

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

G+ COMMUNICATIONS, LLC,
Patent Owner.

Case IPR2023-00441
Patent 10,448,430

**PATENT OWNER'S RESPONSE TO PETITION FOR INTER PARTES
REVIEW OF U.S. PATENT NO. 10,448,430**

Table of Contents

Table of Authorities	v
Exhibit List.....	vii
Claim Listing.....	viii
I. Introduction.....	1
II. Overview of the ’430 Patent	2
III. Overview Of Alleged Prior Art.....	6
A. Li (Ex. 1005).....	6
B. Kim (Ex. 1011)	10
IV. Legal Standards.....	15
A. Petitions Based on Anticipation.....	15
B. Petitions Based on Obviousness	16
V. Claim Construction	18
A. Consistent with the district court, the Board should construe “pre-set UE number” to be a quantity, i.e., a “pre-set number of UEs”.....	19
B. Consistent with the district court, the Board should construe the “sending unit” and “monitoring unit” of claim 18 as means-plus- function limitations under 35 U.S.C. § 112(f)	22
VI. Petitioner’s Alleged Grounds Of Invalidity Cannot Prevail Under the Correct Claim Construction	25
A. Petitioner fails to prove by a preponderance of evidence anticipation by Li (Ground 1).	26
1. Li fails to anticipate claim 1	26
a) Li fails to disclose at least the claimed step of “sending, by at least one of the first UE or the second UE, a message 3 according to a Uplink (UL) grant allocated thereto, 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”	26
2.	Li fails to anticipate claims 2, 3, 7, 11, and 13-15.....	27
3.	Li fails to anticipate claim 18	27
a)	Li fails to disclose at least “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”	27
b)	Petitioner failed to demonstrate that the “sending unit” and “monitoring unit” means-plus-function limitations were disclosed in Li	28
B.	Petitioner fails prove by a preponderance of evidence obviousness based on Li (Grounds 2-4).	30
C.	Petitioner fails to prove by a preponderance of evidence obviousness based on Kim and Li (Grounds 5-8).	31
1.	Kim and Li fail to render obvious claim 1	32
a)	Kim and Li fail to teach at least the claimed step of “sending, by at least one of the first UE or the second UE, a message 3 according to a Uplink (UL) grant allocated thereto, 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”	32
2.	Kim and Li fail to render obvious claims 2-10, 12, 13, and 17	32
D.	Petitioner fails to prove by a preponderance of evidence anticipation of claim 18 by Kim (Ground 9)	33
1.	Kim fails to anticipate claim 18.....	33
a)	The Petition improperly relies on Kim, Li, and the knowledge of one of skill in the art in arguing that Kim anticipates claim 18.....	33

b)	Kim fails to disclose at least “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”	34
c)	Petitioner failed to demonstrate that the “sending unit” and “monitoring unit” means-plus-function limitations were disclosed in Kim.....	34
VII.	Conclusion	36

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<i>Ashland Oil v. Delta Resins & Refractories</i> , 776 F.2d 281 (Fed. Cir. 1985)	17
<i>Bayer Schering Pharma AG v. Barr Labs., Inc.</i> , 575 F.3d 1341 (Fed. Cir. 2009)	18
<i>Continental Can Co. v. Monsanto Co.</i> , 948 F.2d 1264 (Fed. Cir. 1991)	16
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<i>Fresenius USA, Inc. v. Baxter Int'l, Inc.</i> , 582 F.3d 1288 (Fed. Cir. 2009)	28, 35
<i>Graham v. John Deere Co. of Kansas City</i> , 383 U.S. 1 (1966)	16
<i>In re Donaldson Co.</i> , 16 F.3d 1189 (Fed. Cir. 1994)	28, 35
<i>In re Robertson</i> , 169 F.3d 743 (Fed. Cir. 1999)	16
<i>KSR Int'l Co. v. Teleflex, Inc.</i> , 550 U.S. 398 (2007)	17
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005)	18
<i>Structural Rubber Prods. Co. v. Park Rubber Co.</i> , 749 F.2d 707 (Fed. Cir. 1984)	16

Trivascular, Inc. v. Samuels,
812 F.3d 1056 (Fed. Cir. 2016).....15

Verdegaal Bros., Inc. v. Union Oil Co.,
814 F.2d 628 (Fed. Cir. 1987).....15

Williamson v. Citrix Online, LLC,
792 F.3d 1339 (Fed. Cir. 2015).....23

Statutes

35 U.S.C. § 103(a).....30, 31

35 U.S.C. §316(e).....15

37 C.F.R. § 42.100(b).....18

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Apotex Inc. v. Wyeth LLC,
IPR2014-00115, Paper 94 (PTAB Apr. 20, 2015) 17

Xerox Corp. v. Bytemark, Inc.,
IPR2022-00624, Paper 9 (PTAB Aug. 24, 2022) 34, 45, 52

Exhibit List

Exhibit No.	Description
2001	Samsung Invalidity Contentions App'x B, 2:22-cv-00078-JRG
2002	Samsung Invalidity Contentions Ex. B2, 2:22-cv-00078-JRG
2003	Memorandum Opinion Denying G+ Motion to Dismiss Counterclaims, 2:22-cv-00078-JRG, Dkt. 41 (Sept. 29, 2022)
2004	Memorandum Opinion Denying Samsung Motions to Dismiss, 2:22-cv-00078-JRG, Dkt. 103 (Apr. 28, 2023)
2005	G+ Opening Claim Construction Brief, 2:22-cv-00078-JRG, Dkt. 98 (Apr. 12, 2023)
2006	Samsung Responsive Claim Construction Brief, 2:22-cv-00078-JRG, Dkt. 101 (Apr. 26, 2023)
2007	G+ Reply Claim Construction Brief, 2:22-cv-00078-JRG, Dkt. 106 (May 3, 2023)
2008	Claim Construction Memorandum Opinion and Order, 2:22-cv-00078-JRG, Dkt. 169 (E.D. Tex. Jul. 13, 2023)
2009	Exhibits to Samsung Responsive Claim Construction Brief, 2:22-cv-00078-JRG, Dkt. 101 (Apr. 26, 2023)

Claim Listing

Claim 1	
1[pre]	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 Random Access 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.
Claim 2	
2[pre]	2. The method according to claim 1,
2[a]	wherein the first UE is 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.
Claim 3	
3[pre]	The method according to claim 1,
3[a]	wherein at least one of the preamble, the time domain resource or the frequency domain resource is pre-set, or determined by a group Identifier (ID) of the UE group, or notified by the eNB.
Claim 4	
4[pre]	The method according to claim 3,
4[a]	wherein at least one of the preamble, the time domain resource or the frequency domain resource corresponds to the number of UEs having random access requests in the UE group or the number of UEs contained in the UE group or the pre-set UE number.
Claim 5	
5[pre]	5. The method according to claim 1,

5[a]	wherein monitoring, by at least one of the first UE or the second UE, the RAR corresponding to the preamble and sent by the eNB comprises:
5[b]	descrambling, by at least one of the first UE or the second UE, a Cyclic Redundancy Check (CRC) of Downlink Control Information (DCI) for scheduling the RAR according to a pre-set Random Access Radio Network Temporary Identity (RA-RNTI) or an RA-RNTI corresponding to the preamble, and receiving the RAR, the RAR comprising at least one of at least one Temporary Cell Radio Network Temporary Identity (TC-RNTI) or at least one Uplink (UL) grant; and
5[c]	determining, by at least one of the first UE or the second UE, at least one of a TC-RNTI or UL grant allocated thereto according to at least one of at least one TC-RNTI or at least one UL grant contained in the RAR; or
5[d]	monitoring, by at least one of the first UE or the second UE, the RAR corresponding to the preamble and sent by the eNB comprises:
5[e]	determining, by at least one of the first UE or the second UE, corresponding RA-RNTIs according to at least one of respective IDs or preambles, descrambling a CRC of DCI for scheduling the RAR according to the corresponding RA-RNTIs, and receiving corresponding RARs, the RAR comprising at least one of a TC-RNTI or a UL grant allocated to the first UE or second UE.
Claim 6	
6[pre]	The method according to claim 5,
6[a]	wherein determining, by at least one of the first UE or the second UE, at least one of the TC-RNTI or the UL grant allocated thereto according to at least one of at least one TC-RNTI or at least one UL grant contained in the RAR comprises:
6[b]	determining, by at least one of the first UE or the second UE, at least one of a TC-RNTI or a UL grant allocated thereto according to at least one of an ID of the first UE or the second UE in accordance with a pre-set rule.
Claim 7	
7[pre]	The method according to claim 1, further comprising:
7[a]	after sending, by at least one of the first UE or the second UE, the message 3 according to the UL grant allocated thereto,

	receiving, by at least one of the first UE or the second UE, a message 4 sent by the eNB.
Claim 8	
8[pre]	The method according to claim 7,
8[a]	wherein receiving, by at least one of the first UE or the second UE, the message 4 sent by the eNB comprises: scrambling a CRC of DCI for scheduling the message 4 by using a TC-RNTI allocated to at least one of the first UE or the second UE.
Claim 9	
9[pre]	The method according to claim 8,
9[a]	wherein the message 4 comprises at least one set of radio resources, radio resources allocated to at least one of the first UE or the second UE are determined by at least one of the first UE or the second UE according to at least one set of radio resources in the message 4; or
9[b]	the message 4 comprises a set of radio resources allocated to the first UE or second UE.
Claim 10	
10[pre]	The method according to claim 9,
10[a]	wherein the radio resources allocated to at least one of the first UE or the second UE are further determined by at least one of the first UE or the second UE according to an ID of at least one of the first UE or the second UE in accordance with a pre-set rule.
Claim 11	
11[pre]	The method according to claim 7, further comprising:
11[a]	after receiving, by at least one of the first UE or the second UE, the message 4 sent by the eNB, sending, by at least one of the first UE or the second UE, an indicating signal for notifying the eNB of a successful access of at least one of the first UE or the second UE to the eNB,
	wherein the indicating signal is a Scheduling Request (SR) or an Acknowledgement (ACK) signal.
Claim 12	
12[pre]	The method according to claim 7, further comprising:
12[a]	after receiving, by at least one of the first UE or the second UE, the message 4 sent by the eNB, receiving, by at least one of the first UE or the second UE, indicating information, sent by the eNB, for indicating re-initiation of a random access of at least one of the first UE or the second UE.

Claim 13	
13[pre]	The method according to claim 7,
13[a]	wherein the message 3 and the message 4 comprise a group ID of the UE group or a pre-set field.
Claim 14	
14[pre]	The method according to claim 1, further comprising:
14[a]	before sending, by the first UE in the UE group, the preamble over the time-frequency resource, receiving, by at least one of the first UE or the second UE, Downlink Control Information (DCI) or a paging message or a Radio Resource Control (RRC) message sent by the eNB; or,
	receiving, by the first UE, random access request information sent by the second UE.
Claim 15	
15[pre]	The method according to claim 14,
15[a]	wherein receiving, by at least one of the first UE or the second UE, the DCI or the paging message or the RRC message sent by the eNB comprises at least one of the following: the DCI or a CRC of DCI for scheduling the paging message or the RRC message is scrambled by using a group ID of the UE group;
15[b]	the DCI or the paging message or the RRC message comprises a group ID of the UE group;
15[c]	the DCI or the paging message or the RRC message comprises an ID of at least one of the first UE or the second UE; or
15[d]	the DCI or the paging message or the RRC message comprises at least one of an ID of the preamble, the time domain resource of the preamble or the frequency domain resource of the preamble.
Claim 17	
17[pre]	The method according to claim 1,
17[a]	wherein sending, by the first UE in the UE group, the preamble over the time-frequency resource comprises: periodically sending, by the first UE, the preamble over the frequency domain resource.
Claim 18	
18[pre]	A User Equipment (UE), comprising:
18[a]	a sending unit and a monitoring unit,

18[b]	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;
18[c]	the monitoring unit is configured to: monitor a Random Access Response (RAR) corresponding to the preamble and sent by the eNB; and
18[d]	the sending unit is further configured to: send a message 3 according to a Uplink (UL) grant allocated to the UE,
18[e]	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.

I. Introduction

G+ Communications, LLC, the owner of U.S. Patent No. 10,448,430 (“the ’430 Patent”), submits this Response to the Petition of Samsung Electronics Co., Ltd. (“Samsung” or “Petitioner”) challenging the validity of claims 1-15 and 17-18 of the ’430 Patent (“Challenged Claims”).

In its Decision on Institution (Paper 10, “DI”), the Board preliminarily construed “pre-set UE number” to mean one UE identified by a number. In the parallel district court proceeding, the court construed “pre-set UE number” to be a quantity, i.e., a “pre-set number of UEs.” Patent Owner has acquiesced to the district court’s construction of “pre-set UE number,” does not plan to appeal the construction of that term, and is no longer asserting the ’430 Patent in the litigation as it narrowed its case prior to trial. In the interests of fairness and consistency, and for the reasons given by the district court, the Board should construe “pre-set UE number” to be a quantity, i.e., a “pre-set number of UEs.” The Petition does not attempt to prove anticipation or obviousness based on this proper construction of “pre-set UE number.”

For these and additional reasons discussed below, Patent Owner respectfully submits that the Petition does not prove by a preponderance of the evidence that any claim of the ’430 Patent is unpatentable.

II. Overview of the '430 Patent

The '430 patent relates to a random access method in the field of communications. The background to the '430 patent explains that “[i]n the LTE [Long-Term Evolution] system, a random access is a basic function, and a UE [User Equipment] can be scheduled by the system to perform uplink transmission only after uplink synchronization with the system via a random access process.” '430 Patent, 1:22-25.

An initial random access process is a contention-based access process, which can be divided into four steps:

- (1) A UE sends a preamble, and the UE randomly selects an available preamble to be sent.
- (2) An evolved Node B (eNB, also referred to as an evolved base station) sends a Random Access Response (RAR). When the eNB detects a preamble sequence sent by the UE, 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 3), and a Temporary Cell Radio Network Temporary Identity (TC-RNTI). It will be decided whether the TC-RNTI is converted into a permanent C-RNTI in Step (4) (contention resolution). The UE needs to monitor an RAR message over a Physical Downlink Control Channel (PDCCH) by using a Random Access RNTI (RA-RNTI).

(3) The UE sends the message 3. After receiving the RAR message, the UE obtains uplink time synchronization and uplink resources. However, at this time, it cannot be determined that the RAR message is sent to the UE itself instead of other UEs. The preamble sequence of the UE is randomly selected from common resources, thereby making it possible for different UEs to send the same access preamble sequence over the same time-frequency resource. Thus, they will receive the same RAR via the same RA-RNTI. Moreover, the UE is unable to know whether other UEs make a random access by using the same resource. For this purpose, the UE needs to resolve such a random access contention via the subsequent message 3 and message 4.

(4) The eNB sends the message 4, namely a contention resolution message. If the UE receives the message 4 returned by the eNB and a UE Identifier (ID) carried therein conforms to an ID reported to the eNB in the message 3 within the time of a mac-Contention Resolution Timer, the UE considers that it wins this random access contention and the random access is successful, and sets the TC-RNTI obtained in the RAR message as an own C-RNTI.

Id., 1:28-2:8.

The '430 patent explains that future requirements for a huge number of machine devices can require that at least tens of thousands of UEs are accessed to a micro cell with 1 s to 10 s. "In a conventional LTE system, if one time-frequency resource receives 64 cyclic shifts of one preamble root sequence, resources are

insufficient for a system having a bandwidth of 20 Mbps even though all bandwidths are used to send the PRACH.” *Id.*, 2:16-31.

The '430 patent discloses a random access method, device, and system intended to save PRACH resources and meet requirements for a huge number of machine communications. According to an embodiment of the method, 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. 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, 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. After the first UE and/or the second UE monitor(s) an RAR corresponding to the preamble and sent by the eNB, the first UE and/or the second UE send(s) a message 3 according to the UL grant allocated thereto. After the first UE and/or the second UE send(s) a message 3 according to the UL grant allocated thereto, the first UE and/or the second UE receive(s) a message 4 sent by the eNB. *Id.*, 2:38-3:38.

The '430 patent discloses other features in various embodiments. For example, in an embodiment, the first UE is 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. In an embodiment, the preamble and/or the time domain

resource and/or the frequency domain resource are/is pre-set, or determined by a group ID of the UE group, or notified by the eNB. *Id.*, 2:53-61.

In an example embodiment, the operation that the first UE and/or the second UE monitor(s) an RAR corresponding to the preamble and sent by the eNB includes the following operations:

The first UE and/or the second UE descramble(s) a Cyclic Redundancy Check (CRC) of Downlink Control Information (DCI) for scheduling the RAR according to a pre-set RA-RNTI or an RA-RNTI corresponding to the preamble, and receive(s) the RAR, the RAR including at least one TC-RNTI and/or at least one Uplink (UL) grant.

The first UE and/or the second UE determine(s) a TC-RNTI and/or UL grant allocated thereto according to at least one TC-RNTI and/or at least one UL grant included in the RAR.

Id., 2:62-3:8.

In another example embodiment, the operation that the first UE and/or the second UE determine(s) a TC-RNTI and/or a UL grant allocated thereto according to at least one TC-RNTI and/or at least one UL grant included in the RAR includes the following operation: The first UE and/or the second UE determine(s) a TCRNTI and/or a UL grant allocated thereto according to an ID of the first UE and/or the second UE in accordance with a pre-set rule. *Id.*, 3:9-17.

In a further example embodiment, the operation that the first UE and/or the second UE monitor(s) an RAR corresponding to the preamble and sent by the eNB includes the following operation: The first UE and/or the second UE determine(s) corresponding RA-RNTIs according to respective IDs and/or preambles, descramble(s) a CRC of DCI for scheduling the RAR according to the corresponding RA-RNTIs, and receive(s) corresponding RARs, the RAR including a TCRNTI and/or a UL grant allocated to the first UE or second UE. *Id.*, 3:18-28.

In an additional example embodiment with language that appears in claim 1, 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. *See, e.g., id.*, 4:41-44, 27:13-16.

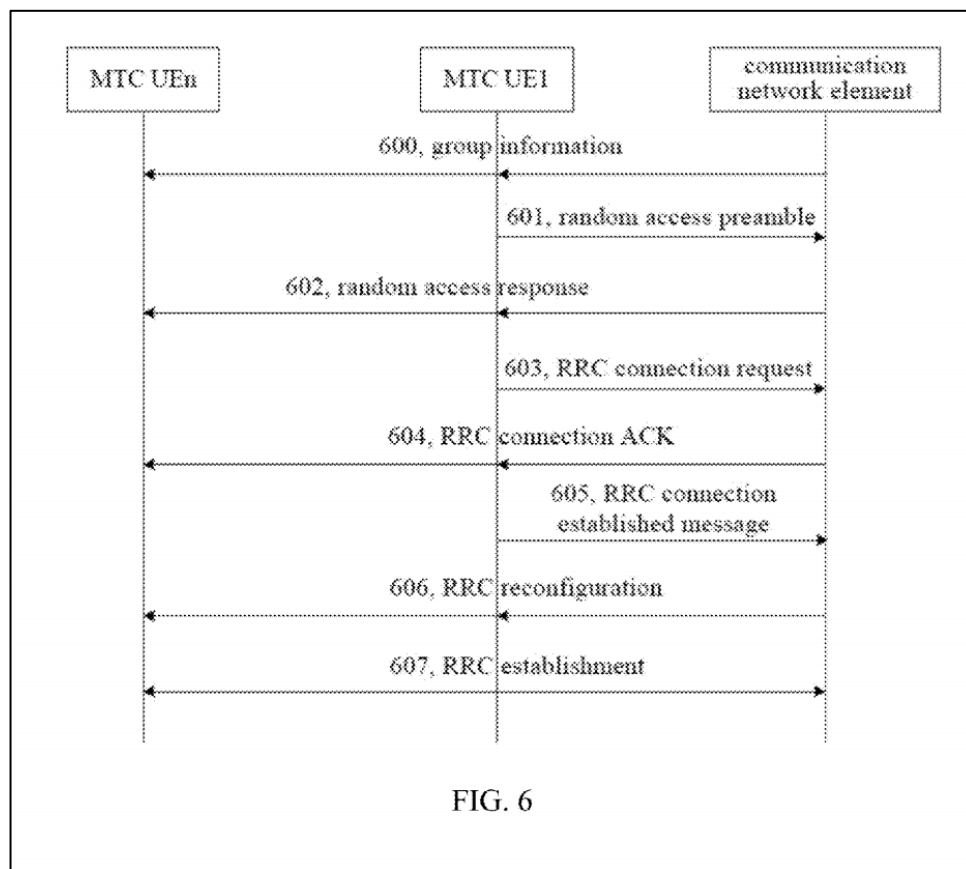
III. Overview Of Alleged Prior Art

A. Li (Ex. 1005)

U.S. Patent Publication No. US 2013/0155894 to Li et al. is entitled “Method and System for Accessing Network.” 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, Abstract. Li states that “[t]he technical solution of the present invention can reduce the signaling overhead for establishing signaling connection and data bearing.” *Id.*

Figure 6 of Li is a schematic flowchart of a network access method showing contention-based random access:



“MTC” refers to Machine Type communication, or “network communication that takes place in one network element (NE) or between a plurality of NEs without human interventions” *Id.*, ¶ 7. Li states that, at 600, a communication network

element sends group information to all terminals in a group. *Id.*, ¶ 107. According to Li, 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.

Li states with reference to Figure 6 that, at 601, MTC UE1 sends a random access preamble to prepare for network access. *Id.*, ¶ 115. Li explains that terminals in the same group may perform random number synchronization:

For example, terminals in the same group may select the same pseudo random number generator according to the group ID, generate the same pseudo random number seed according the group ID, select the same DL slot position as an input reference time point, and determine random numbers according to the pseudo random number seed and the input reference time point. Because they have the same DL slot position and

the same input reference time point, the random numbers are the same also, thereby realizing random number synchronization.

Id., ¶ 116.

With further reference to Figure 6, Li states that, at 602, after receiving the preamble sent from the first terminal, the communication network element may allocate a T-CRNTI and RRC connection UL resources and send a RAR to the first terminal. The RAR may comprise at least one of TA (Timing Advance), T-CRNTI, next stage UL resource allocation (UL GRANT), and a preamble ID. Because 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. For example, MTC UEn monitors the RAR to the first terminal according to the RA-RNTI and the preamble ID. When it is detected through monitoring that the first terminal has received the RAR, other terminals in the group except the first terminal may acquire the T-CRNTI and RRC connection UL resources allocated by the network from the RAR. In the case that the first terminal is randomly selected in the group, because the random number is the same in the group, MTC UEn may be aware of the terminal ID of MTC UE1. If a MTC UE receives a back-off instruction, it withdraws for a period of time and then reinitiates random access; if a MTC UE does not receive the RAR, it initiates random access separately. *Id.*, ¶¶ 120-124.

At 603, MTC UE1 sends a RRC connection request to the communication network element, which may be done according to the T-CRNTI and RRC connection UL resources allocated by the communication network element. *Id.*, ¶¶ 125-126.

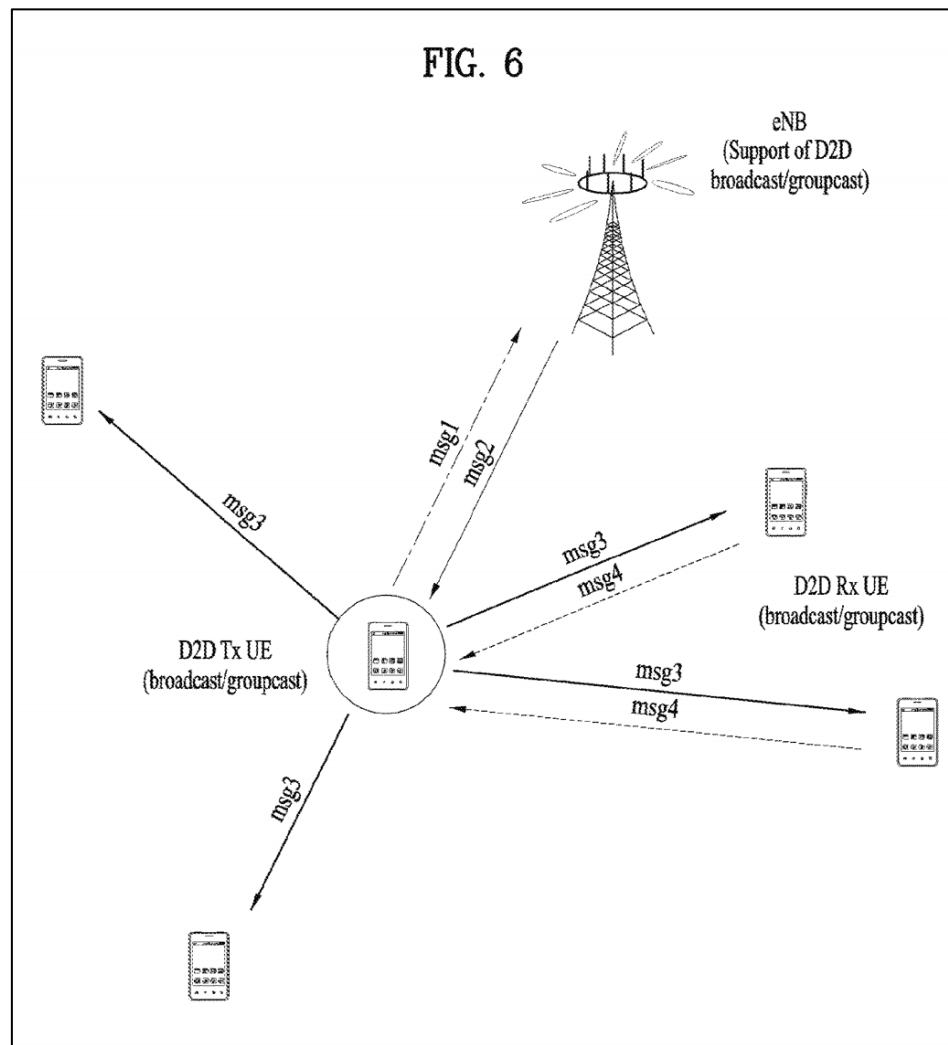
The RRC connection request may carry the terminal ID of MTC UE1 or the group ID of the group MTC UE1 belongs to or the synchronized random number. For example, after receiving the RAR, MTC UE1 may calculate a time delay of reaching the BS from the MTC UE1 according to a preamble arrival time, and adjust the time MTC UE1 UL signal reaches the BS by using of TA (Timing Advance) so that synchronize with BSDL frames, and then send a RRC access request using the T-CRNTI and the RRC connection UL resources allocated by the communication network element. *Id.*, ¶¶ 128-129.

In Li, at 604, the communication network element returns an ACK to MTC UE1, for example, a RRC Connection ACK. 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.*, ¶¶ 130-131.

B. Kim (Ex. 1011)

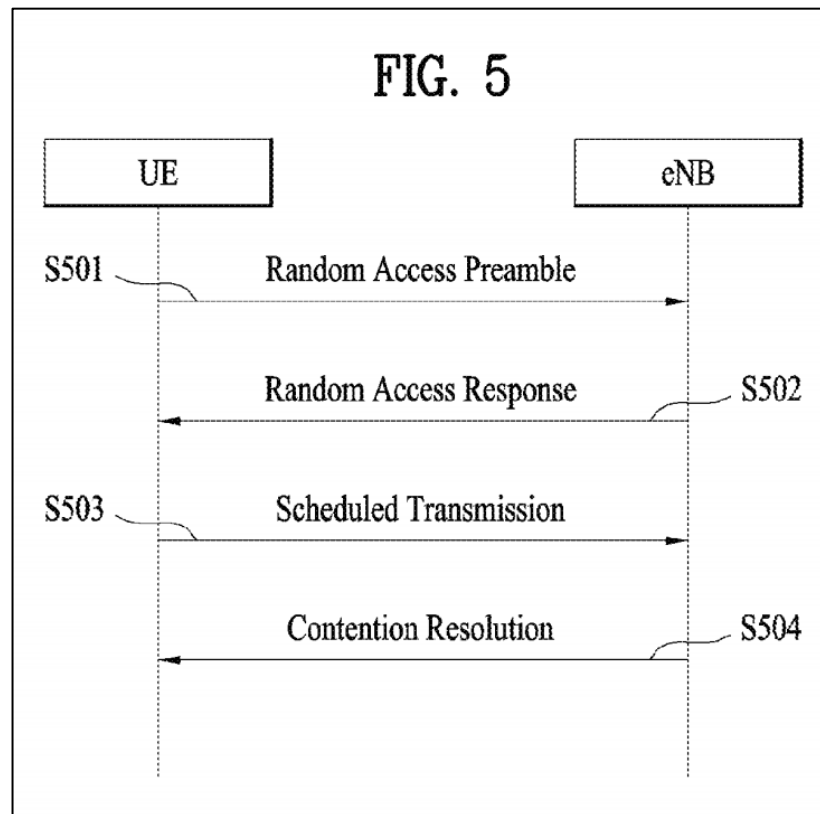
U.S. Pat. Pub. 2016/0374068 to Kim et al. is entitled “D2D Signal Transmission Method and User Equipment.” Ex. 2011, 1. “D2D” stands for “device-to-device.” *Id.*, Abstract. Kim is focused on D2D communication, and discloses, e.g.,

D2D communication performed through a pseudo-random access procedure as illustrated in Figure 6:



In Figure 6, “the eNB may transmit msg2 containing information about, for example, resource assignment for transmission of msg3 of the Tx UE to the Tx UE in response to msg1.” *Id.*, ¶ 108.

Figure 5 of Kim illustrates a random access procedure.



Kim describes the random access procedure of Figure 5 as follows:

0084 (1) Transmission of Message 1

0085. A UE may randomly select a random access preamble from a set of random access preambles indicated through system information or an HO command, and select and transmit a physical RACH (PRACH) resource on which the random access preamble may be transmitted (S501).

0086 (2) Reception of Message 2

0087 Random access response information is received using a method similar to the method used in the non contention-based random access procedure. That is, after transmitting the random access preamble as

performed in step S401, the UE attempts to receive a random access response thereof within a random access response reception window indicated through the system information or an HO command by an eNB, and receives corresponding RA-RNTI information (S402). Thereby, the UE may receive a UL grant, a temporary C-RNTI and a TAC.

0088 (3) Transmission of Message 3

0089 If the UE receives a valid random access response, the UE processes the information included in the random access response. That is, the UE applies the TAC and stores the temporary C-RNTI. In addition, the UE transmits data (i.e., message 3) to the eNB using the UL grant (S403). 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.

0090 Two methods to include the ID of the UE in message 3 have been discussed. According to a first method, if the UE has a valid cell ID assigned thereto in a corresponding cell before the random access procedure, the UE transmits the cell ID thereof via a UL transmission signal corresponding to the UL grant. On the other hand, if the UE has not been assigned a valid cell ID before the random access procedure, the UE transmits its unique ID (e.g., System Architecture Evolution (SAE)-Temporary Mobile Subscriber Identity (S-TMSI) or a random ID) in the message. In general, the unique ID is longer than the cell ID.

Once the UE has transmitted data corresponding to the UL grant, the UE starts a contention resolution timer.

0091 (4) Reception of Message 4

0092 After transmitting the data including the ID of the UE through the UL grant included in the random access response, the UE awaits instruction from the eNB for contention resolution. That is, the UE attempts to receive a PDCCH in order to receive a specific message (S404). Two methods for receiving the PDCCH have been discussed. As described above, if message 3 is transmitted according to the UL grant using the ID of the UE or the cell ID, the UE may attempt to receive a PDCCH using the cell ID thereof. If the ID is a unique ID, the UE may attempt to receive a PDCCH using the temporary C-RNTI included in the random access response. In the former case, if the UE receives the PDCCH using the cell ID thereof before the contention resolution timer expires, the UE terminates the random access procedure, determining that the random access procedure has been normally performed. In the latter case, if the UE receives a PDCCH using the temporary C-RNTI before the contention resolution timer expires, the UE checks the data delivered through the PDSCH indicated by the PDCCH. If the data contains the unique ID of the UE, the UE terminates the random access procedure, determining that the random access procedure has been normally performed.

Ex. 1011, ¶¶ 84-92.

IV. Legal Standards

“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).

While the Board has instituted review here, as the Court of Appeals has stated:

[T]here is a significant difference between a petitioner's burden to establish a “reasonable likelihood of success” at institution, and actually proving invalidity by a preponderance of the evidence at trial. *Compare* 35 U.S.C. § 314(a) (standard for institution of *inter partes* review), *with* 35 U.S.C. § 316(e) (burden of proving invalidity during *inter partes* review).

Trivascular, Inc. v. Samuels, 812 F.3d 1056, 1068 (Fed. Cir. 2016).

As demonstrated herein, Petitioner has failed to meet its burden of proving any proposition of invalidity, as to any claim, by a preponderance of the evidence. 35 U.S.C. §316(e).

A. Petitions Based on Anticipation

A petition based on anticipation requires a showing that “each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987). “If the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if that element is

‘inherent’ in its disclosure.” *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.’” *Id.* (quoting *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991)). “Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Continental Can*, 948 F.2d at 1269 (quotation omitted).

It is well-understood that for an anticipation argument, “there must be a teaching with respect to the entirety of the claimed invention” or the argument fails as a matter of law. *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716 (Fed. Cir. 1984); *Eli Lilly & Co. v. Sicor Pharms., Inc.*, 705 F. Supp. 2d 971, 992 (S.D. Ind. 2010) (“In showing that all elements of an invention were anticipated, the challenging party may not rely upon the knowledge of one skilled in the art . . . to supply missing elements.”).

B. Petitions Based on Obviousness

Grounds in a petition based on obviousness must “meaningfully” address the first two *Graham* factors: (i) the scope and content of the prior art, and (ii) any differences between the claimed subject matter and the prior art. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966). It is not the Board’s (or Patent

Owner's) role to "sift through the information" provided with a petition to identify the differences between a challenged claim and the prior art. *Google*, IPR2014-00347 at *9. As part of that analysis, the Petition must show that a skilled artisan would have been motivated to combine the prior art references with a reasonable expectation of success. *Apotex Inc. v. Wyeth LLC*, IPR2014-00115, Paper 94, at 11 (PTAB Apr. 20, 2015) (citations omitted). An articulated reason with a rational underpinning to combine specific teachings in the references in a particular manner to arrive at the claimed invention is required for a showing of obviousness. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007). Moreover, when an expert declaration is relied on to support such reasoning, the "[l]ack of factual support for expert opinion going to factual determinations . . . may render the testimony of little probative value in a validity determination." *Ashland Oil v. Delta Resins & Refractories*, 776 F.2d 281, 294 (Fed. Cir. 1985); *see also Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, at 15 (PTAB Aug. 24, 2022) (precedential) (holding declaration is entitled to little weight when it contains an exact restatement of the petition's arguments without any additional supporting evidence or reasoning).

"The evaluation of the choices made by a skilled scientist, when such choices lead to the desired result, is a challenge to judicial understanding of how technical advance is achieved in the particular field of science or technology." *Abbott Labs. v. Sandoz, Inc.*, 544 F.3d 1341, 1352 (Fed. Cir. 2008). An obviousness inquiry based

on an obvious-to-try rationale must always be undertaken in the context of the subject matter in question, “including the characteristics of the science or technology, its state of advance, the nature of the known choices, the specificity or generality of the prior art, and the predictability of results in the area of interest.” *Id.*

To show that a particular design could have been obvious to try, Petitioner must present credible evidence to support its assertion that one of ordinary skill in the art would have understood that there are a limited number of possibilities for meeting a known design need. *See Bayer Schering Pharma AG v. Barr Labs., Inc.*, 575 F.3d 1341, 1347 (Fed. Cir. 2009) (“[A]n invention would not have been obvious to try when the inventor would have had to try all possibilities in a field unreduced by direction of the prior art.”). In addition, “an invention is not obvious to try where vague prior art does not guide an inventor toward a particular solution.” *Bayer Schering Pharma AG v. Barr Lab'ys, Inc.*, 575 F.3d 1341, 1347 (Fed. Cir. 2009).

V. Claim Construction

In an *inter partes* review filed on or after November 13, 2018, claim terms are construed based on their ordinary and customary meaning. 37 C.F.R. § 42.100(b). Further, the Board should always construe claims to sustain their validity, if possible. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1329 (Fed. Cir. 2005). The specification is the “best source for understanding a technical term,” to be supplemented, “as needed, by the prosecution history.” *Id.*, at 1315.

A. Consistent with the district court, the Board should construe “pre-set UE number” to be a quantity, i.e., a “pre-set number of UEs”

In its Institution Decision, the Board preliminarily construed “pre-set UE number” to mean one UE identified by a number. DI 23. In the parallel district court proceeding, the court construed “pre-set UE number” to be a quantity, i.e., a “pre-set number of UEs.” District Court Claim Construction Order, Ex. 2008 at 21. Patent Owner has acquiesced to the district court’s construction of “pre-set UE number,” does not plan to appeal the construction of that term, and is no longer asserting the ’430 Patent in the litigation as it narrowed its case prior to trial. In the interests of fairness and consistency, and for the reasons given by the district court, the Board should construe “pre-set UE number” to be a quantity, i.e., a “pre-set number of UEs.”

Petitioner argued before the district court that “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 at 17. As Petitioner argued, “[o]ther claim terms referring to identifiers expressly state so, unlike here. ’430 patent at cl. 3 (reciting ‘group Identifier (ID)’), cl. 13 (reciting ‘a group ID’), cl. 5 (reciting ‘Random Access Radio Network Temporary Identity (RA-RNTI)’ and ‘Temporary Cell Radio Network Temporary Identity (TCRNTI)’).” Ex. 2006 at

17-18. Petitioner asserted that “[t]he claims fail to clarify the scope of the term *aside from implying ‘pre-set UE number’ is not an identifier.*” *Id.* at 18 (emphasis added).

Petitioner further reiterated that the ’430 Patent suggests that the “pre-set UE number” is not an identifier:

The specification provides no clarification about the scope of the term at issue, simply reciting it in the same manner as the claims. ’430 patent at 4:41-49, 7:24-27, 7:29-32, 11:20-22, 11:23-27, 27:17-21. While the specification mentions a “UE Identifier” and a “group ID” in various embodiments of group-based random access, it does not tie any of those embodiments to the claimed “pre-set UE number.” *Id.* at 2:2-7, 13:20-23, 13:49-50. *If anything, the patent suggests that the “pre-set UE number” is not an identifier, as it refers to any identifiers expressly, see, e.g., id.* at 4:16-23 (“group ID of the UE group,” “ID of the first UE,” “ID of a preamble”), but is otherwise devoid of any guidance about how to interpret this term.

Ex. 2006 at 18 (emphasis added).

As to additional evidence, Petitioner argued to the district court:

Extrinsic evidence suggests that the uncertainty about the meaning of “pre-set UE number” is the result of translation error. Certified translations of the foreign applications underlying the ’430 patent reflect that the original language of the term at issue referred to a quantity of UEs, namely “a preset number of UEs.” Ex. 2 at cl. 21 (SAM-GC00073496) (“wherein the message 3 includes the number of UEs with random access requests in the UE group or the number of UEs

included in the UE group or a preset number of UEs”), Ex. 3 at cl. 21 (SAM-GC00073817) (“wherein the message 3 includes the number of UEs with random access requests in the UE group or the number of UEs included in the UE group or a preset number of UEs”).

Ex. 2006 at 18.

The translations referred to by Petitioner were submitted to the district court as Exhibits 2 and 3 to Samsung's Responsive Claim Construction Brief, and are submitted herewith in Exhibit 2009 of this proceeding, located at pages 52-112 and 113-176 of Exhibit 9. In these certified translations of the foreign applications underlying the '430 Patent, original claim 21 (later incorporated into issued claim 1) recites “wherein the message 3 includes the number of UEs with random access requests in the UE group or the number of UEs included in the UE group or a preset number of UEs.” Ex. 2009 at 59 (claim 21), 164 (claim 21). The district court did not expressly rely on these translations, but construed “pre-set UE number” to mean a “pre-set number of UEs,” as in the certified translations.

The district court was persuaded that the term “pre-set UE number” “is either an identifier (e.g. a driver license number) or a quantity (e.g., the number of drivers), but not both.” Ex. 2008 at 21. The district court “is of the opinion that a skilled artisan would understand the term as a quantity for at least three reasons”:

First, the surrounding claim language pertains to other quantities, and a skilled artisan would consider the meaning of the term considering that

language. Second, given the nature of the invention as a whole—“group based random access method device and system”— quantities of UEs are important. Third, when the patent refers to an identifier, it does so with “identifier” or “ID.” Accordingly, the Court construes “pre-set UE number” as “pre-set number of UEs.”

Ex. 2008 at 21.

Thus, the district court credited Samsung's argument that “[i]f anything, the patent suggests that the ‘pre-set UE number’ is not an identifier, as it refers to any identifiers expressly, *see, e.g.*, [’430 Patent] at 4:16-23 (‘group ID of the UE group,’ ‘ID of the first UE,’ ‘ID of a preamble’).” Ex. 2006 at 18. In the interests of fairness and consistency, and for the reasons given by the district court, the Board should construe “pre-set UE number” to be a quantity, i.e., a “pre-set number of UEs.”

B. Consistent with the district court, the Board should construe the “sending unit” and “monitoring unit” of claim 18 as means-plus-function limitations under 35 U.S.C. § 112(f)

The district court noted the parties' agreement that the “sending unit” and “monitoring unit” of claim 18 invoked 35 U.S.C. § 112(f) and construed the claims by identifying corresponding structures for the functions recited in the claim. *See* Ex. 2008 at 22-26. In the interests of fairness and consistency, and for the reasons given below, the Board should construe the “sending unit” and “monitoring unit” of claim 18 to be means-plus-function limitations under 35 U.S.C. § 112(f).

Federal Circuit “cases have emphasized that the essential inquiry is not merely the presence or absence of the word ‘means’ but whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc in relevant part). In *Williamson*, the en banc Federal Circuit “abandon[ed] characterizing as ‘strong’ the presumption that a limitation lacking the word ‘means’ is not subject to § 112, para. 6.” *Id.* at 1349. “When a claim term lacks the word ‘means,’ the presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to ‘recite sufficiently definite structure’ or else recites ‘function without reciting sufficient structure for performing that function.’” *Id.*

Claim 18 recites that the “sending unit is configured to” perform two functions¹ and the “monitoring unit is configured to” perform a function.² In the context of this claim and the '430 Patent, the term “unit” is used as a non-structural placeholder that operates as a substitute for the term “means.” As in the *Williamson* case, where the term “module” was used, the term “unit” here “does not provide an indication of structure because it sets forth the same black box recitation of structure for providing the same specified function as if the term ‘means’ had been used.” *Williamson*, 792 F.3d at 1350 (panel op.).

¹ *I.e.*, “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” and “send a message 3 according to a Uplink (UL) grant allocated to the UE, 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.”

² *I.e.*, “monitor a Random Access Response (RAR) corresponding to the preamble and sent by the eNB.”

Before the district court, Patent Owner identified at least two algorithms as corresponding structure for the claimed “monitoring unit.” *See, e.g.*, Ex. 1001 at 2:62–3:4, 3:22–28. The district court determined that the claimed function of the monitoring unit “simply requires monitoring an RAR corresponding to a preamble, and the specification discloses two algorithms for doing so.” Ex. 2008 at 23 (citing Ex. 1001 at 2:62–3:4, 3:22–28). Accordingly, the court construed the corresponding structure of the monitoring unit as

“a processor programmed to either (1) descramble a Cyclic Redundancy Check (CRC) of Downlink Control Information (DCI) for scheduling the RAR according to a pre-set RA-RNTI or an RARNTI corresponding to the preamble, and receive the RAR, the RAR including at least one TCRNTI and/or at least one Uplink (UL) grant, or (2) determine corresponding RA-RNTIs according to respective IDs and/or preambles, descramble a CRC of DCI for scheduling the RAR according to the corresponding RA-RNTIs, and receive corresponding RARs, the RAR including a TCRNTI and/or a UL grant allocated to the first UE or second UE.”

Ex. 2008 at 23 (footnote omitted).

VI. Petitioner's Alleged Grounds Of Invalidity Cannot Prevail Under the Correct Claim Construction

The term “pre-set UE number” is used in independent claims 1 and 18 (as well as dependent claim 4). As explained below, each of Petitioner's nine alleged grounds

are clearly deficient when construing “pre-set UE number” to be a quantity, namely a “pre-set number of UEs.”

A. Petitioner fails to prove by a preponderance of evidence anticipation by Li (Ground 1).

Petitioner asserts that claims 1-3, 7, 11, 13-15, and 18 are anticipated by Li (Ground 1). The Petition fails to show that Li discloses all limitations of independent claims 1 and 18. Additionally, Li fails to disclose all limitations of dependent claims 2, 3, 7, 11, and 13-15 at least because these claims depend from claim 1.

1. Li fails to anticipate claim 1

a) Li fails to disclose at least the claimed step of “sending, by at least one of the first UE or the second UE, a message 3 according to a Uplink (UL) grant allocated thereto, 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”

In the Institution Decision, the Board noted its preliminary construction of “pre-set UE number” and understood the Petition “to identify a specific UE by a number, sufficiently showing the limitations.” DI 32. The Institution Decision reminds the parties that this is a preliminary finding and this issue is subject to being further developed on a full record. *Id.* For the reasons given above in Section V.A, the Board should construe the claimed “pre-set UE number” to be a quantity, namely a “pre-set number of UEs,” as did the district court. The Petition does not attempt to

show anticipation based on this construction, and thus fails to show anticipation by a preponderance of the evidence.

Petitioner's entire argument as to limitation 1[f] of claim 1 is as follows (Section IX.A.1.vii of the Petition):

Li discloses this limitation. (Ex. 1002, ¶46.) The RRC connection request (message 3) includes "the terminal ID of MTC UE1." (Ex. 1005, ¶[0128].) And the "terminal ID may be IMSI, MSISDN, IP address, IMPU, IMPI and any other symbol used to uniquely identify a terminal." (Id., 0066].) Thus, message 3 in Li includes a "pre-set UE number."

Pet. 16. Petitioner's arguments regarding Li refer only to identifiers, and not a quantity, i.e., a pre-set number of UEs. For at least these reasons, Petitioner has failed to meet its burden of proving by a preponderance of the evidence that claim 1 is anticipated by Li.

2. Li fails to anticipate claims 2, 3, 7, 11, and 13-15

Petitioner asserts under Ground 1 that Li anticipates claims 2, 3, 7, 11, and 13-15. But Li fails to disclose all limitations of dependent claims 2, 3, 7, 11, and 13-15 at least because these claims depend from claim 1.

3. Li fails to anticipate claim 18

a) Li fails to disclose at least "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”

Claim 18 recites a “User Equipment (UE)” comprising a sending unit configured to send a message 3, “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 fails in its challenge to claim 18 as anticipated by Li for the same reasons it failed to prove anticipation as to claim element 1[f] as discussed above in Section VI.A.1.

b) Petitioner failed to demonstrate that the “sending unit” and “monitoring unit” means-plus-function limitations were disclosed in Li

In addition, Petitioner failed to demonstrate that the “sending unit” and “monitoring unit” means-plus-function limitations were disclosed in Li. For the reasons given in Section V.B above, the Board should construe the “sending unit” and “monitoring unit” of claim 18 as means-plus-function limitations under 35 U.S.C. § 112(f).

In the context of claims that invoke 35 U.S.C. § 112(f), “a challenger who seeks to demonstrate that a means-plus-function limitation was present in the prior art must prove that the corresponding structure—or an equivalent—was present in the prior art.” *Fresenius USA, Inc. v. Baxter Int’l, Inc.*, 582 F.3d 1288, 1299 (Fed. Cir. 2009) (citing *In re Donaldson Co.*, 16 F.3d 1189, 1193 (Fed. Cir. 1994)).

Petitioner has not identified, in the specification of the '430 patent, structure corresponding to these means-plus-function limitations. “Because Petitioner has not identified structure corresponding to the functions recited” in claim 18, the Board “cannot ascertain the differences between the claimed invention and the asserted prior art, as required.” *Samsung Elecs. Co. v. Power2B Inc.*, IPR2022-01378, Paper 12 at 15 (PTAB Mar. 15, 2023). Accordingly, Petitioner has not proved by a preponderance of evidence that claim 18 is anticipated by Li.

For example, for the claimed monitoring unit, the Petition states:

Li discloses this limitation. (Ex. 1002, ¶58.) Li discloses that “the monitoring unit 803 is configured to monitor the RAR to the first terminal according to the RA-RNTI and the preamble ID.” (Ex. 1005, ¶[0175].) This is described in further detail with reference to Figure 6, which explains how the other terminals in the group monitor the random access response, sent by the eNB, corresponding to the preamble sent by MTC UE1. (*Supra* Section IX.A.1.iv (analysis for limitation [1.c]).)

Pet. 22. For limitation [1.c], the Petition states:

Li discloses this limitation. (Ex. 1002, ¶43.) After 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. (Ex. 1005, ¶¶ [0120]-[0122].) “Because 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. For example, MTC

UEn monitors the RAR to the first terminal according to the RA-RNTI and the preamble ID.” (*Id.* (emphasis added)) The “first terminal” referenced in the previous sentence is MTC UE1, which corresponds to the claimed “first UE.” (*Id.*, ¶[0117].) Thus, Li discloses that “at least . . . a second UE in the UE group” monitors the RAR, sent by the eNB, corresponding to the preamble. The MTC UEn constitutes the “second UE.”

Pet. 13 (footnote omitted). The Petition also reproduces Figure 6 of Li. Petitioner makes no attempt to identify corresponding structure in the '430 Patent for the monitoring unit, or to show that the identified disclosures in Li are the same as or equivalent to the corresponding structure as taught in the '430 Patent. *See, e.g.*, Ex. 1001 at 2:62–3:4, 3:22–28.

For these additional reasons, Petitioner has not proved by a preponderance of the evidence that Li anticipates claim 18.

B. Petitioner fails prove by a preponderance of evidence obviousness based on Li (Grounds 2-4).

Petitioner asserts that claims 5, 6, and 8-10 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Li in view of Lee (Ex. 1007) (Ground 2), that claim 12 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Li in view of Zhao (Ex. 1012) (Ground 3), and that claim 17 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Li in view of Jiang (Ex. 1006) (Ground 4). All of these claims depend from claim 1, and the additional references are not used to cure

the demonstrated deficiencies with Li. Thus, these grounds fail for at least the same reasons that Petitioner failed to prove by a preponderance of evidence anticipation of claim 1 by Li.

C. Petitioner fails to prove by a preponderance of evidence obviousness based on Kim and Li (Grounds 5-8).

Petitioner asserts that:

Claims 1-4, 7, and 13 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kim in view of Li (Ground 5);

Claims 5-6 and 8-10 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kim and Li in view of Lee (Ground 6);

Claim 12 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Kim and Li in view of Zhao (Ground 7);

Claim 17 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Kim and Li in view of Jiang (Ground 8).

Pet. 3.

The Petition fails to show that Kim or Li, alone or in combination, teach all limitations of independent claim 1. Additionally, Kim and Li fail to render obvious dependent claims 2-10, 12, 13, and 17, at least because these claims depend from claim 1.

1. Kim and Li fail to render obvious claim 1

a) Kim and Li fail to teach at least the claimed step of “sending, by at least one of the first UE or the second UE, a message 3 according to a Uplink (UL) grant allocated thereto, 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”

In the Institution Decision, the Board determines:

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.”

DI at 40. Patent Owner understands this is a preliminary finding and this issue is subject to being further developed on a full record. For the reasons given above in Section V.A, the Board should construe the claimed “pre-set UE number” to be a quantity, namely a “pre-set number of UEs,” as did the district court. The Petition does not attempt to show obviousness of claim 1 based on this construction, and thus fails to prove by a preponderance of evidence obviousness of claim 1 over Kim and Li.

2. Kim and Li fail to render obvious claims 2-10, 12, 13, and 17

The Petition fails to prove that Kim or Li, alone or in combination, teach all limitations of independent claim 1. Additionally, Kim and Li fail to render obvious

dependent claims 2-10, 12, 13, and 17, at least because these claims depend from claim 1.

D. Petitioner fails to prove by a preponderance of evidence anticipation of claim 18 by Kim (Ground 9)

1. Kim fails to anticipate claim 18

a) The Petition improperly relies on Kim, Li, and the knowledge of one of skill in the art in arguing that Kim anticipates claim 18

As noted in the Institution Decision, Petitioner's arguments as to anticipation by Kim cites to Li and the knowledge of one of ordinary skill in the art. *See* DI at 43-45.

For example, in arguing that Kim discloses limitation [18.b], 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 obvious claims 1–4, 7, 13)).

For limitation [18.c], “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)).” DI at 44.

For limitation [18.d], Petitioner again cites to Li and a person of ordinary skill in the art's understanding. *See* Pet. 62 (citing Ex. 1005, Fig. 17; Ex. 1002 ¶¶ 109, 132; Pet. 14–15 (Li as anticipating claim 1)).

Petitioner's reliance on Li and the knowledge of one of ordinary skill in the art defeats its argument that Kim alone anticipates claim 18.

b) Kim fails to disclose at least “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”

Claim 18 recites a “User Equipment (UE)” comprising a sending unit configured to send a message 3, “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 fails in its challenge to claim 18 as anticipated by Kim for at least the same reasons it failed to prove obviousness as to claim element 1[f] as discussed above in Section VI.C.1.

c) Petitioner failed to demonstrate that the “sending unit” and “monitoring unit” means-plus-function limitations were disclosed in Kim.

In addition, Petitioner failed to demonstrate that the “sending unit” and “monitoring unit” means-plus-function limitations were disclosed in Kim. For the reasons given in Section V.B above, the Board should construe the “sending unit”

and “monitoring unit” of claim 18 as means-plus-function limitations under 35 U.S.C. § 112(f).

In the context of claims that invoke 35 U.S.C. § 112(f), “a challenger who seeks to demonstrate that a means-plus-function limitation was present in the prior art must prove that the corresponding structure—or an equivalent—was present in the prior art.” *Fresenius USA, Inc. v. Baxter Int’l, Inc.*, 582 F.3d 1288, 1299 (Fed. Cir. 2009) (citing *In re Donaldson Co.*, 16 F.3d 1189, 1193 (Fed. Cir. 1994)).

Petitioner has not identified, in the specification of the ’430 patent, structure corresponding to these means-plus-function limitations. “Because Petitioner has not identified structure corresponding to the functions recited” in claim 18, the Board “cannot ascertain the differences between the claimed invention and the asserted prior art, as required.” *Samsung Elecs. Co. v. Power2B Inc.*, IPR2022-01378, Paper 12 at 15 (PTAB Mar. 15, 2023). Accordingly, Petitioner has not proved by a preponderance of evidence that claim 18 is anticipated by Kim.

For example, for the claimed monitoring unit, the Petition states:

Kim discloses this limitation. (Ex. 1002, ¶131.) Kim in combination with Li discloses or suggests that the UE monitors an RAR. (*Supra* Section IX.E.1.iv.) A POSITA would have further understood that disclosure of Figure 17 would have been applicable to the above-identified function of the UE. The UE must have some hardware and software that are configured to carry out the recited functions (e.g.,

sending a preamble). And Figure 17 discloses such hardware while noting that the processor and RF unit work in conjunction to receive msg 2 (Ex 1011, ¶[0242]), which in the case of Kim is the receiving of the RAR from the eNB (*supra* Section IX.E.1.iv.).

Pet. 61-62. Petitioner makes no attempt to identify corresponding structure in the '430 Patent for the monitoring unit, or to show that the identified disclosures in Kim are the same as or equivalent to the corresponding structure as taught in the '430 Patent. *See, e.g.*, Ex. 1001 at 2:62–3:4, 3:22–28.

For these additional reasons, Petitioner has not proved by a preponderance of the evidence that Kim anticipates claim 18.

VII. Conclusion

For at least the foregoing reasons, Patent Owner respectfully requests that the Board determine that Petitioner has not met its burden to prove unpatentability of the challenged claims.

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Respectfully submitted,
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CERTIFICATE OF WORD COUNT

I, the undersigned, do hereby certify that the foregoing Patent Owner Response, including footnotes, contains less than 14,000 words, as measured by the Word Count function of Microsoft Word, pursuant to 37 C.F.R. § 42.24(b)(1).

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CERTIFICATE OF SERVICE

I hereby certify that on this 26th day of October, 2023, a true and correct copy of the foregoing PATENT OWNER'S RESPONSE, along with any accompanying exhibits, was served by electronic mail upon the following counsel of record for Petitioners:

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