

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD., AND
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

HANNIBAL IP LLC,
Patent Owner.

Case IPR2025-01188
Patent No. 11,272,535 B2

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Submitted Electronically via the Patent Review Processing System

PATENT OWNER'S RESPONSE

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LIST OF EXHIBITS¹

Petitioner's Exhibits	
1001	U.S. Patent No. 11,272,535 to Chen et al. ("535 Patent")
1002	Declaration of Apostolos Kakaes, Ph. D. ("Kakaes Declaration")
1003	Prosecution History of the '535 Patent
1004	International Patent Application Publication No. WO 2020/087369 to Shi, published May 7, 2020 (" <i>Shi</i> "), including certified English translation and certification.
1005	International Patent Application Publication No. WO 2020/045920 to Hong, published March 5, 2020 (" <i>Hong</i> "), including certified English translation and certification
1006	Korean Patent Application No. 10-2018-0102907 to Hong, filed August 30, 2018 (" <i>Hong Priority</i> "), including certified English translation and certification
1007	3GPP TS 38.321 v15.3.0 ("Technical Specification Group Radio Access Network; NR; Medium Access Control (MAC) protocol specification (Release 15)") (Sept. 2018) (" <i>TS-38.321</i> ")
1008	International Patent Application Publication No. WO 2019/245779 to Alfarhan et al., published December 26, 2019 (" <i>Alfarhan</i> ")
1009	U.S. Provisional Application No. 62/735,446 to Alfarhan et al., filed September 24, 2018 (" <i>Alfarhan Provisional</i> ")
1010	3GPP TSG RAN WG2 NR #103bis Meeting, R2-1813741, Chengdu, China, 8th - 12th October 2018, published in 3GPP website (https://www.3gpp.org/ftp/tsg_ran/wg2_rl2/TSGR2_103bis/Docs/) on September 27, 2018 (" <i>R2-1813741</i> ").

¹ Citations to these exhibits will be made to the page number in footer added by Petitioner.

1011	3GPP TSG RAN WG2 NR #104 Meeting, R2-1816829, Spokane, US, 12th - 16th November 2018, published in 3GPP website (https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_104/Docs) on November 2, 2018 (“ <i>R2-1816829</i> ”).
1012	Declaration of Friedhelm Rodermund
1013	3GPP TS 38.300 v15.2.0 (“Technical Specification Group Radio Access Network; NR; NR and NG-RAN Overall Description; Stage 2 (Release 15)”) (June 2018) (“ <i>TS-38.300</i> ”)
1014	International Patent Application Publication No. WO 2017/136458 to Lim et al., published August 10, 2017 (“ <i>Lim</i> ”)
1015	Bertsekas, Dimitri et al., Data Networks (2nd Edition), Prentice Hall, 1992 (“ <i>Bertsekas</i> ”).
1016	U.S. Patent Application Publication No. US 2016/0029413 to Wang et al., published January 28, 2016 (“ <i>Wang</i> ”)
1017	3GPP TS 36.300 v8.6.0 (“Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2 (Release 8)”) (September 2008)
1018	3GPP 36.331 V8.7.0 (“Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) Radio Resource Control (RRC); Protocol specification (Release 8)”) (September 2009)
1019	Vincent W.S. Wong et al., Key Technologies for 5G Wireless Systems, Cambridge University Press, 2017 (“ <i>Wong</i> ”)
1020	Ali Zaidi et al., 5G Physical Layer: Principles, Models and Technology Components, Academic Press, 2018 (“ <i>Zaidi</i> ”)
1021	3GPP 38.331 V15.3.0 (“Technical Specification Group Radio Access Network; NR; Radio Resource Control (RRC) protocol specification (Release 15)”) (September 2018)
1022	International Patent Application Publication No. WO 2020/069114 to Terry et al., published April 2, 2020 (“ <i>Terry</i> ”)
1023	U.S. Provisional Application No. 62/753,579 to Terry et al., filed October 31, 2018 (“ <i>Terry Provisional</i> ”)

Patent Owner's Exhibits	
2010	Deposition Transcript of Friedhelm Rodermund (Petitioner's Expert Regarding Third Generation Partnership Project ("3GPP") and European Telecommunications Standards Institute ("ETSI"))
2011	Deposition transcript of Apostolos Kakaes (Petitioner's Technical Expert)
2012	Declaration of Robert Akl, D. Sc. (Patent Owner's Technical Expert)
2013	Google Support Documentation
2014	3GPP Terms of Use
2015	Curriculum Vitae of Robert Akl, D. Sc. (Patent Owner's Technical Expert)

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<i>DSS Tech. Mgmt. v. Apple Inc.</i> , 885 F.3d 1367 (Fed. Cir. 2018)	21, 22
<i>Ecochem, Inc. v. Southern California Edison, Co.</i> , 227 F.3d 1361 (Fed. Cir. 2000)	19
<i>F5 Networks, Inc. v. Radware, Ltd.</i> , IPR2017-00124, Paper 48 (Apr. 23, 2018).....	49
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<i>Intellectual Ventures I, LLC v. Motorola Mobility LLC</i> , 176 F. Supp. 3d 405 (D. Del. 2016)	19
<i>Bio-Sys., Inc. v. Illumina Cambridge Ltd.</i> , 821 F.3d 1359 (Fed. Cir. 2016)	20
<i>In re Klopfenstein</i> , 380 F.3d 1345 (Fed. Cir. 2004)	23
<i>KSR Intern. Co. v. Teleflex, Inc.</i> , 127 S. Ct. 1727 (2007).....	18, 20
<i>Myspace, Inc. v. Garphon Corp.</i> , 672 F.3d 1250 (Fed. Cir. 2012)	19
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I. INTRODUCTION.

The Petition fails to establish that any claim of the '535 Patent is unpatentable. As an initial matter, the Petition fails to establish that *TS-38.321* qualifies as a printed publication under 35 U.S.C. § 102(a)(1). Given Petitioner's reliance on *TS-38.321* in all grounds challenging the independent claims of the '535 Patent, that threshold issue is significant. The Petition relies on the Rodermund declaration to establish that *TS-38.321* qualifies as a "printed publication." However, the Rodermund declaration fails to establish that an interested POSITA could have located *TS-38.321* on the 3GPP FTP server (which the Rodermund declaration does not contend was indexed by subject matter or otherwise searchable) with reasonable diligence as required to establish the reference as a "printed publication."

The Petition further fails to establish that any reference, or combination of references, renders obvious "reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE," ("element [1e]") as recited by all claims of the '535 Patent. Notably, the Petition does not allege that any cited reference discloses this claim element. That omission is consistent with the prosecution history, where the examiner likewise did not identify prior art disclosing the same claim element.

Having failed to identify any reference that discloses element [1e], the

Petition instead relies on a theory that “[a] POSITA would have found it obvious that *Shi*’s resetting of the MAC entity would include resetting the global counter (LBT failure counter) because ... the global counter is maintained at the MAC layer” and “[i]t was well known to a POSITA that resetting a MAC entity includes ... resetting counters associated with the MAC entity.” Pet., 31 (citing Ex. 1007 (*TS-38.321*) for Ground 1); *see also* Pet. 45-46 (making the same argument for Ground 2). However, this argument is expressly contradicted by the same references relied on by the Petition, as well as by the testimony of Petitioner’s technical expert, Dr. Kakaes.

TS-38.321 (relied on by Petitioner in combination with *Shi* (Ground 1) and *Shi/Hong* (Ground 2)) expressly discloses **three** counters maintained by the MAC entity, but **only one** is reset when the MAC entity is reset. *See infra*, § VIII.A-B (citing Ex. 1007, 43-44). *Petitioner’s* expert, Dr. Kakaes, testified both (1) that resetting the MAC does not necessary reset all counters maintained by the MAC and (2) that two of the counters described in *TS-38.321* are not reset until sometime **after** the MAC reset when the “Random Access procedure is initiated on a Serving Cell.” Ex. 2011, 68:2-69:15, 95:8-96:11; Ex. 1007, 15, 43-44.

Moreover, *Shi* does not disclose that alleged LBT failure counter is reset when the MAC is reset. To the contrary, *Shi* **only** discloses that the counter identified by Petitioner can be reset “when [a] global timer times out.” Ex. 1004,

6:22-30. Neither the Petition, nor Dr. Kakaes, offer **any** reason why a POSITA would reject the timer reset mechanism disclosed in *Shi*, and would instead modify the disclosures of *Shi* to perform the **exactly** the claimed functionality—especially when that claimed functionality is not disclosed by **any** reference.

Worse, Petitioner’s proposed modifications to *Shi* and to *Shi/Hong* to perform the claimed functionality would not function. *Shi* expressly requires sending the information being maintained by the alleged LBT failure counter **after** Petitioner asserts the alleged LBT failure counter would be reset and the information maintained by it cleared. Specifically, Petitioner asserts that a POSITA would find it obvious to modify *Shi* to perform resetting the alleged LBT failure counter when the MAC is reset. Pet., 31, 47. However, *Shi* discloses that “the number of LBT failures” maintained by the “global counter” is “report[ed] ... to the network via an MCG” **after** a “reset of the SCG Media Access Control (MAC) address entity” during the “SCG-RLF process” and that it is also “includ[ed]” in the “connection re-establishment request” of the “RRC connection re-establishment” that Petitioner’s expert, Dr. Kakaes, recognizes occurs **after** the SCG-RLF process. Ex. 1004, 6:37-49; Ex. 2011, 125:11-127:1.

In other words, Petitioner asserts that the number of LBT failures maintained by the counter of *Shi* would be reset **before** that information is used in subsequent messaging in *Shi*. Neither the Petition nor Dr. Kakaes offer any explanation for

how the data cleared by resetting the counter could be used in the subsequent messaging, or why a POSITA would have been motivated to reset this data **before** it is used. To the contrary, Dr. Kakaes testified that he did not offer opinions on the ordering of the “SCG-RLF process” and that he did not even consider how the proposed modifications to *Shi* would impact the operation of the disclosure in *Shi*, other than two paragraphs of his declaration that do not address the use of information maintained by the counter in subsequent messaging of *Shi*. Ex. 2011, 80:16-19, 113:19-115:7, 131:18-134:20.

Additionally, neither the Petition nor Dr. Kakaes provide any plausible reason why a POSITA would look to *TS-38.321*, which Dr. Kakaes recognizes does not even discuss “listen-before-talk,” to modify the alleged LBT failure counters of *Shi* and *Shi/Hong*. Ex. 2011, 84:2-11. Specifically, why would a POSITA look **outside** the LBT subject matter of *Shi* and *Shi/Hong* for a reset mechanism for the alleged LBT counter when *Shi* already discloses a LBT counter reset mechanism? What is wrong with the disclosed LBT counter reset mechanisms of *Shi*? Why would a POSITA search 3GPP references having nothing to do with “listen-before-talk” to identify *TS-38.321*, combine it with *Shi*, and modify *Shi* to replace the disclosed LBT counter reset mechanism based on the “beam failure counter” of *TS-38.321* to perform functionality that isn’t disclosed by either in order to arrive at the **exactly** the functionality claimed by the ’535 Patent? The Petition fails to

answer these questions. Ex. 2012, ¶¶103-105.

Finally, the Petition’s obviousness arguments are legally deficient because they fail to identify why a POSITA would, rather than merely could, modify the cited references to perform the claimed functionality instead of known alternatives—including those disclosed by the *Shi* and *TS-38.321* references relied on by the Petition. As such, the Petition relies on improper hindsight reconstruction of the claims of the ’535 Patent.

II. OVERVIEW OF THE ’535 PATENT.

A. *The ’535 Patent*

The ’535 Patent issued on March 8, 2022, and contains two independent claims, Claims 1 and 10. Claim 1 is an apparatus claim directed to a device, “a user equipment (UE).” Claim 10 is a method claim that closely corresponds to Claim 1. The application for the ’535 Patent was filed on January 8, 2020, and claims priority to Provisional Application No. 62/790,099 filed on January 9, 2019. Ex. 1001. The priority date of January 9, 2019, is not challenged by Petitioner. Pet., 1; Ex. 1002, ¶51. Ex. 2012, ¶43.

The ’535 Patent “generally relates to wireless communication, and more particularly, to Listen-Before-Talk (LBT) failure indication and LBT failure event determination in next generation wireless communication networks. Ex. 1001, 1:17-21; Ex. 2012, ¶44. The claimed inventions are directed to “an improved and

efficient mechanism for a UE to handle LBT failure that may take place in the physical layer.” Ex. 1001, 1:38-41; Ex. 2012, ¶44. As noted by Petitioner, the 5G/NR specifications specify two protocol stacks, the user plane and the control plane. Pet., 2-3; Ex. 2012, ¶44. The inventions concern the control plane, which is as follows:

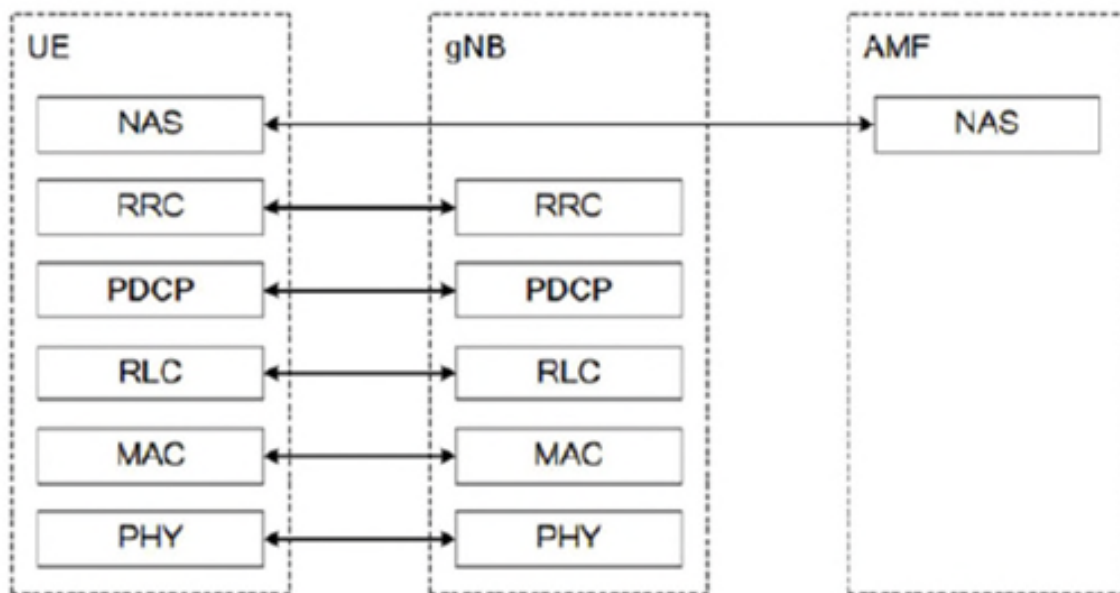


Figure 4.4.2-1: Control Plane Protocol Stack

Pet., 3. The “physical layer” (Ex. 1001, 1:38 – 41) is the “PHY” layer shown above. Ex. 2012, ¶44.

Specifically, the ’535 Patent discusses that “LBT is a mechanism by which a wireless device applies Clear Channel Assessment (CCA) before using the channel” and that in “next generation (e.g., fifth generation (5G) New Radio (NR))

wireless communication systems ... LBT may be required prior to any transmission when operating on an unlicensed spectrum.” Ex. 1001, 1:25-41; Ex. 2012, ¶45. As such, the ’535 Patent recognizes that “[t]here is a need in the industry for an improved and efficient mechanism for a UE to handle LBT failure that may take place in the physical layer.” Ex. 1001, 1:25-41; Ex. 2012, ¶45.

The ’535 Patent recognized that an improvement in the fifth generation (5G) New Radio (NR) wireless communications standard was making available to user devices (UE’s) a portion of the RF spectrum known as the “unlicensed spectrum,” such as 5 GHz. Household Wi-Fi networks, for example, also utilize 5 GHz. Ex. 1001, 1:25-37. Much like the old CB radios or walkie-talkies, communication cannot occur if two devices are trying to transmit on the same frequency. Given the prevalence of Wi-Fi devices, the use of the unlicensed 5 GHz band could be especially problematic. To avoid interfering with other devices, the 5G standards specify a Listen-Before-Talk (“LBT”) scheme that requires a UE to listen to a particular frequency within the unlicensed spectrum before transmitting. LBT is analogous to what a human would do using a CB radio or walkie-talkie, that is, to listen before pushing the talk button, and if others are talking, either refrain or switch to another frequency. As explained in the Background section, “[i]n NR, LBT may be required prior to any transmission when operating on an unlicensed spectrum.” Ex. 1001, 1:37-45; Ex. 2012, ¶46.

The '535 Patent further recognized issues in indicating LBT failure. The '535 Patent discloses that:

In a Random Access (RA) procedure, two UE variables, including a counter for preamble transmission (e.g., `PREAMBLE_TRANSMISSION_COUNTER`) and a counter for power ramping (e.g., `PREAMBLE_POWER_RAMPING_COUNTER`), may be increased with every attempt. In NR-Unlicensed (NR-U) operations, power ramping may not be applied (e.g., the UE variable `PREAMBLE_POWER_RAMPING_COUNTER` does not increase) since a preamble is not transmitted due to LBT failure. If the preamble is not transmitted due to LBT failure, the UE may perform the random access resource selection procedure again, and, the UE variable `PREAMBLE_TRANSMISSION_COUNTER` may not increase accordingly. As such, an indication of LBT failure from a physical layer to a MAC layer may be required (e.g., to maintain the counters).

Moreover, given that a Scheduling Request (SR) counter may not be updated depending on the LBT outcome, it may be beneficial to consider an additional mechanism where an SR procedure may be determined to be unsuccessful due to a systematic uplink LBT failure. This mechanism may be generally applicable to other uplink transmissions for determining a radio link problem.

When operating on an unlicensed spectrum, if a UE wants to transmit a preamble, a `msg3` in a 4-Step RA procedure, a `msgA` in a 2-Step RA procedure, data on uplink configured grants, or an SR on a PUCCH resource, the UE may need to pass LBT first to occupy an LBT channel, a sub-band, a Bandwidth Part (BWP), a carrier, or a cell. Since the RA procedure, the SR procedure, or the transmission on configured grants may be mainly handled by the MAC layer, an LBT failure indication or an LBT success indication from a lower layer (that is in charge of

LBT mechanism) may be required for those operations.

Ex. 1001, 5:34-67; Ex. 2012, ¶47.

To address these issues, the '535 Patent discloses that “the UE may reset [a] LBT [Listen-Before-Talk] failure counter when a reset of the MAC entity is requested (e.g., requested by the upper layers).” Ex. 1001, 8:29-31; Ex. 2012, ¶48. The independent claims of the '535 Patent (and therefore all claims of the '535 Patent) all expressly recite: “reset[ing] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE.” Ex. 1001, 13:45-46 (Claim 1) and 14:39-40 (Claim 10); Ex. 2012, ¶48. This claim element was also recognized by the examiner during prosecution as not being disclosed in the prior art and was a basis for allowing the claims of the '535 Patent. *See infra*, §II.C; Ex. 2012, ¶48.

The inventions of Challenged Independent Claims 1 and 10 provide a novel and non-obvious “improved and efficient mechanism” for handling LBT failures reported to the MAC layer by the PHY layer. Ex. 1001, 1:3; Ex. 2012, ¶49. LBT failures can be temporary, and it would be very inefficient to report every failure to the higher layers. Ex. 2012, ¶49. The inventions enhance efficiency by requiring that the MAC layer keep track of the number of LBT failures reported to it by the PHY layer. Ex. 1001, Cl. 1, 13:36-39; Ex. 2012, ¶49. The MAC layer uses a “failure counter” to count the number of LBT failures reported by the PHY layer. Ex. 1001, Cl. 1, 13:40-41; Ex. 2012, ¶49. The MAC layer compares the count of LBT failures

to a threshold value. Only when the count is equal to or greater than the threshold, which event is referred to as an “LBT failure event,” does the MAC layer then report the failure event to “an upper layer.” Ex. 1001, 13:42-44; Ex. 2012, ¶49.

B. Claims 1 and 10

Claim 1 of the '535 Patent is as follows (using the same identifiers as in Petition):

[1pre] 1. A user equipment (UE) comprising:

[1a] one or more non-transitory computer-readable media having computer-executable instructions embodied thereon; and

[1a] at least one processor coupled to the one or more non-transitory computer-readable media, the at least one processor is configured to execute the computer-executable instructions to:

[1b] receive, by a Medium Access Control (MAC) entity of the UE, a Listen-Before-Talk (LBT) failure indication from a lower layer of the UE for all uplink (UL) transmissions;

[1c] increase an LBT failure counter when the MAC entity receives the LBT failure indication;

[1d] determine that an LBT failure event has occurred when the LBT failure counter is greater than or equal to a threshold; and

[1e] reset the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE.

Exhibit 1001, 13:28 – 46 (emphasis added). Limitation [1e] (highlighted) is especially important for the reasons explained below.

Claim 10 is a method claim and is closely analogous to the apparatus of Claim 1.

[10pre] 10. A method for Listen-Before-Talk (LBT) failure detection performed by a User Equipment (UE), the method comprising:

[10a] receiving, by a Medium Access Control (MAC) entity of the UE, a Listen-Before-Talk (LBT) failure indication from a lower layer of the UE for all uplink (UL) transmissions;

[10b] increasing an LBT failure counter when the MAC entity receives the LBT failure indication;

[10c] determining that an LBT failure event has occurred when the LBT failure counter is greater than or equal to a threshold; and

[10d] resetting the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE.

Ex. 1001, 14:27–39.

The Petitioner did not address the limitations of Claim 10 separately, but merely referenced their prior arguments regarding the limitations of Claim 1. *See* Pet, 41; Ex. 2012, ¶52.

C. Prosecution History

During prosecution of the '535 Patent, the patent examiner recognized that none of the prior art references disclosed “reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE” as recited by

all claims of the '535 Patent. Ex. 1003, 21 (“The reasons for Allowance are the same as those presented by Applicant in the Remarks submitted on 10/11/2021.”); Ex. 1003, 48-49 (Applicant’s Remarks submitted on Oct. 11, 2021 discussing that no references cited by the examiner in the 35 U.S.C. § 102 or §103 rejections “disclose ‘reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE’” as recited in the independent claims.); Ex. 1003, 48 (“Applicant thanks the Examiner for finding that the cited art does not disclose resetting the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE.”); Ex. 2012, ¶53; *see also* Ex. 2011, 41:2-15.

III. LEVEL OF ORDINARY SKILL IN THE ART.

Petitioner defines the person of ordinary skill in the art (“POSITA”) as follows:

A person of ordinary skill in the art (“POSITA”) would have had at least a master’s degree in electrical engineering or a similar field and at least two years of experience working with wireless telecommunications systems. Additional relevant work experience can compensate for less education, and vice versa.

Pet., 22 (citing Ex. 1002, ¶¶136-137). However, the Petition fails to establish that any challenged claim of the '535 Patent is unpatentable under this POSITA definition for the reasons discussed below in Section VIII.

IV. CLAIM CONSTRUCTION.

Petitioner's expert, Dr. Kakaes, did not provide any construction in his Declaration (Ex. 1002), but merely stated:

I understand that no claim term's construction is in dispute at this time. ... I have considered each term of the '535 patent as it would be understood by a [POSITA] at the earliest claimed priority date of January 9, 2019.

Exhibit 1002, ¶135. In doing so, Petitioner and Dr. Kakaes failed to comply with 37 C.F.R. § 42.104(b)(3) and (4). Nevertheless, Patent Owner will continue this Patent Owner Response using the plain and ordinary meaning of the claim terms.

V. OVERVIEW OF CITED ART.

The Petition relies on three references to challenge the validity of the independent claims of the '535 Patent: *Shi*, *Hong*, and *TS-38.321*. Pet., 22, 44. Specifically, the Petition relies on *Shi* as modified by *TS-38.321* in Ground 1 and *Shi/Hong* as modified by *TS-38.321* in Ground 2. *Id.*

A. *Shi* (Ex. 1004)

Shi discloses a “global counter” for maintaining a count of LBT failures, among other indications, and that “it is possible to reset the global counter when the global timer times out.” Ex. 1004, 6:9-30. *Shi* also discloses that

when the global counter reaches a preset threshold value, the Radio Resource Control (RRC) layer triggers one of the following processes: RRC connection reestablishment, Secondary Cell Group (SCG) — Radio Link Failure (RLF) processing, and RRC reconfiguration.

Ex. 1004, 6:31-34; Ex. 2012, ¶57. *Shi* further discloses that the “SCG-RLF process is to suspend all Signaling Radio Bearers (SRB) and Data Radio Bearers (DRB) of the SCG, reset the SCG Media Access Control (MAC) address entity, and report the number of LBT failures [maintained by the global counter] to the network via an MCG.” Ex. 1004, 6:37-40; Ex. 2012, ¶58. Additionally, *Shi* discloses that “when initiating RRC connection re-establishment and initiating a connection re-establishment request to the network side, the connection re-establishment request includes: the number of LBT failures, and/or an event that triggers LBT.” *Id.*, 6:44-49; Ex. 2012, ¶59.

Nowhere does *Shi* disclose or suggest that the SCG-MAC reset impacts the global counter. Ex. 2012, ¶60. To the contrary, *Shi* discloses using the information maintained in the global counter after the SCG-MAC reset during the re-establishment procedure. *Id.* *Shi* identifies a specific reset mechanism for its global counter: reset may occur when the global timer times out. *See* Ex. 1004, 6:9-30; Ex. 2012, ¶60. That matters because the claims require a different reset mechanism—resetting the LBT failure counter when a MAC reset is requested by an upper layer. Ex. 2012, ¶60. The Petition does not explain why a POSITA would read *Shi*’s express disclosure of one reset mechanism as also implying the distinct mechanism required by the claims. *Id.* Moreover, as discussed in detail below, resetting the global counter that maintains the number of LBT failures during the

SCG-RLF reset of the MAC address entity would destroy that data *before* it is reported “to the network via an MCG” in the SCG-RLF process *and before* it is included in the “connection re-establishment request” when “initiating a connection re-establishment request to the network side” after the SCG-RLF process. *Id.*; Ex. 2012, ¶61; Ex. 2011, 122:2-16 (discussing that after the [secondary cell group radio link failure] SCG-RLF process the “UE” is “not communicating with either the master cell group or the secondary cell group”); 126:15-127:1 (discussing that “once a failure has occurred, then *Shi* goes on to teach that an RRC connection reestablishment can be initiated and that it discusses that possibility”); Ex. 2012, ¶61.

B. *Hong* (Ex. 1005) and *Hong Priority* (Ex. 1006) (collectively “*Hong*”)

Hong discloses that:

By way of another example, the terminal can initiate an RRC connection re-establishment/resumption. The terminal suspends all RBs except SRB0. The terminal resets the MAC. The terminal releases the MCG SCell. The terminal applies a default physical channel configuration. The terminal applies a default MAC main configuration. The terminal carries out cell selection. At this time the terminal can cause cell selection to be carried out, excluding/prohibit a cell in which an LBT failure occurred.

Ex. 1006, ¶0095. Notably, *Hong* fails to disclose that any “LBT failure counter” is “reset” when “a reset of the MAC entity is requested by an upper layer of the UE”

as recited by the '535 Patent. Ex. 2012, ¶62.

C. TS-38.321 (Ex. 1007)

TS-38.321 states that “[i]f a reset of the MAC entity is requested by upper layers, the MAC entity shall: [among other things] reset BFI_COUNTER.” Ex. 1007, 43-44; Ex. 2012, ¶64. Notably, *TS-38.321* does not even mention “Listen-Before-Talk” or “LBT” at all, let alone an LBT counter. See Ex. 2011, 84:2-11 (“there is no mention of listen before talk” in [*TS-38.321*]); Ex. 2012, ¶64. Importantly, a “BFI_COUNTER” has nothing to do with LBT. The BFI_COUNTER is a variable used by a UE to keep track of beam failures. LBT is not directed to beam failures. Ex. 2012, ¶64

Moreover, *TS-38.321* defines two other counters maintained by the MAC entity (PREAMBLE_TRANSMISSION_COUNTER and PREAMBLE_POWER_RAMPING_COUNTER). Ex. 1007, 14. Critically, neither counter is reset during the MAC entity reset provided in Section 5.12. Ex. 1007, 43-44; Ex. 2012, ¶65. The reset procedure is reproduced below as follows:

5.12 MAC Reset

If a reset of the MAC entity is requested by upper layers, the MAC entity shall:

- 1> initialize B_j for each logical channel to zero;
- 1> stop (if running) all timers;
- 1> consider all *timeAlignmentTimers* as expired and perform the corresponding actions in subclause 5.2;
- 1> set the NDIs for all uplink HARQ processes to the value 0;
- 1> stop, if any, ongoing RACH procedure;
- 1> discard explicitly signalled contention-free Random Access Resources, if any;
- 1> flush $Msg3$ buffer;

- 1> cancel, if any, triggered Scheduling Request procedure;
- 1> cancel, if any, triggered Buffer Status Reporting procedure;
- 1> cancel, if any, triggered Power Headroom Reporting procedure;
- 1> flush the soft buffers for all DL HARQ processes;
- 1> for each DL HARQ process, consider the next received transmission for a TB as the very first transmission;
- 1> release, if any, Temporary C-RNTI;
- 1> reset $BFI_COUNTER$.

Ex. 1007, 43-44. As shown, neither the `PREAMBLE_TRANSMISSION_COUNTER` nor `PREAMBLE_POWER_RAMPING_COUNTER` is reset under the MAC entity reset protocol of *TS-38.321*.

Ex. 2012, ¶66; see also Ex. 2011, 93:5-94:5, 95:16-96:2, and 95:8-96:11 (discussing that these counters are not reset until after the MAC reset when the “Random Access procedure” is later “initiated.”). These counters are not reset until later “[w]hen the Random Access procedure is initiated on a Serving Cell” and these counters are set to 1. Ex. 1007, 14-15; Ex. 2012, ¶66.

VI. LEGAL STANDARDS

A. Claim Construction

The first step in an analysis of validity over the prior art is claim construction. *Oakley, Inc. v. Sunglass Hut Intern.*, 316 F.3d 1331, 1339 (Fed. Cir. 2003); *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1351 (Fed. Cir. 2001). The Board is well acquainted with general law of claim construction established by *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*), which applies here. 37 C.F.R. 42.100(a).

B. Obviousness

1. Claim as a Whole

The legally correct analysis for obviousness is to first identify the differences between the claimed invention and the references relied upon. *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). The M.P.E.P. correctly summarizes Federal Circuit precedent as follows:

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 **is not whether the differences themselves would have been obvious**, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)

M.P.E.P., Ninth Edition, Rev. 07.2022, Pbl. Feb 2023, Section 2141.02. It is not enough to merely show that each element was independently known in the prior art. *KSR*, 550 U.S. at 418; *see also Metalcraft of Mayville, Inc. v. The Toro Co.*,

848 F.3d 1358, 1367 (Fed. Cir. 2017).

Ample authorities illustrate that Petitioner's limitation-by-limitation approach is improper. Pet., 30 (“Shi in view of TS-38.321 renders obvious limitation [1e].”); *see also id.*, 35, 38, 43, 48, 52, 56, 62, 63, 66-68, and 70. For example, the Federal Circuit in *In re Dembicki*, 175 F.3d 994, 1000 (Fed. Cir. 1999) stated that “this reference by reference, limitation-by-limitation analysis fails to demonstrate how [the two references] teach or suggest their combination with conventional trash or lawn bags to yield the claimed invention.” *Id.*, *see also Myspace, Inc. v. Garphon Corp.*, 672 F.3d 1250, 1257 (Fed. Cir. 2012); *Ecochem, Inc. v. Southern California Edison, Co.*, 227 F.3d 1361, 1374 (Fed. Cir. 2000). Instead, the relevant question is whether the claim as a whole would have been obvious. *E.g.*, M.P.E.P., § 2141.02.

It is axiomatic that a difference between anticipation and obviousness is that each limitation need not be present in a single piece of prior art for the invention to be obvious. To prove obviousness, Petitioner must show that all of the limitations are present in the combination of references relied upon. *Application of Royka*, 490 F.2d 981, 985 (CCPA 1974); *Roku, Inc. v. ITC*, 90 F.4th 1367, 1374 (Fed. Cir. 2024) (affirming ITC findings on nonobvious where one limitation was missing from the combination); *see also Intellectual Ventures I, LLC v. Motorola Mobility LLC*, 176 F. Supp. 3d 405, 428 (D. Del. 2016), *aff’d in relevant part* 870 F.3d 1320

(Fed. Cir. 2017); *Upsher-Smith Laboratories, Inc. v. Pan American Labs., Inc.*, 2003 WL 22999551, *4 (D. Min. Dec. 19, 2003) (stating that "[t]o establish invalidity on obviousness grounds, the moving party must show by clear and convincing evidence that all claim limitations are present in a combination of prior art references," citing *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351 (Fed. Cir. 2001)).

2. Rationales to Combine

The party alleging obviousness must show that all of the claim limitations are present in a combination of prior art references provided that the party shows a reason or rationale to combine the references. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1578-79 (Fed. Cir. 1997). The Supreme Court in *KSR* confirmed that a rationale must be given for combining references and expanded the rationales that might be used beyond the "teaching-suggestion-motivation" test. *KSR Intern. Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1742 (2007). An obviousness determination requires two separate factual findings, (1) a motivation to combine and (2) reasonable expectation of success. *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367-68 (Fed. Cir. 2016) (quoting *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1360 (Fed. Cir. 2012)).

3. Prohibition on use of “Knowledge of POS[IT]A” for Missing Material Limitation in Cited Art.

The Federal Circuit has provided guidance as to when “knowledge of one skilled in the art,” also sometimes referred to as “common sense,” may be relied upon to supply a limitation missing from a single reference or combination of references. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324 (Fed. Cir. 2009); *Arendi v. Apple, Inc.*, 832 F.3d 1355 (Fed. Cir. 2016); *DSS Tech. Mgmt. v. Apple Inc.*, 885 F.3d 1367 (Fed. Cir. 2018). A comparison of *Perfect Web* and *Arendi* provides a limit to the use of “common sense” or “knowledge of one skilled in the art” (as Petitioner casts it) based on whether or not the limitation is a minor or “peripheral” limitations versus a major limitation that goes to the “heart of the invention” *Arendi*, 832 F.3d at 1363.

In *Perfect Web*, the Federal Circuit discussed *KSR*’s “common sense” and “obvious to try” factors at length and upheld the lower court’s finding of obviousness where common sense had been used to supply a missing limitation. The Federal Circuit distinguished *Perfect Web* in *Arendi*. It first acknowledged that *Perfect Web* was the only case cited where “common sense” was used to supply a missing limitation. *Arendi*, 832 F.3d at 1362.

The Court in *Arendi* then distinguished the missing limitation (D) in *Perfect Web* as nothing more than an instruction to repeat the first three steps (A-C) found

in the prior art. *Id.* The Court then noted that, “in contrast, the missing search [*i.e.*, the missing limitation in *Arendi*] ‘plays **a major role** in the subject matter claimed.”

Id. The Court concluded:

[W]hile ‘common sense’ can be invoked, even potentially to supply a limitation missing from the prior art, it must still be supported by evidence and reasoned explanation. In cases where ‘common sense’ is used to supply a missing limitation, as distinct from a motivation to combine, moreover, our search for a reasoned basis for resort to common senses must be searching. And, this is particularly true where the missing limitation goes to the heart of the invention.”

Arendi, 832 F.3d at 1363 (emphasis added).

In *DSS Technology Management*, the Federal Circuit applied *Arendi* in reversing the PTAB’s ruling of obviousness where a conclusory allegation of “common sense” was relied upon to supply a missing limitation, stating:

As we observed in *Arendi*, “common sense and common knowledge have their proper place in the obviousness inquiry,” at least “if explained with sufficient reasoning.” 832 F.3d at 1361 (quoting *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1328 (Fed. Cir. 2009)). “But,” we cautioned, “there are at least three caveats to note in applying ‘common sense’ in an obviousness analysis.” *Id.* “First, common sense is typically invoked to provide a known motivation to combine, not to supply a missing claim limitation.” *Id.* at 1361–62 [citations omitted] Second, we have invoked common sense to fill in a missing limitation only when “the limitation in question was unusually simple and the technology particularly straightforward.” *Id.* at 1362 (citing *Perfect Web*, 587 F.3d at 1326). “Third, our cases repeatedly warn that references

to ‘common sense’—whether to supply a motivation to combine or a missing limitation—cannot be used as a wholesale substitute for reasoned analysis and evidentiary support, especially when dealing with a limitation missing from the prior art references specified.” *Id.*

DSS, 885 F.3d at 1374 (emphasis added).

VII. THE PETITION FAILS TO ESTABLISH THAT TS-38.321, RELIED UPON BY THE PETITION UPON FOR ALL GROUNDS CHALLENGING THE INDEPENDENT CLAIMS, QUALIFIES AS A “PRINTED PUBLICATION” UNDER 35 U.S.C. § 102.

A. *Legal Background*

In order to qualify as a “printed publication” under 35 U.S.C. § 102, a reference must be publicly accessible. *In re Klopfenstein*, 380 F.3d 1345, 1350 (Fed. Cir. 2004) (“Thus, throughout our case law, public accessibility has been the criterion by which a prior art reference will be judged for the purposes of § 102(b)”). This requires more than just that the reference be technically available to the general public. As the Federal Circuit summarized, “[a] given reference is ‘publicly accessible’ upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it.” *SRI Int’l, Inc. v. Internet Sec. Sys., Inc.*, 511 F.3d 1186, 1194 (Fed. Cir. 2008) (quoting *Bruckelmyer v. Ground Heaters, Inc.*, 445 F.3d 1374, 1378 (Fed. Cir. 2006)). And such a determination necessarily “involves a case-by-case inquiry into the facts and circumstances surrounding the reference's disclosure to members

of the public.” *Klopfenstein*, 380 F.3d at 1350. At the final written decision phase, the Petitioner must prove that a reference is publicly accessible by a preponderance of the evidence. *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, 2019 WL 7000067, at *4 (P.T.A.B. Dec. 20, 2019) (precedential).

B. *The Petition and its supporting expert declaration fail to establish that TS-38.321 was “publicly accessible” to a POSITA before the priority date of the ’535 Patent.*

Here, the Petition, and the supporting declaration of Petitioner’s expert, Mr. Rodermund, fail to establish that *TS-38.321* (Ex. 1007), was publicly accessible to a POSITA before the January 9, 2019 priority date of the ’535 Patent. Indeed, Mr. Rodermund’s declaration, on which the Petition wholly relies for this issue (*see* Pet. at 18-19), contains **no** discussion of whether a POSITA would be able to locate the reference when exercising reasonable diligence. Indeed, the term or concept of a “person having ordinary skill in the art” (or its equivalents) do not appear anywhere in his declaration. At his deposition, Mr. Rodermund agreed that he did not know or consider a POSITA in his public availability analysis. Ex. 2010, 49:10-19, 50:20-51:4, 188:6-10. And the Google search he conducted for *TS-38.321* was done in 2025, over six years after the patent’s priority date, and after he already had the reference and used it as a roadmap to craft his search.

In his declaration, Mr. Rodermund provides two ways in which a 3GPP delegate or user could access *TS-38.321*: through 3GPP’s FTP server or Google

searches. Ex. 1012, ¶¶72-81. Regarding 3GPP's FTP server, the fact that a reference is available on an FTP server that the public can access is not sufficient to establish public accessibility. *Nokia of America Corp. v. ICom, GMBH & Co. KG*, IPR2021-00533, Paper 10 at 30 (P.T.A.B. Aug. 12, 2021) (finding a document available on 3GPP's FTP not to be publicly accessible, despite an expert declaration supporting its public accessibility).

Rather, Mr. Rodermund's declaration must show that a POSITA could locate the references with reasonable diligence on the FTP site. *SRI Int'l*, 511 F.3d at 1194. It does not. Indeed, the declaration does not discuss, let alone establish, that a POSITA could locate the reference with reasonable diligence. Instead, Mr. Rodermund's declaration focuses on *when* the reference was available on the FTP site, not whether a POSITA would be able to find it. *See* Ex. 1012, ¶¶73-74. Notably, in his declaration, Mr. Rodermund does not assert that the 3GPP FTP server was either indexed or searchable on or before the January 9, 2019 priority date of the '535 Patent. The lack of a meaningful searchability function and indexing is a significant factor when determining whether something is publicly accessible. *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1349 (Fed. Cir. 2016) (noting that indexing by author name and title was not "meaningful"). Without searchability functionality, a POSITA would have no way to meaningfully locate *TS-38.321* on the 3GPP FTP server unless, like Mr. Rodermund, he knew

the details of the document he was looking for before he began searching. Ex. 2010, 54:12-19.

Petitioner's definition of a POSITA does not include any familiarity with 3GPP or the structure of its website that would allow a POSITA to locate *TS-38.321* on the 3GPP FTP server. Specifically, Petitioner asserted that a POSITA "would have had at least a master's degree in electrical engineering or a similar field and at least two years of experience working with wireless telecommunications systems." Pet, 22. Mr. Rodermund did not analyze the public availability of *TS-38.321* from the standpoint of a POSITA. Ex. 2010, 49:10-19, 50:20-51:4, 188:6-10. Most POSITAs would not be 3GPP delegates, which compose a small subset of engineers. *See* Ex. 2010, 136:16-137:20. So, a POSITA would not necessarily understand the labyrinthian organization of 3GPP's documents, or its various specification and working groups. Because the Petition, and Mr. Rodermund's declaration on which it relies, are devoid of any analysis regarding whether a POSITA would be able to locate *TS-38.321* on the 3GPP FTP server with reasonable diligence, Petitioner has not established by a preponderance of the evidence that *TS-38.321* was publicly accessible before January 9, 2019, the priority date of the '535 Patent.

Further, the date on the 3GPP FTP server that Mr. Rodermund relies on to show when *TS-38.321* was allegedly publicly available is not reliable. Indeed,

3GPP and ETSI expressly disclaim the accuracy or reliability of any information contained on the 3GPP Website. *See* Ex. 2014 (3GPP Terms of Use), 3. Specifically, ETSI states that it “makes no representations or warranties as to the accuracy, reliability or completeness of any information incorporated thereto and contained on the 3GPP Website.” *Id.* And Mr. Rodermund has no personal knowledge regarding the document or when it was uploaded to provide the information that ETSI concedes may not be accurate. Indeed, he left ETSI in 2004, 14 years before *TS-38.321* was created, and did not attend the meeting where it was purportedly discussed. Ex. 1012, Appendix A, 2-3.

Mr. Rodermund’s declaration also asserts that *TS-38.321* could be located on the 3GPP website through a routine Google search before the priority date of the ’535 patent. Ex. 1012, ¶¶77-80. But this is incorrect. First, Mr. Rodermund used the search term “5G MAC Spec” to locate the 3GPP website that has *TS-38.321*. Ex. 1012, ¶77. In his declaration, Mr. Rodermund provides no reason for why he used this search term. *Id.*, ¶¶72-81. And Mr. Rodermund provides no opinion that a POSITA would have conducted this search. Indeed, Mr. Rodermund had *TS-38.321* in his possession when he ran that search and so used the document and hindsight to determine what search term to use. *See* Ex. 2010, 195:5-19. The words “5G MAC Spec” all appear on the first page of *TS-38.321*. Ex. 1007, 1. But “5G MAC Spec” is not the issue in the prior art that the patent was intending to

overcome. Instead, the patent describes an improved and more efficient mechanism for dealing with Listen Before Talk (“LBT”) failures. Ex. 1001, 1:38-41. Notably, Mr. Rodermund did not know what problem the ’535 Patent intended to solve and had never even seen or read the ’535 Patent before issuing his declaration. Ex. 2010, 52:16-22, 195:20-196:3. So his search, unlike the search a POSITA would conduct, was not directed towards solving that problem, but rather what someone generally interested in the subject matter of a 5G Mac specification would search for. *See* Ex. 2010, 54:1-8.

Second, as Mr. Rodermund concedes, he conducted his search in 2025. Ex. 1012, ¶80. Mr. Rodermund does not have a basis to assert that *TS-38.321* would have been one of the results of a Google search conducted before January 9, 2019, the priority date of the ’535 Patent. As the Board stated in *Nokia*, when discussing a similar Google search of the 3GPP website, “[b]ut whether these servers *are* searchable today is irrelevant to public accessibility in the relevant timeframe.” IPR2021-00533, Paper 10 at 30-31; *see Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1350 (Fed. Cir. 2016) (“The record is devoid of any evidence that a query of a search engine before the critical date, using any combination of search words, would have led to Ratsimor appearing in the search results.”). Indeed, Mr. Rodermund could not recall having done a similar Google search before the priority date of the ’535 Patent to support his blanket statement that he expects the Google

results to be the same at that time. Ex. 2010, 194:7-14; Ex. 1012, ¶80.

Third, the search results depend on Google’s search algorithm at the time and the person doing the searching. Mr. Rodermund had no personal knowledge regarding whether Google’s search algorithm had changed or whether Google’s algorithm on or before the January 9, 2019 priority date would have resulted in the same results he received in 2025. *See* Ex. 2010, 174:15-175:21, 191:22-192:6. And Google may tailor its search results based on the history of the person who is conducting the search—as well as based on location. Ex. 2013 (Google Support Documentation). So, one person’s search results may differ from another person’s. Mr. Rodermund had no knowledge of this or how it might affect the search he ran. Ex. 2010, 176:11-20. Thus, the modern-day search results he provided in his declaration do not support that *TS-38.321* was publicly accessible to a POSITA almost seven years earlier, on or before January 9, 2019.

Petitioner and their expert Mr. Rodermund have also not established that *TS-38.321* was disseminated. *See SRI Int’l*, 511 F.3d at 1194 (noting that dissemination is one way to establish a reference was publicly accessible). Mr. Rodermund relies on an “email exploder” that was sent on September 25, 2018, that mentions *TS-38.321*. Ex. 1012, ¶76. But he does not know who or how many people received that email, instead assuming the number was similar to the current number of recipients today. Ex. 1012, ¶76. He never opines that a POSITA (who is not defined

to be a 3GPP delegate) would have received this email or been aware of it. Ex. 2010, 108:6-14. And the email does not attach the document and only mentions that the author has “uploaded three final spec versions to 3GU” including “38321-f30.” Ex. 1012, Appendix G; Ex. 2010, 201:7-13. Further, neither the email nor the file name (38321-f30) provides a meaningful indication of the subject matter of the document. *See Nokia*, IPR2021-00533, Paper 10 at 29; Ex. 2010, 187:19-188:4. As the Board in *Nokia* found when determining that a similar email was not disseminated, “someone would have had to know what the email attachment contained, which is not evident from the email itself.” *Nokia*, IPR2021-00533, Paper 10 at 29. And Mr. Rodermund makes no attempt to connect the email or its contents to what a POSITA would know or understand, whether a POSITA would have even received or been aware of this email, or how a POSITA could have located the *TS-38.321* after receiving the email.

Thus, because Petitioner and their expert, Mr. Rodermund, failed to show that *TS-38.321* was publicly accessible to a POSITA before January 9, 2019, it is not a printed publication under 35 U.S.C. § 102. As a result, all grounds of the Petition should be rejected, because all grounds challenging the independent claims of the ’535 Patent rely on *TS-38.321*.

C. *Petitioner has not established that TS-38.321 is not hearsay.*

Petitioner has not established that *TS-38.321* is authentic and meets any

hearsay exception. Specifically, Mr. Rodermund has no contemporary knowledge of 3GPP's procedures, the relevant working groups, or *TS-38.321* during the relevant time period. *See Nokia*, IPR2021-00533, Paper 10 at 26 (discussing Patent Owner's arguments). Mr. Rodermund left ETSI in 2004, fourteen years before the relevant dates here. Mr. Rodermund never stated that he participated in any meetings related to *TS-38.321* or was involved in its creation. So, Mr. Rodermund had no contemporary knowledge of *TS-38.321* or whether it qualifies as a business record. And, as part of his work in this IPR, he never spoke to any individual involved with the creation of *TS-38.321* or who was employed by 3GPP or ETSI during the relevant period about how the system worked. Ex. 2010, 18:2-7. So, he has no knowledge regarding the creation of *TS-38.321* or how the 3GPP FTP server and document system functioned on or before the January 9, 2019 priority date of the '535 Patent. As a result, Petitioner has no basis to authenticate *TS-38.321* or to show that it meets business record exception to the hearsay rule. *See generally* Fed. R. Evid. 803(6); Fed. R. Evid. 901; *United States v. Foster*, 829 F. Supp. 2d 354, 364 (W.D. Va. 2011) (finding a document to be hearsay because the sponsoring witness did not have sufficient contemporaneous knowledge to sponsor it). Thus, *TS-38.321* should be excluded and, because it is included in each of Petitioner's grounds for the independent claims of the '535 Patent, the Petition should be rejected.

VIII. THE PETITION FAILS TO ESTABLISH THAT THE CITED REFERENCES RENDER ANY CHALLENGED CLAIM OBVIOUS BY DISCLOSING OR SUGGESTING “RESET[TING] THE LBT FAILURE COUNTER WHEN A RESET OF THE MAC ENTITY IS REQUESTED BY AN UPPER LAYER OF THE UE” AS RECITED IN ALL CLAIMS OF THE ’535 PATENT.

The Petition does not contend that *any* cited reference discloses “reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE” (“element [1e]”) as recited in all independent claims—and therefore all claims—of the ’535 Patent. *See infra*, §VIII.A. Nor could it. No reference relied on by the Petition for this claim element (*Shi, Hong*, and *TS-38.321*) discloses “reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE.” *See supra*, §V.

The inability of Petitioner to identify *any* prior art reference that discloses “reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE” is unsurprising, as this is the same claim element that the Examiner found was not disclosed by the prior art during prosecution and was a basis for allowing the claims of the ’535 Patent. *See supra*, §II.C; Ex. 2011, 41:2-15 (“I’m not aware of the examiner having identified anything related to the limitation, ‘reset the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE.’”) In the absence of *any* prior art reference that discloses element [1e], the Petition relies *solely* on the declaration of Dr.

Kakaes to argue that a POSITA would have nonetheless found this claim element obvious. *See infra*, §VIII.B. As shown below, the obviousness arguments asserted by the Petition are contradicted by both *TS-38.321* and *Shi*, and the modifications to *Shi* proposed by the Petition would render portions of its disclosure inoperable.

In Ground 1, the Petition argues that “[a] POSITA would have found it obvious that *Shi*’s resetting of the MAC entity would include resetting the global counter (LBT failure counter) because ... the global counter is maintained at the MAC layer” and “[i]t was well known to a POSITA that resetting a MAC entity includes, for example, resetting counters associated with the MAC entity.” Pet., 31 (citing Ex. 1007 (*TS-38.321*)). The Petition makes the same argument regarding *Shi/Hong* for Ground 2. *Id.*, 44-46. However, this argument directly conflicts with the disclosures of both *TS-38.321* and *Shi*. *See infra*, §VIII.B.

TS-38.321 refutes the Petition’s argument that “resetting a MAC entity includes ... resetting counters associated with the MAC entity.” Pet., 31. *TS-38.321* discloses **three** counters maintained by the MAC and, contrary to the Petition’s argument, **only one** is reset when the MAC is reset. *See infra*, VIII(B); Ex. 1007, 43-44. The other two counters are not reset until some unknown time **after** the disclosed MAC reset when “the Random Access procedure is initiated on a Serving Cell.” *See infra*, VIII(B); Ex. 1007, 15 and 43-44. As such, Petitioner’s own reference rebuts Petitioner’s assertion that resetting a MAC would reset all the

counters maintained by the MAC.

Further, *Shi* does not disclose that the “global counter” (identified by the Petition as the claimed “LBT failure counter”) is reset with the MAC. Pet., 31; *infra*, §VIII(A). To the contrary, *Shi* **only** discloses that the “global counter” that maintains the “count” of “the number of LBT failures” is reset when a “global timer times out.” Ex. 1004, 6:22-30. Worse, the Petition’s proposed modifications to *Shi* to reset the “global counter” when the MAC is reset would not operate with the disclosure of *Shi*. The Petition’s proposed modifications would clear the “number of LBT failures” maintained by the “global counter” during the “reset [of] the ... (MAC) address entity” during the “SCG-RLF process” **before** this data is used to “report the number of LBT failures to the network via an MCG” in the “SCG-RLF process” and **before** this data is reported “in a re-establishment request message” as part of the “RRC connection re-establishment” after the “SCG-RLF process.” See *infra*, VIII(B); Ex. 1004, 6:31-49. Neither the Petition, nor Dr. Kakaes, provide any explanation for why a POSITA would clear the “number of LBT failures” from the “global counter” during the “reset [of] the ... (MAC) address entity” when this data is still needed for subsequent messaging. See *infra*, VIII(B).

Moreover, the Petition fails to show that a POSITA would have been motivated to modify the cited references to perform “reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE”

as claimed in the '535 Patent. Specifically, the Petition fails to provide any reasoning for why a POSITA would modify *Shi* or *Shi/Hong* with *TS-38.321* to perform the exact functionality claimed by the '535 Patent (and not disclosed in *any* prior art reference), instead of other known alternatives—specifically including the alternatives disclosed in *Shi* and *TS-38.321*. *See infra*, §VII.B; *see also Gamber-Johnson LLC v. National Products Inc.*, IPR2021-01159, Paper 7 (P.T.A.B. Jan.3, 2022) (“Petitioner has identified a modification that could be made, but fails to show that a skilled artisan would have been motivated to make the modification as required to meet the claim”).

A. *The Petition does not contend that any cited reference discloses “reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE.”*

The Petition challenges this claim element ([1e]) based on *Shi* in combination with *TS-38.321* in Ground 1 and based on the combination of *Shi*, *Hong*, and *TS-38.321* in Ground 2. Pet., 32-34 (Ground 1), 45-48 (Ground 2); Ex. 2012, ¶67. However, the Petition does not contend that *any* of these references discloses “reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE,” as recited by all claims of the '535 Patent.

Instead, in Ground 1, the Petition asserts that “[a] POSITA would have found it obvious that *Shi*’s resetting of the MAC entity” during the “SCG-RLF process” would include resetting the global counter (LBT failure counter) because ... the

global counter is maintained at the MAC layer” and “[i]t was well known to a POSITA that resetting a MAC entity includes ... resetting counters associated with the MAC entity.” Pet., 31 (Ground 1); Ex. 2012, ¶68. Specifically, the Petition argues that “*TS-38.321* disclose that, ‘[i]f a reset of the MAC entity is requested by upper layers, the MAC entity shall,’ among other things, ‘reset *BFI_COUNTER*’” that “counts the number of beam failure instance indications....” Pet., 31-32; Ex. 2012, ¶69. That is, in Ground 1, the Petition argues that a POSITA would **modify** the disclosure of *Shi* based on *TS-38.321* to perform the functionality claimed in element [1e] that is, notably, not disclosed by either reference. Ex. 2012, ¶69.

In *Shi*, the Petition points to the “SCG-RLF processing” that includes “reset[ting] the SCG Media Access Control (MAC) address entity” for its obviousness argument. Pet., 31; Ex. 2012, ¶70. However, *Shi* does not disclose or suggest that “SCG-RLF processing” or “reset[ting] the SCG Media Access Control (MAC) address entity” impacts the “global counter” (identified by the Petition as the claimed LBT failure counter) of *Shi* in any way. See Ex. 1004, 6; Ex. 2012, ¶70. Indeed, *Shi* expressly discloses providing the “number of LBT failures” stored in the “global counter” **after** resetting the SCG MAC address entity: (1) to “report the number of LBT failures to the network via an MCG” at the end of the SCG-RLF processing and (2) to include the “number of LBT failures” in a re-establishment request messaging during the RRC connection re-establishment. *Id.*; Ex. 2012, ¶¶71-

74. Further, *Shi* already discloses a mechanism for resetting the “global counter” and it is based on a “global timer” that “times out” rather than when the “MAC address entity” is “reset.” *Id.*; Ex. 2012, ¶¶75-76. As such, not only does *Shi* not disclose “reset[ing] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE,” as recited in all claims of the ’535 Patent, *Shi* discloses an alternate reset mechanism (a “global timer”) and discloses that the “number of LBT failures” maintained by the “global timer” is used **after** the reset of the MAC entity in the SCG-RLF process cited by the Petition. Ex. 2012, ¶77.

Moreover, in *TS-38.321*, the Petition recognizes that the “failure counter” is **not** an “LBT failure counter,” but is instead a “beam failure” counter. Pet., 31-32; Ex. 1007, 43-44; Ex. 2012, ¶78. However, the “beam failure” counter of *TS-38.321* relates to detecting that the quality of a communication signal (beam) has degraded and “failed,” and has nothing to do with either listen-before-talk or the claimed “LBT failure counter.” Ex. 1007, 43-44 and 47; Ex. 2012, ¶78. As recognized by Dr. Kakaes, *TS-38.321* does not even **mention** listen-before-talk, let alone an “LBT failure counter” as claimed in the ’535 Patent. Ex. 1007; Ex. 2011, 84:2-11; Ex. 2012, ¶78.

TS-38.321 does not even disclose or teach that all counters maintained by the “MAC entity” are reset “[i]f a reset of the MAC entity is requested by upper layers.” Ex. 2012, ¶79. To the contrary, *TS-38.321* discloses that the “MAC entity”

maintains **three counters** and only discloses that **one counter** is reset if “the MAC entity” is reset. Ex. 1007, 43-44; Ex. 2012, ¶79. As recognized by Petitioner’s expert, Dr. Kakaes, the PREAMBLE_TRANSMISSION_COUNTER and PREAMBLE_POWER_RAMPING_COUNTER would **not** be reset during a reset of the MAC entity (discussed in TS-38.321 § 5.12 “MAC Reset”) and, instead, would only be reset “[w]hen the Random Access procedure is **initiated** on a Serving Cell” (discussed in TS-38.321 § 5.1.1 “Random Access procedure initialization”). Ex.2011, 93:5-94:5, 95:8-96:11 (discussing that these counters are not reset until after the MAC reset when the “Random Access procedure” is later “initiated.”); Ex. 1007, 15 and 43-44; Ex. 2012, ¶80. To the contrary, Dr. Kakaes recognized that TS-38.321 disclosed that: “If a reset of the MAC entity is requested by upper layers, the MAC entity shall: ... **stop, if any, ongoing [Random Access Channel] RACH procedure**” and that these counters would not be reset until the “Random Access procedure” was “initiated” at some later time. Ex. 1007, 43; Ex. 2011, 93:5-94:5, 95:8-96:11; Ex. 2012, ¶81. Accordingly, neither *Shi* nor TS-38.321 disclose this limitation. Ex. 2012, ¶81.

In Ground 2, the Petition adds *Hong* to the *Shi* - TS-38.321 combination, but *Hong* does not cure the deficiencies of either *Shi* or TS-38.321. *Hong* simply discloses that a “terminal can initiate an RRC connection re-establishment/resumption” where “[t]he terminal resets the MAC.”

By way of another example, the terminal can initiate an RRC connection re-establishment/resumption. The terminal suspends all RBs except SRB0. The terminal resets the MAC. The terminal releases the MCG SCell. The terminal applies a default physical channel configuration. The terminal applies a default MAC main configuration. The terminal carries out cell selection. At this time, the terminal can cause cell selection to be carried out, excluding/prohibiting a cell in which an LBT failure occurred.

Ex. 1006, ¶0095; Ex. 2012, ¶82. *Hong* does not disclose or teach to “reset the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE” as claimed in the ’535 Patent. Nor does the Petition assert otherwise. Ex. 2012, ¶82.

The Petition **does not** rely on the disclosure of *Hong* for “reset[ting] the LBT failure counter,” as claimed in the ’535 Patent, and instead relies on the same obviousness argument from Ground 1. Ex. 2012, ¶83. The Petition merely states, “[a]s discussed for Ground 1, a POSITA would have found it obvious that resetting a MAC entity of the MAC layer would include resetting the LBT failure counter when the counter is maintained at the MAC layer, as taught in *Shi*.” Pet., 45; Ex. 2012, ¶83. The Petition then repeats the same argument from Ground 1, namely, that “a POSITA would have further been motivated to incorporate *TS-38.321*’s teachings of resetting a failure counter in response to resetting a MAC entity into *Shi/Hong*’s method” Pet., 48; Ex. 2012, ¶84. But as discussed above, *TS-38.321* neither discloses an “LBT failure counter” nor teaches that all counters maintained by a MAC entity are reset with the MAC entity. Ex. 2012, ¶84.

As such, none of *Shi*, *Hong*, or *TS-38.321* disclose “reset[ting] the LBT

failure counter when a reset of the MAC entity is requested by an upper layer of the UE” as recited by all claims of the ’535 Patent. Ex. 2012, ¶85. As discussed above, the inability of Petitioner to identify *any* reference that discloses this claim element is unsurprising as this is the same claim element that the Examiner was unable to locate in the prior art and was a basis for allowing the claims of the ’535 Patent. *See supra*, §II.C; Ex. 2012, ¶85.

Not only do the references relied on by the Petition not disclose “reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE,” as recited by all claims of the ’535 Patent, they directly conflict with the Petition’s arguments that it is obvious. Ex. 2012, ¶86.

B. *No reference supports the Petition’s obviousness argument for both Grounds 1 and 2 that “[a] POSITA would have found it obvious that Shi’s resetting of the MAC entity would include resetting the global counter (LBT failure counter) because ... the global counter is maintained at the MAC layer.”*

The Petition argues in Ground 1 that “[a] POSITA would have found it obvious that *Shi*’s resetting of the MAC entity would include resetting the global counter (LBT failure counter) because ... the global counter is maintained by the MAC layer” and “[i]t was well-known to a POSITA that resetting a MAC entity includes, for example, resetting counters associated with the MAC entity.” Pet., 31 (citing Ex. 1002, ¶177); Ex. 2012, ¶87. The Petition then reiterates the same argument for this claim element in Ground 2. Pet., 45-48 (“[F]or at least the reasons

discussed above for Ground 1, a POSITA would have further been motivated to incorporate *TS-38321*'s teachings of resetting a failure counter in response to resetting a MAC entity into *Shi/Hong*'s method"); Ex. 2012, ¶88. However, this argument is refuted by the disclosures of both *TS-38.321* and *Shi*. Ex. 2012, ¶88.

TS-38.321 does even mention "listen-before-talk," let alone disclose "reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE" as claimed in the '535 Patent. Ex. 1007; Ex. 2011, 84:2-11; Ex. 2012, ¶89. *TS-38.321* further **refutes** the contention in the Petition that all counters maintained by a MAC entity would be reset when the MAC entity is reset. Ex. 2012, ¶89. Specifically, *TS-38.321* discloses at least two counters ("PREAMBLE_TRANSMISSION_COUNTER" and "PREAMBLE_POWER-RAMPING_COUNTER") that are maintained by the MAC entity and neither counter is reset during the MAC entity reset in Section 5.12 of *TS-38.321* relied on by the Petition. Ex. 1007, 14 and 43 (shown below).

5.12 MAC Reset

If a reset of the MAC entity is requested by upper layers, the MAC entity shall:

- 1> initialize *Bj* for each logical channel to zero;
- 1> stop (if running) all timers;
- 1> consider all *timeAlignmentTimers* as expired and perform the corresponding actions in subclause 5.2;
- 1> set the NDIs for all uplink HARQ processes to the value 0;
- 1> stop, if any, ongoing RACH procedure;
- 1> discard explicitly signalled contention-free Random Access Resources, if any;
- 1> flush Msg3 buffer;
- 1> cancel, if any, triggered Scheduling Request procedure;
- 1> cancel, if any, triggered Buffer Status Reporting procedure;
- 1> cancel, if any, triggered Power Headroom Reporting procedure;
- 1> flush the soft buffers for all DL HARQ processes;
- 1> for each DL HARQ process, consider the next received transmission for a TB as the very first transmission;
- 1> release, if any, Temporary C-RNTI;
- 1> reset *BFI_COUNTER*.

Ex. 1007, 43-44; Ex. 2012, ¶89.

Petitioner's expert Dr. Kakaes recognized that neither the "PREAMBLE_TRANSMISSION_COUNTER" nor "PREAMBLE_POWER-RAMPING_COUNTER" would be reset during the "MAC Reset" of *TS-38.321* and, instead, would only be reset at some later time "[w]hen the Random Access procedure is **initiated** on a Serving Cell" (discussed in *TS-38.321* § 5.1.1 "Random Access procedure initialization"). Ex. 2011, 68:2-69:15 (discussing that the counters of *Shi* would not necessarily reset during a MAC reset); Ex. 2011, 93:5-94:5, 95:8-96:11 (discussing that these counters are not reset until after the MAC reset when the "Random Access procedure" is later "initiated."); Ex. 1007, 15 and 43-44; Ex. 2012, ¶90. *TS-38.321* expressly discloses that during the MAC reset, it would "stop,

if any, ongoing RACH [Random Access Channel] procedure” and that these counters would not be “[re]set ... to 1” until some time later when “the Random Access procedure is **initiated** on a Serving Cell[.]” *Id.*; Ex. 2012, ¶91.

Shi also refutes Petitioner’s obviousness arguments. *Shi does not* disclose that the “global counter” is reset during a reset of the “(MAC) address entity” during the “SCG-RLF processing” as relied on by the Petition. Ex. 2012, ¶92. Instead, *Shi only* discloses an alternative mechanism to reset the “global counter” that is based on a “global timer” that “times out” as opposed to resetting as part of the MAC reset. Ex. 1004, 6 (“[I]t is possible to reset the global counter when the global timer goes out.”); Ex. 2012, ¶92. Petitioner’s expert, Dr. Kakaes further testified that the counters of *Shi* would not necessarily reset on a reset of the MAC. Ex. 2011, 68:2-69:15; Ex. 2012, ¶92.

Nor would it make sense for *Shi* to reset the “global counter” when a “reset” of “the SCG Media Access Control (MAC) address entity” is requested during the “SCG-RLF process” as argued by the Petition. *Shi* discloses that “[t]he SCG-RLF process is to ... reset the SCG Media Access Control (MAC) address entity” and then “report the number of **LBT failures**” maintained by the “global counter” to “the network via an MCG.” Ex. 1004, 8-9; Ex. 2012, ¶93. It further states that, “when initiating an RRC connection re-establishment ... the connection re-establishment request comprises: **the number of LBT failures**” *Id.*; Ex. 2012, ¶93.

Importantly, even Petitioner’s expert Dr. Kakaes recognized that at least the “RRC connection re-establishment” that includes “the number of LBT failures” would occur **after** the SCG-RLF process. Ex. 2011, 122:2-16 (discussing that after the [secondary cell group radio link failure] SCG-RLF process the “UE” is “not communicating with either the master cell group or the secondary cell group”); 126:15-127:1 (discussing that “once a failure has occurred, then *Shi* goes on to teach that an RRC connection reestablishment can be initiated and that it discusses that possibility”); Ex. 2012, ¶94. As such, *Shi* relies on the “number of LBT failures” maintained by the “global counter” **after** the “reset” of “the ... (MAC) address entity” and therefore it would not make sense in *Shi* to reset the “global counter” on “reset” of the “(MAC) address entity.” *Id.*; Ex. 2012, ¶94.

The Petition argues “[a] POSITA would have been motivated to implement TS-38.321’s teachings of resetting a failure counter when resetting a MAC entity into *Shi*’s method because the purpose of resetting the MAC entity is to reset it to its default configurations,” “resetting the MAC entity involves clearing any data or recorded values and restarting any timers or counters,” and “[a] POSITA would have understood that, if the upper layer requests that the MAC entity be reset, then all of the configurations associated with the MAC entity would be reset, and not just some configurations, in order to improve the chances of resolving the issue that is causing the need to reset the MAC entity (e.g., LBT failure).” Pet., 32 (citing Ex. 1002,

¶180); Ex. 2012, ¶95. Again, these arguments directly conflict with **both** *TS-38.321* and *Shi*. As discussed above, *TS-38.321* discloses multiple counters maintained by the MAC entity that are **not** reset during the “MAC reset” and *Shi* discloses that the “number of LBT failures” maintained by the “global counter” is used **after** the “reset” of the “(MAC) address entity” and Petitioner’s expert, Dr. Kakaes, agreed. Ex. 2011, 93:5-94:5, 95:8-96:11 (discussing that these counters are not reset until after the MAC reset when the “Random Access procedure” is later “initiated.”); Ex. 2012, ¶96.

Finally, the Petition argues that “[a] POSITA would have been motivated to reset the LBT failure counter in particular because, with the MAC entity being reset, it would also make sense to restart the LBT failure counter, as the UE attempts to retry the LBT process” and “it would not make sense to use the existing LBT failure counter, after an LBT failure event has already occurred.” Pet., 33 (citing Ex. 1002, ¶181); Ex. 2012, ¶97. However, as discussed above, *Shi* discloses that the “number of LBT failures” maintained by the “global counter” is used **after** the “reset” of the “(MAC) address entity.” Ex. 1004, 8-9; Ex. 2012, ¶98. Therefore, it would not make sense to reset the “global counter” maintaining “the number of LBT failures” when that information is still needed, for example, to “report the number of **LBT failures**” maintained by the “global counter” to “the network via an MCG” and to include “the number of LBT failures” in “the connection re-establishment request” of “RRC

connection re-establishment.” *Id.* Petitioner’s expert, Dr. Kakaes, recognized that at least the “RRC connection re-establishment” that includes “the number of LBT failures” in “the connection re-establishment request” occurs **after** the SCG-RLF process that included “reset[ting] the SCG Media Access Control (MAC) address entity[.]” Ex. 1004, 8-9; Ex. 2011, 122:2-16 (discussing that after the [secondary cell group radio link failure] SCG-RLF process the “UE” is “not communicating with either the master cell group or the secondary cell group”); 126:15-127:1 (discussing that “once a failure has occurred, then *Shi* goes on to teach that an RRC connection reestablishment can be initiated and that it discusses that possibility”); Ex. 2012, ¶99.

Additionally, the Petition and Dr. Kakaes fail to articulate why a POSITA would modify the method of *Shi*, which already includes a mechanism to reset the “global counter” using the “global timer,” to instead reset the global counter maintaining the “number of LBT failures” when the MAC is reset despite “the number of LBT failures” being needed for messaging **after** the MAC is reset. Ex. 2012, ¶100. Nor do the Petition or Dr. Kakaes articulate why a POSITA would look to TS-38.321, which **does not discuss listen-before-talk or an “LBT failure counter,”** and which **does not reset all counters** during the MAC entity reset, to modify the process of *Shi* to perform functionality that is not disclosed by any cited reference. Ex. 2012, ¶100.

As discussed below in Section VIII.C, the obviousness arguments made by the Petition and Dr. Kakaes for this claim element fail to articulate why a POSITA **would** modify the processes of the cited references to perform **exactly** the functionality claimed by the '535 Patent (but not disclosed in any reference cited by the Petition or during prosecution) instead of any other alternatives **known at the time**, specifically including the known alternatives disclosed in the references relied upon by the Petition. As such, the obviousness arguments made in the Petition and by Dr. Kakaes smack of improper and impermissible hindsight reconstruction. See *Opticon Medical AB v. Cochlear Limited*, IPR2019-00975, Paper 52 at 29-30 (P.T.A.B. Oct. 14, 2020) (determining that “Petitioner’s proposed combination is based on improper hindsight and that Petitioner has not persuasively proven its stated rationale for [the proposed modification].”)

C. The Petition fails to establish that a POSITA would have been motivated to modify the disclosure of Shi or Shi/Hong based on the disclosure of TS-38.321 to perform “reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE” as recited in the '535 Patent.

The Petition fails to provide any reason why a POSITA would have modified the disclosure of *Shi*, or the combination of *Shi-Hong*, based on the disclosure of *TS-38.321* to perform “reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE” instead of other **known alternatives**, such as the “global timer” resetting the “global counter” disclosed by

Shi. Ex. 2012, ¶101. At best, the Petition argues only that a POSITA would know that they **could** modify the cited references as described by the claims, but the Petition fails to show that a POSITA **would have been motivated** to make such a modification. Ex. 2012, ¶102. The Board has repeatedly found that this type of obviousness argument is legally deficient. *See Gamber-Johnson*, IPR2021-01159, Paper 7 at 32 (“Petitioner has identified a modification that could be made, but fails to show that a skilled artisan would have been motivated to make the modification as required to meet the claim”) (citing *Belden v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.”) (emphasis in original). *Natera, Inc. v. Illumina, Inc.*, IPR2018-01317, Paper 15 at 10-11 (citing *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000)).

Instead, the Petition relies on improper hindsight reconstruction to allege that POSITA would have modified *Shi*, or the combination of *Shi-Hong*, based on the disclosure of *TS-38.321* to perform this claim element. It articulates no basis for why a POSITA would have been motivated to modify these references to perform the **exact functionality** claimed by the ’535 Patent (but notably **not disclosed** in any reference cited in the Petition or during prosecution) instead of **known alternatives**, including those disclosed by *Shi*. *See Opticon Medical AB v. Cochlear*

Limited, IPR2019-00975, Paper 52 at 29-30 (P.T.A.B. Oct. 14, 2020) (determining that “Petitioner’s proposed combination is based on improper hindsight and that Petitioner has not persuasively proven its stated rationale for [the proposed modification].”)

This legal deficiency of the Petition is particularly glaring here, where the disclosure of *Shi*, relied on for this claim element in both Grounds 1 and 2, ***already discloses*** a mechanism to reset the “global counter” using a “global timer” and the proposed modification to the disclosure of *Shi*, or *Shi-Hong*, based on the disclosure of *TS-38.321*, to replace the functionality already disclosed by *Shi* would reset the “global counter” before the process disclosed by *Shi* is done using the information maintained by the “global counter” and is therefore incompatible with the disclosure of *Shi*. *In re NTP, Inc.*, 654 F.3d 1279, 1289 (Fed. Cir. 2011) (reversing IPR obviousness rejections as “based on improper hindsight reasoning” when “the [prior art] already discloses an RF network that connects portable computers to the system. Thus, adding an RF network [in the way necessary to meet the claims] would render the RF network [in the prior art] superfluous.”); *Apple Inc. v. Cellular Comm’ns Equipment, LLC*, IPR2015-00576, Paper 7, at 12 (June 12, 2015) (denying institution where “Petitioner ... fails to provide a specific explanation why [the primary reference] did not already accomplish [the asserted benefits] by itself.”); *F5*

Networks, Inc. v. Radware, Ltd., IPR2017-00124, Paper 48, at 64-65 (Apr. 23, 2018)

(no motivation for modification that “serve[s] no purpose”).

IX. CONCLUSION.

As discussed above, no reference discloses “reset[ting] the LBT failure counter when a reset of the MAC entity is requested by an upper layer of the UE.” Nor does any reference disclose or suggest that a MAC reset would reset all counters maintained by the MAC. In fact, the references contradict such an assertion. Accordingly, and for the foregoing reasons, the Petition has failed to establish that any claim of the ’535 Patent is unpatentable.

Dated: March 17, 2026

/s/ Brian A. Carpenter
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CERTIFICATE OF WORD COUNT UNDER 37 C.F.R. § 42.24

The undersigned certifies that the foregoing Response has a word count of 11,563 words as defined by 37 C.F.R. § 42.24 using the word count feature of Microsoft Word. This Response is in compliance with the 14,000-word limit, excluding the parts exempted by 37 C.F.R. §§ 42.24(a)-(b).

CERTIFICATE OF SERVICE

In accordance with 37 C.F.R. § 42.6(3), the undersigned certifies that on the 17th day of March, 2026, a complete and entire copy of PATENT OWNER'S RESPONSE UNDER 37 C.F.R. § 42.107 and related documents were served on Petitioner via email at the following correspondence addresses:

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