

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS, AT&T SERVICES,
INC., T-MOBILE USA, INC., GOOGLE LLC, ERICSSON, INC., AND NOKIA
OF AMERICA CORPORATION.

Petitioners,

v.

KT CORPORATION (PATENT OWNER) AND
PEGASUS WIRELESS INNOVATION LLC (EXCLUSIVE LICENSEE),
Patent Owner.

U.S. PATENT NO. 10,181,931

Title: METHOD FOR UPLINK CONTROL CHANNEL RESOURCE
ALLOCATION OF TERMINAL AND APPARATUS THEREOF

Inter Partes Review No.: IPR2025-00138

**PETITIONERS' OPPOSITION TO PATENT OWNER'S REQUEST FOR
DISCRETIONARY DENIAL**

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Petitioners' Exhibit List

<i>Exhibit #</i>	<i>Description</i>
1001	U.S. Patent No. 10,181,931 (the "'931 Patent")
1002	Prosecution history of the '931 Patent ("File History")
1003	Declaration of Petitioners' Expert
1004	U.S. Patent No. 11,470,619 ("Lee")
1005	U.S. Provisional Application No. 61/863,328 ("Lee '328")
1006	International Patent Publication WO 2014/048487 ("Zhang")
1007	3GPP TS 36.213 v.11.3.0 ("36.213")
1008	ZTE, "Discussion on Repetition for Control Channel and Traffic Channel", R1-133062, 3GPP TSG RAN WG1 Meeting #74 (August 2013) ("ZTE")
1009	U.S. Publication No. 2014/0105191 ("Yang")
1010	U.S. Publication No. 2016/0127952 ("You")
1011	Certified Translation of U.S. Provisional Application No. 61/843,456 ("You '456")
1012	Certified Translation of International Patent Publication WO 2013/027963 ("Kim")
1013	International Patent Publication WO/2014/204128 ("You PCT")
1014	International Patent Publication WO/2015/021318 ("Lee PCT")
1015	Curriculum Vitae of Petitioner's Expert Dr. Mark Lanning
1016	3GPP TS 36.211 v.11.4.0 ("36.211")
1017	U.S. Provisional Application No. 61/843,456
1018	International Patent Publication WO/2014/204128
1019	International Patent Publication WO 2013/027963
1020	3GPP TS 36.212 v.11.3.0 ("36.212")
1021	U.S. Patent Application Publication No. 2014/0098761 ("Lee '761")

<i>Exhibit #</i>	<i>Description</i>
1022	U.S. Provisional Application No. 61/843,456
1023	International Patent Publication WO 2013/027963
1024	<i>Pegasus Wireless Innovation LLC. v. Verizon Communications Inc. et al.</i> , No. 2:23-cv-00640 (E.D. Tex) Dkt. 150
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I. INTRODUCTION

Patent Owner ("PO") has requested discretionary denial of institution of the Petition for *inter partes* review of the '931 Patent on the basis that "each *Fintiv* factor weighs in favor of the Board exercising its discretion to deny institution" in view of the related district court litigation, *Pegasus Wireless Innovation LLC v. Cellco Partnership d/b/a Verizon Wireless et al.*, No. 2:23-cv-00640-JRG (E.D. Tex.) ("Related Litigation"). Discretionary Denial Request ("Request"), 1. However, PO mischaracterizes several material facts while ignoring others in seeking discretionary relief from an otherwise meritorious petition.

Petitioners acknowledge that ***one*** trial is scheduled in the Related Litigation prior to an expected decision in this proceeding. However, as set forth below, trials against other Petitioners have not been scheduled and one Petitioner, Google, is not a party to any trial. Importantly, recent PTAB case law supports institution in this case notwithstanding the trial schedule in the Related Litigation. *See, e.g., Google LLC v. Mullen Industries LLC*, IPR2025-00019, Paper 14 (P.T.A.B. May 12, 2025). Moreover, PO has recently moved to dismiss four of the patents at issue in the Related Litigation, along with numerous claims of the remaining patents. This fact, coupled with the absence of system prior art contentions and the planned submission of *Sotera* stipulations with respect to all remaining patents at issue in the Related Litigation, render the PTAB the most judicially efficient forum for

adjudicating all prior art invalidity issues.

Moreover, Petitioners' *Sotera* stipulation proffered herein eliminates any overlap of issues presented in the Petition and issues to be tried in the Related Litigation. *Motorola* is clearly distinguishable given that in the Related Litigation, Defendants have **not** proffered any invalidity contentions based on system prior art (which cannot be raised in an IPR even if they did).

PO's Request also demonstrates the strength of Petitioners' unpatentability challenges because the Request resorts to mischaracterizing and/or ignoring arguments in the Petition. As discussed in greater detail below, PO's argument that the Petition fails to demonstrate the claimed "structural information" is belied by PO's admission that no claim constructions are necessary, including "structural information," and Grounds 1 and 2 of the Petition demonstrating the claimed subject matter in the same manner as disclosed and claimed in the '931 Patent.

PO's argument that Ground 1 fails to disclose claim elements [1.6], [3.5], [5.4], and [7.4] ignores key analysis and citations in the Petition that demonstrate how You and Kim disclose these claim elements. In particular, PO ignores Kim's disclosure in paragraph 117 of UE-specific PUCCH resource index offset values that are distinct from cell-specific offset values and which correspond to the claimed start offset information of the resource allocated to the uplink control channel.

PO's argument that Lee is not prior art because some unidentified aspects of Lee may not have support in the provisional application is a red herring. The Petition cites to portions of Lee that have express support in the Lee '328 provisional application that is unquestionably prior art to the '931 Patent. Whether parts of Lee that Petitioners do not cite have support in Lee '328 is irrelevant to the Board's determination. As demonstrated herein, PO's assertion to ignore all citations to Lee is contrary to law and, even if followed, fails to change the fact that the combination of Lee and Zhang render the Challenged Claims obvious.

PO's argument that Ground 2 fails to disclose claim elements [1.9], [3.8], [5.7], and [7.7] also ignores key citations and arguments set forth in the Petition that demonstrate that the subject matter of these claim elements was obvious. In particular, the Request ignores how the Petition demonstrates that repeated transmission of a PUCCH resource for HARQ ACK/NACK using a single, identical PUCCH resource was known in the art, including expressly set forth in prior art versions of the 3GPP technical specifications. This knowledge of a POSITA – taken together with the disclosures of Lee to use repetition to achieve coverage enhancement – renders obvious claim elements [1.9], [3.8], [5.7], and [7.7] as expressly set forth in the Petition.

This Opposition demonstrates that a proper analysis of the *Fintiv* factors, particularly in view of Petitioners' *Sotera* stipulation and the strength of the

grounds set forth in the Petition, dictates that discretionary denial is not warranted and that PO's Request should be denied in the interest of efficiency, fairness, and patent quality.

Accordingly, Petitioners hereby respectfully request that the Board deny PO's Request and grant the Petition to institute *inter partes* review of the '931 Patent.

II. STIPULATION

Petitioners hereby present a *Sotera* stipulation. Petitioners stipulate that if the Board grants the Petition and institutes an inter partes review, Petitioners will not pursue in the Related Litigation the specific grounds asserted in the Petition, or any other ground that could have been reasonably raised in an IPR. *See Sotera Wireless, Inc. v. Masimo Corporation*, IPR2020-01019, Paper 12 (P.T.A.B. Dec. 1, 2020) (precedential).

III. ANALYSIS

A. Factor 1 – Likelihood of Stay

No party has requested a stay, and the District Court has not indicated whether a stay is likely to be granted. The fact that other IPR petitions – IPR2025-00036 and IPR2025-00037 – have been denied by the Board is irrelevant as to this Petition because those other petitions address different patents. Notably, the Request does not cite to any support for the principle that the *Fintiv* analysis for the

'931 Patent depends on, or can even consider, discretionary denials of institution for other unrelated patents. Therefore, this factor is neutral.

B. Factors 2 and 5 – Timing of Trial and Overlap of Parties

Petitioners comprise multiple entities with different trial dates – or no trial date at all. These factors are interrelated and strongly favor institution. *See HP Inc., et al. v. Neodron Ltd.*, IPR2020-00459, Paper 17 at 36, 38 (P.T.A.B. Sept. 14, 2020).

Petitioner Google LLC is not a party to any trial. Therefore, there is *not* complete overlap of the parties, and at least one Petitioner will *never* have a trial date in the Related Litigation. *IQE PLC v. Cornell Rsch. Found. Inc.*, IPR2024-00609, Paper 9 at 12-13 (P.T.A.B. Sept. 13, 2024).

As for the other Petitioners, only one of the three trials in the parallel district court case is scheduled. PO points to median-time-to trial statistics to suggest that the scheduled trial date favors denial, but recent cases tell a different story. In 2025, the district court has significantly delayed multiple scheduled trial dates, and has an average of 29 months to trial. *See Whirlpool Corp. et al. v. Shenzhen Sanlida Elec. Tech. Co.*, No. 2:22-CV-00027 (E.D. Tex. Mar. 25, 2025) (1092 days to trial); *Force Mos Tech., Co. v. ASUSTek Computer Inc.*, No. 2:22-CV-00460 (E.D. Tex. Jan. 22, 2025) (802 days to trial); *Touchstream Techs., Inc. v. Charter Communications Inc.*, No. 2:23-CV-00059 (E.D. Tex. Feb. 17, 2025) (746 days to

trial). Indeed, trial dates in this district court are often delayed multiple times. *See, e.g., Multimedia Techs. PTE Ltd. v. LG Elecs. Inc., et al.*, 2:22-cv-00494-JRG-RSP, Dkt. 273 (E.D. Tex. Mar. 18, 2025) (noting that “[t]his case has been set for trial five times: November 18, 2024, January 27, 2025, February 7, 2025, March 3, 2025, and March 17, 2025. The parties have also been notified that other cases are preferentially set ahead of them for the April 7, 2025 and April 21, 2025 trial settings.”).

Further, it is unlikely for the cases to be scheduled serially given the number of patents and claims at issue, as post-trial motions and other factors, including the court's busy docket, will prevent serial scheduling of the trials. Consequently, while one case *may* go to trial before a final written decision issues, it is unlikely that all cases will go to trial before such time.

In *Google LLC v. Mullen Industries LLC*, IPR2025-00019, Paper 14 (P.T.A.B. May 12, 2025), the Board granted institution in spite of the fact that district court trial was scheduled to occur “more than six months” before the projected final written decision date and “the defendant's invalidity contentions include system prior art.” *Id.* at 10-12. In *Mullen*, while parties had yet to conduct *Markman* in the parallel district litigation, prior art invalidity based on system art was still at issue, unlike the Related Litigation in the present case. Thus, in light of this fact and the *Sotera* stipulation presented herein, there will not be any overlap

or investment whatsoever concerning prior art invalidity between the PTAB and district court if trial is instituted at the PTAB. The facts here are at least as favorable towards institution as compared with *Mullen*.

Accordingly, these factors weigh strongly in favor of institution. *See HP Inc.*, Paper 17 at 36, 38. PO never addressed the significant risk of inconsistent jury verdicts on validity (given that there will be three separate trials), which further favors resolving validity in a single proceeding at the PTAB.

C. Factor 3 – Investment in Parallel Proceedings

Here again, Petitioner Google is not a party in the district court proceedings and, thus, will not challenge the validity of the '931 Patent in those proceedings.

As for the other parties, the Director focuses on the status of the district court proceedings *at the time the POPR was filed*, now that the interim guidelines have been rescinded.¹ *Motorola Sols., Inc. v. Stellar, LLC*, IPR2024-01205, Paper 19 at 3 (P.T.A.B. Mar. 28, 2025). In contrast to the facts of *Motorola*, the parties here had invested little energy into invalidity challenges of the '931 Patent claims

¹ Petitioners reserve the right to challenge the March 26, 2025 Interim Processes for PTAB Workload Management at least because it is legally invalid as (1) exceeding the Director's authority, (2) arbitrary and capricious, and (3) adopted without notice-and-comment rulemaking.

and Defendants had and have *not* proffered any invalidity contentions based on system prior art (which cannot be raised in an IPR even if they did). *Id.*, 4. At the time of filing the POPR, the parties had just completed fact discovery and served opening expert reports, and a claim construction order had not issued. (The Court has still not issued a claim construction order.) The facts here further differ from *Motorola*, as there is a non-defendant petitioner, multiple unscheduled trials, and challenge of unasserted claims did not factor into the Director's analysis. Therefore, much work is still to be done in the District Court case, and this factor favors institution.

PO argues that "Patent Owner served infringement contentions on Petitioners in district court on March 18, 2024...[y]et, Petitioners delayed until November 27, 2024—over eight months after receiving infringement contentions—to file its Petition challenging the '931 patent." Request, 13. Petitioners did not delay filing its petition given the involvement of non-party Google coupled with PO's delay in reshaping of asserted claims and infringement contentions. Indeed, Petitioners promptly worked together, including with non-party Petitioner Google, to prepare and file its Petition in an effort to advance judicial efficiency by avoiding multiple petitions and thereby conserving Board resources. Further, on *April 10, 2025* – four days prior to the close of fact discovery, PO filed a motion for leave to amend its infringement allegations to

include a number of IOT devices that were not previously accused of infringing the '931 Patent. *Pegasus Wireless Innovation LLC v. Cellco Partnership d/b/a Verizon Wireless et al.*, No. 2:23-cv-00640-JRG Dkt. 305 (E.D. Tex. Apr. 10, 2025). While briefing of the issue has concluded, no order has been entered and the late identification of these accused products raises the possibility of a continuance.

Accordingly, this factor favors institution or, at the very least, is neutral.

D. Factor 4 – *Sotera* Stipulation and Overlap of Issues

Because Google is not a party to the Related Litigation, there cannot be any overlap for Google. Moreover, Petitioners present a *Sotera* stipulation. To mitigate any duplication concerns, if this IPR is instituted, Defendants will not pursue in district court litigation the specific grounds asserted in this proceeding, or any other ground that was raised or could have been reasonably raised in an IPR. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (P.T.A.B. Dec. 1, 2020) (precedential); *BMW of No. Am., LLC v. Northstar Systems LLC*, IPR2023-01017, Paper 12, at 10 (P.T.A.B. Dec. 8, 2023). As noted above, PO has recently moved to dismiss four of the patents at issue in the Related Litigation, along with numerous claims of the remaining patents. This fact, coupled with the absence of system prior art contentions and the planned submission of *Sotera* stipulations with respect to all remaining patents at issue in the Related Litigation,

render the PTAB the most judicially efficient forum for adjudicating all prior art invalidity issues. Therefore, this factor favors institution.

E. Factor 6 – Other Factors

PO's arguments regarding the timing of the multiple petitions challenging its patents must be rejected. The Board should look no further than the present Petition for purposes of weighing the *Fintiv* factors.

PO alleges the challenges in the Petition are weak, alleging: (1) the Petition fails to allegedly disclose the claimed "structural information"; (2) Petitioners' Ground 1 fails to satisfy claim elements [1.6], [3.5], [5.4], and [7.4]; (3) the Petition fails to establish that Lee is prior art for all that it discloses; and (4) Petitioner's Ground 2 fails to satisfy at least claim elements [1.9], [3.8], [5.7], and [7.7]. Each of PO's arguments fails, as discussed below, and the Petition sets forth overwhelming evidence that the Challenged Claims are invalid.

1. The Petition Demonstrates that the Prior Art Discloses Structural Information

PO's entire argument that the Petition fails to demonstrate how the prior art references disclose the claimed "structural information" is based on a strawman, i.e., that Petitioners fail to provide a claim construction that identifies "what is meant by the claimed requirement to receive 'structural' information." Request, 27. However, the Patent Owner's Preliminary Response expressly contradicts

PO's argument by admitting that "Patent Owner submits that the Board *need not engage in any pre-institution claim construction.*" POPR, 9 (emphasis added).

The Challenged Claims require the "structural information" to contain "at least one of i) information on a resource allocated to an uplink control channel for transmitting the response information and ii) start offset information on the resource allocated to the uplink control channel." EX-1001, cls. 1, 3, 5, 7. The '931 Patent does not expressly define or limit the scope of "structural information" and merely discloses that the "structural information" is transmitted/received through higher-layer signaling (e.g., RRC). EX-1001, 11:43-45, 11:56-58, 11:63-12:3.

In addition to demonstrating how a UE determines the PUCCH resources using a starting offset in prior art versions of the 3GPP technical specification, the Petition demonstrates how You, Kim, and Zhang all disclose receiving/transmitting structural information in the same way as disclosed in the '931 Patent.² Petition,

² Petitioners note that "structural information" is at least encompassed by the resource allocation information pertaining to uplink and downlink channels as cited in the Petition and disclosed in the prior art because the resource allocation information pertains to a structure and/or configuration of the uplink/downlink frames/subframes. *See* Petition, 21-24, 48-50 ("configuration parameter" of Lee).

10 (discussing TS 36.213 disclosing UE determining PUCCH resource by utilizing a starting offset), 21-22 (describing how You discloses the BS generating and the terminal using the PUCCH resource $N_{PUCCH}^{(1)}$ configured by higher layer signaling), 22-24 (describing how Kim discloses how $N_{PUCCH}^{(1)}$ or *absolute start location* is used as a start offset by a terminal), 49-50 (describing how Lee discloses receiving a configuration parameter and Zhang discloses $N_{UE-PUCCH}^{(1)}$ and k , which is a dynamic offset modifier). Thus, each of the references describe “structural information that contains at least one of i) information on a resource allocated to an uplink control channel for transmitting the response information **and** ii) start offset information on the resource allocated to the uplink control channel,” as contemplated by the '931 Patent.

The Request does not identify how or why the disclosure of a BS transmitting and/or a terminal receiving the information on a resource allocated to an uplink control channel (e.g., k) and start offset information (e.g., $N_{PUCCH}^{(1)}$) in the same manner as disclosed by the '931 Patent fails to disclose the

EX-1005, ¶59 (“The uplink and downlink subframes may be configured, e.g., via higher layer signaling.”). See EX-1010, ¶55 (“Radio Frame Structure”), ¶58, Fig. 2.

transmitting/receiving of structural information as claimed. Instead, the Request apparently relies on an overly narrow, but otherwise unspecified, definition of structural information. Thus, contrary to the assertions in the Request, the Petition demonstrates how the prior art references disclose the claimed structural information, as well as how such information is transmitted and received.

2. Ground 1 Demonstrates How the Prior Art Disclose Claim Elements [1.6], [3.5], [5.4], and [7.4]

The Request further alleges that the Petition fails to demonstrate that the prior art references disclose “wherein the offset information of the resource allocated to the uplink control channel is configured separated from start offset information for a terminal different from the MTC terminal.” Request, 28. However, the arguments in the Request ignore the disclosures in the Petition demonstrating that it was known to configure separately the uplink communication control channels for terminals of different types (e.g., UEs and MTCs). *See* Petition, 12-13 (citing EX-1003 ¶¶ 54-57). As discussed below, the Petition further demonstrates how the prior art of Ground 1 discloses these claim elements.

Specifically, both You and Kim disclose that the PUCCH resource is determined using an equation that includes $N_{PUCCH}^{(1)}$ and n_{CCE} , which is the number of the first CCE used for transmission of the PDCCH. Petition, 19, 26-27 (discussing claim element [1.5], including the use of “the start offset information

on the resource allocated to the uplink control channel” to determine the resource allocated to the uplink control channel).

With respect to claim element [1.6], the Petition demonstrates that You discloses different operation techniques for UEs and MTCs, including different search spaces, i.e., different CSS regions of the PDCCH. Petition, 28-29. The Petition then explains that, because the UEs and MTCs have different search spaces, they will have different CCEs. *Id.* Different CCEs correspond to different n_{CCE} values, which are used in the equations disclosed by You and Kim (and the '931 Patent) to determine the resource allocated to the uplink control channel. Accordingly, You expressly discloses that the MTCs and UEs will be configured separated from one another, including having separate resources on an uplink control channel and thus different start offsets.

Kim expressly discloses configuring dynamic uplink control channel (PUCCH) resources in a way that is UE-specific by transmitting PUCCH resource index offset values, i.e., start offset information, separate from cell-specific values (e.g., $N_{PUCCH}^{(1)}$). *See* Petition, 17-18, 29 (citing EX-1012 ¶ 117). The Petition further demonstrates that one of ordinary skill in the art would have thought it obvious to configure the start offset information of the resource allocated to the uplink control channel for an MTC terminal separated from start offset information for a terminal different from the MTC terminal. *See* Petition, 19-20, 28-29.

Specifically, You expressly discloses separately configuring uplink control channel resources for MTCs and UEs, Kim discloses providing UE-specific start offsets for uplink control channels to improve efficient transmission/reception of uplink communications, and one of ordinary skill in the art would have thought it obvious to combine the teachings of the references to use separate start offsets when configuring uplink control channels for MTCs and UEs to improve communication efficiency. Petition, 19-20, 27-29. Accordingly, the Petition demonstrates how the combination of You and Kim disclose claim element [1.6], which analysis also is applicable to claim elements [3.5], [5.4], and [7.4].

3. The Petition Demonstrates that Lee is Prior Art

PO argues that Petitioners' citation to EX-1004, i.e., U.S. Patent No. 11,470,619, should be disregarded because it was filed as a PCT application on August 7, 2014, which is after the priority date of the two Korean patent applications to which the '931 Patent claims priority. Request, 32. PO is wrong on the law and, even if Petitioners' citations to EX-1004 were ignored, PO fails to demonstrate any impact on the invalidity analysis set forth in the Petition.

As set forth in the Petition, United States Patent No. 11,470,619 to Lee et al. (EX-1004) ("Lee") is a National Stage Entry under 35 U.S.C. § 371 of International Application No. PCT/US2014/050211, filed on Feb. 5, 2016 claiming the benefit of U.S. Provisional Application No. 61/863,328 (EX-1005, "Lee

'328"), filed on Aug. 7, 2013, and qualifies as prior art under 35 U.S.C. §102(a)(2).

Lee expressly incorporates by reference the entirety of Lee '328. Ex-1004, 1:9-15

("This application...claims the benefit of U.S. Provisional Application No.

61/863,328, filed August 7, 2013, and U.S. Provisional No. 62/021,207, filed Jul.

6, 2014, the disclosures of which are hereby incorporated herein by reference in

their entirety.").

Under the relevant law, the entire disclosure of Lee '328 (EX-1005) is included in Lee (EX-1004) for all purposes as if explicitly contained therein.

MPEP (8th Ed) § 2163.07(b) ("information incorporated is as much a part of the application as filed as if the text was repeated in the application, and should be treated as part of the text of the application as filed."); *Ultradent Prods., Inc. v.*

Life-Like Cosmetics, Inc., 127 F.3d 1065, 1069 (Fed. Cir. 1997) (rejecting

argument that anticipatory reference "sa[id] nothing" about pertinent portions of an incorporated reference because "the entire contents" were incorporated); *Apple Inc.*

v. Koss Corporation, IPR2021- 00255, Paper 54 (Final Written Decision) (May 31,

2022), at 25-30 (holding claims obvious over host reference, relying on material

from two provisional applications incorporated in their entirety). The Petition

properly includes pin cites to both Lee (EX-1004) and Lee '328 (EX-1005).

PO's assertion that Petitioners' treatment of Lee as prior art as of the earliest provisional filing date is contrary to Federal Circuit precedent is a red herring.

Request, 33 (citing *In re Riggs*, Case No. 2022-1945 (Fed. Cir. Mar. 24, 2025)).

The Petition does not assert that all of Lee is prior art to the '931 Patent as of the earliest provisional filing date, but instead treats the disclosure of Lee '328 as being included in Lee and entitled to the filing date of Lee '328, i.e., August 7, 2013.

It is Patent Owner's position that is contrary to Federal Circuit precedent, as PO urges the Board to disregard **all** citations to Lee, even those finding express support in Lee '328. Notably, Patent Owner does not identify any citations to Lee that are not supported by Lee '328, nor could they, given that each citation to Lee is accompanied with a citation to Lee '328 demonstrating where in Lee '328 the disclosure from Lee is supported.

Even if the Board were to disregard the citations to Lee as argued by Patent Owner, which would be contrary to law as discussed *supra*, it would not change any of the invalidity analysis set forth in the Petition because Lee '328 is prior art to the '931 Patent and PO does not assert otherwise. *See In re Riggs*, ("Provisional applications become public when the corresponding non-provisional application publishes or the patent issues. *See* 37 C.F.R. § 1.14(a)(1)(iv)-(vi); Appellee's Suppl. Br. 8. As such, ***it is best to treat a published provisional application—like a published non-provisional application or patent—as prior art for all that it teaches as of its filing date.***") (emphasis added).

Accordingly, the citations to Lee in the Petition are fully supported by the disclosure of Lee '328 and therefore should be considered by the Board. Further, even if the Board were not to consider the citations to Lee, the Petition still demonstrates that Lee '328 in view of Zhang render obvious all Challenged Claims.

4. Ground 2 of the Petition Demonstrates How the Prior Art Discloses Claim Elements [1.9], [3.8], [5.7], and [7.7]

PO argues that the Petition fails to demonstrate how claim element [1.9] is disclosed by Lee and Zhang. Request, 33-35. Specifically, PO argues that the references fail to expressly disclose that the response information is repeatedly transmitted in the uplink control channel resources, such as PUCCH. Request, 33. PO also appears to argue – contrary to Federal Circuit law – that the knowledge of a POSITA should not be considered when determining whether the claim element is obvious. *Id.*

A claim is obvious “if the differences between the claimed invention and the prior art are such that the claimed invention as whole would have been obvious before the effective filing date of the claimed invention to a person of ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103 (AIA). Obviousness is a question of law based on the following underlying factual inquiries: (1) determining the scope and content of the prior art; (2) ascertaining

the differences between the claimed invention and the prior art; and (3) resolving the level of ordinary skill in the pertinent art. *See Graham v. John Deer Co.*, 383 U.S. 1, 17 (1966). Thus, it is entirely appropriate to establish the scope and content of the prior art, as well as resolving the level of ordinary skill in the art as Petitioners have done.

PO overlooks or ignores the Petition's discussion of the knowledge of a POSITA. For example, the Petition sets forth that the prior art version of the 3GPP technical specification 36.213 expressly discloses repeatedly transmitting a HARQ ACK/NACK using the same PUCCH resource that is configured by higher layers. Petition, 11 (citing EX-1007, Section 10.1.4). The Petition further demonstrates that a POSITA would have known about these earlier technical specifications, including a prior art version of 36.213, and that such repetition techniques were used to achieve coverage enhancement. Petition, 10-11, 61. Consequently, PO's argument that Petitioners do not point "to a disclosure in a patent or printed publication as required under 35 U.S.C. § 311(b)" is demonstrably false given the express disclosure in Exhibit 1007. Request, 34.

The Petition then demonstrates that Lee '328 expressly discloses utilizing repeated transmissions in the uplink direction when a terminal is in a coverage limited mode. Petition, 61 (citing EX-1005 ¶ 46 ("The coverage limited mode of operation include use of coverage enhancement transmission schemes such as

repetitions....’)). Given the knowledge of a POSITA, including the knowledge of prior versions of the 3GPP technical specifications expressly disclosing repeatedly transmitting ACK/NACK on a single PUCCH resource, and Lee’s express disclosure of repetitive uplink transmissions, the Petition concludes that claim element [1.9] would have been obvious to a POSITA. Petition, 61-62. The Petition is supported by the testimony of Petitioner’s expert, Mr. Mark Lanning, who sets forth the underlying factual support for his opinions. *Id.*; *see also* EX-1003 ¶¶ 251-254.

IV. CONCLUSION

For the foregoing reasons, the Director should deny PO’s request for discretionary denial of institution.

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

The undersigned certifies that the foregoing PETITIONERS' OPPOSITION TO PATENT OWNER'S REQUEST FOR DISCRETIONARY DENIAL complies with the type-volume limitation in 37 C.F.R. § 42.24(b)(1). According to the word-processing system's word count, the brief contains 4,558 words, excluding parts of the brief exempted by 37 C.F.R. §42.24(a).

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CERTIFICATION OF SERVICE ON PATENT OWNER

Pursuant to 37 C.F.R. §§42.6(e), 42.8(b)(4) and 42.105, the undersigned certifies that on May 28, 2025, a complete and entire copy of this **Petitioners' Reply to Patent Owner's Preliminary Response to the Petition** was served in its entirety via filing through the Patent Trial and Appeal Case Tracking System (P-TACTS), as well as by delivering copies via electronic mail to the following:

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