

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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UNIFIED PATENTS, LLC,  
Petitioner,

v.

TOGAIL TECHNOLOGIES, LTD.,  
Patent Owner.

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IPR2023-00338  
Patent 10,791,502 B2

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Before JAMESON LEE, GREGG I. ANDERSON, and  
SHEILA F. McSHANE, *Administrative Patent Judges*.

ANDERSON, *Administrative Patent Judge*.

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

## I. INTRODUCTION

Unified Patents, LLC, (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1, 4–7, 11, and 14–17 of U.S. Patent No. 10,791,502 B2 (Ex. 1001, “the ’502 patent”). Paper 2, 1 (“Pet.”). Togail Technologies, Ltd. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

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 is the real party-in-interest. Pet. 73. Patent Owner asserts it is the real party-in-interest. Paper 3, 2 (Patent Owner’s Mandatory Notices).

A real party-in-interest issue is further discussed in Section IV below.

### B. *Related Matters*

Both parties list two pending lawsuits filed by Patent Owner asserting the ’502 patent in the Western and Eastern Districts of Texas, respectively, captioned *Togail Technologies Ltd. v. Apple Inc.*, W.D. Tex. Case No. 6:22-cv-00326 and *Togail Technologies Ltd. v. TCL Technology Group Corp.*, E.D. Tex. Case No. 2:23-cv-00039. Pet. 74; Paper 3, 2. IPR2023-00720 is another *inter partes* proceeding that has been filed which challenges claims of the ’502 patent.

### C. *The ’502 Patent*

The application for the ’502 patent was filed April 1, 2019, and claims the benefit of and priority to provisional U.S. Patent Application Ser. No. 62/651,312, filed on April 2, 2018. Ex. 1001 at codes (22), (60), 1:7–9.

### *1. Background Technology*

“The concept of on-demand System Information (SI) request has been introduced in the next generation wireless network (e.g., a 5<sup>th</sup> generation (5G) new radio (NR) network).” Ex. 1001, 1:23–27. A one-bit indicator in the System Information Block Type 1 (SIB1) shows whether a SI message is currently broadcast or not. *Id.* at 1:27–31.

The UE (user equipment) may perform an on-demand SI request procedure to broadcast the required SIB(s) and/or SI message(s). Ex. 1001, 1:32–33, 1:44–45. The “UE may perform an on-demand SI request procedure to ask the network (also referred to as NW) to broadcast the required SIB (s) and/or SI message(s).” *Id.* at 1:31–33.

The problem identified in the ’502 patent is that “the next generation wireless network lacks an efficient mechanism for error handling associated with the on-demand SI request procedure.” Ex. 1001, 1:33–36.

### *2. The “error handling procedure” of the ’502 patent*

The ’502 patent describes and claims an “on-demand system information request procedure” for next generation wireless networks. Ex. 1001, 1:40–43. The UE performs an “on-demand SI request procedure in a first cell.” *Id.* at 1:45–48. If the on-demand request is unsuccessful, the SI request failure information is stored. *Id.* at 1:47–50. The UE communicates with the network through a radio access network (RAN) established by one or more base stations. *Id.* at 3:43–48.

The on-demand SI request procedure may be implemented differently for the UEs that are in different Radio Resource Control (RRC) states. Ex. 1001, 5:8–10. For a “UE that is in a connected state, the NW may deliver on-demand SI messages or SIB(s) via dedicated signaling to the UE after receiving an SI request from the UE.” *Id.* at 5:11–14. For a “UE that

is in an idle state or an inactive state, the NW may deliver on-demand SI messages or SIB(s) via broadcasting.” *Id.* at 5:14–17.

Figure 1 is reproduced below.

FIG. 1

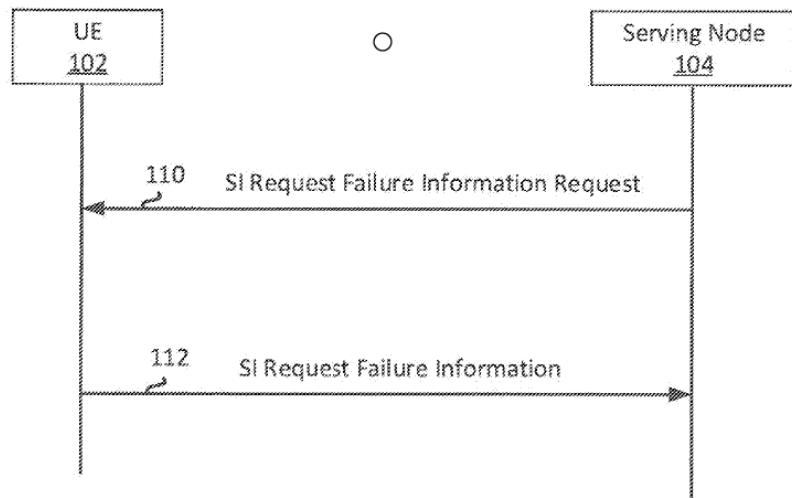


**Figure 1 is a sequence diagram illustrating the transmission of SI request failure information.**

Ex. 1001, 2:4–5. Figure 1 shows a “serving node 104 (e.g., a gNB) may send a request to UE 102 to provide the information related to SI request failure.” *Id.* at 9:24–29. The UE 102 may inform serving node 104 that information related to the SI request failure is stored. *Id.* at 9:29–32. More specifically,

UE 102 may set one bit in an RRC message (e.g., in the RRC Connection Setup Complete message or in the RRC Connection Resume message) to true (or ‘1’) to inform serving node 104 that UE 102 supports storage of the SI request failure information and it has the SI request failure information stored. Serving node 104 may determine to request the SI request failure information after

receiving such information from UE 102. In action 112, UE 102 may send a message including the SI request failure information to serving node 104.

*Id.* at 9:32–41.

The SI request failure information<sup>1</sup> may be “the message type of the failed SI request procedure (e.g., MSG1-based or MSG3-based), the timestamp (e.g., when to perform the SI request procedure).” Ex. 1001, 9:6–8. Using “the SI request failure information, serving node 104 may know how to adjust the SI request mechanism between the MSG1-based approach and the MSG3-based approach.” Ex. 1001, 9:43–46. If the failure is in MSG3, the MSG 1-based SI request may be adopted to “avoid an RA [Random Access] collision.” *Id.* at 9:46–51, 5:22–23 (RA). “Alternatively, serving node 104 may continue to adopt the MSG3-based SI request procedure when UE 102 reports the failure of the MSG3-based SI request procedure.” *Id.* at 9:51–53.

#### *D. Illustrative Claim*

Claims 1, 4–7, 11, and 14–17 of the ’502 patent are challenged. Pet. 1. Claims 1 and 11 are independent and claim a method and a “user equipment” respectively. Claims 4–7 depend directly or indirectly from claim 1. Claims 14–17 depend directly or indirectly from claim 11. Claim 1 is illustrative and is reproduced below.

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<sup>1</sup> SI request failure information may also include: 1) “the on-demand SIB(s) requested by the UE;” 2) “the on-demand SI message(s) requested by the UE;” 3) “the cell ID (of the cell in which the UE has performed the SI procedure but has failed;” or 4) “SSB Index(s) (Synchronization Signal Block Index(s)) to perform the SI request procedure.” Ex. 1001, 8:67–9:6.

[1pre]<sup>2</sup> A method of an on-demand system information (SI) request procedure performed by a user equipment (UE), the method comprising:

[1a.1] transmitting a first SI request message to a base station (BS) after determining that the UE is in a connected state,

[1a.2] the first SI request message including at least one requested system information block (SIB);

[1b] activating a prohibit timer; and

[1c] transmitting a second SI request message to the BS only when the at least one requested SIB is not received and the prohibit timer expires.

Ex. 1001, 17:24–34.

#### *E. Evidence of Record*

This proceeding relies on the following prior art reference and Expert testimony:

Lee, US Provisional Application No. 62/334,418, filed May 10, 2016 (Ex. 1004, “Lee”);<sup>3</sup>

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<sup>2</sup> Petitioner uses the claim number followed by “pre” for preamble or letters for the limitations. *See, e.g.,* Pet. 18 (1pre). Certain claim limitations are further identified by, for example, “.1.” *Id.* at 21 (1a.1), 29 (1a.2). We adopt this format for this Decision.

<sup>3</sup> Petitioner alleges Lee was incorporated by reference in and was used to claim a priority filing date in U.S. 2017/0332372 (Ex. 1006, “the ’372 Pub.”). Pet. 15–16. Petitioner alleges Lee was published and publicly available as of the publication date of the ’372 Pub. on November 16, 2017. *Id.* at 16 (citing *inter alia* Ex. 1006, 1; MPEP §901.02; 35 U.S.C. § 102(a)(1); 37 C.F.R. § 1.14(a)(1)(iv)). Patent Owner does not dispute Petitioner’s allegations in the Preliminary Response and, on this record, we find Lee is prior art to the ’502 patent.

OPPO, *Discussion on SI Request Prohibit Timer*, 3GPP TSG-RAN WG2#101, R2-1801795, Athens, Greece (Feb. 26–Mar. 2, 2018) (Ex. 1005, “Oppo”); and

Petitioner relies on the Declaration of Dr. Zygmunt J. Haas (Ex. 1003, “Haas Declaration”).

*F. Asserted Grounds*

Petitioner asserts the following grounds. Pet. 1.

| <b>Claim(s) Challenged</b> | <b>35 U.S.C.<sup>4</sup> §</b> | <b>Reference(s)/Basis</b> |
|----------------------------|--------------------------------|---------------------------|
| 1, 4–7, 11, 14–17          | 103                            | Lee                       |
| 1, 4–7, 11, 14–17          | 103                            | Oppo                      |
| 1                          | 102                            | Oppo                      |

III. PATENTABILITY ANALYSIS

*A. Level of Ordinary Skill in the Art*

Petitioner proposes that a person of ordinary skill in the art would have had at least (1) a Bachelor’s degree in electrical engineering or a similar degree and (2) at least two years of professional experience with cellular wireless communications, including the 3GPP radio interface architecture and protocols for 4th and 5th Generation cellular wireless systems . . . More experience can supplement for less education and vice versa.

Pet. 6 (citing Ex. 1003 ¶ 48). Petitioner also cites the “State of the Art” section of the Petition as relevant. *Id.* (citing Pet. 6–15).

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<sup>4</sup> 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.

Patent Owner does not provide any proposed qualifications for a person of ordinary skill in the art. *See generally* Prelim. Resp.

For the purposes of this Decision, we adopt the assessment offered by Petitioner as it is consistent with the '502 patent and the prior art before us. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

### *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 no term requires construction because “the prior art herein meets each of the claim terms under any reasonable construction.” Pet. 5. 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. Accordingly, we proceed with the analysis under the plain and ordinary meaning to a person of ordinary skill in the art as to all claim terms, and, at this juncture, we determine that we need not expressly construe any claim terms. *See id.* (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

We note that Patent Owner argues that Petitioner has failed to show that the prior art discloses or teaches Limitation 1a.1: “transmitting a first SI request message to a base station (BS) after determining that the UE is in a connected state.” Prelim. Resp. 11. Patent Owner’s primary argument is that Petitioner does not show “transmitting ... ***after determining that the UE is in a connected state.***” *Id.* at 12. As we discuss below, our consideration of this claim term under its plain and ordinary meaning is appropriate.

The parties are cautioned that arguments not timely raised are forfeit. In other words, if a party newly raises a claim construction issue at a final hearing, it may be too late. In general, the parties should fully address any possible claim construction issues at appropriate times in the trial briefing .

### *C. 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).

#### *D. Haas Declaration*

Several of the arguments and related evidence presented in the Petition depend upon the Haas Declaration testimony concerning what a person of ordinary skill in the art would have understood. For example, in connection with the obviousness challenge based on Lee in connection with Limitation [1a.1], Petitioner alleges “*Lee* also taught or at least rendered obvious a UE transmitting the first SI requests *in a connected state*.” Pet. 22 (citing Ex. 1003 ¶¶ 81–85). Patent Owner argues that the Haas Declaration is a “nearly verbatim” copy of the Petitioner, is conclusory and “is entitled to

little weight.” *See* Prelim. Resp. 15, n.3 (citing *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper No. 9 at 15 (PTAB Aug. 24, 2022) (precedential)).

We find that the Haas Declaration opinions about the understanding of a person of ordinary skill in the art are based on specific factual disclosures in Lee or Oppo. Using the above example from the challenge based on Lee, for Limitation [1a.1] the Haas Declaration cites as support an annotated figure from Lee. Ex. 1003 ¶ 79. The annotation is part of the support for testimony that “*Lee* also taught or at least rendered obvious a UE transmitting the first SI requests *in a connected state*.” *Id.* ¶ 81. The Haas Declaration testimony is sufficient to apprise us of why one of ordinary skill in the art would have understood the assertions made in the Petition. We do not accord the testimony little or no weight simply because it is verbatim to what Petitioner states in the Petition. The *Xerox* case cited by Patent Owner does not require or indicate otherwise. *See Xerox*, IPR2022-00624, Paper No. 9 at 15–17 (noting that the deficiencies with expert testimony are that they are conclusory and lacking supporting evidence or technical reasoning.)

Accordingly, on this record, because we find that the Haas Declaration is supported by factual determinations, we give it weight for purposes of this Decision. During trial, Patent Owner may submit argument and evidence rebutting the showings made in the declaration.

*E. Claims 1, 4–7, 11, 14–17 as Obvious over Lee*

Petitioner alleges claims 1–3, 7, 11, 13–15, and 18 would have been obvious over Lee. Pet. 15–49. Petitioner also relies on the Haas Declaration. Ex. 1003 ¶¶ 70–118.

*1. Lee (Ex. 1004)*

Lee is entitled “On-Demand Delivery of System Information with RAN [radio access network] Based Polling.” Ex. 1004, 014;<sup>5</sup> *see* Section II.C.2 (RAN). Lee describes as “Prior Art” that “System information is divided into the *MasterInformationBlock* (MIB) and a number of *SystemInformationBlocks* (SIBs).” *Id.* Consistent with Dr. Haas’s testimony, “Lee reproduce[s] extensive material from TS 36.331, the 4G RRC Protocol Specification.” Ex. 1003 ¶ 70 (“*Compare* Ex. 1004, 014–045 with Ex. 1024,<sup>[6]</sup> 35–84”).

Lee discloses that the “RAN may not broadcast all of system information (SI) at a cell or may broadcast part of system information at a cell.” Ex. 1004, 046. “The network configures either a timer or a period for one or more UEs.” *Id.* “UE periodically initiates and transmits a SI request according to either the timer or the period. *Id.* “The SI request can include . . . [t]he number(s) of a system information block type on request.” *Id.*

In Lee, the UE detects that any essential or required SIB is missing at a cell. Ex. 1004, 049. If a cell does not broadcast essential SIBs which UE needs to acquire at a cell, the SI request from a UE may indicate to RAN that essential SIBs are missing. *Id.* Upon receiving the SI request, the RAN sends the essential SIBs that are not broadcast to the UE. *Id.* After sending the SI request at a cell, UE starts a timer. *Id.* If UE does not receive the essential SIBs at the cell until the timer expires, UE considers the cell as

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<sup>5</sup> Page references are to Petitioner’s pagination.

<sup>6</sup> 3GPP (3<sup>rd</sup> Generation Partnership Project), TS 38.331, Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 14) V14.5 (2018-01).

barred, or UE re-sends the SI request to RAN at the cell after the timer expires. *Id.* “If the cell broadcasts all essential SIBs but does not broadcast SIBs related to a certain feature, UE does not send SI request e.g. while UE is in RRC\_IDLE or while UE is not using the feature.” *Id.*

The RRC state may be divided into two different states such as a RRC\_IDLE and a RRC\_CONNECTED. In RRC\_IDLE state, the UE 10 may receive broadcasts of system information and paging information while the UE specifies a Discontinuous Reception (DRX) configured by NAS [non-access stratum], and the UE has been allocated an identification (ID) which uniquely identifies the UE in a tracking area and may perform PLMN selection and cell re-selection. Also, in RRC-IDLE state, no RRC context is stored in the eNodeB.

Ex. 1004, 054.

## 2. Claims 1 and 11

Petitioner has sufficiently shown the subject matter of claims 1 and 11 would have been obvious over Lee. Below we briefly summarize Petitioner’s arguments regarding claim 1 as illustrative. Unless otherwise indicated, these showings are not contested by Patent Owner at this stage.

Claim 1’s preamble [1Pre] recites “[a] method of an on-demand system information (SI) request procedure performed by a user equipment (UE).” Petitioner alleges that if the preamble is limiting, Lee teaches that the UE requests any “essential SIBs.” Pet. 19 (quoting Ex. 1004, 049). Further, Petitioner alleges the Lee procedure was “*on-demand* because the UE was permitted to ask the network for particular SI, when needed.” *Id.* (citing Ex. 1004, 045–046, 049–050; Ex. 1003 ¶ 75). Petitioner further details its showing at pages 19 through 21 of the Petition. *Id.* at 19–21 (citing Ex. 1004, 014, 045–46, 049–59; Ex. 1003 ¶¶ 75–76).

Limitation [1a] recites “transmitting a first SI request message to a base station (BS) after determining that the UE is in a connected state, the first SI request message including at least one requested system information block (SIB).” Petitioner divides the limitation into two parts. The first part of Limitation [1a], Limitation[1a.1]<sup>7</sup> recites “transmitting a first SI request message to a base station (BS) after determining that the UE is in a connected state.” Petitioner relies on Lee’s sending of “SI request” to a base station of a RAN. Pet. 21 (citing Ex. 1004, 046, 049; Ex. 1003 ¶¶ 77, 79–85). Petitioner alleges that

While *Lee* did not expressly disclose that its SI request procedures applied to a connected state, *Lee*’s disclosure was not tailored or limited to any particular state and a [person of ordinary skill in the art] would have understood *Lee* to teach sending SI requests in the 3GPP defined RRC states, including the RRC\_CONNECTED state (as well as the unconnected state, i.e., RRC\_IDLE).

Pet. 22–24 (citing Ex. 1003 ¶ 82; Ex. 1004, 018, 046, 049, Fig. 5.2.2.1-1; Ex. 1004, 054 (¶ 0001) (“The RRC state may be divided into two different states such as a RRC\_IDLE and a RRC\_CONNECTED.”)).

Patent Owner disputes the above showing for this limitation because it “does not address the express language of the claims, ‘transmitting . . . *after determining that the UE is in a connected state.*’” Prelim. Resp. 12. Petitioner presents three reasons that Lee does teach the disputed claim language. See Pet. 27–29. Patent Owner, in turn, responds to each of three reasons cited. Prelim. Resp. 11–15.

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<sup>7</sup> We do not construe Limitation [1a.1] because we find the term has a sufficiently well-understood plain and ordinary meaning. See Section III.B above. Notwithstanding, the parties should consider whether construction of the term is required.

We note that any one of the reasons cited, if found, would support Petitioner's allegation that Lee teaches or suggests Limitation [1a.1]. We address each of the three reasons in turn.

The first reason that Petitioner relies upon is that Lee's RRC connection states "constantly knew (*determin[ed]*) which state it was in at all times pursuant to the 3GPP radio resource control (RRC) layer specifications." Pet. 27 (citing Ex. 1003 ¶ 87 (citing Ex. 1024, Fig. 4.2.1-1)). Petitioner argues the two states are the connected state and the idle state. *Id.* (citing Ex. 1001, 4:56–5:21 (determination made as to whether connected state before operating); Ex. 1004, 4:56–5:21 ("[t]he RRC state may be divided into two different states such as a RRC\_IDLE and a RRC\_CONNECTED.)).

Patent Owner contends "[t]his argument is divorced from the express requirement of the claimed limitation that require the active step of 'determining' whether the UE is in the CONNECTED state before sending the *first* message, as opposed to UE determining' whether it is in the IDLE or INACTIVE states before sending a different message." Prelim. Resp. 12–13 ("Compare Ex. 1001, Cl. 1 ('transmitting a first SI request message to a base station (BS) after determining that the UE is in a connected state') with Cl. 6 ('transmitting a fourth SI request message to the BS after determining that the UE is not in the connected state, the fourth SI request message including at least one requested SI message').")

On this record, we question whether creating an actual connection is sufficient to teach the determination required under the claim limitation. The record is unclear as to whether a UE is connected even if it is in an idle state. The parties may pursue this issue during trial. On this record, we preliminarily find that the argument and evidence presented on the

determination of the connection prior to transmission of a message appears to be insufficient to demonstrate Lee's teaching of Limitation [1a.1].

Petitioner's second reason is that "*Lee's* SI request was precipitated by the UE determining that 'essential (i.e. required) SIB is missing.'" Pet. 27–28 (citing Ex. 1004, 049). Petitioner explains that that determination in Lee "is based on RRC [connected] state because 3GPP identifies different SI as 'essential (i.e. required)' depending on the RRC state . . . Thus, Lee's disclosure of determining which SI is missing taught, or at least rendered obvious, that the UE first determined its RRC state before sending any SI request." *Id.* (citing Ex. 1004, 018). The explanation is supported by the cited evidence, that is, depending on the connected state, different SI is required in Lee. Ex. 1004, 018.

Patent Owner's argument essentially the same as the one made for the first reason, i.e., "*Lee* does not disclose either an active determining step as to whether the UE is in the CONNECTED state before sending the first SI request message." Prelim. Resp. 14.

On this record, we are not persuaded by Patent Owner's argument. Lee teaches that the UE determines whether any "essential" SI is missing, based on the RRC connected state, prior to transmitting a SI request, as explained by Petitioner. Pet. 27–28; Ex. 1004, 049. Patent Owner does not adequately explain why the connected state need not be determined prior to the system ascertaining whether any essential SI is missing in Lee. Patent Owner asserts: "*Lee* does not make any distinction between the messaging for SI requests dependent upon the UE's RRC state, even though Lee may determine that different essential SI may be required by different RRC states." Prelim. Resp. 14. Patent Owner does not cite to any evidentiary support for that assertion. Additionally, and of particular importance, the

assertion also lacks rational basis given that different information is required based on whether the UE is in a connected state. On this record, we preliminarily find that Petitioner sufficiently has shown the “after determining” claim language of Limitation [1a.1].

Petitioner’s third reason is that “this sequence is also taught or at least rendered obvious because *Lee* taught sending an ‘SI request’ to the network (Ex-1004 049), and the type of messaging available to the UE depends on the RRC state.” Pet. 28–29 (citing Ex. 1003 ¶ 89 (citing Ex. 1004, 054 (¶ 2), 056 (¶¶ 14, 29))). Petitioner explains that *Lee* discloses that a UE has different connectivity and procedures for sending messages depending on the RRC state and, therefore, prior to sending an SI request message, the UE first determines whether it is in a connected state. *Id.* (citing Ex. 1004, 054 (¶ 2), 056 (¶ 14))).

Patent Owner argues “the UE had to determine the RRC state in order to format the SI request message is premised on the fact that a different physical layer signaling mechanism is used in the different states, *e.g.*, the Dedicated Control Channel (DCCH) in the CONNECTED state and the Common Control Channel (CCCH) in the IDLE state.” Prelim. Resp. 14–15. At this juncture, we do not see how this argument undermines Petitioner’s assertion. Instead, Patent Owner’s statement appears to support Petitioner’s contention. Patent Owner also argues the Haas Declaration is entitled to no weight, which we have addressed above. *Id.* at 15, n.1; *see* Section III.D above.

At this juncture, we give weight to the Haas Declaration because it is supported by evidence and, on this record, find preliminarily that Petitioner’s third reason is sufficient. Further argument and evidence may be developed during trial.

The second part of Limitation [1a], Limitation [1a.2] recites “the first SI request message including at least one requested system information block (SIB).” Lee is quoted by Petitioner for its teaching “[t]he number(s) of a **system information block** type on request.” Pet. 29 (quoting Ex. 1004, 046, 049). The Haas Declaration is also cited for further support because “the description of the SI request in item 3 below, in the SI request indicated the needed ‘essential SIB.’” *Id.* at 30 (citing Ex. 1003 ¶ 90 (citing Ex. 1004, 049 (*see* Annotated Figure from Lee at Pet. 30))).

Limitation [1b] recites “activating a prohibit timer.” Petitioner cites Lee’s teaching that

After sending the SI request at a cell, UE starts a timer. If UE does not receive the essential SIBs at the cell until the timer expires, UE considers the cell as barred, or UE re-sends the SI request to RAN at the cell after the timer expires.

Pet. 31 (quoting Ex. 1004, 049 (*see* Annotated Figure from Lee at Pet. 31)).

Limitation [1c] recites “transmitting a second SI request message to the BS only when the at least one requested SIB is not received and the prohibit timer expires.” Among other citations, Petitioner cites to an annotated Figure from Lee for this limitation. Pet. 32–33 (citing Ex. 1004, 049 (*see* Annotated Figure from Lee at Pet. 33); Ex. 1003 ¶ 95).

Claim 11 includes the same “after determining” claim language discussed above in connection with claim 1 and Limitation [1.a.1]. *See* Prelim. Resp. 11 (citing Ex. 1001, 17:27–29 (claim 1), 18:22–24 (claim 11)). No separate argument is made relating to claim 11 and none of the other limitations of claim 11 are disputed at this time.

Petitioner has provided sufficient argument and evidence that has shown that all the limitations of claims 1 and 11 are taught or suggested by

Lee. For the reasons set forth above, Petitioner has shown a reasonable likelihood that claims 1 and 11 would have been obvious over Lee.

*3. Claims 4–7, 14–17*

With respect to the remaining claims 4–7 and 14–17 challenged by Petitioner as obvious over Lee, which Patent Owner does not separately argue, we find that Petitioner has provided sufficient argument and evidence to account for all recited claim limitations.

Petitioner has shown a reasonable likelihood that claims 1, 4–7, 11, 14–17 would have been obvious over Lee.

*F. Obviousness of Claims 1, 4–7, 11, 14–17 over Oppo*

Petitioner alleges claims 1, 4–7, 11, and 14–17 would have been obvious over Oppo. Pet. 49–72. Petitioner also relies on the Haas Declaration. Ex. 1003 ¶¶ 119–164.

*1. Oppo (Ex. 1005)*

Oppo discusses a “prohibit timer for On-Demand SI request.” Ex. 1005, 002. Oppo describes how a “UE can try to send SI request” and “after certain time of retrying, SI can still not be acquired, then UE can decide whether the cell is barred depends on whether this SI is essential or not.” *Id.* at 001. Oppo discloses “Transmission of SI request by RRC signaling.” *Id.* at 002.

A table from Oppo is reproduced below.

Proposal 3      The SI prohibit timer is configured by RRC.  
Proposal 4      The SI prohibit timer is started when SI request is initiated and stopped when the request SI has been available or the SI request has been acknowledged.  
Proposal 5      When the timer expires, SI request can be triggered UE still need the SI on the concern cell.

The following table summarize proposal 4 and proposal 5.

| Timer | Start                                                                                               | Stop                                                                                                       | At expiry                                                                |
|-------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Txxx  | Transmission of SI request by RRC signalling or trigger MAC to perform Random Access for SI request | Reception of SI request acknowledgement;<br>The requested SI has been available in latest SIB <sub>1</sub> | Trigger another SI request if the SI is still needed in the concern cell |

**Table summarizing how a SI Prohibit Timer Works.**

Ex. 1005, 002. The RRC “configure[s] the SI prohibit timer.” *Id.* The “timer is started when SI request is initiated.” *Id.*

Oppo discloses that “[f]or RRC-based SI request for RRC\_Connected UEs, after UE send one SI request to gNB.” Ex. 1005, 002. Oppo explains that for RRC-based SI request for RRC\_Connected UEs, after UE sends one, the SI request goes to gNB. *Id.*

*1. Claims 1 and 11*

Petitioner argues that Oppo “disclosed triggering another SI request (*transmitting a second SI request message to the BS*) when the SI is still needed in the concerned cell and the prohibit timer has expired (*only when the at least one requested SIB is not received and the prohibit timer expires*).” Pet. 58–59 (reproducing Ex. 1005, 002 (table (without “Proposal 3”) annotated with highlighting); Ex. 1003 ¶ 138). Petitioner also argues that Oppo “described that ‘after one SI request, UE **should not send another one to gNB before it check[s] the latest SIB1 to know if the request[ed] SIB has been [made] available.**’” *Id.* at 59 (quoting Ex. 1005, 001). Additional arguments regarding these limitations made by Petitioner include that a “prohibit timer” avoids the need for the UE to generate frequent SI requests and that another UE request is triggered if the SI is still needed. *Id.* at 60 (citing (Ex-1005, 001–002).

Patent Owner disputes that Petitioner has sufficiently shown that Oppo teaches or discloses Limitations [1c] and [11e], which recite “transmitting a second SI request message to the BS only when the at least one requested SIB is not received and the prohibit timer expires,” under this challenge. Prelim. Resp. 15–16. Patent Owner argues the claim language requires “that the second request may be transmitted when an SI request

acknowledgement has not been received and the timer has expired.” *Id.* at 16 (citing Ex. 1001, 17:31–34 (Limitation [1c]), 18:26–29 (Limitation [11e])). More specifically, Patent Owner’s argument regarding Oppo’s failure to disclose the limitations is that

Because *Oppo* discloses that the prohibit timer stops upon the UE’s receipt of the SI request acknowledgment from the network, *Oppo* will allow the sending of a second SI request even though it has not determined whether the UE has received the SI of the first request. Ex. 1005, at 2 (Timer stops on “[r]eception of SI request acknowledgment”).

*Id.*

On this record, we preliminarily agree with Patent Owner. Petitioner’s citations to Oppo appear to show that the SI is sent regardless of whether or not the timer has expired. For example, the table above shows that the SI request transmission event is separate from the expiration of the timer. Specifically, there is a check as to whether the SI request is “available” or “acknowledged.” *See* Ex. 1005, table (Proposal 4). By contrast, the “SI Prohibit Timer” is implemented only upon certain conditions or triggering event. *Id.* at 002.

Accordingly, we preliminarily determine that it is questionable as to whether Petitioner has shown a reasonable likelihood that claims 1 and 11 would have been obvious over Oppo.

## *2. Claims 4–7, 14–17*

Patent Owner does not separately argue claims 4–7 and 14–17, relying on its arguments relative to claims 1 and 11 above. Prelim. Resp. 17.

By virtue of dependencies to claims 1 and 11, at this juncture, we preliminarily determine that it is questionable as to whether Petitioner has

shown a reasonable likelihood that claims 4–7 and 14–17 would have been obvious over Oppo.

### *G. 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).

### *H. Anticipation of Claim 1 by Oppo*

Petitioner alleges claim 1 is anticipated by Oppo. Pet. 49–61. Petitioner also relies on the Haas Declaration. Ex. 1003 ¶¶ 119–142. Petitioner relies on the same arguments and evidence for its anticipation challenge as those asserted for its obviousness challenge based on Oppo. *See* Pet. 49. Accordingly, for the same reasons we discussed in our

obviousness analysis above, we have the same question on the sufficiency of the Petition's showing based on Oppo for this anticipation challenge.

#### IV. OTHER ISSUES

Patent Owner argues that institution should be denied under *General Plastic* because this is a serial petition. *See* Prelim. Resp. 2–11 (citing *General Plastic Indus. Co. v. Canon Kabushiki Kaisha*, IPR 2016-01357, Paper 19 (PTAB, Sept. 6, 2017) (precedential) (“*General Plastic*”). Patent Owner also questions whether Apple Inc. is a real party-in-interest with Petitioner. *See id.* at 5 (citing *Unified Patents, LLC v. MemoryWeb LLC*, IPR2021-01413, Paper 56 (PTAB March 8, 2023) (“*MemoryWeb*”))).

Because the Petition in this proceeding was filed prior to the Petition filed by Apple in IPR2023-00720, this is the first proceeding filed against the '502 patent. *See* Paper 5, 1 (filing date accorded of February 2, 2023); IPR2023-00720, Paper 5, 1 (filing date accorded of March 16, 2023). Accordingly, as the first filed proceeding, *General Plastic* does not apply here. *General Plastic*, IPR 2016-01357, Paper 19 at 15–22 (*General Plastic* factors considered only for follow-on petitions).

Additionally, as to the real party-in-interest issues, the *MemoryWeb* decision relied upon by Patent Owner has been vacated by the Director. *See* Prelim. Resp. 5; *MemoryWeb*, Paper 76; *see also SharkNinja Operating LLC v. iRobot Corporation*, IPR 2020-00734, Paper 11 at 16–20 (no RPI analysis necessary at institution absent allegation of time bar or estoppel based on unnamed real- party-in-interest). Patent Owner does not allege a time bar or estoppel here.

Accordingly, these issues are moot.

## 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 '502 patent. Thus, we institute an *inter partes* review of all challenged claims on all asserted grounds. *See SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1356 (U.S. 2018).

## 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; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of the '502 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.

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PETITIONER:

John M. Baird  
Patrick McPherson  
Nicole Candelori  
DUANE MORRIS LLP  
JMBaird@duanemorris.com  
PDMcPherson@duanemorris.com  
NCandelori@duanemorris.com

Roshan Mansinghani  
Michelle Aspen  
UNIFIED PATENTS LLC  
roshan@unifiedpatents.com  
michelle@unifiedpatents.com

PATENT OWNER:

Brett Cooper  
BC LAW GROUP, P.C.  
bcooper@bc-lawgroup.com

Robert A. Auchter  
AUCTHER PLLC  
robert@auchterlaw.com