

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CRADLEPOINT, INC., DELL INC., HONEYWELL INTERNATIONAL,
INC., SIERRA WIRELESS, INC., TCL COMMUNICATION
TECHNOLOGY HOLDINGS LIMITED, TCT MOBILE
INTERNATIONAL LIMITED, TCT MOBILE, INC., TCT MOBILE (US)
INC., TCT MOBILE (US) HOLDINGS INC., and THALES DIS AIS
DEUTSCHLAND GMBH,
Petitioner,

v.

SISVEL S.P.A.,
Patent Owner.

IPR2021-00580
Patent 7,869,396 B2

Before BARBARA A. PARVIS, MONICA S. ULLAGADDI, and
AARON W. MOORE, *Administrative Patent Judges*.

ULLAGADDI, *Administrative Patent Judge*.

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

I. INTRODUCTION

Cradlepoint, Inc., Dell Inc., Honeywell International, Inc., Sierra Wireless, Inc., TCL Communication Technology Holdings Limited, TCT Mobile International Limited, TCT Mobile, Inc., TCT Mobile (US) Inc., TCT Mobile (US) Holdings Inc., and Thales DIS AIS Deutschland GmbH (“Petitioner”)¹ filed a Petition (Paper 8, “Petition” or “Pet.”) requesting an *inter partes* review of claims 1–10 of U.S. Patent No. 7,869,396 B2 (Ex. 1001, “the ’396 patent”) pursuant to 35 U.S.C. §§ 311–319, accompanied by the supporting Declarations of Dr. Apostolos Kakaes (Ex. 1002) and Mr. Craig Bishop (Ex. 1007). Sisvel S.p.A. (“Patent Owner”) filed a Preliminary Response (Paper 12, “Preliminary Response” or “Prelim. Resp.”), accompanied by the supporting Declaration of Mr. Regis Bates (Ex. 2001).

The standard for institution is set forth in 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition and the Preliminary 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 (2019); *see also* 37 C.F.R. § 42.4(a) (2019) (“The Board institutes the trial on behalf of the Director.”). Upon consideration of the parties’ contentions and the evidence of record, we conclude that Petitioner has established a reasonable likelihood of prevailing in demonstrating the unpatentability of at least one challenged claim of the ’396 patent.

¹ Petitioner originally included ZTE CORPORATION and ZTE (USA) INC. (“ZTE”)—these entities and Patent Owner entered into a settlement agreement. Paper 15. As such, we terminated the proceeding as to ZTE and reconstituted Petitioner as the remaining entities absent ZTE. *Id.*

Accordingly, we grant Petitioner's request and institute an *inter partes* review.

II. BACKGROUND

A. *Real Parties in Interest*

In addition to itself, Petitioner identifies the following entities as real parties-in-interest: Dell Marketing L.P., Dell Products L.P., Dell Technologies Inc., Denali Intermediate Inc., Sierra Wireless America, Inc., Thales DIS AIS USA, LLC, Telefonaktiebolaget LM Ericsson, and Ericsson Inc. Pet. 2. Patent Owner identifies itself as the real party-in-interest. Paper 10, 1.

B. *Related Matters*

As required by 37 C.F.R. § 42.8(b)(2), the parties identify judicial matters that would affect, or be affected by, a decision in this proceeding. In particular, the parties inform us that the '396 patent is asserted in the following district court cases:

No. 3:20-cv-01289 (N.D. Texas);
No. 1:20-cv-00649 (D. Del.);
No. 1:20-cv-00651 (D. Del.);
No. 1:20-cv-00652 (D. Del.);
No. 1:20-cv-00653 (D. Del.);
No. 1:20-cv-00654 (D. Del.);
No. 1:20-cv-00655 (D. Del.);
No. 1:20-cv-00656 (D. Del.);
No. 1:20-cv-00658 (D. Del.);
No. 1:20-cv-00659 (D. Del.);
No. 1:20-cv-22050 (S.D. Fla.);

No. 1:20-cv-22051 (S.D. Fla.); and

No. 1:20-cv-22054 (S.D. Fla.).

Pet. 2–3; Paper 10, 1.

C. The '396 Patent

The '396 patent relates “to a data transmission method and a data retransmission method which can reduce loss in data. . . .” Ex. 1001, 1:17–20. Techniques for reducing data loss include the Automatic Repeat Request (ARQ) method, which “is performed by a high-level layer.” *Id.* at 1:58–60. Another technique is the HARQ (Hybrid ARQ) method, which is performed by lower-level layers and “correct[s] an error of data by the use of the FEC and to retransmit the data by the use of the ARQ.” *Id.* at 1:60–64.

Figure 12, reproduced below, is a diagram illustrating an exemplary data transmission method. *Id.* at 14:34–36.

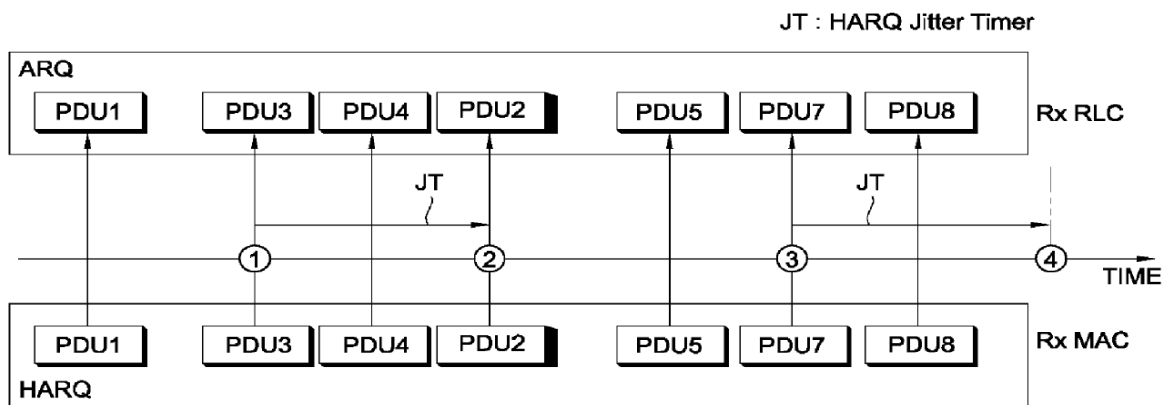


Figure 12 depicts that “the ARQ entity, that is, the RLC entity, receives PDU3 from the HARQ as a lower-level layer, that is, the MAC layer.” *Id.* at 14:38–40. Because PDU3 is received before PDU2, “the receiver checks that the gap is generated due to the inversion of transport order of the HARQ by the use of the HARQ jitter timer JT.” *Id.* at 14:40–44. The RLC entity receives PDU2 before the HARQ jitter timer expires, and so the timer stops. *Id.* at 45–46. The ARQ entity also receives PDU7 out of order, and similarly

starts the HARQ jitter timer. *Id.* at 14:47–49. But, the RLC entity does not receive PDU6 before the timer expires, so “[t]he receiver judges that the reception of PDU6 fails and transmits the status report information.” *Id.* at 14:50–54. Upon receiving status report information that the receiver does not receive a certain PDU, the transmitter retransmits the PDU. *Id.* at 14:55–57. “The status report information may be information on a data block received or not received by the RLC entity of the receiver.” *Id.* at 9:23–25.

D. Illustrative Claim

Petitioner challenges claims 1–10 of the ’396 patent. Pet. 1. Claims 1 and 8 are independent. Claim 1 is illustrative and reproduced below.

1. A method of performing automatic repeat request (ARQ) in a wireless communication system, the method performed by a receiver and comprising:
 - detecting whether at least one data block to be received from a transmitter is missed;
 - starting a timer when the at least one data block is detected as missed;
 - stopping the timer when the at least one data block is received from the transmitter while the timer is running, in order to prevent a triggering of a status report before the timer expires; and
 - transmitting the status report to the transmitter after the timer expires, wherein the status report comprises a positive acknowledgement indicating receipt of at least one received data block.

Ex. 1001, 16:39–53.

E. Asserted Grounds

Petitioner presents the following challenges as summarized in the chart below. Pet. 9.

Ground	Claim(s) Challenged	35 U.S.C. §	Reference/Basis
1	1–10	102 ²	Sachs ³
2	1–10	103(a)	Sachs
3	1–5, 7	102	Wei ⁴
4	1–5, 7	103(a)	Wei
5	6, 8–10	103(a)	Wei, 3GPP TS 25.322 ⁵

III. ANALYSIS

A. Legal Standards

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987).

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 at the time the invention was made 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 on the basis of 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;

² The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), included revisions to 35 U.S.C. §§ 102 and 103 that became effective after the effective filing date of the challenged claims. Therefore, we apply the pre-AIA versions of 35 U.S.C. §§ 102 and 103(a).

³ WO 02/091659 A2, published Nov. 14, 2002 (Ex. 1003, “Sachs”).

⁴ US 6,987,780 B2, issued Jan. 17, 2006 (Ex. 1004, “Wei”).

⁵ 3rd Generation Partnership Project (3GPP) Technical Specification (TS) 25.322 V5.9.0 (2004-12), “3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Radio Link Control (RLC) protocol specification (Release 5)” (Ex. 1005, “3GPP TS 25.322”).

(3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness.⁶ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

“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”)). The burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in an *inter partes* review). Furthermore, Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

Thus, to prevail in an *inter partes* review, Petitioner must explain how the prior art discloses the challenged claims or how the proposed combinations of prior art would have rendered the challenged claims unpatentable. At this preliminary stage, we determine whether the information presented in the Petition shows there is a reasonable likelihood that Petitioner would prevail in establishing that one of the challenged claims is anticipated by the asserted prior art or would have been obvious over the proposed combinations of prior art.

⁶ Patent Owner does not present objective evidence of nonobviousness at this stage of the proceeding.

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

B. Level Of Ordinary Skill In The Art

Petitioner contends that:

A POSITA [(Person of Ordinary Skill in the Art)] at or about the time of the alleged invention (January 5, 2006) would have had a degree in electrical engineering or a similar discipline, with at least three years of relevant industry or research experience, including experience designing or implementing wireless radio systems for data transmission and retransmission. A POSITA would also have familiarity with the 3GPP technical specifications, including UMTS and LTE.

Pet. 35 (citing Ex. 1002 ¶¶ 40–53) (Ex. 1001, 1:24–48).

Patent Owner contends that:

A person having ordinary skill at the time of the invention—January 5, 2006—in the relevant art would be one [with] a bachelor’s degree in electrical engineering, computer sciences, or telecommunications, along with three to five or more years of practical experience in the field.

Prelim. Resp. 7 (citing Ex. 2001 ¶ 27). The parties’ contentions as to the level of ordinary skill in the art are similar, and there does not appear to be a dispute that needs to be resolved. At this stage of the proceeding, we adopt Petitioner’s definition as it appears to be consistent with the specification of the ’396 patent and the cited references. Our preliminary findings and conclusions would not change if we adopted Patent Owner’s definition.

C. Claim Construction

In *inter partes* review proceedings based on petitions filed on or after November 13, 2018, such as this one, we construe claims using the same claim construction standard that would be used in a civil action under

35 U.S.C. § 282(b), as articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), and its progeny. *See* 37 C.F.R. § 42.100(b).

Petitioner proposes “that all claim terms should be accorded their plain and ordinary meaning, as understood by a POSITA and consistent with the specification and file history of the ’396 patent.” Pet. 34–35. According to Petitioner, “[t]he challenged claims are invalid under any reasonable construction of all claim terms, however.” *Id.* at 35 (citing Ex. 1002 ¶¶ 140–141). Patent Owner “agrees that the claim[] terms should be given their plain and ordinary meaning.” Prelim. Resp. 7. We need not construe any claim term to resolve the institution question, and therefore, do not expressly define any claim term in our Decision. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (explaining that construction is needed only for terms that are in dispute, and only as necessary to resolve the controversy).

D. Challenges 1 and 2—Anticipation by Sachs and Obviousness over Sachs Alone

Petitioner contends that each of the challenged claims is unpatentable as anticipated under 35 U.S.C. § 102 over Sachs and as obvious under 35 U.S.C. § 103(a) over Sachs. Pet. 36–63. Petitioner does not separate the anticipation and obviousness analysis. *See id.* at 36–63. Inasmuch as anticipation is the epitome of obviousness, we analyze anticipation first. *See Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983) (internal citations omitted) (“Though it is never necessary to so hold, a disclosure that anticipates under § 102 also renders the claim invalid under § 103, for ‘anticipation is the epitome of obviousness.’”).

For the reasons that follow, we are persuaded that Petitioner demonstrates a reasonable likelihood of prevailing with respect its anticipation and obviousness challenges based on Sachs.

1. Overview of Sachs

Sachs relates to “a method for performing a data transmission between a sending entity and a receiving entity,” in which the receiver “delays a triggering of a reordering procedure for providing the sequence order” when a data packet is received out of order. Ex. 1003, code (57). Sachs describes that “[t]he basic idea of the present invention is to delay all mechanisms on the link layer, which exploit in-sequence reception by a certain time, which allows receiving all re-ordered packets and putting them back in the sent sequence.” *Id.* at 12:11–14. Figure 4, reproduced below, depicts a timing diagram with a timer, T_reorder. *Id.* at 12:2–3.

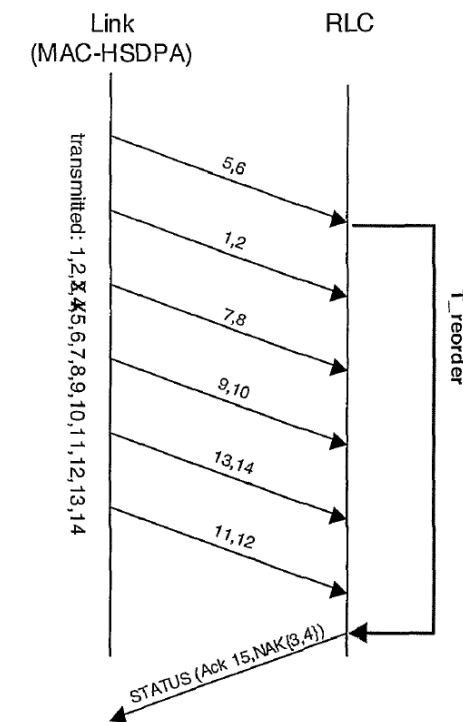


Figure 4

Figure 4 depicts how “T_reorder is introduced in order to delay the reaction of the RLC receiver in sending a STATUS report, which triggers also the retransmissions.” *Id.* at 12:25–28. In Figure 4, “[t]he reorder-delay timer is started” when PDUs 5 and 6 are received out of sequence. *Id.* at 13:2–6. In an acknowledged mode (AM), a STATUS report is placed in a buffer when a PDU is received out of order, and retransmission is delayed. *Id.* at 13:19–25. The STATUS report is updated when PDUs are received to fill in the gaps of the sequence of PDUs. *Id.* at 13:25–27. When the T_reorder timer expires, the STATUS report is removed from the buffer and transmitted. *Id.* at 13:30–31.

Figure 5, reproduced below, depicts stopping the T_reorder timer “when all outstanding PDUs are received and the sent sequence is re-established.” *Id.* at 14:1–4.

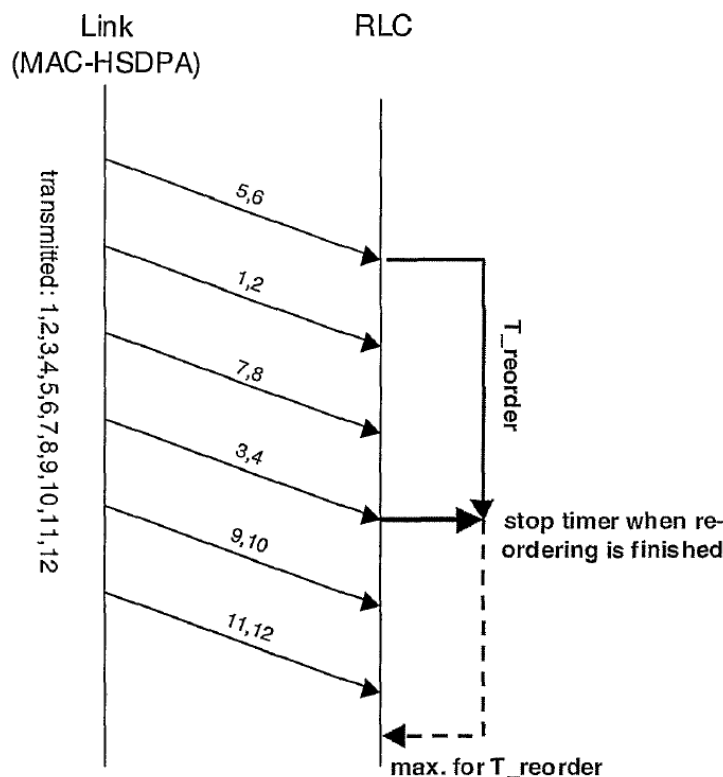


Figure 5

Figure 5 is similar to Figure 4 in that PDUs 5 and 6 are received out of order, except that it shows that PDUs 3 and 4 are eventually received. *Id.* at 14:6–8. In such case, “the sequence 1, 2, 3, 4, 5, 6, 7, 8 is re-established and therefore the T-reorder timer is stopped.” *Id.* at 14:11–12.

2. Independent Claim 1

“A method of performing automatic repeat request (ARQ) in a wireless communication system, the method performed by a receiver and comprising”

Petitioner contends that “[t]o the extent the preamble is limiting, it is disclosed by Sachs.” Pet. 36. According to Petitioner, “Sachs teaches data transmission in a wireless communication system, specifically ‘the UMTS system’” and that “transmission errors are recovered by applying the Automatic Repeat reQuest ARQ mechanism,” which Petitioner argues is performed by a “receiver entity.” *Id.* (citing Ex. 1003, Title, Abstract, Figs. 1–2, 6–8, 1:22–23, 2:8–13, 2:16–17, 3:18–26, 4:2–5, 6:34–7:8, 8:5–12, 8:25–9:9, 10:1–4, 11:15–26, claims 1, 14).

“detecting whether at least one data block to be received from a transmitter is missed”

Petitioner contends Sachs teaches that “[t]he transmission errors are detected by searching for gaps in the sequence numbers of the received PDUs on the receiver side.” Pet. 36–37 (quoting Ex. 1003, 2:17–19) (citing Ex. 1003, Figs. 4, 5, 9:11–15, 12:28–35, claims 4, 5).

“starting a timer when the at least one data block is detected as missed.”

Petitioner contends Sachs teaches that “the delay parameter is a timer that is started for every data packet[] arriving out of sequence, and the triggering of the reordering procedure for providing the sequence at the receiver is delayed by the duration of the timer.” Pet 39 (quoting Ex. 1003,

9:11–15) (citing Ex. 1003, 9:16–17, 9:24–32, 10:19–23, 12:34–13:7, 14:8–10, claim 2, Figs. 4, 5).

“stopping the timer when the at least one data block is received from the transmitter while the timer is running, in order to prevent a triggering of a status report before the timer expires”

Petitioner contends “Sachs explains that: ‘the timer is stopped before the timer expiry when at the reception of a data packet the sequence is established.’” Pet. 40 (quoting Ex. 1003, 9:34–10:1) (citing Ex. 1003, 10:2–4). According to Petitioner, “[i]n order to achieve a minimum reaction time of the link protocol, the reordering-delay shall preferably be stopped when all outstanding PDUs are received and the sent sequence is re-established.” *Id.* at 41 (quoting Ex. 1003, 14:1–4) (citing Ex. 1003, 14:5, claim 6).

Petitioner argues that “[t]he unwanted effect is avoided because the negative status report (*e.g.*, the NAK for data blocks 3,4) is not sent until the timer expires . . . which does not happen if the timer is stopped before expiring.” *Id.* (citing Ex. 1003, Fig. 4, 8:25–9:2, 9:11–17, 9:24–10:4, 13:30–34).

Petitioner also explains its contentions with respect to its annotated versions of Sachs’s Figures 4 and 5, reproduced below. Pet. 41.

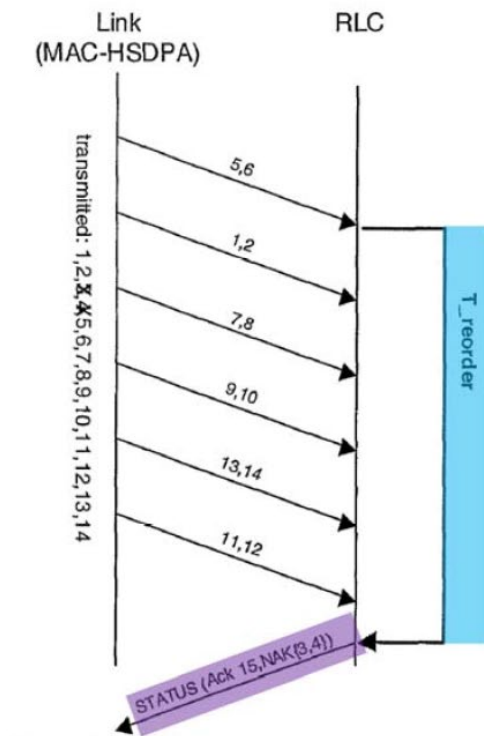


Figure 4

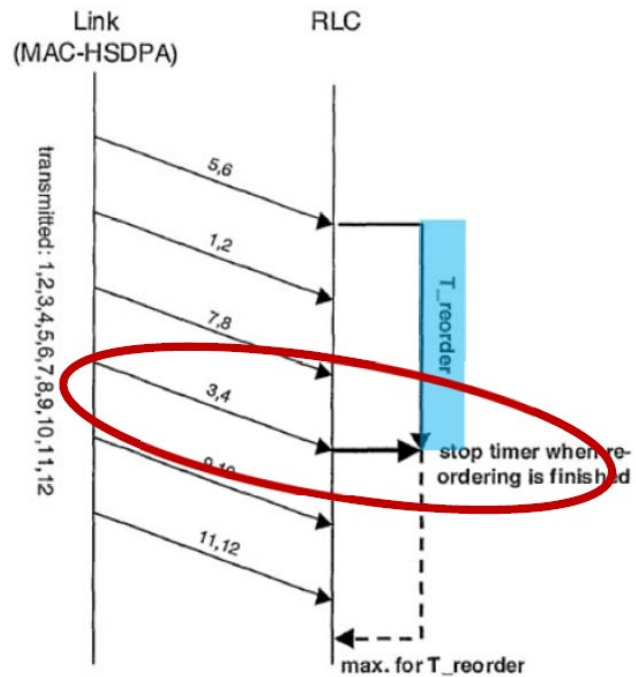


Figure 5

With reference to its annotated versions of Sachs's Figures 4 and 5, Petitioner states that

Starting first at Figure 4 (above left), the T_reorder timer (highlighted blue) begins with detection that data blocks 1-4 are missing. When the T_reorder timer expires without receipt of data blocks 3-4, a status report consisting of both a positive acknowledgement ("ACK 15") and a negative acknowledgement ("NAK (3,4)") is sent (highlighted purple).

Figure 5 (above right) teaches the same embodiment except that, in this example, all of the missing data blocks (1-4) are received before the timer expires. The timer is then stopped before expiration, and no status report indicating non-receipt of the blocks 1-4 is triggered.

Id. at 42 (citing Ex. 1003, Figs. 4, 5, 12:25–13:9, 13:30–33, 14:1–12; Ex. 1002 ¶¶ 171–173).

According to Petitioner, "Sachs' description of this limitation is virtually identical to that of the '396 patent" because the description

associated with the '396 patent's Figure 12, "which illustrates stopping the timer JT at point (2), does not disclose any active 'preventing' process beyond the fact that a status report is not sent." *Id.* (citing Ex. 1001, Fig. 12, 14:45–46; Ex. 1002 ¶¶ 176–177).

"transmitting the status report to the transmitter after the timer expires, wherein the status report comprises a positive acknowledgement indicating receipt of at least one received data block"

Petitioner contends Sachs teaches that "[i]n case of acknowledged mode AM[,] the triggering of the retransmission is delayed.... Once T_reorder expires, the STATUS report is removed from the buffer and transmitted." Pet. 43 (footnote omitted) (quoting Ex. 1003, 13:19–20, 13:30–31) (citing Ex. 1003, Figs. 4–5, 9:24–32, 13:21–29, 13:32–33). According to Petitioner, with reference to its annotated version of Sachs's Figure 4, "Sachs teaches that, at the expiration of the T_reorder timer, a STATUS message including a positive acknowledgement indicating receipt of at least one received data block ('Ack 15') is transmitted." *Id.* (citing Ex. 1003, Fig. 4 (Petitioner's annotated version); Ex. 1002 ¶¶ 178–181).

Patent Owner's Arguments

First, Patent Owner argues that Sachs's "T_reorder timer is not equivalent to the timer in the '396 patent because . . . T_reorder is directed to delaying a reordering procedure, not the triggering of a status report as in the '396 patent." Prelim. Resp. 13 (citing Ex. 2001 ¶ 53; Ex. 1003, Figs. 4, 5, Abstract, 8:25–31, 9:11–15).

Second, Patent Owner contrasts Sachs's method with that of the '396 patent, arguing that, in the '396 patent, "the reorder process is not related to the timer as the '396 patent does not include the reordering step." *Id.* (citing

Ex. 2001 ¶ 54). According to Patent Owner, “[a] POSITA would understand that in a network as described in the ’396 patent, the reordering would occur at a later time and at a higher level such as an access gateway.” *Id.* (citing Ex. 1001, Figs. 2, 3; Ex. 2001 ¶ 54).

Third, Patent Owner argues that “[p]erforming the reordering step at a later time and place as in the ’396 patent is more efficient than performing reordering every time a PDU is received out of order as in Sachs.” *Id.* at 14 (citing Ex. 1003, 13:23–25; Ex. 2001 ¶ 55). According to Patent Owner, “the process in Sachs is less efficient than the invention of the ’396 patent because continuous reordering causes the status report information to remain in the buffer for a longer period of time.” *Id.* (citing Ex. 1003, 14:16–18; Ex. 2001 ¶ 55).

Fourth, Patent Owner argues that “[t]he T_reorder timer is also different from the invention of the ’396 patent because Sachs discloses setting a separate timer for every missing data packet.” *Id.* (citing Ex. 1003, 9:11–13; Ex. 2001 ¶ 56).

As to Patent Owner’s *first* argument, claim 1 recites “stopping the timer . . . in order to *prevent a triggering of a status report* before the timer expires”—this is the opposite of Patent Owner’s contention about “the triggering of a status report as in the ’396 patent.” Prelim. Resp. 13. Even assuming, *arguendo*, that the primary objective of Sachs’s T_reorder timer is “to delay[] a reordering procedure” as Patent Owner contends (*id.*), claim 1 does not exclude this. At this stage of the proceeding, we determine that Sachs teaches “preventing a triggering of a status report before the timer expires” in its Figure 5, in that Sachs depicts no status report (including, among other things, a NAK for data blocks 3 and 4) between the starting and

stopping of timer T_reorder, despite missing data blocks 3 and 4. As Petitioner explains, in Sachs, the T_reorder timer begins when data blocks are missed. If the missing data blocks are not received before T_reorder expires, a status report identifying both received and missing data blocks is sent. Pet. 42 (citing Ex. 1003, Fig. 4, 12:25–13:9, 13:30–33). If the missing data blocks are received before T_reorder expires, the timer is stopped and no status report indicating non receipt of the previously-missing blocks is triggered. *Id.* (citing Ex. 1003, Fig. 5, 14:1–12; Ex. 1002 ¶¶ 171–173).

Sachs discloses that

In case of acknowledged mode AM the triggering of the retransmission is delayed. A STATUS report including the request for missing PDUs is sent to the sender and this triggers the retransmission. Said request has a form of a negative acknowledgment NACK for the missing PDUs. In case a PDU is received out of order *a STATUS report including NACKs is placed in a buffer and T_reorder is started*. While being buffered, the STATUS report is updated, when PDUs are received filling the gaps in the sequence of the PDUs. Also PDUs that are received in-sequence after the *highest PDU is acknowledged in the STATUS report may be added to the STATUS report*. Once T_reorder expires, the STATUS report is removed from the buffer and transmitted. At the expiry of the T_reorder the STATUS triggers are to be verified in order to sen[d] an appropriate answer message to the sender.

Ex. 1003, 13:19–33 (emphases added). Sachs further discloses that a “STATUS report carr[ies] the positive acknowledgments for the positive received PDUs and/or negative acknowledgments for the missing PDUs.” *Id.* at 15:7–9. Sachs also discloses that “[i]n acknowledged mode, the STATUS trigger only leads to an instantaneous transmission of a STATUS message when no T_reorder is active. If T_reorder is active, the received

STATUS trigger is stored and the STATUS report is delayed until the expiry of T_reorder.” *Id.* at 16:4–8.

We are persuaded by Petitioner, at this stage of the proceeding, that the cited portions of Sachs teaching the “stopping” limitation are substantially similar to that of the ’396 patent in that there is no “active ‘preventing’ process beyond the fact that a status report is not sent.” *See* Pet. 42; Ex. 1001, Fig. 12 (showing no status report between the start of the jitter timer at step 1 and stopping of the jitter timer at step 2 despite missing PDU 2). The ’396 patent discloses that “the receiver checks that the gap is generated due to the inversion of transport order of the HARQ by the use of the HARQjitter timer JT,” and “[i]n (2), the RLC entity receives PDU2 before the HARQ jitter timer JT expires, and the HARQ jitter timer JT stops,” and alternatively, “[t]he receiver judges that the reception of PDU6 fails and transmits the status report information associated therewith to the transmitter.”

As to Patent Owner’s *second* and *third* arguments, Patent Owner’s arguments appear to contradict each other. *Compare* Prelim. Resp. 13 (arguing that “the ’396 patent does not include the reordering step”) *with, id.* at 14 (arguing that the reordering step is performed at a later time and place in the ’396 patent). Irrespective of this, claim 1 does not exclude a reordering step or a timer related to a reordering step as Patent Owner contends. *See* Prelim. Resp. 13–14. As such, we do not agree with Patent Owner’s *second* and *third* arguments, at this stage of the proceeding.

Similarly, with regard to Patent Owner’s *fourth* argument, claim 1 is not limited to a single timer, or exclude multiple timers, one for each missing data packet.

We have reviewed the arguments and the cited evidence and are persuaded, that Sachs discloses the limitations of claim 1, at this stage of the proceeding. For the foregoing reasons and at this stage of the proceeding, we are persuaded that Petitioner demonstrates a reasonable likelihood of prevailing with respect to its anticipation challenge to claim 1 based on Sachs.

In a case such as this involving a single reference obviousness ground as an alternative to an anticipation ground that we have found reasonably likely to prevail, the principle that “anticipation is the epitome of obviousness” would appear to be relevant. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1372–74 (Fed. Cir. 2019) (citing *Connell*, 722 F.2d at 1548) (affirming PTAB determination “that a prior art reference rendered certain claims obvious ‘by virtue of its anticipation of them’”). Based on the foregoing arguments and evidence, we are persuaded that Petitioner demonstrates a reasonable likelihood of prevailing with respect to its obviousness challenge to claim 1 based on Sachs.

3. *Independent Claim 8*

Claim 8 recites a receiver that performs substantially the same method recited in claim 1. Petitioner presents substantially the same challenges to the receiver of claim 8 as it does for the method of claim 1. *See* Pet. 45–48. Petitioner also cites portions of Sachs that describe how each limitation is performed in an “RLC receiver.” *Id.* For reasons substantially similar to those set for claim 1, we are persuaded that Petitioner demonstrates a reasonable likelihood of prevailing with respect to its anticipation and obviousness challenges to claim 8 based on Sachs.

4. *Dependent Claims 2–7, 9, and 10*

As we preliminarily conclude that Petitioner demonstrates a reasonable likelihood of prevailing with respect to its anticipation and obviousness challenges to independent claims 1 and 8, we institute review on all challenged claims on all grounds set forth in the Petition, including Petitioner’s challenge to dependent claims 2–7, 9, and 10 for anticipation and obviousness over Sachs. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1354 (2018); *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018).

E. *Challenges 3 and 4—Anticipation by Wei and Obviousness over Wei Alone*

Petitioner contends that claims 1–5 and 7 are unpatentable as anticipated under 35 U.S.C. § 102 over Wei and as obvious under 35 U.S.C. § 103(a) over Wei. Pet. 63–73. For the reasons that follow, we are not persuaded that Petitioner demonstrates a reasonable likelihood of prevailing with respect either of its anticipation and obviousness challenges based on Wei.

1. *Overview of Wei*

Wei relates to “techniques for retransmitting packets by a Radio Link Protocol (RLP) in CDMA communication systems.” Ex. 1004, 1:8–11. More broadly, Wei describes techniques “for retransmitting data in any wireless communication system with a first retransmission mechanism in a first sublayer (e.g., RLP) and a second retransmission mechanism in a second sublayer (e.g., HARQ-CF).” *Id.* at 2:50–55. In an embodiment, Wei employs a “delayed NAK RLP retransmission scheme.” *Id.* at 10:52. When a receiver RLP determines that there are two missing RLP frames, for example, “instead of immediately sending NAKs at the RLP sublayer to

request retransmission of these missing RLP frames, the receiver RLP starts a delayed NAK timer.” *Id.* at 11:22–27. “The receiver RLP would then send the NAKs at the expiration of the delayed NAK timer.” *Id.* at 11:27–28.

Wei also describes an improvement to the delayed NAK RLP retransmission scheme, which normally uses a conservatively long value for the delayed NAK timer because “the receiver RLP wants to wait for a certain amount of time to gain more confidence in its assessment that this RLP frame is really lost.” *Id.* at 11:67–12:3. A “missing frame may still be in the process of being transmitted by the underlying HARQ-CF.” *Id.* at 11:65–67. Accordingly, the HARQ-CF can maintain a “dynamic event-driven timer . . . for each RLP frame determined by the receiver RLP to be missing.” *Id.* at 12:10–12. “This dynamic timer has a variable duration and its expiration is triggered by events known to the receiver HARQ-CF.” *Id.* at 12:12–14. The receiver RLP can send a NAK to a transmitter RLP to request retransmission of a missing RLP frame upon the expiration of the dynamic timer or an RLP fixed timer, whichever happens first. *Id.* at 12:17–21.

2. *Independent Claim 1 and Dependent Claims 2–5 and 7*

“A method of performing automatic repeat request (ARQ) in a wireless communication system, the method performed by a receiver and comprising”

Petitioner contends that, “[t]o the extent the preamble is limiting, it is taught by Wei,” which “teaches the use of ARQ in a wireless communication system performed by a receiver.” Pet. 64 (citing Ex. 1004, codes (14) (“RLP retransmission for CDMA communication systems”), (57) (receiver), 1:13–22 (“wireless communication systems” and receiver), 2:4–

21 (receiver), 2:24–49 (ARQ), 4:61–65, 19:18–26, claims 1–3, Figs. 6–8 (“Receiver RLP”).

“detecting whether at least one data block to be received from a transmitter is missed”

Petitioner quotes the following disclosures in Wei: “missing RLP frames are first detected (*e.g.*, by a receiver RLP)” and that “the receiver RLP detects for missing RLP frames....” Pet. 64–65 (quoting Ex. 1003, code (57), 12:26) (citing *id.* at 12:27–31, 1:33–38, 2:8–10, 10:15–17, 10:31–42, 11:65–67, 13:46–54, 13:66–14:3, 16:66–17:1, 18:28–29, Figures 7–8, claims 1, 8, 16, 24; Ex. 1002 ¶¶ 260–261).

“starting a timer when the at least one data block is detected as missed.”

Petitioner contends that “Wei teaches the use of a dynamic timer that is started when at least one data block (an RLP frame) is detected as missed” and quotes Wei’s disclosure of “[a] dynamic timer is then maintained [] for each RLP frame detected to be missing.” *Id.* at 65 (quoting Ex. 1004, code (57)) (citing Ex. 1004, 2:10–24, 3:15–23, 11:22–28, 11:47–55, 11:65–12:21, 12:31–35, 12:41–46, 13:26–36, 13:50–57, 16:66–17:13, Figs. 6–8, claims 1, 8, 16, 24; Ex. 1002 ¶¶ 262, 263).

“stopping the timer when the at least one data block is received from the transmitter while the timer is running, in order to prevent a triggering of a status report before the timer expires”

Petitioner quotes Wei’s disclosure that “[w]hen an once missing RLP frame is received after the dynamic timer for the frame is triggered, the receiver RLP can also send a command to the receiver HARQ-CF to cancel the dynamic timer.” *Id.* (quoting Ex. 1004, 13:10–13) (citing *id.* at code (57), 13:10–13, 14:28–31, 15:53–65, Figures 6–8, claims 15, 23, 31).

According to Petitioner, “Wei additionally teaches that receipt of the missing data block (an RLP frame) before the timer expires will prevent the triggering of a status report.” *Id.* at 66 (citing Ex. 1004, code (57), 11:23–28 (“[I]nstead of immediately sending NAKs at the RLP sublayer to request retransmission of these missing RLP frames, the receiver RLP starts a delayed NAK timer for these missing RLP frames. The receiver RLP would then send the NAKs at the expiration of the delayed NAK timer.”), 2:16–21, 10:40–52, 11:22–28, 12:17–21). Petitioner contends that “Wei, like Sachs, teaches that stopping the timer ‘prevent[s] a triggering of a status report’ in the same manner as the ’396 patent; a status report is not transmitted while the timer is running.” *Id.* (citing Ex. 1002 ¶¶ 264–267).

“transmitting the status report to the transmitter after the timer expires, wherein the status report comprises a positive acknowledgement indicating receipt of at least one received data block”

Petitioner quotes Wei’s disclosure that “the receiver HARQ-CF may or may not provide ACK feedback for each subpacket transmitted for the receiver,” and that “[i]f the receiver receives the control message on the F-PDCCH and is also able to recover the HARQ packet based on the subpackets received on the F-PDCH, then it sends an ACK back to the transmitter.” Pet. 66–67 (quoting Ex. 1004, 8:43–45, 8:57–60) (citing Ex. 1004, 8:46–56, 8:61–9:8, 4:1–16, 10:58–67, 12:55–67, 4:61–5:2, 9:9–18, 11:8–17, 17:5–38, Figs. 6 (showing the receiver transmitting both ACK and NAK messages), 7–8; Ex. 1002 ¶¶ 268–269).

Petitioner contends that “[e]ven if Wei did not expressly disclose this limitation, a POSITA would have understood the well-known use of ACK messages in ARQ systems to transmit status reports comprising a positive

acknowledgement (*i.e.*, an ACK) to indicate the successful receipt of at least one received data block.” *Id.* at 67 (citing Ex. 1002 ¶¶ 270–271).

Patent Owner’s Arguments

Patent Owner argues that “the status report in claim 1 of the ’396 patent is not equivalent to a NAK, which was known in the prior art,” because claim 1 “states that the status report comprises ‘a positive acknowledgement indicating receipt of at least one received data block.’” Prelim. Resp. 16 (citing Pet. 66; Ex. 2001 ¶ 58; Ex. 1001, 51–53). Patent Owner further argues that “[a] NAK is not a status report,” because “[a] status report can provide information regarding multiple data blocks including both positive and negative acknowledgements” while a NAK is limited to a single data block. *Id.* at 16 (citing Ex. 2001 ¶ 59). Patent Owner also argues that “Petitioners apparently do *not* rely on the ‘indication’ message in Figure 7 of Wei, despite discussing it earlier in the Petition” because the “‘indication’ is a message sent between receivers and not from the receiver to the transmitter as required by claim 1 of the ’396 patent.” *Id.* (citing Ex. 2001 ¶ 60).

With respect to the “stopping” limitation, Petitioner identifies “NAKs” as the status report that is prevented from being triggered. *See* Pet. 66 (citing Ex. 1004, code (57), 11:23–28 (“instead of *immediately sending NAKs* at the RLP sublayer to request retransmission of these missing RLP frames”) (emphasis added)). For the latter “transmitting” limitation, Petitioner identifies “ACK feedback for each subpacket” as the status report that is sent upon expiry of the timer. Pet. 66–67 (quoting Ex. 1004, 8:43–9:8) (citing Ex. 1004, 4:1–16, 10:58–67, 12:55–67, 4:61–5:2, 9:9–18, 11:8–17, 17:5–38, Figs. 6–8; Ex. 1002 ¶¶ 268–269). Petitioner also contends,

with respect to the “transmitting” limitation, “a POSITA would have understood the well-known use of ACK messages in ARQ systems to transmit status reports comprising a positive acknowledgement (*i.e.*, *an ACK*) to indicate the successful receipt of at least one received data block.” *Id.* at 67 (citing Ex. 1002 ¶¶ 270–271) (emphasis added). At this stage of the proceeding, it is not clear to us that the element cited for the status report in the “stopping” limitation (*i.e.*, a NAK) overlaps with, or has any connection to, the element cited for the status report in the “transmitting” limitation (*i.e.*, an ACK). Petitioner does not explain how the element cited for the “stopping” limitation relates to the element cited for the “transmitting” limitation.

As we find that Petitioner demonstrates a reasonable likelihood of prevailing with respect to its challenges to independent claims 1 and 8 over Sachs, we institute review on all challenged claims on all grounds set forth in the Petition, including the anticipation and obviousness challenges to independent claim 1 over Wei and dependent claims 2–5 and 7. *See SAS*, 138 S. Ct. at 354; *PGS*, 891 F.3d at 1360.

F. Challenge 5—Obviousness over Wei and 3GPP TS 25.322

Petitioner contends that claims 6 and 8–10 are unpatentable as obvious under 35 U.S.C. § 103(a) over Wei and 3GPP TS 25.322. Pet. 73–80. Petitioner contends that “Wei discloses or renders obvious all elements of claims 1-5 and 7 of the ’396 patent, as explained in §IX [of the Petition].” Pet. 73. Petitioner relies on Wei in substantially the same manner as set forth in Section III.E and relies on 3GPP TS 25.322 to teach radio interface protocols recited in claims 6 and 8–10. *Id.* For reasons substantially similar to those discussed above in Section III.E.2, we are also not persuaded that

Wei teaches or suggests the status report recited in independent claim 8 in Petitioner's challenge based on the combination of Wei and 3GPP TS 25.322. Nevertheless, we institute review on all challenged claims on all grounds set forth in the Petition, including Petitioner's challenge to claims 6 and 8–10 over Wei and 3GPP TS 25.322. *See SAS*, 138 S. Ct. at 354; *PGS*, 891 F.3d at 1360.

IV. CONCLUSION

For the foregoing reasons, we conclude that the information presented in the Petition demonstrates a reasonable likelihood that Petitioner would prevail in showing that at least independent claims 1 and 8 of the '396 patent are unpatentable.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–10 of the '396 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '396 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CRADLEPOINT, INC., DELL INC., HONEYWELL INTERNATIONAL,
INC., SIERRA WIRELESS, INC., TCL COMMUNICATION
TECHNOLOGY HOLDINGS LIMITED, TCT MOBILE
INTERNATIONAL LIMITED, TCT MOBILE, INC., TCT MOBILE (US)
INC., TCT MOBILE (US) HOLDINGS INC., and THALES DIS AIS
DEUTSCHLAND GMBH,
Petitioner,

v.

SISVEL S.P.A.,
Patent Owner.

IPR2021-00580
Patent 7,869,396 B2

Before BARBARA A. PARVIS, MONICA S. ULLAGADDI, and
AARON W. MOORE, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*, dissenting.

I respectfully dissent from the decision of the panel instituting an *inter partes* review because I conclude that Petitioner has not shown that either Sachs or Wei teaches or suggests the limitation “stopping the timer when the at least one data block is received from the transmitter while the timer is running, in order to prevent a triggering of a status report before the timer expires,” which appears in every claim.

That limitation requires “stopping the timer . . . in order to prevent a triggering of a status report before the timer expires.” However, the point of the timer is to prevent transmission of the status report while it is running. It is the starting, or running, of the timer that prevents the sending of the status report, not the stopping of it. There would not be a status report “before the timer expires,” because that is what the timer is preventing. It may be that the “in order to prevent a triggering of a status report before the timer expires” language was mistakenly applied to the “stopping the timer” limitation, instead of the “starting a timer” limitation, which would have made more sense. In any event, I would find that the Petition fails to account for this claim language.

In addition, I would find that Petitioner has not shown that Wei sends a “status report.” Petitioner finds the status report in Wei’s NAKs and ACKs (*see* Pet. 65–66), but the ’396 patent describes its “status report information” as something other than NACKs and ACKs. *See* Ex. 1001, 8:7–46, Figs. 5 & 6. For example, the status report information is described as originating with the Rx RLC and being transmitted through to the Tx RLC, where NACKs and ACKs are sent only from the Rx HARQ to the TX HARQ. *See* Ex. 1001, 8: 10–12, 8:25–26, 8:47–48. The patent also describes a NACK as merely causing the Tx HARQ to retransmit the block, while status report information causes the Tx RLC to reconstruct the RLC PDU. *See id.* 8:10–14; 8:58–61. In addition, “[t]he status report information is transmitted and received using the physical layer so as to allow the transmitter 400 and the receiver 450 to rapidly exchange the ARQ information.” *Id.* at 9:7–9. On this record, I would find that Petitioner has

not sufficiently shown that Wei's NACKs and ACKs could be the claimed
"status report."

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