim 7 and was found by the examiner to have been taught by Webb, not Li)). *Id.* at 20; *see also* Section III.A.1 above (“Prosecution History”).

Patent Owner argues further that additional grounds for Petitioner’s challenge based on Kim do not provide a basis for institution because Kim is “substantially the same art” as Li. Prelim. Resp. 21 (citing Pet. 6; *Advanced Bionics*, Paper 6 at 13–19). Patent Owner points out that Li is part of the challenge for claim 1 and the reliance on Li for the UE group recitation of claim 1 was considered by the Examiner’s determination during prosecution. *Id.* (citing Pet. 39–47; Ex. 1004, 52). Patent Owner notes that Petitioner

argued the UE group of Kim was similar to what was disclosed in Li. *Id.* at 22 (quoting Pet. 42 (“The inclusion of Kim’s UE as part of a group would not have altered this aspect of Kim’s disclosure ***given that Li discloses a similar transmission of a random access preamble*** over time-frequency resources.”) and citing Pet. 46, 47 (additional arguments that Kim has “similar description” to Li)).

Patent Owner responds to Petitioner’s Preliminary Reply by pointing to the Examiner’s non-final rejection, which did not rely on Li, but rather Webb, for “UL grant” limitation [1.e]. PO Prelim. Sur-Reply 1 (citing Prelim. Resp. 20–21). Patent Owner contends that because the Examiner’s non-final rejection relied on another reference for the “UL grant” limitation, “the Office cannot be shown to have materially erred by not relying on teachings in Li” as alleged by Petitioner. *Id.* Patent Owner’s argument that there is no “material error” because the rejection relied on another reference for the “UL grant” limitation is not persuasive. How another reference is relevant to the question of material error with respect to Li is not explained.

Patent Owner argues Petitioner’s “litigation positions explain, but do not excuse, its failure to address the construction of “pre-set UE number” anywhere in its Petition, including in its 325(d) argument.” PO Prelim. Sur-Reply, 2 (quoting Ex. 2006 (“Defendants’ Responsive Claim Construction Brief” in the Texas Litigation), 17). Patent Owner specifically points to Petitioner’s argument to the district court that “the ‘pre-set UE number’ limitation is indefinite, that “[a person of ordinary skill in the art] would not understand the scope of this term with reasonable certainty.” Patent Owner also contends Petitioner argued “the term at issue ***is not*** an identifier.” *Id.* (citing Ex. 2006, 19 n.7). We address the construction issue in Section IV.B.1 below.

3. Petitioner's 325(d) Argument

Petitioner summarizes the prosecution history and contends that “[p]rior to allowance, claim 7 recited the feature of sending a message 3 according to the UL (uplink) grant allocated to the UE by the eNodeB.” Pet. 5 (citing Ex. 1004, 388). Petitioner argues that Li expressly discloses such a feature. *Id.* (citing Ex. 1005 ¶¶ 126, 129; Ex. 1002 ¶ 45; Ex. 1004, 388).

Petitioner addresses claim 21’s recitation of message 3 reciting “a number of UEs having random access requests in the UE group *or* a number of UEs contained in the UE group *or* a pre-set UE number.” Pet. 5 (citing Ex. 1004, 391). Petitioner alleges “Li expressly discloses that message 3 includes a unique ID of the UE, i.e., a ‘pre-set UE number.’” *Id.* (citing Pet. 16 (argument and evidence regarding limitation [1.f])).

Petitioner argues the Petition grounds based on Kim were not before the Office. Pet. 6 (citing Ex. 1001, 1, 2). Petitioner argues other “references such as Lee, Zhang, and Jiang . . . were also not considered by the Office.” *Id.*

4. Analysis

We are not persuaded to deny institution based on Section 325(d). Although Li was previously presented to the Office under part 1 of *Advanced Bionics*, as Petitioner acknowledges, Kim was not. Even were we to discount Li because of Section 325(d), the challenge here is not based solely on Li. Some grounds rely on Kim. *See* Pet. 3. Kim differs from Li and the Kim and Li combination was not previously considered. These differences provide a separate basis for the challenge presented here. Kim was not presented to the Examiner during prosecution.

Patent Owner argues Kim is “substantially the same art” as Li. Prelim. Resp. 21 (citing *Advanced Bionics*, Paper 6 at 13–19). The basis for

this contention is not persuasive. Patent Owner first argues that Li is still relied on for the “‘group’ aspect of claim 1.” *Id.* (citing Pet. 39–47). Patent Owner also relies on statements in the Petition that Kim is “similar” to Li. *Id.* at 22.

Kim and Li combination was not previously considered. *See, e.g., Western Digital Corp. v. Kuster*, IPR2020-01410, Paper 13 at 17–19 (PTAB Feb. 17, 2021) (declining to deny the petition under Section 325(d) where four grounds did not rely on the reference that was before the Office, one ground relied on a combination which was not considered by the Office, and two grounds relied solely on a reference that was before the Office). The combination of Li with Kim is asserted in Grounds 5–8 and Kim alone is asserted for Ground 9. Pet. 3. Thus, the first prong of the framework of *Advanced Bionics* is not satisfied.,

General statements about “a similar description” made by Petitioner are not sufficient to make Kim substantially similar to Li. For example, as to limitation [1.f], Petitioner points to Kim. Pet. 46–47 (citing Ex. 1011 ¶¶ 89–98). Kim states “Message 3 should include an ID of the UE . . . and the UEs need to be identified for future contention resolution.” Ex. 1011 ¶ 89. This statement is in contrast to Petitioner’s reliance on Li where expert testimony was relied upon to argue limitation [1.f] was met. *See* Pet. 16 (citing Ex. 1002 ¶ 46 (explaining that “terminal ID may be IMSI, MSISDN, IP address, IMPU, IMPI and any other symbol used to uniquely identify a terminal” (citing Ex. 1005 ¶ 66)).

The issue is not whether both of the references are cited for the same limitation, but whether the teachings of the two references are the same or substantially the same. *Cf. Wolfsped, Inc. v. Trustees of Purdue Univ.*, IPR2022-00761, Paper 13 at 7–8 (Decision on Director Review) (PTAB

Mar. 30, 2023) (holding the Board must look at the totality of the references, including “material differences”). In this case, Patent Owner has not shown substantial similarity of structure and function between the two references.

Because the first prong of the framework of *Advanced Bionics* is not satisfied, we determine that Section 325(d) is not sufficiently implicated to deny institution.

B. 35 U.S.C. § 314(a)

Institution of *inter partes* review is discretionary. *See Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“[T]he [U.S. Patent and Trademark Office] is permitted, but never compelled, to institute an IPR proceeding.”). Patent Owner urges us to exercise discretion to deny institution of *inter partes* review under § 314(a) based on the factors established in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5–6 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). Prelim. Resp. 45–52; PO Prelim. Sur-Reply. Petitioner urges us not to exercise such discretion. Pet. 76–79; Pet. Prelim. Reply.

On June 21, 2022, the Director of the USPTO issued an Interim Procedure for Discretionary Denials in AIA Post Grant Proceedings with Parallel District Court Litigation, *available at* https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621.pdf (the “Interim Procedure”). The Interim Procedure explains that “[c]onsistent with *Sotera Wireless, Inc.*, the PTAB will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB.” Interim Procedure 3 (internal footnote omitted) (citing *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-

01019, Paper 12 (PTAB Dec. 1, 2020) (precedential as to § II.A)). The Interim Procedure explains that such a *Sotera* stipulation “mitigates concerns of potentially conflicting decisions and duplicative efforts between the district court and the PTAB [and] allows the PTAB to review grounds that the parallel district court litigation will not resolve.” *Id.* at 7–8.

In this proceeding, Petitioner stipulates that “it will not pursue an invalidity defense in the parallel district court action based on the same grounds as in this petition or any grounds that could have reasonably been raised before the PTAB.” Pet. Prelim. Reply 3. Petitioner asserts that its stipulation is consistent with the one in *Sotera*. *Id.*

Patent Owner does not dispute that Petitioner adopts the stipulation from *Sotera* but argues the offer of a *Sotera* stipulation is “belated” and should have been provided before Patent Owner spent the time to brief the issue in its Preliminary Response. *See* PO Prelim. Sur-Reply 3. Patent Owner also argues a single *Fintiv* factor (factor 4) should not be “dispositive on discretionary denial.” *Id.*

The Interim Procedure is directly contrary to Patent Owner’s arguments. The *Fintiv* factors help the Board assess the potential for conflicting decisions and duplicative efforts when there is a PTAB proceeding held in parallel to district court litigation. *See* Interim Procedure 1–2. But here, Petitioner’s *Sotera* stipulation ensures the grounds that the Board resolves will differ from those considered in the parallel district court litigation. *See id.* at 7–8. This eliminates the potential for conflicting decisions and duplicative efforts. *See id.* Thus, in light of Petitioner’s stipulation, we decline to deny institution under *Fintiv*. *Id.* at 3.

IV. PATENTABILITY ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner proposes that a person of ordinary skill in the art for the invention of the '430 patent “would have had an undergraduate degree in electrical engineering, computer engineering, computer science or a related field along with at least two years of work experience in the field of wireless communication technology. More education can supplement practical experience and vice versa.” Pet. 6 (citing Ex. 1002 ¶¶ 23–24). Patent Owner does not propose a level of ordinary skill. *See* Prelim. Resp. 33–35.

Petitioner’s proposal is consistent with the level of ordinary skill in the art reflected by the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). On this record, the level of ordinary skill is neither in dispute nor dispositive of any challenge. For purposes of this Decision, we apply Petitioner’s articulation.

B. Claim Construction

In an *inter partes* review, a claim shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100 (2019); *see also Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

Petitioner asserts “the Board need not construe any terms of the challenged claims to resolve the underlying controversy, as any reasonable construction reads on the prior art.” Pet. 8–9 (citing, *inter alia*, *Phillips*). We understand Petitioner to be taking the position that only those terms in

controversy need to be construed, and only to the extent necessary to resolve the controversy. *See Realtime Data LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019).

Patent Owner does not propose a construction for any claim term. Patent Owner argues Petitioner has failed to identify how the challenged claims are to be construed and the Petition should be denied. Prelim. Resp. 36–39. Patent Owner contends that this failure requires that we deny the Petition. *Id.* at 38 (citing *Samsung Elecs. Co. v. Power2B Inc.*, IPR2022-01378, Paper 12 at 11–15 (PTAB Mar. 15, 2023) (“’1378 IPR”). Patent Owner argues that both parties in the Texas Litigation agreed that certain terms in claim 18 (i.e., “monitoring unit” and “sending unit”) are means plus function terms and need to be construed under our rules. *Id.* at 37–39 (citing 37 C.F.R. § 42.104(b)(3) and Ex. 2006, 13–17).

As to the ’1378 IPR’s holding, the decision in that case is not precedential. Further, the claim at issue there was presumptively a means plus function term because it recited “sensing means.” ’1378 IPR at 6; *see also Personalized Media Commc’ns, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 703 (Fed. Cir. 1998) (“the use of the term ‘means’ . . . generally invokes [§ 112 ¶ 6]” and “the use of a different formulation generally does not”).

No claim of the ’430 patent uses the word “means.” We presume that a claim limitation is not construed as a means plus function term when “means” is absent. *See Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1365 (Fed. Cir. 2022) (“[T]his presumption is rebuttable [and] can be overcome if a challenger demonstrates that the claim term ‘fails to recite sufficiently definite structure.’”) (citing *Williamson v. Citrix Online, LLC*, 792 F.3d

1339, 1348–49 (Fed. Cir. 2015)). Neither party makes any substantive argument to rebut that presumption.

Patent Owner also argues that Petitioner’s argument in the Texas Litigation that the “pre-set UE number” of limitation [1.f] is indefinite is a claim scope argument that “undermine the grounds asserted in its Petition.”⁴ Prelim. Resp. 39 (citing Ex. 2006, Petitioner’s “Responsive Claim Construction Brief” in Texas Litigation, 17). Patent Owner argues that Petitioner does argue the scope of limitation [1.f] by arguing in the Texas Litigation that the “pre-set UE number” is not an identifier. *Id.* at 39–41 (citing Ex. 2006, [12]).

That the parties in the Texas Litigation agreed certain claim terms were means plus function is acknowledged. At this stage of the proceeding, we are not persuaded that the Texas Litigation agreement should be adopted here. We are persuaded that the term “pre-set UE number” is in dispute and requires construction. *See, e.g.*, Prelim. Resp. 42, 45, 48–49, 54. On this record, we are not persuaded that the “monitoring unit” and “sending unit” terms require treatment as means plus function limitations. Neither are we persuaded that Petitioner’s failure to construe the terms requires us to deny the Petition.

1. “pre-set UE number” (claims 1 and 18)

The complete limitation in question recites “wherein the message 3 comprises a number of UEs having random access requests in the UE group *or* a number of UEs contained in the UE group *or* a pre-set UE number.”

⁴ Arguably, Petitioner is taking inconsistent positions in the Texas Litigation and here. It is not improper to take inconsistent positions.

Ex. 1001, 30:27–30 (claim 1), 32:53–56 (claim 18) (emphasis added). There are three alternatives to satisfy the limitation, each separated by an “or.”

Petitioner’s construction argument in the Texas Litigation frames the issue and is as follows:

[t]he first two options expressly refer to a quantity (“a number of UEs . . .”) but the language is unclear whether “pre-set UE number” pertains to a quantity (*e.g.*, a pre-set number of UEs in the UE group), an identifier (*e.g.*, a pre-set number specific to a certain UE or the UE group), or something else (*e.g.*, priority, order).

Ex. 2006, 11. As already noted, Petitioner argues that the term is indefinite in the Texas Litigation. *Id.* Conversely, in the Texas Litigation, Patent Owner argues the term should receive its “Plain and Ordinary meaning.”

Ex. 2005, “Patent Owner’s Claim Construction Brief” in Texas Litigation, 13.

On this record, whether “pre-set UE number” has a plain and ordinary meaning is subject to further development of the record. The claim language with respect to the other two alternatives refers to “a UE group,” while the term at issue may refer to a single UE. An alternative meaning is that “wherein the message 3 comprises a number of UEs having random access requests” modifies all that follows. This alternative all but requires rewriting the claim, which we decline to do.

The Specification explains that “[t]he first UE and/or the second UE send(s) a message 3 according to the UL [uplink] grant allocated thereto.”

Ex. 1001, 3:32–33. As to the actual term “pre-set UE number,” the Specification states “[i]n an embodiment, the message 3 includes a number of UEs having random access requests in the UE group or a number of UEs contained in the UE group or a pre-set UE number.” *Id.* at 4:41–44. This

description is repeated throughout the Specification. *See, e.g.*, Ex. 1001, 7:23–26, 11:20–22. The Specification is unhelpful in that it is a restatement of the claim language.

As to the requirement that the UE have a “pre-set number,” the Specification equates a number to a particular UE. In the ’430 patent’s Example 1, “a UE numbered as 0 is pre-specified to send a preamble, or a UE in the UE group, numbered as an even number, is pre-specified to send a preamble, or all UEs may be specified to send a preamble.” Ex. 1001, 14:55–58.

There is no extrinsic evidence of record to review. If this term remains an issue during trial, the parties should develop the record more fully. On this record, we preliminarily construe “pre-set UE number” to mean one UE identified by a number.

2. *Remaining claim terms*

We are conscious of the overlap between the Texas Litigation and this proceeding. *See* Section III.B above. The scope of our review does not include the indefiniteness question that Petitioner asserts in the Texas Litigation. *See* Ex. 2006. Based on the current record, the Board is able to ascertain the scope of the claims with reasonable certainty for purposes of assessing patentability, consistent with *Samsung Elecs. Am., Inc. v. Prisia Eng’g Corp.*, 948 F.3d 1342, 1353 (Fed. Cir. 2020) (“[T]he proper course for the Board to follow, if it cannot ascertain the scope of a claim with reasonable certainty for purposes of assessing patentability, is to decline to institute the [*inter partes* review] or, if the indefiniteness issue affects only certain claims, to conclude that it could not reach a decision on the merits with respect to whether petitioner had established the unpatentability of those claims under sections 102 or 103.”).

On this record, we proceed on the plain and ordinary meaning for all remaining terms. The parties are cautioned that arguments not timely raised are forfeit. In other words, if a party raises a claim construction issue at a final hearing, it may be too late. In general, the parties should review this Decision, as well as the record developed during trial, for possible claim construction issues. Pending further development of the record, we proceed on the plain and ordinary meaning to a person of ordinary skill in the art as to all claim terms.

C. Legal Standard for Anticipation

In order for a prior art reference to serve as an anticipatory reference, it must disclose every limitation of the claimed invention, either explicitly or inherently. *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). We must analyze prior art references as a skilled artisan would. *See Scripps Clinic & Res. Found. v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991), *overruled on other grounds by Abbott Labs. v. Sandoz, Inc.*, 566 F.3d 1282 (Fed. Cir. 2009) (to anticipate, “[t]here must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention”). As the Federal Circuit has held:

This modest flexibility in the rule that “anticipation” requires that every element of the claims appear in a single reference accommodates situations where the common knowledge of technologists is not recorded in the reference; that is, where technological facts are known to those in the field of the invention, albeit not known to judges. It is not, however, a substitute for determination of patentability in terms of § 103.

Cont’l Can Co. USA v. Monsanto Co., 948 F.2d 1264, 1268–69 (Fed. Cir. 1991). A claim limitation is inherent if it is necessarily present in

the prior art, not merely probably or possibly present. *Akamai Techs., Inc. v. Cable & Wireless*, 344 F.3d 1186, 1192 (Fed. Cir. 2003).

D. *Legal Standard for Obviousness*

A patent claim is invalid as obvious 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.” 35 U.S.C. § 103(a).

The ultimate determination of obviousness is a question of law, but that determination is based on underlying factual findings. . . . The underlying factual findings include (1) “the scope and content of the prior art,” (2) “differences between the prior art and the claims at issue,” (3) “the level of ordinary skill in the pertinent art,” and (4) the presence of secondary considerations of nonobviousness such “as commercial success, long felt but unsolved needs, failure of others,” and unexpected results.

In re Nuvasive, Inc., 842 F.3d 1376, 1381 (Fed. Cir. 2016) (citing *inter alia* *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966)).

“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Furthermore, in assessing the prior art, the Board must consider whether a person of ordinary skill would have been motivated to combine the prior art to achieve the claimed invention. *Nuvasive*, 842 F.3d at 1381.

As the Federal Circuit found, in quoting from the Supreme Court’s decision in *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–419 (2007),

“because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known,” “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.”

Personal Web Techs., LLC v. Apple, Inc., 848 F.3d 987, 991–92 (Fed. Cir. 2017).

E. Claims 1–3, 7, 11, 13–15, and 18 as Anticipated by Li

Petitioner alleges claims 1–3, 7, 11, 13–15, and 18 would have been anticipated by Li. Pet. 9–23. Petitioner also relies on the Ding Declaration. Ex. 1002 ¶¶ 39–60.

1. Li (Ex. 1005)

In Li,

terminals in a same group execute random number synchronization; when an arbitrary first terminal in the group initiates network access, terminals in the group except the first terminal monitor the access of the first terminal according to the synchronized random number, after monitoring that the first terminal accesses network successfully, the terminals in the group except the first terminal initiate network access by using Radio Resource Control (RRC) connection uplink resources which are allocated to the group by the network.

Ex. 1005, code (57). Li states that “[t]he technical solution of the present invention can reduce the signaling overhead for establishing signaling connection and data bearing.” *Id.*

Li’s Figure 6 is reproduced below.

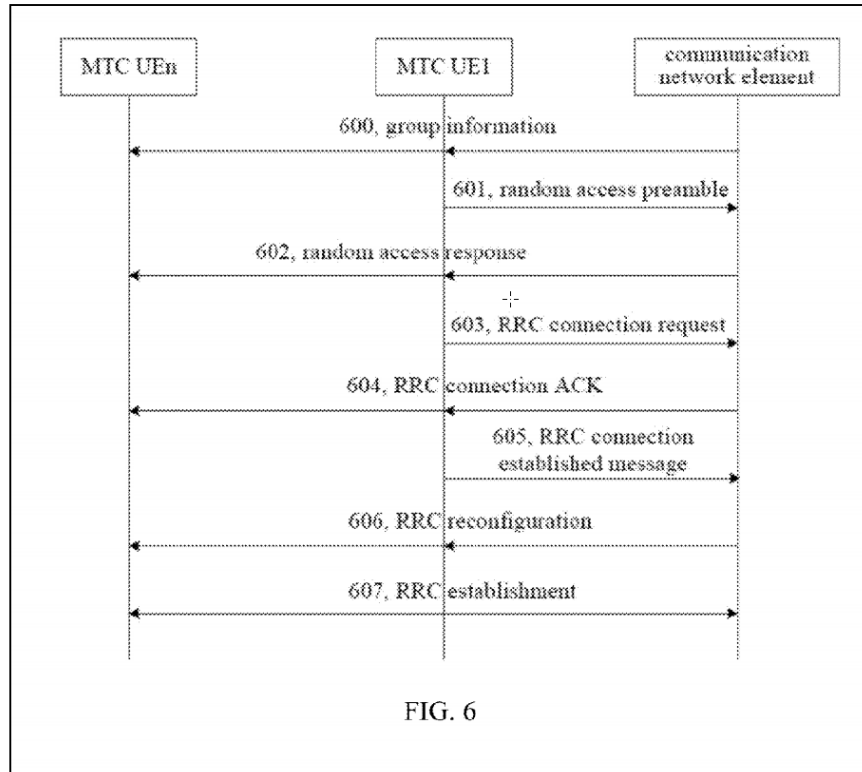


Figure 6 is a schematic flowchart of a network access method according to another embodiment.

Ex. 1005 ¶ 106. Referring to Figure 6, at 600 group information is sent to all terminals in a group over a communications network. *Id.* ¶ 107. The communication network element may divide a plurality of terminals into one or more groups and then broadcast group information including terminal IDs of all terminals in each group, so that each terminal can calculate a group ID of the group it belongs to according to terminal IDs of all terminals in the group. *Id.* ¶¶ 110–111. The communication network element may also broadcast group information including group IDs of the groups or including group IDs of the groups and terminal IDs of all terminals in each group. In another variation, each terminal may store

group information of the group it belongs to, including terminal IDs of all terminals belonging to the group, or including the group ID of the group, or including the group ID of the group and terminal IDs of all terminals belonging to the group. *Id.* ¶¶ 112–114.

Still referring to Figure 6, at 601, MTC UE1 sends a random access preamble to prepare for network access. Ex. 1005 ¶ 115. Li explains that terminals in the same group may perform random number synchronization. *Id.* ¶ 116. At 602 of Figure 6, “[a]fter receiving the preamble sent from the first terminal, the communication network element may allocate a T-CRNTI [temporary cell radio network temporary identity], and RRC connection UL [uplink] resources and send a RAR to the first terminal.” *Id.* ¶ 121. “The RAR may comprise at least one of TA (Timing Advance), T-CRNTI next stage UL resource allocation (UL GRANT), and a preamble ID.” *Id.*

At 603 of Figure 6, a “MTC UE1 sends a RRC connection request to the communication network element.” Ex. 1005 ¶ 125. The connection request “may be done according to the T-CRNTI and RRC connection UL resources allocated by the communication network element.” *Id.* ¶ 126. The RRC connection request “may carry the terminal ID of MTC UE1 or the group ID of the group MTC UE1 belongs to or the synchronized random number.” *Id.* ¶ 128.

In Figure 6 at 604, the communication network element returns an ACK (acknowledgement) to MTC UE1. Ex. 1005 ¶ 130. For example, an ACK may relate to a RRC Connection. *Id.* ¶ 131. The ACK “may comprise the terminal ID of MTC UE1 or the group ID of the group MTCUE1 belongs to or the synchronized random number.” *Id.*

At steps 605–606 of Figure 6, a “[r]eturning a RRC connection established message from MTC UE1 to the communication network element,

and sending, by the communication network element, a RRC connection reconfiguration message.” Ex. 1005 ¶ 133. At 607 “[o]ther terminals except MTC UE1 [see step 601 above] in the group may initiate network access using the RRC connection UL resources allocated by the communication network element.” *Id.* ¶ 136.

2. Claim 1

Petitioner has sufficiently shown all limitations of claim 1 as anticipated by Li. Below we briefly summarize claim 1’s limitations and Petitioner’s showing. Unless otherwise indicated, these showings are not contested by Patent Owner at this stage.

Claim 1’s preamble [1.pre] recites “[a] random access method comprising.” Petitioner cites Li’s Figure 6 which is a schematic flowchart showing “contention based random access.” Pet. 9 (citing Ex. 1005 ¶¶ 2, 106, Fig. 6).

Limitation [1.a] recites “sending, by a first User Equipment (UE) in a UE group, a preamble to an evolved Node B (eNB) over a time frequency resource.” Petitioner cites Li’s teaching of MTC UE1 as part of “a group, such as MTC UE1, MTC UE2, MTC UEn, MTC UEm, where n and m are positive integers larger than or equal to 2.” Pet. 10 (citing Ex. 1005 ¶ 117). Petitioner alleges the “time frequency resource” is the LTE “slot and frequency” of Li. *Id.* at 19 (citing Ex. 1005, ¶¶ 9, 11, 41, 107, 109, Fig. 6⁵; Ex. 1002 ¶ 41).

Limitation [1.b] recites “the time-frequency resource comprising a time domain resource and a frequency domain resource.” Petitioner relies

⁵ Petitioner reproduces Li’s Figure 6 but mistakenly labels it as from Ex. 1001, the ’430 patent.

on Li's teaching discussed above that "MTC UE1 sends the preamble to the eNodeB over a time-frequency resource, i.e., over a 'random access frequency resource' (claimed 'frequency domain resource') 'at a next time' slot (claimed 'time domain resource')." Pet. 12.

Limitation [1.c] recites "monitoring, by at least one of the first UE or a second UE in the UE group, a Random Access Response (RAR) corresponding to the preamble and sent by the eNB." Petitioner contends Li teaches "the MTC UE1 sends the preamble to the eNodeB in step 601, a random access response (RAR) is sent by the eNodeB to the MTC UE1." Pet. 13 (citing Ex. 1005 ¶¶ 120–122, Fig. 6; Ex. 1002 ¶ 43). Petitioner notes "[t]he RAR is sent by a 'communication network element' (Ex. 1005 ¶ 120)) but that simply refers to the eNodeB." *Id.* at 13, n.3 (citing Ex. 1005 ¶ 108). Petitioner further quotes Li that "[b]ecause all terminals in the group have the same random number, *all of other terminals* in the group except the first terminal can monitor the RAR to the first terminal." *Id.* (quoting Ex. 1005 ¶ 117).

Limitation [1.d] recites "wherein the first UE is at least one UE in the UE group, and the second UE is all or some UEs in the UE group." Petitioner argues again that "[a]s discussed above, MTC UE1 ('first UE') is part of a UE group and the MTC UEn constitute 'second UE.'" Pet. 14.

Patent Owner disputes Petitioner's showing for Limitations [1.e] and [1.f]. Prelim. Resp. 41–46. Patent Owner's arguments are addressed after summarizing Petitioner's showings.

Limitation [1.e] recites "after monitoring, by at least one of the first UE or the second UE, the RAR corresponding to the preamble and sent by the eNB, sending, by at least one of the first UE or the second UE, a message 3 according to a Uplink (UL) grant allocated thereto." Petitioner

again cites to Figure 6 of Li (*see* Section IV.E.1 above) focusing on step 603 that “MTC UE1 may send a RRC [radio resource control] connection request according to the T-CRNTI and RRC connection *UL resources* allocated by the communication network element.” Pet. 15 (quoting Ex. 1005 ¶ 126) (emphasis added). Petitioner relies on the Ding Declaration to support that the “UL resources are an Uplink gran allocated” to MTC UE1 and the RRC connection request is “message 3” after sending the preamble and receiving the RAR as message 1 and 2 respectively. *Id.* (citing Ex. 1002 ¶ 45).

Limitation [1.f] recites “wherein the message 3 comprises a number of UEs having random access requests in the UE group or a number of UEs contained in the UE group or a pre-set UE number.” Petitioner relies on the third alternative that “message 3 comprises . . . a pre-set UE number.” Pet. 16. Specifically, Petitioner argues

The RRC connection request (message 3) includes “the terminal ID of MTC UE1.” . . . And the “terminal ID may be IMSI, MSISDN, IP address, IMPU, IMPI and any other symbol used to uniquely identify a terminal.” . . . Thus, message 3 in Li includes a “pre-set UE number.”

Id. (citation omitted) (citing Ex. 1005 ¶¶ 66, 128; Ex. 1002 ¶ 46).

As to both Limitations [1.e] and [1.f] Patent Owner argues because “Petitioner provides no explanation as to how the cited portions of Li disclose ‘wherein the message 3 comprises . . . a pre-set UE number,’ Petitioner has not shown by a preponderance of the evidence^[6] that Li anticipates this limitation.” Prelim. Resp. 42 (citing *Eli Lilly & Co. v. L.A. Biomedical Research Inst.*, 849 F.3d 1073, 1074 (Fed. Cir. 2017) (“To

⁶ At the institution stage the evidentiary standard is “reasonable likelihood.”

anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either expressly or inherently.”)).

First, as noted above we preliminarily construed the “pre-set UE number” term to encompass one UE identified by a number.” *See* Section IV.B.1 above. We understand Petitioner’s showing to identify a specific UE by a number, sufficiently showing the limitations. *See* Pet. 16.

Patent Owner also argues we should give little weight to the Ding Declaration. Prelim. Resp. 43–46. Patent Owner argues the Ding Declaration is “largely a verbatim copy of the attorney argument in the Petition.” *Id.* at 43–44 (Table comparing Petition at 16 and Ding Declaration ¶ 46). We disagree. Our recent precedential decision in *Xerox*, cited by Patent Owner, is controlling. *Id.* at 45 (citing *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (August 24, 2022) (precedential). In *Xerox*, we denied institution and held a declaration is entitled to little weight when it contains an exact restatement of the petition’s arguments “*without any additional supporting evidence or technical reasoning.*” *Xerox*, Paper 9 at 16 (emphasis added). Although we agree that the Petition and the Ding Declaration are all but copies of each other, neither are devoid of supporting evidence or reasoning. Because the Petition and Ding Declaration are amply supported by the disclosures from Li, *Xerox* does not require us to give it little or no weight. *See* 37 C.F.R. § 42.65(a).

We remind the parties that this is a preliminary finding and this issue is subject to being further developed on a full record.

For the reasons set forth above, Petitioner has shown a reasonable likelihood that claim 1 would have been anticipated by Li.

3. Claims 2–3, 7, 11, 13–15, and 18

Having already decided to institute trial on claim 1 as anticipated by Li, we proceed to trial on all claims challenged under all grounds. *SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1356 (U.S. 2018). Accordingly, we proceed to trial on claims 2–3, 7, 11, 13–15, and 18. We analyze “the strengths and weaknesses of all challenges in the petition in order to provide guidance to the parties for the upcoming trial.” Patent Trial and Appeal Board Consolidated Trial Practice Guide November 2019, 64.

With respect to the remaining claims challenged by Petitioner as anticipated by Li, which Patent Owner does not separately argue, we find that Petitioner has sufficiently shown that the prior art discloses all claim limitations.

4. Conclusion

Petitioner has shown a reasonable likelihood that claims 1–3, 7, 11, 13–15, and 18 would have been anticipated by Li.

F. Obviousness of Claims 5, 6, 8–10 over Li and Lee

Petitioner alleges claims 5, 6, and 8–10 would have been obvious over Li and Lee. Pet. 24–35. Petitioner also relies on the Ding Declaration. Ex. 1002 ¶¶ 61–80.

1. Li (Ex. 1005)

Li was described in Section IV.E.1 above.

2. Lee (Ex. 1007)

Lee is a contention based random access procedure between a UE and an eNB. Ex. 1007, 10:26–41, 18:32–23:23. Lee describes a random access procedure which includes four transmission and reception steps: transmission by first message (Msg1); receipt of a random access response at second message (Msg2); transmission of an uplink message using

information from the random access response (RAR) as a third message (Msg3); and fourth message (Msg4). *Id.* at 14:30–53. “The RRC [radio resource control] connection setup message may correspond to a fourth message (message 4) of the random access procedure.” *Id.* at 14:51–53.

To receive the RAR, the UE first detects a physical downlink control channel (PDCCH) “masked with RA-RNTI [random access radio network temporary identifier]” and then “receives the PDSCH [physical downlink shared channel] that is indicated by the detected PDCCH.” *Id.* at 19:18–33. The PDCCH includes downlink control information (DCI). *Id.* at 12:37–39. The PDCCH includes CRC bits masked with the UE’s RA-RNTI. *Id.* at 12:47–62. The “UE . . . detects the PDCCH masked with RA-RNTI.” *Id.* at 19:18–24.

3. Claims 5, 6, 8–10

With respect to claims 5, 6 and 8–10 challenged by Petitioner as obvious over Li and Lee, Patent Owner does not separately argue for the patentability of those claims and we find that Petitioner has sufficiently shown that the prior art teaches all claim limitations and has shown a sufficient rationale to combine.

4. Conclusion

Petitioner has shown a reasonable likelihood that claims 5, 6, and 8–10 would have been obvious over Li and Lee.

G. Obviousness of Claim 12 over Li and Zhao

Petitioner alleges claim 12 would have been obvious over Li and Zhao. Pet. 35–37. Petitioner also relies on the Ding Declaration. Ex. 1002 ¶¶ 122–124.

1. Li (Ex. 1005)

Li was described in Section IV.E.1 above.

2. Zhao (Ex. 1012)

Zhao discloses “random access procedures in wireless telecommunication networks and has particular relevant to random access procedures between a user equipment and radio access node” in LTE.

Ex. 1012 ¶ 1. A radio access node (RAN) refers to an eNodeB. *Id.* ¶ 2. The RAN 10 receives a preamble from the UE as part of MSG1 and responds with a MSG2, the random access response. *Id.* ¶ 31. “The UE . . . then responds by sending a third message (MSG3)” to the RAN. *Id.* If the RAN fails to detect MSG3, it sends a Hybrid Automatic Repeat Request Non-Acknowledgement (HARQ⁷ NACK). *Id.* After sending the HARQ NACK, the eNodeB sends a “direct order” to the UE “to restart the random access procedure with the same preamble.” *Id.* This procedure has the benefit of enabling the UE “to synchronize with the network.” *Id.*

3. Claim 12

With respect to claim 12 challenged by Petitioner as obvious over Li and Zhao, Patent Owner does not separately argue those claims and we find that Petitioner has sufficiently shown that the prior art teaches all claim limitations and provides sufficient rationale to combine the references.

4. Conclusion

Petitioner has shown a reasonable likelihood that claim 12 would have been obvious over Li and Zhao.

⁷ Zhao is printed with “HARK NACK” but latter corrects to “Hybrid Automatic Repeat Requests (HARQ).” Ex. 1012 ¶ 31.

H. Obviousness of Claim 17 over Li and Jiang

Petitioner alleges claim 17 would have been obvious over Li and Jiang. Pet. 37–39. Petitioner also relies on the Ding Declaration. Ex. 1002 ¶¶ 125–127.

1. Li (Ex. 1005)

Li was described in Section IV.E.1 above.

2. Jiang (Ex. 1006)

Jiang teaches a random access procedure for MTC terminals belonging to a group. Ex. 1006 ¶¶ 36–038. Jiang discloses a random access process involving message 1 (sending of the random access preamble to the base station/eNB by the MTC UE), message 2 (random access response from the base station), message 3 (RRC connection request), and a message 4. *Id.* ¶¶ 39–56. Jiang’s repeatedly sends the preamble if a random access response is not received from the eNodeB within a predetermined time interval. *Id.*

3. Claim 17

With respect to claim 17 challenged by Petitioner as obvious over Li and Jiang, Patent Owner does not separately argue that claim and we find that Petitioner has sufficiently shown that the prior art teaches all claim limitations and provides sufficient rationale to combine the references.

4. Conclusion

Petitioner has shown a reasonable likelihood that claim 17 would have been obvious over Li and Jiang.

I. Obviousness of Claims 1–4, 7, 13 over Kim and Li

Petitioner alleges claims 1–4, 7, and 13 would have been obvious over Kim and Li. Pet. 39–49. Petitioner also relies on the Ding Declaration. Ex. 1002 ¶¶ 88–104.

1. Kim (Ex. 1011)

Kim is entitled “D2D Signal Transmission Method and User Equipment.” Ex. 1011 at code 54. Kim describes a method whereby “user equipment located outside network coverage or in partial network coverage performs device-to-device (D2D) communication.” *Id.* at code (57). “D2D” stands for “device-to-device.” *Id.* The method is “[a]n evolved universal mobile telecommunications system (E-UMTS) is an advanced version of a legacy universal mobile telecommunications system (UMTS) and basic standardization thereof is currently underway in the 3GPP,” 3rd generation partnership long term evolution (LTE)). *Id.* ¶ 2–4. “E-UMTS includes a user equipment (UE), evolved Node Bs (eNode Bs or eNBs), and an access gateway (AG) which is located at an end of an evolved UMTS terrestrial radio access network (E-UTRAN) and connected to an external network.” *Id.* ¶5.

Kim’s Figure 5 is reproduced below.

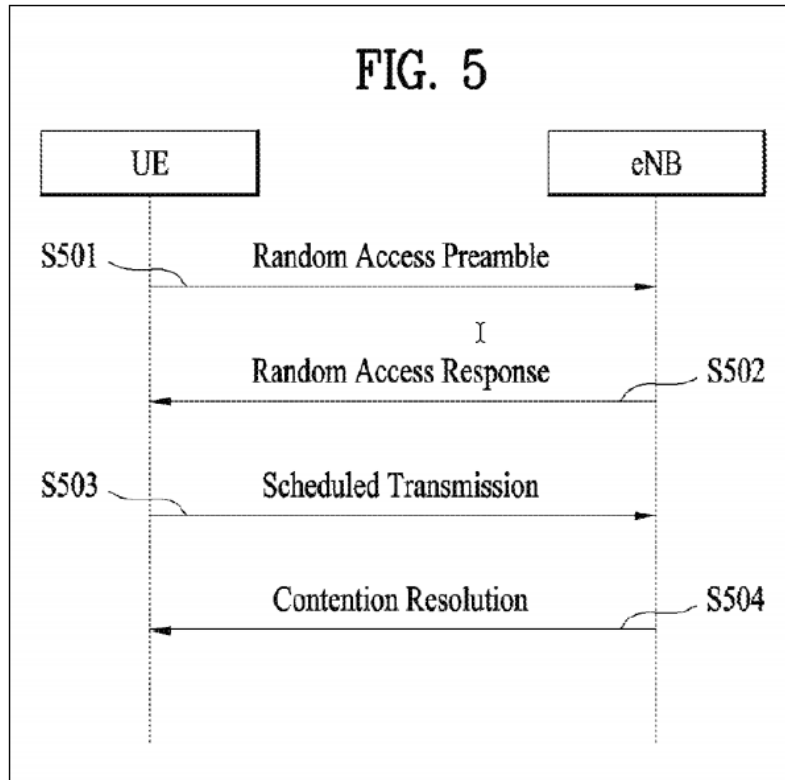


Figure 5 illustrates a random access procedure of the present invention.

Ex. 1011, ¶ 35. Figure 5 illustrates operations of the “UE and the eNB performed in the condition-based random access procedure.” *Id.* ¶ 83.

As illustrated in Figure 5 step S501, message 1 is transmitted by UE which “may randomly select a random access preamble from a set of random access preambles indicated through system information or an HO (handover) command, and select and transmit a physical RACH (PRACH) resource on which the random access preamble may be transmitted (S501).” *Id.* ¶¶ 70, 85.

In message 2, at step S502,⁸ a random access response information is received. Ex.1011 ¶ 87. The UE attempts to receive a random access response within “a window indicated through the system information or an

⁸ Kim incorrectly uses S402.

HO command by an eNB,” and receives corresponding a RA-RNTI (random access radio network temporary identifier). *Id.* ¶¶ 80, 87.

Still referencing Figure 5, message 3 is transmitted at step S503.

Ex. 1011 ¶¶ 88–89.

Message 3 should include an ID of the UE. This is because the eNB cannot determine which UEs perform the random access procedure in the contention-based random access procedure and the UEs need to be identified for future contention resolution.

Id. ¶ 89.

As also shown in Figure 5, message 4 at step 504 is received at the UE, including the UE ID obtained through the UL grant included in the random access response.⁹ Ex. 1011 ¶¶ 91–92. The UE attempts to receive a PDCCH (physical downlink control channel) in order to receive a specific message. *Id.* ¶¶ 60, 91–92.

Resources for D2D communication may be assigned by an eNB. To this end, a transmission (Tx) UE performing D2D communication may make a request to the eNB for a radio resource, and the eNB may assign a resource in response. Thereby, the Tx UE may transmit signals to one or more reception (Rx) UEs through the assigned resource. In the following description, a method for a Tx UE to randomly access an eNB in a manner different from the aforementioned typical D2D communication or in a manner similar to the random access procedure to initiate D2D communication is proposed.

Ex. 1011 ¶ 93.

2. *Li (Ex. 1005)*

Li is described in Section IV.E.1 above.

⁹ RAR. *See* Section II.C.1 above.

3. Claims 1–4, 7, 13

With respect to claims 1–4, 7, 13 challenged by Petitioner as obvious over Kim and Li, Patent Owner argues that speculation is required for us to find that “Kim’s UE ID is a ‘pre-set UE number’” as recited in Limitation [1.f]. Prelim. Resp. 49–50. Petitioner argues Kim discloses that “[m]essage 3 should include an ID of the UE. . . because the eNB cannot determine which UEs perform the random access procedure in the contention-based random access procedure and the UEs need to be identified for future contention resolution.” Pet. 47 (quoting Ex. 1011 ¶ 89). This evidence conforms to our construction of “pre-set UE number.” *See* Section IV.B.1. Thus, Patent Owner’s argument is not persuasive.

As to all remaining challenged claims on this ground, Patent Owner does not separately argue those claims (besides the arguments discussed above) and we find that Petitioner has sufficiently shown that the prior art teaches all claim limitations and provided sufficient rationale to combine the references.

4. Conclusion

Petitioner has shown a reasonable likelihood that claims 1–4, 7, and 13 would have been obvious over Kim and Li.

J. Obviousness of Claims 5, 6, 8–10 over Kim, Li, and Lee

Petitioner alleges claims 5, 6, and 8–10 would have been obvious over Kim, Li, and Lee. Pet. 50–57. Petitioner also relies on the Ding Declaration. Ex. 1002 ¶¶ 105–121.

1. Kim (Ex. 1011)

Kim was described in Section IV.I.1 above.

2. Li (Ex. 1005)

Li was described in Section IV.E.1 above.

3. Lee (Ex. 1007)

Lee was described in Section IV.F2 above.

4. Claims 5, 6, and 8–10

With respect to claim 5, 6, and 8–10 challenged by Petitioner as obvious over Kim, Li, and Lee, which Patent Owner does not separately argue, we find that Petitioner has sufficiently shown that the prior art teaches all claim limitations and provided sufficient rationale to combine the references.

5. Conclusion

Petitioner has shown a reasonable likelihood that claims 5, 6, and 8–10 would have been obvious over Kim, Li, and Lee.

K. Obviousness of Claim 12 over Kim, Li, and Zhao

Petitioner alleges claim 12 would have been obvious over Kim, Li, and Zhao. Pet. 57–58. Petitioner also relies on the Ding Declaration. Ex. 1002 ¶¶ 122–124.

1. Kim (Ex. 1011)

Kim was described in Section IV.I.1 above.

2. Li (Ex. 1005)

Li was described in Section IV.E.1 above.

3. Zhao (Ex. 1012)

Zhao was described in IV.G.2 above.

4. Claim 12

With respect to claim 12 challenged by Petitioner as obvious over Kim, Li, and Zhao, which Patent Owner does not separately argue, we find

that Petitioner has sufficiently shown that the prior art references teach all claim limitations and provided a sufficient rationale to combine the references.

5. Conclusion

Petitioner has shown a reasonable likelihood that claim 12 would have been obvious over Kim, Li, and Zhao.

L. Obviousness of Claim 17 over Kim, Li, and Jiang

Petitioner alleges claim 17 would have been obvious over Kim, Li, and Jiang. Pet. 58–59. Petitioner also relies on the Ding Declaration. Ex. 1002 ¶¶ 125–127.

1. Kim (Ex. 1011)

Kim was described in Section IV.I.1 above.

2. Li (Ex. 1005)

Li was described in Section IV.E.1 above.

3. Jiang (Ex. 1006)

Jiang was described in IV.H.2 above.

4. Claim 17

With respect to claim 17 challenged by Petitioner as obvious over Kim, Li, and Jiang, which Patent Owner does not separately argue, we find that Petitioner has sufficiently shown that the prior art teaches all claim limitations and provided a sufficient rationale to combine the references.

5. Conclusion

Petitioner has shown a reasonable likelihood that claim 17 would have been obvious over Kim, Li, and Jiang.

M. Claim 18 as Anticipated by Kim

Petitioner alleges claim 18 would have been anticipated by Kim. Pet. 59–62. Petitioner also references its showing related to Kim for claim 1 as

obvious over Kim and Li. *Id.* at 61 (citing Pet. 39–42). Petitioner also relies on the Ding Declaration. Ex. 1002 ¶¶ 128–133. The Ding Declaration also references the showing made for claim 1 as obvious over Kim and Li. *Id.* ¶ 130 (citing Ex. 1002 ¶¶ 89–93).

1. Kim (Ex. 1011)

Kim was described in Section IV.I.1 above.

2. Claim 18

For purposes of institution, Petitioner has sufficiently shown all limitations of claim 18 as anticipated by Kim. Below we briefly summarize claim 18’s limitations and Petitioner’s showing. Unless otherwise indicated, these showings are not contested by Patent Owner at this stage.

Claim 18’s preamble [18.pre] recites “[a] random access method comprising.” Petitioner relies on Figure 17 of Kim as “illustrating elements of a transmitting device **10** and a receiving device **20** for implementing the present invention.” Pet. 59 (citing Ex. 1011 ¶ 234; Ex. 1002 ¶ 128).

Limitation [18.a] recites “a sending unit, and a monitoring unit.”¹⁰ Petitioner relies on “Kim’s UE includes a processor and an RF unit that together perform the various functions of the UE,” including those of “both a sending unit and a monitoring unit.” Pet. 60 (citing Ex. 1011, ¶¶ 235–239, 242; Ex. 1002 ¶ 102).

¹⁰ Patent Owner argues Limitation [18.a] require construction as means plus function terms under 35 U.S.C. § 112(f). *See, e.g.,* Prelim. Resp. 53–54. Petitioner argues that if the claims are governed by section 112(f), the structure in the prior art disclosure is “commensurate with the extent to which any such algorithm is disclosed in the ’430 patent.” Pet. 60, n.16.

Limitation [18.b] recites “wherein the sending unit is configured to: send a preamble to an evolved Node B (eNB) over a time-frequency resource, the time-frequency resource comprising a time domain resource and a frequency domain resource.” Petitioner argues a person of ordinary skill in the art

would have further understood that disclosure of Figure 17 would have been applicable to the above-identified function of sending a preamble over a time-frequency resource. For example, the UE must have some hardware and software that is configured to carry out the recited functions (e.g., sending a preamble).

Pet. 61 (citing Ex. 1011 ¶ 42; Ex. 1002 ¶ 130; Pet. 39–42 (Kim and Li as rendering claims 1–4, 7, 13)).

We question the sufficiency of this evidence based on Kim alone. To the extent Li is required to make the showing, that makes this challenge one for obviousness.

Limitation [18.c] recites “the monitoring unit is configured to: monitor a Random Access Response (RAR) corresponding to the preamble and sent by the eNB.” Petitioner again relies on Li and a person of ordinary skill in the art’s understanding. Pet. 61–62 (Ex. 1011, Fig. 17; Ex. 1002 ¶ 131; Pet. 42–44 (Kim and Li as rendering claims 1–4, 7, 13)).

We repeat our guidance stated for Limitation [18.b].

Limitation [18.d] recites “the sending unit is further configured to: send a message 3 according to a Uplink (UL) grant allocated to the UE.” Petitioner argues Kim discloses this limitation because it discloses “that the UE sends a message 3.” Pet. 62 (citing Ex. 1005, Fig. 17; Ex. 1002 ¶¶ 109, 132; Pet. 14–15 (Li as anticipating claim 1)).

We repeat our guidance stated for Limitation [18.b].

Limitation [18.e] recites “wherein the message 3 comprises a number of UEs having random access requests in a UE group or a number of UEs contained in the UE group or a pre-set UE number.” Petitioner relies on its prior showing regarding Kim and limitation [1.f]. Pet. 62 (citing Pet. 46–47).

Patent Owner argues Limitation [18.a] requires means plus function construction. Prelim. Resp. 53–53. This argument was addressed in the claim construction section and Petitioner’s showing regarding Limitation [18.a]. See Sections IV.B and IV.M.2 above.

Patent Owner repeats its argument made regarding Limitation [1.f]. Pet. 54. We addressed that argument above in Section IV.E above.

3. Conclusion

We question whether Petitioner has shown a reasonable likelihood that claim 18 would have been anticipated by Kim. However, we proceed to trial on this challenge.

V. CONCLUSION

As explained above, we determine that Petitioner has established a reasonable likelihood of prevailing in its challenge to at least one claim of the ’430 patent. Thus, we institute an *inter partes* review of all challenged claims on all asserted grounds. See *SAS Inst.*, 138 S. Ct. at 1356.

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that *inter partes* review is *instituted* with respect to all claims and all grounds of unpatentability raised in the Petition;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of the ’430 patent is hereby instituted commencing on the

entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; and

FURTHER ORDERED that within ten (10) days of any developments in the parallel Texas Litigation (Section II.B above) relating to claim construction, the parties shall file a joint report detailing any such development.

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