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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

INNOVATIVE SONIC LIMITED,
Patent Owner.

IPR2024-01143
Patent 7,664,059 B2

Before ST. JOHN COURTENAY, III, MICHAEL R. ZECHER, and CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background and Summary

AT&T Services Inc., T-Mobile USA, Inc., Cellco Partnership d/b/a Verizon Wireless, Ericsson Inc., and Nokia of America Corporation (collectively, "Petitioner") filed a Petition (Paper 1, "Pet.") requesting an *inter partes* review of claims 1–8 ("challenged claims") of U.S. Patent No. 7,664,059 B2 (Ex. 1001, "the '059 patent"). Innovative Sonic Limited ("Patent Owner") filed a Preliminary Response (Paper 12, "Prelim. Resp."). With our authorization, Petitioner filed a Preliminary Reply (Paper 13, "Prelim. Reply") and Patent Owner filed a Preliminary Sur-reply (Paper 14, "Prelim. Sur-reply"), each of which is narrowly tailored to address Petitioner's stipulation provided in response to Patent Owner's arguments for discretionary denial under *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (Order Authorizing Supplemental Briefing on Discretionary Denial) (precedential), and the resulting impact of that stipulation.[1]

An *inter partes* review may not be instituted unless "the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a) (2024).

Having reviewed the Petition, the Patent Owner's Preliminary Response, and the evidence of record, we determine that Petitioner has not shown a reasonable likelihood it would prevail in establishing the

[1] We do not reach whether we should exercise our discretion to deny the Petition under *Fintiv* because, as explained below, we deny the Petition based on the merits. *See infra* Sections II.D.3, II.E.1, II.F.3.

unpatentability of any of claims 1–8 of the '059 patent. Accordingly, we do not institute an *inter partes* review for the reasons discussed below.

B. Real Parties in Interest

Petitioner names AT&T Enterprises, LLC, AT&T Mobility LLC, AT&T Mobility II LLC, AT&T Services Inc., Cellco Partnership d/b/a Verizon Wireless, Verizon Corporate Resources Group LLC, T-Mobile USA, Inc., Ericsson Inc., Telefonaktiebolaget LM Ericsson, and Nokia of America Corporation as real parties in interest. Pet. 58. Patent Owner names itself and Celerity IP, LLC as real parties in interest. Paper 11 (Patent Owner's Second Updated Mandatory Notices), 2.

C. Related Matters

Petitioner states the following matters are related: *ASUS Tech. Licensing Inc.. v. AT&T Inc.*, No. 2:23-cv-00486-JRG-RSP (E.D. Tex. 2023) (Lead Case); *ASUS Tech. Licensing Inc. v. T-Mobile USA, Inc.*, No. 2:23-cv-00487-JRG-RSP (E.D. Tex. 2023); *ASUS Tech. Licensing Inc. v. Verizon Communications Inc.*, No. 2:23-cv-00488-JRG-RSP (E.D. Tex. 2023); *Innovative Sonic Limited v. AT&T Inc.*, No. 2:23-cv-00489-JRG- RSP (E.D. Tex. 2023); *Innovative Sonic Limited v. T-Mobile USA, Inc.*, No. 2:23-cv-00490-JRG-RSP (E.D. Tex. 2023); *Innovative Sonic Limited v. Verizon Communications, Inc.*, No. 2:23-cv-00491-JRG-RSP (E.D. Tex. 2023). Pet. 59.[2]

[2] Patent Owner also identifies *Samsung Electronics Co., Ltd. v. ASUS Technology Licensing Inc.*, IPR2024-00614, Paper 1 (PTAB Mar. 13, 2024) (Petition) (Paper 11, 3); however, we do not discern (and Patent Owner does not identify) any relation between that proceeding and this one.

D. The '059 Patent

The '059 patent is titled "Error Handling in a Wireless Communications System," and concerns a method for detecting an erroneous sequence number in a status report in a wireless communications system. Ex. 1001, codes (54), (57).

The '059 patent describes a specification set by the 3rd Generation Partnership Project (3GPP) wherein 3rd generation mobile communications systems provide different levels of transmission quality and operate in different modes according to the different requirements. *Id.* at 1:39–67. One such mode is an Acknowledged Mode (AM) used for robust services requiring data accuracy but not instant transmission. *Id.* In the AM mode, a receiver transmits a status report unit to a transmitter. *Id.* This technique employs the following variables:

> 1. Variable VT(S): represents a Sequence Number (SN) of a next Protocol Data Unit (PDU) to be transmitted for a first time (i.e. excluding retransmitted PDUs). The variable is updated after corresponding PDUs are transmitted. An initial value of the variable is 0.
>
> 2. Variable VT(A): represents an SN of a next expected acknowledged PDU, meaning the SN following an SN of a last in-sequence acknowledged PDU. The variable is updated after a status report unit showing the expected PDU had been positively acknowledged.

Id. at 1:58-67.

According to the variables VT(S) and VT(A), the system is able to detect whether an SN in a status report unit is correct, and if incorrect, the system initiates a reset procedure to recover this kind of error. *Id.* at 2:1–34. More specifically, the system determines whether a negatively acknowledged SN in a status report unit agrees with $VT(A) \leq SN \leq VT(S)-1$.

Id. Comparisons between SNs are done by modulus operations with VT(A) as a modulus base. *Id.*

However, in this prior art system, when VT(A)=VT(S) certain protocol errors may not be detected. *Id.* at 2:35–3:3.

In the described embodiments:

> when a status report unit shows a negatively acknowledged SN, the present invention detects whether the negatively acknowledged SN lies in a range of greater than or equal to an SN following an SN of a last in-sequence acknowledged packet of a transmitter and less than an SN of a next packet to be transmitted for the first time by the transmitter.

Id. at 4:30–46. In other words, the embodiments detect whether the negatively acknowledged SN agrees with $VT(A) \leq SN < VT(S)$. *Id.*

Figure 1, reproduced below, is a flow chart of detecting whether a status report unit comprises an erroneous SN in a wireless communications system. *Id.* at 3:29–31, 4:9–29.

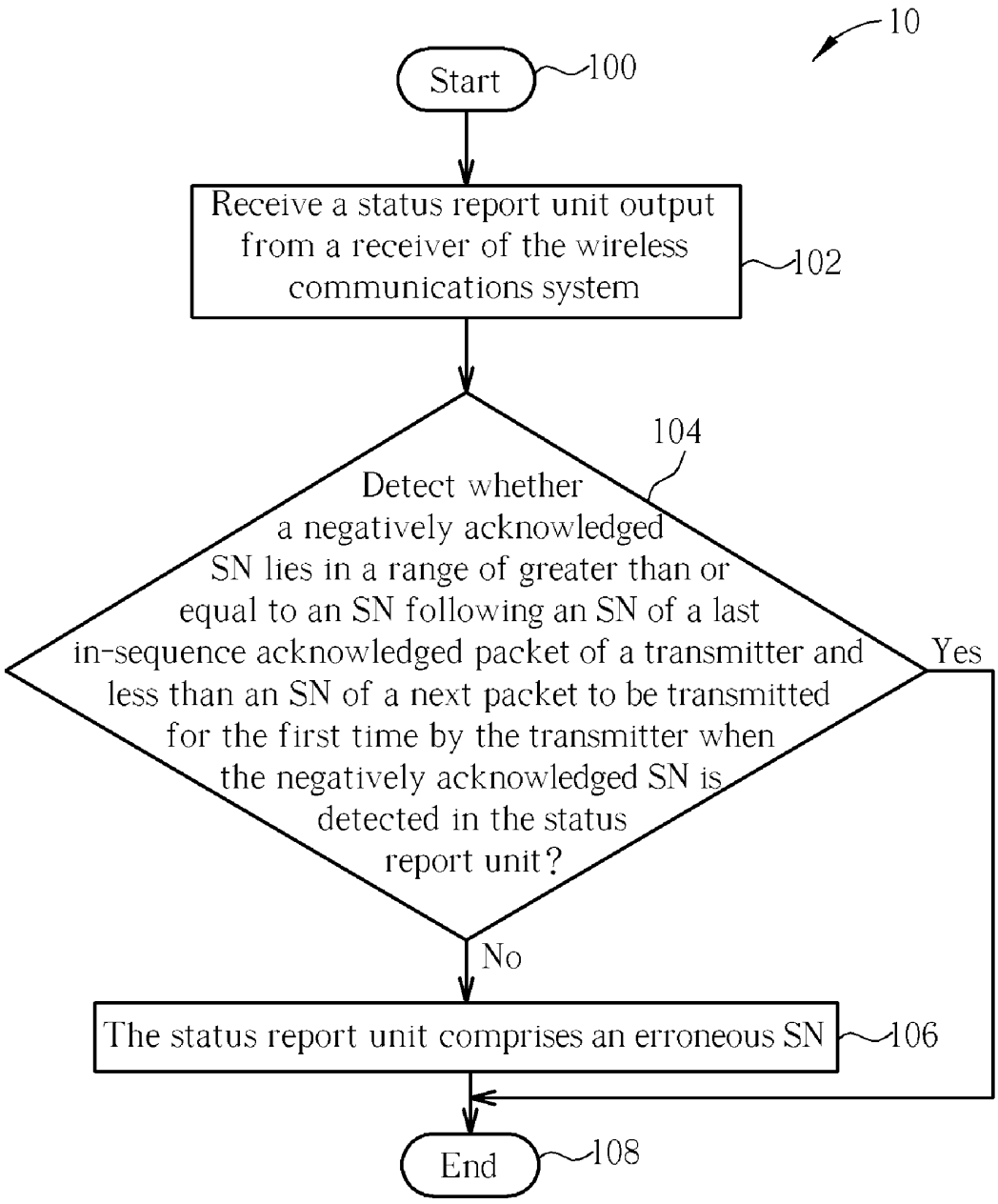

Fig. 1

Figure 1, above, is a flow chart of detecting whether a status report unit comprises an erroneous SN in a wireless communications system.

In step 102, a status report unit output from a receiver of the wireless communications system is received. *Id.* In step 104, the system detects whether a negatively acknowledged SN lies in a range of greater than or equal to an SN following an SN of a last in-sequence acknowledged packet of a transmitter and less than an SN of a next packet to be transmitted for the first time by the transmitter when the negatively acknowledged SN is detected in the status report unit. *Id.* If the negatively acknowledged SN does not lie in the range, the process proceeds to step 106 (the status report unit comprises an erroneous SN); otherwise, the process proceeds to step 108. This technique detects errors when VT(A)=VT(S). *Id.* at 4:47–5:35.

The '059 Patent summarizes its solution to the problem it identifies in the prior art:

> In summary, when an SN of a next [Protocol Data Unit (PDU)] to be transmitted for a first time equals an SN of a next expected acknowledged PDU, all PDUs transmitted by a transmitter are positively acknowledged. Therefore, any negative acknowledgement by a status report unit must be an error caused by a protocol. The present invention can effectively detect this kind of error and initiate an [Radio Link Control (RLC)] reset procedure at an appropriate time, avoiding waste in System resources, and hence increase transmission efficiency and save system resources.

Ex. 1001, 5:42–50.

E. Illustrative Claim

Claim 1 of the challenged claims is the only independent claim. Claim 1 is reproduced below with the method step identifications in brackets and is illustrative.[3]

> 1. [1a] A method of detecting an erroneous sequence number of a status report unit in a wireless communications system, the method comprising:
>
> [1b] receiving a status report unit output from a receiver of the wireless communications system;
>
> [1c] detecting whether a negatively acknowledged sequence number lies in a range of greater than or equal to a sequence number following a sequence number of a last in-sequence acknowledged packet of a transmitter and less than a sequence number of a next packet to be transmitted for the first time by the transmitter when the negatively acknowledged sequence number is detected in the status report unit; and
>
> [1d] detecting that the status report unit comprises an erroneous sequence number when the negatively acknowledged sequence number is not in the range.

Ex. 1001, 6:2–17 (bracket annotations added).

F. Evidence

Petitioner (Pet. 3) relies on the following non-patent literature evidence:

[3] We note all claims 1–8 are method claims, with the exception of dependent claim 7 that is directed to: "*[a] wireless device* comprising a central processing unit in electrical communications with a memory, the memory comprising program code for *implementing the method of claim 1*." Ex. 1001, 6:40–43 (emphasis added).

Name	Non-Patent Literature Title	Author	Exhibit
3GPP-4.60-v860-Specification	"Technical Report 3rd Generation Partnership Project; Technical Specification Group GSM EDGE Radio Access Network; General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control/ Medium Access Control (RLC/MAC) protocol (Release 1999)" (3GPP TS 04.60 V8.6.0 (2000-10))	3rd Generation Partnership Project	Ex. 1004
3GPP-25.322-v630-Specification	"Technical Specification 3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Radio Link Control (RLC) protocol specification (Release 6)" (3GPP TS 25.322 V6.3.0 (2005-03))	3rd Generation Partnership Project	Ex. 1005

Petitioner also submits the declarations of Dr. Zygmunt J. Haas (Ex. 1002) and Craig Bishop (Ex. 1006).

G. Prior Art and Asserted Grounds

Petitioner asserts that claims 1–8 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §[4]	Reference(s)/Basis
1–3, 5–8	102(a) or (b)	3GPP-4.60-v860-Specification
1–3, 5–8	103(a)	3GPP-4.60-v860-Specification
1–8	103(a)	3GPP-25.322-v630-Specification, 3GPP-4.60-v860-Specification

Pet. 3.

II. ANALYSIS

A. Legal Standards

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden of persuasion does not shift to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review).

Anticipation of a claim under 35 U.S.C. § 102(a) or (b) occurs when each claimed element and the claimed arrangement or combination of those

[4] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112–29, 125 Stat. 284 (2011), amended 35 U.S.C. §§ 102, 103, effective March 16, 2013. The '059 patent issued from an application filed April 4, 2006 (Ex. 1001, code (22)), which is before March 16, 2013, and accordingly we apply the pre-AIA version of §§ 102, 103.

elements is disclosed, inherently or expressly, by a single prior art reference. *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1332 (Fed. Cir. 2010). A reference inherently discloses an element of a claim "if that missing characteristic is *necessarily* present, or inherent, in the single anticipating reference." *Schering Corp. v. Geneva Pharms.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) (citation omitted) (emphasis added). Anticipation under § 102 "requires that the identical invention that is claimed was previously known to others and thus is not new." *Cont'l Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1267 (Fed. Cir. 1991). Anticipation of a patent claim requires a finding that the claim at issue "reads on" a prior art reference. *See Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d 1342, 1346 (Fed. Cir. 1999).

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are "such that the subject matter as a whole would have been obvious . . . to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved based on underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective evidence of obviousness or nonobviousness, i.e., secondary considerations.[5] *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

[5] Petitioner states it is "unaware of any evidence of secondary considerations" that would support a determination of non-obviousness. Pet. 51. Patent Owner does not provide any evidence of secondary considerations. *See generally* Prelim. Resp.

An invention "composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR*, 550 U.S. at 418. The obviousness evaluation "should be made explicit," and "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *Id.*

"To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

We analyze the three grounds, as asserted by Petitioner, with the above principles in mind.

B. Level of Ordinary Skill in the Art

For purposes of this Decision, there is sufficient evidence in the current record that enables us to determine the knowledge level of a person of ordinary skill in the art. Relying upon the testimony of its declarant, Dr. Haas (Ex. 1002), Petitioner argues:

> A person of ordinary skill in the art ("POSITA") related to the ['059] patent would possess: (1) an undergraduate degree, or equivalent of an undergraduate degree, in Electrical Engineering, Computer Science, or Computer Engineering; and (2) at least one year of experience in research, design, development, and/or testing of cellular networks. Furthermore, an individual could qualify as a POSITA with more technical education (e.g., a PhD in Electrical Engineering, Computer Science, or Computer Engineering) and less professional experience or *vice versa*.

Pet. 14–15 (citations omitted) (citing Ex. 1002 ¶¶ 40–41). Patent Owner does not address the level of ordinary skill in the art. *See* Prelim. Resp.

The definition proposed by Petitioner appears to be consistent with the problems and solutions in the '059 patent and prior art of record and is supported by Dr. Haas's testimony. We adopt this definition for the purpose of this Decision.

C. Claim Construction

Only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Realtime Data,LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

Petitioner asserts, "for the purposes of this proceeding and the analysis presented herein, no claim term requires express construction." Pet. 14 (citing *Vivid Techs*, 200 F.3d at 803). Patent Owner does not dispute this definition: "[f]or purposes of this preliminary response, Patent Owner's position is that all terms are entitled to their plain and ordinary meaning as understood by a POSITA under the proper construction." Prelim. Resp. 19.

Therefore, for purposes of this Decision, we understand that neither Petitioner nor Patent Owner seek construction of any claim terms. Accordingly, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2022). In applying such standard, claim terms are generally given their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art, at the

time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13.

D. Ground One: Anticipation of Claims 1–3 and 5–8 by the 3GPP-4.60-v860-Specification

Petitioner argues that claims 1–3 and 5–8 are anticipated by the 3GPP-4.60-v860-Specification. Pet. 1–4, 15–32. Patent Owner initially contends institution should be denied because the Petition and the declaration of Mr. Bishop (Ex. 1006) fail to establish that the 3GPP-4.60-v860-Specification is a printed publication under 35 U.S.C. § 311(b). Prelim. Resp. 1–11. Patent Owner argues that because all grounds rely upon Exhibit 1004, all grounds should be denied. Prelim. Resp. 1.[6]

On the merits, Patent Owner focuses its arguments on claim 1, steps [1c] and [1d]. Prelim. Resp. 19–20.

We begin with a description of the prior art relied upon by the Petitioner, and then discuss the parties' contentions and provide our analysis.

1. 3GPP-4.60-v860-Specification (Ex. 1004)

The 3GPP-4.60-v860-Specification is a technical specification entitled "Technical Report 3rd Generation Partnership Project; Technical Specification Group GSM EDGE Radio Access Network; General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS)

[6] We do not reach this issue, because even if Petitioner demonstrates that the 3GPP-4.60-v860-Specificaiton is prior art to the '059 patent, the 3GPP-4.60-v860-Specificaiton does not account properly for all the limitations of claim 1. *See infra,* Sections II.D.2, II.E.1, II.F.2.

interface; Radio Link Control/ Medium Access Control (RLC/MAC) protocol (Release 1999)," designated 3GPP TS 04.60 V8.6.0 (2000-10), and developed within the 3rd Generation Partnership Project. Ex. 1004, 1.

The 3GPP-4.60-v860-Specification describes an "RLC acknowledged mode of operation, for the Backward Error Correction (BEC) procedures enabling the selective retransmission of unsuccessfully delivered RLC/MAC blocks." Ex. 1004, 19; *see also id.* 85, 98, 286 (Figure C.1). "Each RLC data block contains a block sequence number (BSN) field." *Id.* at 88.

The 3GPP-4.60-v860-Specification describes that each endpoint's transmitter has a transmit window and, "[i]n RLC acknowledged mode, the transmit window is defined by the send state variable V(S) in the following inequality: [V(A) ≤ BSN < V(S)] modulo SNS." *Id.* at 86. "V(S) denotes the sequence number of the next in-sequence RLC data block to be transmitted." *Id.* V(A) is an associated acknowledge state variable and "V(A) contains the BSN value of the oldest RLC data block that has not been positively acknowledged by its peer." *Id.* "All BSNs which meet that criteria are valid within the transmit window." *Id.*

A "Packet Ack/Nack message contains a starting sequence number (SSN) and a received block bitmap (RBB). The Packet Ack/Nack message is sent by the RLC receiver and is received by the RLC transmitter." *Id.* at 89.

2. Independent Claim 1

Petitioner contends that 3GPP-4.60-v860-Specification discloses or describes all of the limitations of independent claim 1. Pet. 19–26. Aside from arguing that the 3GPP-4.60-v860-Specification (Ex. 1004) is not available as prior art (Prelim. Resp. 1–11), Patent Owner does not substantively address Petitioner's arguments regarding the preamble [1a] nor

step [1b] of claim 1. Patent Owner instead focuses its response to the Petition on steps [1c] and [1d] of claim 1. Prelim. Resp. 20. Therefore, of particular importance to anticipation Ground 1 is Petitioner's assertion that the 3GPP-4.60-v860-Specification discloses steps [1c] and [1d]. Pet. 22–26.

We address disputed steps [1c] and [1d] in turn below:

a) Step [1c]

We reproduce step [1c] of claim 1 below:

> [1c] detecting whether a negatively acknowledged sequence number lies in a range of greater than or equal to a sequence number following a sequence number of a last in-sequence acknowledged packet of a transmitter and less than a sequence number of a next packet to be transmitted for the first time by the transmitter when the negatively acknowledged sequence number is detected in the status report unit; and

Ex. 1001, 6:7–14.

Petitioner contends the 3GPP-4.60-v860-Specification (Ex. 1004) discloses step [1c]. Pet. 22 (citing Ex. 1002 ¶¶ 76–82). Petitioner argues that inequality expression 3.1 represents the '059 patent's purported improvement over the existing prior art 3GPP specification. Pet. 23. We reproduce inequality expression 3.1 below from the Petition:

> [3.1] {x|(VT(A)-base) mod 4096 ≤ (x-base) mod 4096 **< (VT(S) -base)** mod 4096}

Id. (citing Ex. 1002 ¶ 77).

Relying upon Dr. Haas's declaration (Ex. 1002 ¶ 77), Petitioner compares inequality expression 3.1 from "the '059 patent's purported invention" with expression [4.1] that shows "the inequality from the 3GPP-

4.60-v860-Specification." Pet. 23. We reproduce inequality expression 4.1 below from the Petition:

[4.1] [V(A) ≤ **BSN < V(S)**] modulo SNS

Id. (citing Ex. 1002 ¶ 77).

We also reproduce inequality expression 4.2 below from the Petition, which shows expression [4.1] with the modulus operation distributed through the brackets:

[4.2] V(A) modulo SNS ≤ BSN modulo SNS

< V(S) modulo SNS

Id. (citing Ex. 1002 ¶ 77).

Of particular note, Petitioner asserts that "[t]he 'x' represented in expression [3.1] is the sequence number of the PDU being received, which is *analogous to* the 'BSN' [Block Sequence Number] from expressions [4.1] and [4.2]." Pet. 23 (citing Ex. 1002 ¶ 77) (emphasis added). Petitioner thus contends that the 3GPP-4.60-v860-Specification inequality [4.1] "*is consistent with* terms identified in the inequality expression disclosed in the '059 patent, as explained above in Section IV.B." *Id.* at 24 (citing Ex. 1001, 5:13-17) (emphasis added).

Petitioner concludes: "[a]ccordingly, V(A) disclosed in the 3GPP-4.60-v860-Specification is *analogous to* VT(A) from the '059 patent; V(S) disclosed in the 3GPP-4.60-v860-Specification is *analogous to* VT(S) from the '059 patent; and BSN disclosed in the 3GPP-4.60-v860-Specification is *analogous to* SN from the '059 patent." Pet. 25 (citing Ex. 1002 ¶ 81) (emphasis added).

Petitioner further asserts that the "SNS disclosed in the 3GPP-4.60-v860-Specification is *analogous to* the '059 patent's disclosure of modulus in evaluating the terms of the inequality with "mod 4096," where "4096"

represents the 12-bit number space for sequence numbers." Pet. 25 (citing Ex. 1001, 2:4–5; Ex. 1002 ¶¶ 81–82) (emphasis added). Petitioner concludes that the 2048 (11 bit) modulus in EGPRS and the 128 (7 bit) modulus used in GPRS (i.e., the "modulo SNS" in the 3GPP-4.60-v860-Specification) "is *analogous to* the 'mod 4096' in the '059 patent. *Id.* (citing Ex. 1004, 86; Ex. 1002 ¶ 82). Pet. 24-25 (emphasis added).

Patent Owner disagrees and combines the rebuttal arguments for steps [1c] and [1d].[7] In particular, Patent Owner contends the Petition fails to adequately explain how the 3GPP-4.60-v860-Specification discloses the claimed "range" recited in both steps [1c] and [1d]. Prelim. Resp. 22. Patent Owner notes the "Petition equates Ex. 1004's variables 'V(A)' and 'V(S)' with the '059 [p]atent specification's 'VT(A)' and 'VT(S)', instead of mapping Ex. 1004's variables to the claim language." *Id.* at 21–22 (citing Pet. 24–25 (citing Ex. 1002 ¶ 81)).

In support, Patent Owner contends the "language of the cited definitions of Ex. 1004's variables does not track exactly the claim language of the claimed range, and neither the Petition nor the expert declaration explain how the reference's definitions meet the claim limitations." Prelim. Resp. 22. Patent Owner argues that the "Petition and expert declaration merely quote the variable definitions from Ex. 1004 and then use a conclusory 'i.e.' parenthetical quoting the claim language, with no

[7] We note that step [1d] of "detecting that the status report unit comprises an erroneous sequence number" is performed "when the negatively acknowledged sequence number is not in the range," with the detection of "whether a negatively acknowledged sequence number lies in a range" being determined by step [1c]. Ex. 1001, 6:15–17.

explanation of how they are the same." *Id.* (citing Pet. 24; Ex. 1002, ¶ 79).[8] Patent Owner concludes: "The Petition therefore fails to adequately explain how Ex. 1004 meets the claimed range recited in claim 1." *Id.*

Based upon our review of the record, we agree with Patent Owner that the "[p]etition equates [3GPP-4.60-v860-Specification's] variables 'V(A)' and 'V(S)' with the '059 [p]atent specification's 'VT(A)' and 'VT(S)', instead of mapping [3GPP-4.60-v860-Specification's] variables *to the claim language*." Prelim. Resp. 21-22 (citing Pet. 24–25 (citing Ex. 1002 ¶ 81)) (emphasis added). As noted above, anticipation of a patent claim requires a finding that the claim at issue "reads on" a prior art reference. *See Atlas Powder*, 190 F.3d at 1346. This requires Petitioner to read or "map" each limitation of claim 1 to the corresponding feature found in the 3GPP-4.60-v860-Specification. Petitioner has not done so here.

We also agree with Patent Owner that the "language of the cited definitions of [3GPP-4.60-v860-Specification's] variables does not track exactly the claim language of the claimed range, and neither the Petition nor the expert declaration explain how the reference's definitions meet the claim limitations." Prelim. Resp. 22. As noted above, anticipation requires a

[8] In support of this argument, on page 22 of the Patent Owner's Preliminary Response, the Patent Owner cites: (1) *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (PTAB Aug. 24, 2022) (Decision Denying Institution) (precedential) (denying institution due to the "conclusory statements" of the petitioner's expert; finding that "[e]xpert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight."); and (2) *Upjohn Co. v. Mova Pharm. Corp.*, 225 F.3d 1306, 1311 (Fed. Cir. 2000) ("Lack of factual support for expert opinion to factual determinations, however, may render the testimony of little probative value in a validity determination.") (quoting *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985)).

showing that "the identical invention that is claimed was previously known to others and thus is not new." *Cont'l Can*, 948 F.2d at 1267.

On this record, we find Petitioner has not met its initial burden regarding either steps [1c] or [1d], as both steps recite a range that Petitioner does not account properly for in its claim mapping. Nor has Petitioner cited any case authorities regarding ranges in its Petition that would indicate the claimed range overlaps with ranges disclosed by the 3GPP-4.60-v860-Specification.

Moreover, merely comparing inequality expressions from the 3GPP-4.60-v860-Specification to the inequality expressions found in the '059 patent specification as being "*analogous*" is insufficient to establish anticipation of the disputed claim step [1c] by an express or inherent disclosure in the 3GPP-4.60-v860-Specification. [9] (emphasis added). Regarding Petitioner's repeated assertions that certain inequality expressions in 3GPP-4.60-v860-Specification are *analogous* to those disclosed in the '059 patent, our reviewing court provides specific guidance that strongly weighs in favor of Patent Owner:

> "[T]he question whether a reference is *analogous* art is *irrelevant* to whether that reference anticipates*." In re Schreiber*, 128 F.3d 1473, 1478 (Fed.Cir.1997). To the contrary, "a reference may be from an entirely different field of endeavor than that of the claimed invention or *may be directed to an entirely different problem* from the one addressed by the inventor, yet the reference will still anticipate if it explicitly or inherently discloses every limitation recited in the claims." *Id.*

[9] *See Therasense*, 593 F.3d at 1332.

State Contracting & Engineering Corp. v. Condotte America, Inc. 346 F.3d 1057, 1068 (Fed. Cir. 2003) (emphasis added).

Accordingly, on this record, we find Petitioner has not persuasively shown that the 3GPP-4.60-v860-Specification discloses or describes step [1c].

b) Step 1[d]

We reproduce step [1d] of claim 1 below:

> [1d] detecting that the status report unit comprises an erroneous sequence number when the negatively acknowledged sequence number is not in the range.

Ex. 1001, 6:15–17.

Petitioner contends that the "3GPP-4.60-v860-Specification discloses this limitation [1d], as explained above for limitations 1(a) and 1(c)." Pet. 25 (citing Ex. 1002 ¶ 82). In support, Petitioner provides the following example:

"For example, [the] 3GPP-4.60-v860-Specification discloses that only negatively acknowledged sequence numbers are 'valid'—i.e., not erroneous—if they fall within the range defined by the inequality:"

> In RLC acknowledged mode, the transmit window is defined by the send state variable V(S) in the following inequality: [V(A) ≤ BSN < V(S)] modulo SNS…. ***All BSNs which meet that criteria are valid within the transmit window***.

Pet. 26 (citing Ex. 1004, 86). Petitioner concludes: "[t]hus, when a BSN value falls outside of that window, erroneous sequence numbers are detected." *Id.* (citing Ex. 1002 ¶ 82).

Patent Owner disagrees, and argues the 3GPP-4.60-v860-Specification does not disclose "the status report unit comprises an erroneous sequence number" as required by step [1d]. Prelim. Resp. 20–21.

Patent Owner notes that the "Petition equates Ex. 1004's 'Packet Uplink Ack/Nack (TLLI)' with the recited 'status report unit.'" *Id.* at 21 (citing Pet. 21–22 (citing Ex. 1004, 286, 89, 65; Ex. 1002, ¶¶ 74-75)). Patent Owner further notes that the "Petition also equates Ex. 1004's 'BSNs [Block Sequence Numbers]' 'that are not valid' with the recited 'erroneous sequence number.'" *Id.* (citing Pet. 20).

Patent Owner argues that the "Packet Uplink Ack/Nack (TLLI)" in the 3GPP-4.60-v860-Specification (Ex. 1004, 286; Fig. C.1 at bottom) "does not include actual sequence numbers. Instead, it includes a received block bitmap (RBB) and Ex. 1004 explains that a block sequence number (BSN) must be calculated ('interpreted') from the RBB." Prelim. Resp. 21 (citing Ex. 1004, 89 ("The BSN values specified in the RBB are interpreted by subtracting the bit position in the bitmap from the starting sequence number (SSN) modulo SNS.")).

Patent Owner then explains that, "[b]ecause the BSN values must be 'interpreted' by performing operations on the values actually included in the 'Packet Uplink Ack/Nack (TLLI)' (the RBB values), it necessarily follows that the 'Packet Uplink Ack/Nack (TLLI)' *does not include the BSN values themselves*." Prelim. Resp. 21 (emphasis added).

Patent Owner contends that "[t]he 'Packet Uplink Ack/Nack (TLLI)' of Ex. 1004 therefore cannot meet the limitation 'the status report unit comprises an erroneous sequence number,' as recited in [c]laim 1." Prelim Resp. 21. Patent Owner thus concludes: "[t]herefore, the claim element 'the status report unit comprises an erroneous sequence number' is completely missing from Ground[] 1." *Id.*

As noted above, the law of anticipation requires a showing that the "identical invention that is claimed was previously known to others and thus is not new." *Cont'l Can*, 948 F.2d at 1267.

Accordingly, for the same reasons argued by Patent Owner (Prelim. Resp. 22–23), we agree that the cited portions relied upon by Petitioner within the 3GPP-4.60-v860-Specification do not disclose or describe the "status report unit [that] comprises an erroneous sequence number" as recited in step [1d].

Regarding the temporal portion of step [1d] ("when the negatively acknowledged sequence number is not in the range"), we noted above in our analysis for step [1c], that Petitioner has not met its initial burden regarding either steps [1c] or [1d], as both steps recite a range that Petitioner does not account properly for in its claim mapping.

Accordingly, we find Petitioner has not persuasively shown that the 3GPP-4.60-v860-Specification discloses or describes step [1d].

c) Summary for Independent Claim 1 under Ground 1

For the reasons above, we determine that Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject matter of independent claim 1 is anticipated by the 3GPP-4.60-v860-Specification. Ex. 1004.

3. Dependent Claims 2, 3, and 5–8 under Ground 1

By virtue of their dependency, claims 2, 3, and 5–8 include the same steps as independent claim 1.[10] Petitioner does not present arguments and supporting evidence with respect to these dependent claims that remedy the deficiencies in its analysis of the 3GPP-4.60-v860-Specification for independent claim 1.

Accordingly, for the same reasons discussed above regarding claim 1, Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 2, 3, and 5–8 is anticipated by the 3GPP-4.60-v860-Specification.

E. Ground Two: Obviousness of Claims 1–3 and 5–8 over 3GPP-4.60-v860-Specification

Petitioner argues that, to the extent the 3GPP-4.60-v860-Specification does not anticipate the claims 1–3 and 5–8, the 3GPP-4.60-v860-Specification renders these same claims obvious. Pet. 32–35. However, under Ground 2, Petitioner focuses its arguments on the "status report unit" recited in the preamble [1a], step [1b], and step [1d]. *Id.*

Patent Owner presents a combined rebuttal (for both Grounds 1 and 2) for disputed steps [1c] and [1d]. Prelim. Resp. 20–24.

1. Independent Claim 1

Once again, our analysis below focuses on step [1d] of claim 1, which we reproduce below:

[10] We note that each dependent claims 2, 3, and 5–8, includes all the limitations of the claim(s) from which it depends. *See* 35 U.S.C. § 112(d).

[1d] detecting that the status report unit comprises an erroneous sequence number when the negatively acknowledged sequence number is not in the range.

Ex. 1001, 6:15–17.

Regarding the "status report unit" recited in step [1d] that is detected as comprising "an erroneous sequence number when the negatively acknowledged sequence number is not in the range" (i.e., the "range" defined in step [1c]), Petitioner notes that the "3GPP-4.60-v860-Specification describes different types of communications between a mobile station and the wireless communications network, an example of which is shown" in "Figure C.1: Message Sequence Diagram for one phase packet access," reproduced below. Pet. 34 (citing Ex. 1004, 286)

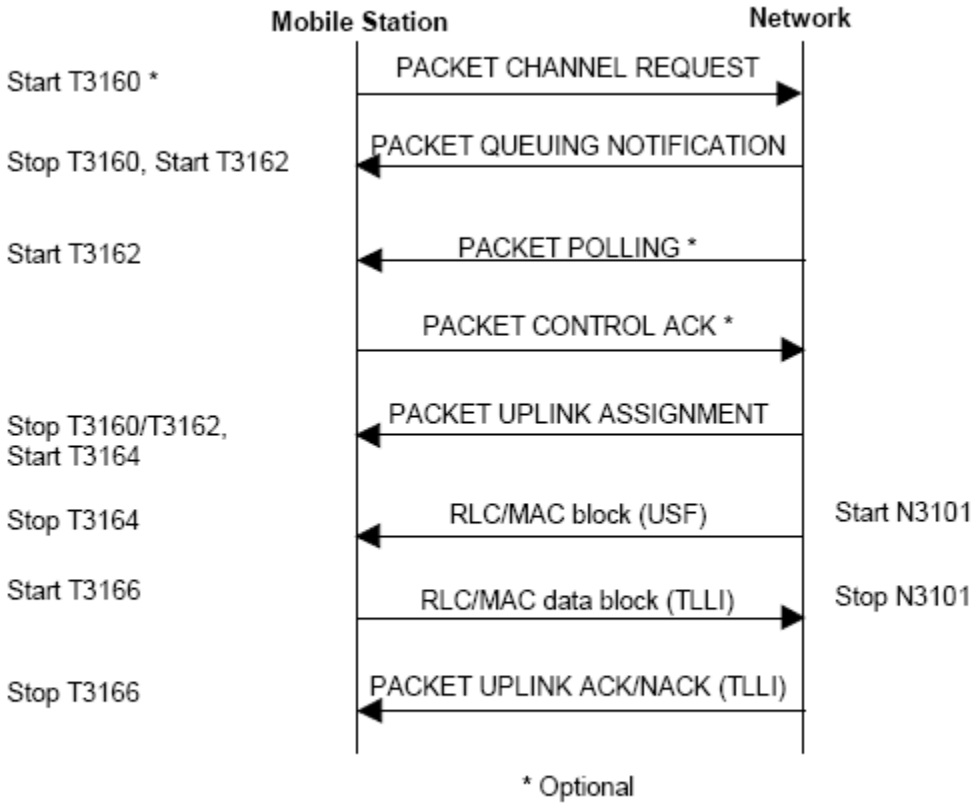

Figure C.1: Message Sequence Diagram for one phase packet access

Reproduced above, Figure C.1: "Message Sequence Diagram for one phase packet access," depicts the bidirectional message sequence between a mobile station and a network. Pet. 34 (citing Ex. 1004, 286)

Petitioner argues that the "LRC receiver sends a Packet Uplink Ack/Nack to the transmitter, and this message includes information related to the sequence number." Pet. 34. However, Petitioner does not identify what specific portion of Figure C.1 teaches the "status report unit" that "comprises an erroneous sequence number," as recited in step [1d]. *Id.* at 32–35.

Dr. Hass testifies "[i]t is my opinion that the Packet Uplink Ack/Nack [Ex. 1004, 286; Fig. C.1] discloses the claimed status report unit output, as explained above." Ex. 1002 ¶ 97. We note "as explained above" refers to Exhibit 1002, paragraphs 74–75, which include the identical "Figure C.1: Message Sequence Diagram for one phase packet access," as reproduced in the Petition at page 34 under the arguments for Ground 2. Ex. 1002 ¶ 74 (citing Ex. 1004, 286).

Petitioner alternatively contends "it would have been obvious to include acknowledged sequence number information in a separate status report unit sent by the receiver, rather than relying on the Packet Uplink Ack/Nack[11] to carry that information." Pet. 34–35 (citing Ex. 1002 ¶¶ 98-99). In support of this argument, Petitioner provides a rationale to modify the 3GPP-4.60-v860-Specification:

> The transmitter needs to be able to identify the right sequence number to retransmit the right PDU to the receiver in acknowledged mode, so information relating to the sequence

[11] "Packet Uplink Ack/Nack" refers to the bottom data flow from the network to the mobile station, as depicted in "Figure C.1: Message Sequence Diagram for one phase packet access." Pet. 34 (citing Ex. 1004, 286).

> number received by the receiver must be sent to the transmitter, to allow the transmitter to be able to identify the sequence numbers of PDUs that should be sent next.

Id. at 35 (citing Ex. 1002 ¶ 100).

Accordingly, Petitioner asserts that "a POSITA would have found it obvious to have the receiver send status update information to the transmitter." *Id.* (citing Ex. 1002 ¶ 100).

Patent Owner disagrees and argues that "Petitioners' Ground 2 argument is a single-reference obviousness ground based on Ex. 1004 alone and fails to acknowledge or address the deficiencies discussed above." Prelim. Resp. 24 (citing Pet. 33–35). Patent Owner concludes: "[t]hus, the Petition fails to show that claim 1 is obvious over Ex. 1004 alone and Ground 2 fails for at least these reasons." *Id.*

As an initial matter, the U.S. Court of Appeals for the Federal Circuit guides that, "[e]ven when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference." *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000). But here, we note the evidence relied upon to support Petitioner's proposed motivation to modify the 3GPP-4.60-v860-Specification is found in paragraphs 98–100 of Dr. Hass's declaration (Ex. 1002), which merely repeat the identical language from pages 33–35 of the Petition. We thus find this declaration evidence unpersuasive because it is conclusory, and it does not set forth a suggestion or motivation to modify the 3GPP-4.60-v860-Specification. Ex. 1002 ¶¶ 98–100.

Dr. Hass further testifies that "a POSITA would have found it obvious to have the receiver send status update information to the transmitter." Ex. 1002 ¶ 100. But Dr. Hass does not explain how the "Packet Uplink Ack/Nack" data depicted in the bottom message of Figure C.1 (Ex. 1004,

286) teaches "the status report update unit [that] comprises an *erroneous sequence number*," as recited in step [1d]. (emphasis added).

Under 37 C.F.R. § 42.65(a), "[e]xpert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight." *See also Upjohn Co. v. Mova Pharmaceutical Corp.*, 225 F.3d 1306, 1311 (Fed. Circ. 2000) ("Lack of factual support for expert opinion to factual determinations, however, may render the testimony of little probative value in a validity determination." (quoting *Ashland Oil*, *Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Circ. 1985))), as cited by Patent Owner. Prelim. Resp. 22.

On this record, we find Petitioner's obviousness analysis over the 3GPP-4.60-v860-Specification does not remedy the deficiencies in Petitioner's anticipation analysis under Ground 1, because Petitioner relies upon Dr. Haas's unsupported testimony to supply a missing limitation (i.e., the "status report unit" in step [1d] comprising "an erroneous sequence number"), without providing a sufficient motivation to modify the 3GPP-4.60-v860-Specification. Therefore, on this record, we find Petitioner has not established a reasonable likelihood that "a POSITA would have found it obvious to have the receiver send status update information to the transmitter." Pet 35 (quoting Ex. 1002 ¶ 100).

Accordingly, we find Petitioner's arguments unpersuasive regarding claim 1 as considered under alternative obviousness Ground 2 over the 3GPP-4.60-v860-Specification. Ex. 1004.

a) Summary for Independent Claim 1 under Ground 2

For the reasons above, we determine that Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject

matter of independent claim 1 would have been obvious over the teachings and suggestions of the 3GPP-4.60-v860-Specification. Ex. 1004.

2. Dependent Claims 2, 3 and 5–8 under Ground 2

By virtue of their dependency, claims 2, 3, and 5–8 include the same steps as independent claim 1. Petitioner does not present arguments and supporting evidence with respect to these dependent claims that remedy the deficiencies in its analysis of the 3GPP-4.60-v860-Specification for independent claim 1 under Ground 2. Accordingly, for the same reasons discussed above regarding claim 1, Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 2, 3, and 5–8 would have been obvious over the teachings and suggestions of the 3GPP-4.60-v860-Specification.

F. Ground Three: Claims 1–8 over the 3GPP-25.322-v630-Specification and the 3GPP-4.60-v860-Specification

Petitioner additionally argues that the combination of the 3GPP-25.322-v630-Specification and the 3GPP-4.60-v860-Specification renders obvious claims 1–8. Pet. 37–51. Petitioner contends there would have been a motivation to modify the 3GPP-25.322-v630-Specification with the teachings of the 3GPP-4.60-v860-Specification in a manner that accounts for all the limitations of the challenged claims. Pet. 41–43.

Patent Owner notes the "Petition provides two motivations to combine the references." Prelim. Resp. 24. Patent Owner contends both of the motivations "fail to establish a reasonable likelihood of the Petitioner prevailing during a trial on the merits." *Id.*

We begin with a description of the 3GPP-25.322-v630-Specification, and then discuss the parties' contentions and provide our analysis.

1. 3GPP-25.322-v630-Specification (Ex. 1005)

The 3GPP-25.322-v630-Specification is a technical specification entitled "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Radio Link Control (RLC) protocol specification (Release 6)," designated 3GPP TS 25.322 V6.3.0 (2005-03), and developed within the 3rd Generation Partnership Project. Ex. 1005, 1.

The 3GPP-25.322-v630-Specification specifies a Radio Link Control protocol for a UE-UTRAN radio interface with an acknowledged mode. Ex. 1005, 8. The 3GPP-25.322-v630-Specification further describes functions for error correction and how protocol error detection and recovery are needed to support acknowledged data transfer. *Id.* at 18–19.

"The Receiver transmits status reports to the Sender in order to inform the Sender about which AMD PDUs [Acknowledged Mode Data Protocol Data Units][12] have been received and not received. Each status report consists of one or several STATUS PDUs." *Id.* at 50. The 3GPP-25.322-v630-Specification further describes:

> A STATUS PDU or Piggybacked STATUS PDU including "erroneous Sequence Number" is a STATUS PDU or Piggybacked STATUS PDU that contains: . . . a LIST, BITMAP or RLIST SUFI in which the "Sequence Number" of at least one AMD PDU that is negatively acknowledged is outside the interval VT(A)≤"Sequence Number"≤ VT(S)-1.

Id. at 57. VT(S) is a send state variable and "contains the 'Sequence Number' of the next AMD PDU [to be transmitted for the first time (i.e.

[12] *See* Ex. 1005, 8–9 (explanation of abbreviations).

excluding retransmitted PDUs)." *Id.* at 43. VT(A) is an acknowledge state variable and "contains the 'Sequence Number' following the 'Sequence Number' of the last in-sequence acknowledged AMD PDU." *Id.* "When performing arithmetic comparisons of state variables or Sequence number values a modulus base shall be used." *Id.*

2. Independent Claim 1

a) Combination of 3GPP-25.322-v630-Specification and 3GPP-4.60-v860-Specification

Under Ground 3, Petitioner relies upon the 3GPP-25.322-v630-Specification for teaching preamble [1a], step [1b], and step [1d]. Pet. 37–39, 43–44. However, Petitioner relies on the 3GPP-25.322-v630-Specification, as modified by the 3GPP-4.60-v860-Specification, for teaching step [1c]. *Id.* at 39–43.

We have found *supra* that the 3GPP-4.60-v860-Specification does not anticipate nor render obvious steps [1c] and [1d] under Grounds 1 and 2, respectively.

Patent Owner does not specifically address steps [1c] and [1d] under Ground 3, but instead attacks the Petitioner's proposed combination of the 3GPP-25.322-v630-Specification with the 3GPP-4.60-v860-Specification by arguing there would have been no motivation to combine these references without reliance upon impermissible hindsight. Prelim. Resp. 24–27. Even though Patent Owner does not separately address these steps, we nonetheless discuss below whether Petitioner has satisfied its burden of persuasion with respect to steps [1c] and [1d].

b) Step [1c]

We reproduce step [1c] of claim 1 below:

> [1c] detecting whether a negatively acknowledged sequence number lies in a range of greater than or equal to a sequence number following a sequence number of a last in-sequence acknowledged packet of a transmitter and less than a sequence number of a next packet to be transmitted for the first time by the transmitter when the negatively acknowledged sequence number is detected in the status report unit; and

Ex. 1001, 6:7–14.

Petitioner contends that the 3GPP-25.322-v630-Specification discloses that a "STATUS PDU or Piggybacked STATUS PDU including 'erroneous Sequence Number' is a STATUS PDU or Piggybacked STATUS PDU that contains: … a LIST, BITMAP or RLIST SUFI ***in which the 'Sequence Number' of at least one AMD PDU*** that is ***negatively acknowledged*** is outside the interval ***VT(A)*** ≤ 'Sequence Number' ≤ ***VT(S)***-1." Pet. 39 (citing Ex. 1005, 57; Ex. 1002, ¶¶ 107).

Petitioner notes that the "3GPP-25.322-v630-Specification defines the variables as follows:

> "VT(S)" is a "send state variable" that "contains the 'Sequence Number' of the next AMD PDU to be transmitted for the first time (i.e. excluding retransmitted PDUs)." Ex-1005, 43. "VT(A)" is an "acknowledge state variable" that "contains the 'Sequence Number' following the 'Sequence Number' of the last in-sequence acknowledged AMD PDU." *Id.*

Pet. 40 (citing Ex. 1005, 43).

Petitioner initially asserts that the 3GPP-25.322-v630-Specification teaches step [1c]:

> Thus, 3GPP-25.322-v630-Specification discloses detecting whether a negatively acknowledged sequence number lies in a range greater than or equal to a last in-sequence acknowledged

> packet of a transmitter (i.e., VT(A)), and less than (or equal to) a sequence number of a next packet to be transmitted for the first time by the transmitter (VT(S)), as claimed.

Pet. 40 (citing Ex. 1002 ¶ 108).

We particularly note that Petitioner's evidence in support (Dr. Hass's declaration, Exhibit 1002) merely copies Petitioner's language from page 40 of the Petition. *Compare* Pet. 39–40, *with* Ex. 1002 ¶¶ 107, 108. We find this form of purported "evidence" conclusory and therefore not persuasive because it has little, if any, probative value.

However, Petitioner then qualifies that the 3GPP-25.322-v630-Specification may not teach step [1c] without being combined with the 3GPP-4.60-v860-Specification:

> To the extent that 3GPP-25.322-v630-Specification *does not teach* that the sequence number is less than (but not equal to) the sequence number of a next packet/PDU to be transmitted for the first time by the transmitter (VT(S)), 3GPP-4.60-v860-Specification discloses it, and the combination of 3GPP-25.322-v630-Specification and 3GPP-4.60-v860-Specification renders this limitation obvious to a POSITA. Ex-1002, ¶109.

Pet. 40 (emphasis added).

We find these conflicting arguments inconsistent and thus not persuasive. Regarding Petitioner's alternative argument (*id.*), we note that we have found *supra* under Grounds 1 and 2 that the 3GPP-4.60-v860-Specification does not anticipate nor render obvious steps [1c] and [1d].

Therefore, as applied by Petitioner, we find the 3GPP-4.60-v860-Specification does not remedy the admitted deficiencies in the 3GPP-25.322-v630-Specification (Pet. 40), for the same reasons set forth above with respect to the "detecting" steps [1c] and [1d] of claim 1 under Grounds 1 and 2.

c) Step [1d]

We reproduce step [1d] of claim 1below:

[1d] detecting that the status report unit comprises an erroneous sequence number when the negatively acknowledged sequence number is not in the range.

Ex. 1001, 6:15–17.

Petitioner contends that the 3GPP-25.322-v630-Specification discloses this limitation, for the same reasons explained above for limitations [1a] and [1c]. Pet. 43. For example, Petitioner asserts that the "3GPP-25.322-v630-Specification discloses that negatively acknowledged sequence numbers are erroneous if they fall "outside" the range bounded by VT(A) and VT(S)." *Id.*

Petitioner then reiterates essentially the same argument previously advanced above for step [1c], as considered under Ground 3:

For step [1d], Petitioner asserts the 3GPP-25.322-v630-Specification (Ex. 1005) discloses that a "STATUS PDU or Piggybacked STATUS PDU including 'erroneous Sequence Number' is a STATUS PDU or Piggybacked STATUS PDU that contains: … a LIST, BITMAP or RLIST SUFI ***in which the 'Sequence Number' of at least one AMD PDU*** that is ***negatively acknowledged*** is outside the interval ***VT(A)*** ≤ 'Sequence Number' ≤ ***VT(S)***-1." Pet. 43–44 (citing Ex. 1005, 57; Ex. 1002 ¶ 117).

As purported declaration evidence in support of this argument, we note Dr. Hass again follows the familiar pattern of repeating the language from the Petition, essentially word for word. *Compare* Pet. 43–44 *with* Ex. 1002 ¶ 117. Again, we find this form of evidence conclusory and unpersuasive because it has little, if any, probative value.

Further, given the admitted deficiencies in the 3GPP-25.322-v630-Specification regarding *related* range detecting step [1c] (Pet. 40 ¶ 2), on this record, we find Petitioner has not established a reasonable likelihood that the 3GPP-25.322-v630-Specification teaches "detecting" step [1d] of independent claim 1, whether considered alone or in combination with the 3GPP-4.60-v860-Specification. And we emphasize that we found *supra* that the 3GPP-4.60-v860-Specification does not anticipate nor render obvious steps [1c] and [1d] under Grounds 1 and 2, respectively.

d) Motivation to Combine under Ground 3

Petitioner contends "a POSITA would have been motivated to replace the inequality expression from [the] 3GPP-25.322-v630-Specification [with] the inequality from [the] 3GPP-4.60-v860-Specification once the POSITA realized that the edge case of VT(A)==VT(S) *will fail* for the inequality expression disclosed in 3GPP-25.322-v630-Specification." Pet. 41 (citing Ex. 1002 ¶ 113) (emphasis added).

As purported declaration evidence in support of this argument, we note Dr. Hass again follows the familiar pattern of essentially mirroring Petitioner's motivation: Dr. Hass asserts: "[a] POSITA would have found it obvious to replace the inequality expression from 3GPP-25.322-v630-Specification, which can potentially evaluate to an incorrect solution when VT(S) equals VT(A), with the inequality expression from 3GPP-4.60-v860-Specification, which does not evaluate to an incorrect solution." Ex. 1002 ¶ 113. Again, we find this form of evidence conclusory and unpersuasive because it has little, if any, probative value.

Patent Owner urges: "[t]his is insufficient and engages in impermissible hindsight." Prelim. Resp. 24. Patent Owner further contends

"the Petition provides no evidence and no argument to show how or why a POSITA 'would have recognized' the problem" (recognized by Patent Owner). *Id.* at 25 (citing Pet. 41–42). Patent Owner thus contends "[t]his is impermissible under *Mintz*, and therefore this purported motivation to combine cannot be relied upon for Ground 3." [13] *Id.*

However, for a *prima facie* case of obviousness to be established, "neither the particular motivation nor the avowed purpose of the patentee controls" when performing an obviousness analysis. *KSR*, 550 U.S. at 419.

Although not dispositive regarding a motivation to combine, we are nevertheless of the view that Petitioner's admission that "the specific case of VT(A)==VT(S) will fail for the inequality expression disclosed in [the] 3GPP-25.322-v630-Specification" (Pet. 41) weighs in favor of Patent Owner, as least because Petitioner acknowledges that the 3GPP-25.322-v630-Specification (considered alone) may not teach step [1c]. Pet. 40 ¶ 2 (citing Ex. 1002 ¶ 109).[14]

However, Petitioner relies upon the combination of the 3GPP-25.322-v630-Specification and the 3GPP-4.60-v860-Specification to teach or suggest step [1c] under Ground 3. Pet. 39–42. As noted above for Grounds

[13] Patent Owner cites to *Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1377 (Fed. Cir. 2012) (It is hindsight to use "the invention to define the problem the invention solves" . . . "when someone is presented with the identical problem and told to make the patented invention, it often becomes virtually certain that the artisan will succeed in making the invention.").

[14] Under Ground 3, Dr. Hass asserts that step [1c] "would have been obvious to a person having skill in the art at the relevant time in light of 3GPP-25.322-v630-Specification in combination with 3GPP-4.60-v860-Specification." Ex. 1002 ¶ 107. However, Petitioner relies solely upon the 3GPP-25.322-v630-Specification for teaching step [1d]. Pet. 43–44 (citing Ex-1005, 57; Ex-1002, ¶ 117).

1 and 2, we have found that Petitioner has not shown a reasonable likelihood that the 3GPP-4.60-v860-Specification (considered alone) anticipates (under Ground 1) or renders obvious (under Ground 2) steps [1c] and [1d].

Petitioner additionally argues that a "POSITA would also have been motivated to replace the expression from 3GPP-25.322-v630-Specification [with] the inequality from 3GPP-4.60-v860-Specification, because the expression from the 3GPP-4.60-v860-Specification avoids an additional subtraction operation ('-1')." Pet. 42 (citing Ex. 1002 ¶ 114). Petitioner thus contends that a "POSITA would have been motivated to reduce computational operations involved in evaluating the inequality expression, as to reduce the overhead of frequently computed calculation." *Id.* (citing Ex. 1002 ¶ 114).

Patent Owner disagrees, and argues this remaining motivation is also flawed. Prelim. Resp. 25. Patent Owner asserts that Dr. Hass's expert declaration (Ex. 1002 ¶ 114) merely provides a conclusory statement that the calculations are frequently calculated, "without providing any explanation as to why and without providing any evidence to support this conclusory statement." *Id.* at 26 (citing (1) *Xerox*, Paper 9 at 15; and (2) *Upjohn Co.*, 225 F.3d at 1311).

Our reviewing court guides that merely indicating that a skilled artisan *could have* made such modifications to arrive at the claimed invention does not establish that a person of ordinary skill *would have* made such modifications. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) ("obviousness 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." (citing *InTouch*

Technologies, Inc. v. VGO Communications, Inc., 751 F.3d 1327, 1352 (Fed. Cir. 2014)) (emphasis in original).

These controlling legal authorities are applicable here. Given the repeated instances discussed above in which Petitioner relies upon evidence in the form of Dr. Hass's declaration (Ex. 1002), in which Dr. Hass merely repeats verbatim the language from the Petition, we agree with Patent Owner that Dr. Hass's declaration follows a general pattern of parroting the language from the Petition, "without providing any explanation as to why and without providing any evidence to support [the] conclusory statement[s]." Prelim. Resp. 26 (citing (1) *Xerox*, Paper 9 at 15; and (2) *Upjohn Co.*, 225 F.3d at 1311).

Regarding Ground 3, and on this record, we find Petitioner, at best, merely posits that a skilled artisan could have modified the 3GPP-25.322-v630-Specification with the 3GPP-4.60-v860-Specification notwithstanding any difficulties, and would do so because these references fall within the general knowledge of a skilled artisan. But in view of the foregoing, we agree with Patent Owner that this overly broad conclusion suffers from hindsight bias. *See supra*, n.13 (citing *Mintz*, 679 F.3d at 1377). Moreover, even if *arguendo* these references could have been properly combined, we find on this record that Petitioner has not shown a reasonable likelihood that the proposed combination of the 3GPP-25.322-v630-Specification with the 3GPP-4.60-v860-Specification teaches or suggests steps [1c] and [1d] of the '059 patent claim 1.

e) Summary for Independent Claim 1 under Ground 3

For the reasons above, we determine that Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject

matter of independent claim 1 would have been obvious over the teachings and suggestions of the 3GPP-25.322-v630-Specification and 3GPP-4.60-v860-Specification.

3. Dependent Claims 2–8 under Ground 3

By virtue of their dependency, claims 2–8 include the same steps as independent claim 1. Petitioner does not present arguments and supporting evidence with respect to these dependent claims that remedy the deficiencies in its analysis of the 3GPP-25.322-v630-Specification and the 3GPP-4.60-v860-Specification, as considered under Ground 3 for independent claim 1.

Accordingly, for the same reasons discussed above regarding claim 1, Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 2–8 would have been obvious over the teachings and suggestions of the 3GPP-25.322-v630-Specification and the 3GPP-4.60-v860-Specification.

III. ORDER

In consideration of the foregoing, it is ORDERED that the Petition is *denied* and no trial is instituted.

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