

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CRADLEPOINT, 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., THALES DIS AIS DEUTSCHLAND GMBH,
Petitioner,

v.

3G LICENSING S.A.,
Patent Owner.

IPR2021-01141
Patent 7,215,653 B2

Before MIRIAM L. QUINN, MONICA S. ULLAGADDI, and
RUSSELL E. CASS, *Administrative Patent Judges*.

CASS, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

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 GMBH¹ (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 34–40 (the “challenged claims”) of U.S. Patent No. 7,215,653 B2 (Ex. 1001, “the ’653 patent”). Paper 1 (“Pet.”). 3G Licensing S.A. (“Patent Owner”) filed a Preliminary Response. Paper 16 (“Prelim. Resp.”). With our authorization, Petitioner filed a Reply to the Preliminary Response (Paper 17, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 18, “PO Sur-reply”).

We have authority to determine whether to institute an *inter partes* review, under 35 U.S.C. § 314 and 37 C.F.R. § 42.4. An *inter partes* review may not be instituted unless it is determined that “the information presented in the petition filed under section 311 and any response filed under section 313 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 (2018); *see also* 37 C.F.R. § 42.4(a) (2020) (“The Board

¹ On August 24, ZTE Corporation, ZTE (USA) Inc. and Patent Owner filed a joint motion to terminate the ZTE entities from the proceeding due to a settlement reached between the ZTE entities and Patent Owner. Paper 12. We granted the motion and terminated ZTE Corporation and ZTE (USA) Inc. from this proceeding on September 9, 2021. Paper 14. On December 16, 2021, Dell Inc. and Patent Owner filed a joint motion to terminate Dell Inc. from the proceeding due to a settlement reached between Dell and Patent Owner. Paper 20. We granted the motion and terminated Dell Inc. from this proceeding on November 11, 2022. Paper 22.

institutes the trial on behalf of the Director.”). The reasonable likelihood standard is “a higher standard than mere notice pleading,” but “lower than the ‘preponderance’ standard to prevail in a final written decision.” *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29 at 13 (PTAB Dec. 20, 2019) (precedential).

For the reasons provided below and based on the record before us, we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the challenged claims. Accordingly, we institute an *inter partes* review on all grounds set forth in the Petition.

B. Real Parties in Interest

Petitioner states that the real parties in interest are Cradlepoint, 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, as well as Denali Intermediate Inc., Sierra Wireless America, Inc., Thales DIS AIS USA, LLC, Telefonaktiebolaget LM Ericsson, and Ericsson Inc. Pet. 3. Patent Owner states that 3G Licensing S.A. is the real party in interest. Paper 9, 1.

C. Related Proceedings

The parties identify multiple district court cases asserting the ’653 patent in the U.S. District Courts for the District of Delaware and the Northern District of Texas, including cases brought against Cradlepoint, Inc., Dell Inc., Honeywell International, Inc., TCL Communication Technology Holdings Limited, TCT Mobile International Limited, TCT Mobile, Inc., TCT Mobile (US) Inc., TCT Mobile (US) Holdings, Inc.,

Thales DIS AIS Deutschland GmbH, ZTE Corporation, and ZTE (USA) Inc.
Pet. 3–4; Paper 9, 1.

D. The '653 Patent (Ex. 1001)

The '653 patent is directed to a mobile communications system for controlling data transmission rates between a base station and mobile stations served by the base station in order to increase data throughput. Ex. 1001, 1:8–12. The '653 patent explains that various types of mobile communications systems are known, including Code Division Multiple Access (CDMA), which is the most widely accepted. *Id.* at 1:33–35, 1:40. According to the '653 patent, the cdma2000 evolution of CDMA provides integrated voice with simultaneous high-speed packet data, video, and video conferencing. *Id.* at 1:41–45. The '653 patent explains that “[c]urrently, the third generation (3G) evolution of cdma2000 1x wireless communications is being reviewed or partially adopted by certain standards bodies, such as 3GPP and 3GPP2 (The Third Generation Partnership Project 2),” and that “a baseline framework for cdma2000 1xEV-DV (1xEVolution—Data and Voice) was recently reached by the 3GPP2.” *Id.* at 1:45–52.

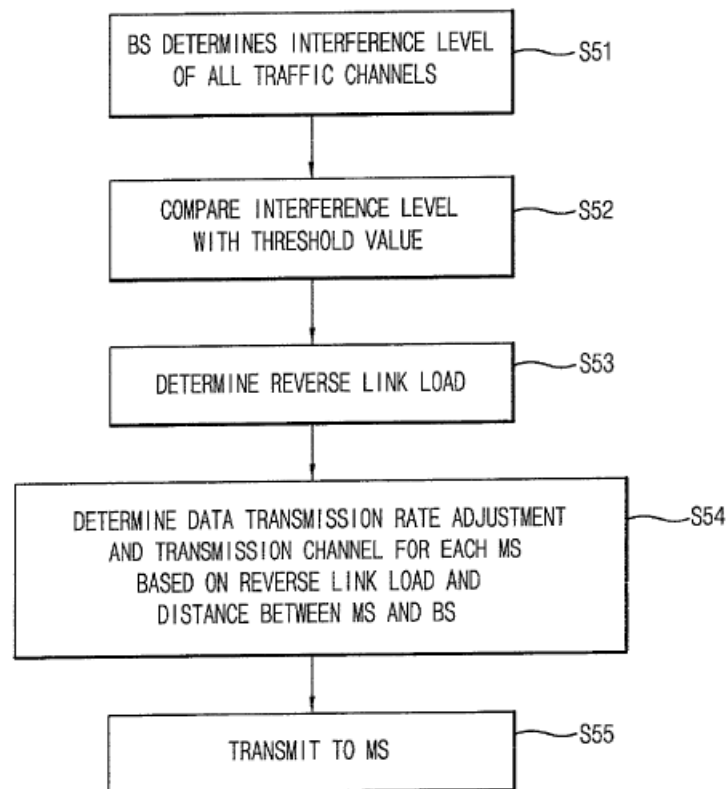
As the '653 patent further explains, in a communication system such as CDMA, a set of channels allow signals to be transmitted between a base station and a mobile station within a given frequency assignment. Ex. 1001, 2:6–9. “Forward” channels allow signal transmission from the base station to a mobile station, while “reverse” channels allow signal transmissions from the mobile to the base station. *Id.* at 2:9–16. The forward channel includes a portion known as the forward medium access control (MAC) reverse activity (RA) channel, which indicates the load on the reverse channel. *Id.* at 2:24–31.

According to the '653 patent, previously known techniques for controlling data transmission rates between mobile stations and a base station in CDMA systems “do not effectively consider the particular data transmission circumstances and channel conditions of each mobile station.” *Id.* at 4:36–43. The '653 patent identifies several purported problems with such previously known techniques. First, they “do not employ effective power control techniques,” and “thus there are difficulties in providing high speed data transmissions to those mobile located far from the base station requiring signal transmissions at a higher power.” *Id.* at 4:44–50. Second, “when the base station detects the load on the reverse link to be too large and feeds back this information via a reverse activity (RA) channel, the reverse link packet data rate is unconditionally reduced by one-half for all users (mobiles), and thus overall data throughput is undesirably reduced.” *Id.* at 4:51–60. Third, the system “is inefficient because no messages are sent to the mobiles to indicate that their packet data rates should be increased when the reverse link load is small.” *Id.* at 4:61–64. Fourth, prior systems “merely consider[] the reverse link load” without considering “the channel or link conditions, such as signal interference and transmission power requirements, and other communications environment factors [that] [a]ffect data transmissions on the reverse link.” *Id.* at 4:65–5:3.

To address these purported problems, the '653 patent seeks to improve the data transmission rate over the reverse link by considering the particular data transmission circumstances and channel conditions of each mobile station and, based on these circumstances and conditions, controlling the mobile stations by sending messages telling them to adjust (increase, decrease, or maintain) their data transmission rates. Ex. 1001, 5:4–15. This

technique is discussed in more detail in connection with Figure 5, reproduced below.

FIG. 5



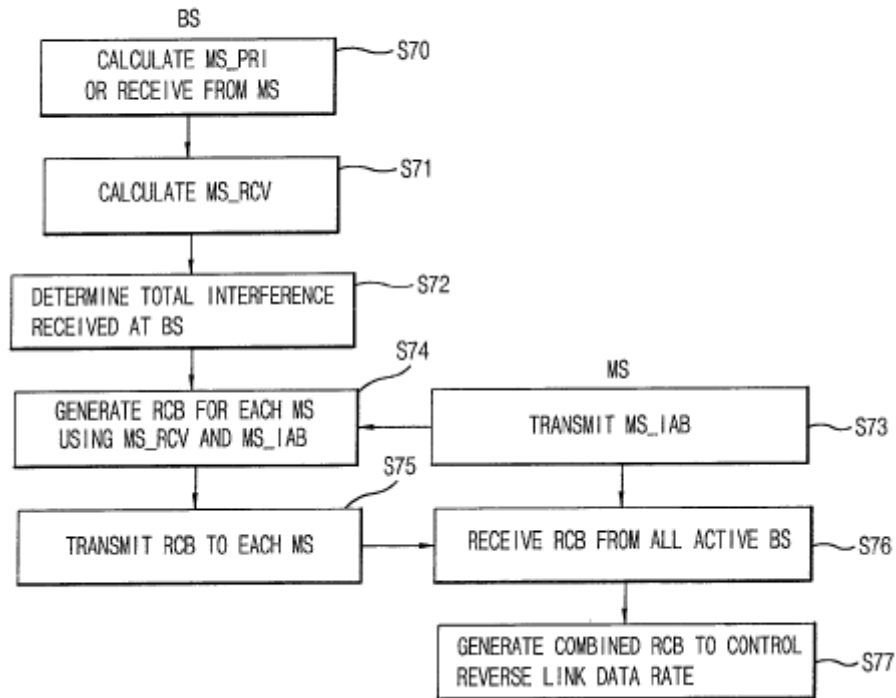
Ex. 1001, Fig. 5. Figure 5 shows the key steps involved in sending transmission data rate adjust information to each mobile station. *Id.* at 9:36–39. First, the base station detects and determines a level of interference among all communication traffic channels (step S51). *Id.* at 9:39–41. Next, the detected interference level is compared with a threshold so that the load on the reverse link can be approximated (steps S52 and S53). *Id.* at 9:41–43. Then, the system determines transmission data rate adjust information based on the reverse link load and the distance between the mobile station and the base station (step S54). *Id.* at 9:43–52. This transmission data rate

adjustment information includes rate control bits (RCBs), which are transmitted from the base station to the mobile stations. *Id.* at 9:52–55. Upon receiving the RCBs from the base stations, the mobile stations adjust their transmission data rates in increments for gradual increasing or decreasing. *Id.* at 9:56–58. The mobile stations then inform the base station of the adjusted transmission data rate they intend to use by sending to the base station a reverse rate indicator (RRI) and, thereafter, the base station transmits packet data on the reverse link at the adjusted data rate. *Id.* at 9:58–63.

The '653 patent also describes the use of a parameter called the Mobile Station Rate Increase Available Bit (MS_IAB), which can be sent by the mobile station to the base station. Ex. 1001, 14:4–7. The MS_IAB value has two states, “increase” and “unchanged.” *Id.* at 14:7–8. The MS_IAB is set to “increase” if all of the following conditions are met: (1) the mobile station’s remaining transmission power is above a certain level; (2) the number of bits in the mobile station’s transmission buffer is above a certain level; and (3) the data rate of the current transfer from the mobile station is below a maximum data rate set by the system. *Id.* at 14:10–19. If any of these conditions is not met, the value is set as “unchanged.” *Id.* at 14:10–12. The system also uses two additional parameters, the Mobile Station Priority (MS_PRI), which is used for determining a probability of cell interference of each mobile station, and the Mobile Station Reverse Control Value (MS_RCV), which is used for determining the transmission energy value necessary for each mobile based on, for example, its distance from the base station. *Id.* at 12:1–3, 13:22–45.

A flow diagram showing the use of these parameters to determine and generate RCBs is shown in Figure 7, reproduced below.

FIG. 7



Ex. 1001, Fig. 7. As shown in Figure 7, the base station first receives the MS_PRI from the mobile station or calculates it, and then uses that information, along with the data rate at which the mobile station is transmitting, to calculate the MS_RCV for mobile stations that are in an active state with regard to the base station (steps S70 and S71). *Id.* at 14:20–35. The base station also detects the total interference based on the total energy of signals received at the base station (step S72). *Id.* at 14:36–38. Thereafter, each mobile station transmits the MS_IAB to the base station in every frame (step S73). *Id.* at 14:38–40. The base station then uses the MS_RCV and MS_IAB values to generate a rate control bit (RCB) for controlling the rate of each mobile station, and transmits the RCB to each

mobile station (steps S74 and S75). *Id.* at 14:41–44. Here, the RCB can include three types of commands: (1) an increase command for increasing the mobile station’s data rate; (2) a decrease command for decreasing the mobile station’s data rate; and (3) a command for not changing the data rate. *Id.* at 14:44–47.

The ’653 patent claims priority to three Korean applications: 2001-0006839 (filed February 12, 2001) (the “first Korean application”), 2001-0041363 (filed July 10, 2001) (the “second Korean application”), and 2001-0057600 (filed September 18, 2001) (the “third Korean Application”). Ex. 1001, code (30).

E. Illustrative Claims

Of challenged claims 34–40, claims 34 and 37 are independent. For purposes of the issues raised at this stage of the proceeding, claim 34 is illustrative and is reproduced below.

34. [pre] A mobile station apparatus for use in a mobile communications system for controlling a data transmission rate on a reverse link, the apparatus comprising:

[34(a)] receiving means adapted to receive a data rate control command of a base station on a forward link common channel in a dedicated manner,

[34(b)] the data rate control command being formed of at least one rate control bit that is signal point mapped to at least one symbol of +1, -1, and 0 to indicate whether the mobile station should increase, decrease, or maintain its current data transmission rate; and

[34(c)] control means connected with the receiving means adapted to control the data transmission rate based on the data rate control command,

[34(d)] wherein a bit is sent on a reverse packet data control channel to indicate whether the mobile station has enough

power and data to increase its data transmission rate on a reverse packet data channel.

Ex. 1001, 20:5–22 (bracketed paragraph identifiers added).

F. Applied References

Petitioner relies upon the following references:

3rd Generation Partnership Project 2, Technical Specification Group C, Working Group 5, Contribution C50-20010507-015, titled “Effective Reverse Link Data Rate Control for 1xEV-DV-r2,” dated May 7, 2001 (Ex. 1003, “Samsung”);

3rd Generation Partnership Project 2, Technical Specification Group C, Working Group 5, Contribution C50-20010212-011, titled “Per-User Reverse Rate Control for Shared Packet Data Channel in 1xEV-DV,” dated Feb. 12, 2001 (Ex. 1004, “Airvana”);

US 6,741,862 B2, issued May 25, 2004 (Ex. 1005, Chung); and

3rd Generation Partnership Project 2, Technical Specification C.S0002-0 v1.0, titled “Physical Layer Standard for cdma2000 Spread Spectrum Systems (July 1999), published October 1999 (Ex. 1006, “C.S0002-0”).

Pet. i, 13.

Petitioner submits the Declaration of James Proctor, M.S. (Ex. 1002).

Petitioner also submits the Declaration of Raziq Yaqub, Ph.D, which discusses the public availability of 3GPP2 documents (Ex. 1010). Patent Owner submits the Declaration of Todor Cooklev, Ph.D (Ex. 2002).

G. Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 34–40 of the '653 patent based on the following grounds:

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
34–40	103(a) ²	Samsung, C.S0002-0
34–40	103(a)	Samsung, Airvana, C.S0002-0
34–40	103(a)	Samsung, Chung, C.S0002-0

II. DISCUSSION

A. Claim Construction

A claim “shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b).” 37 C.F.R. § 42.100(b) (2020). Petitioner proposes constructions for two claim terms, the “receiving means . . .” term of limitation 34(a), and the “control means . . .” term of limitation 34(c). Pet. 37–38. Petitioner argues that the function of the “receiving means” is “receiv[ing] a data rate control command of a base station on a forward link common channel in a dedicated manner,” and that the corresponding structure in the specification is “an antenna, reception processor, and demodulator, as disclosed in elements A1, 21, and 22 of Figure 2 and the corresponding discussion at 5:50–56 and 6:19–22.” *Id.* at 37. Petitioner argues that the function of the “control means” is “control[ling] the

² The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), included revisions to 35 U.S.C. § 103 that became effective after the filing of the application that led to the '653 patent. Therefore, we apply the pre-AIA version of 35 U.S.C. § 103.

transmission rate based on the data rate control command,” and that the corresponding structure in the specification is “a transmission data rate controller and transmission processor, in their entirety or portions thereof.” *Id.* at 38. Petitioner also represents that its claim construction proposals “match the constructions advanced by Patent Owner during litigation.” *Id.* n.7.

Patent Owner states that it “agrees with Petitioners that the proposed terms for construction have corresponding structure in the ’653 patent.” Prelim. Resp. 11. Patent Owner further states that its “position on claim construction here is the same as the position that it has taken in district court litigation,” but that it “reserves the right to provide alternate constructions.” *Id.*

We determine that it is not necessary to provide an express interpretation of any claim terms at this stage of the proceeding. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

B. Principles of Law

To satisfy the written description requirement under 35 U.S.C. § 112(a), the specification must “reasonably convey[] to those skilled in the art that the inventor had possession” of the claimed invention as of the filing date. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). An adequate description does not require any particular form of disclosure or that the specification recite the claimed invention *in haec verba*, but must do more than render the claimed invention obvious.

Id. at 1352. In evaluating the adequacy of the disclosure, a court may consider “the existing knowledge in the particular field, the extent and content of the prior art, the maturity of the science or technology, [and] the predictability of the aspect at issue.” *Capon v. Eshhar*, 418 F.3d 1349, 1359 (Fed. Cir. 2005) (cited with approval in *Ariad*, 598 F.3d at 1352).

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the subject matter sought to be patented 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; (3) the level of skill in the art; and (4) where in evidence, objective evidence of non-obviousness.³ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). When evaluating a combination of teachings, we must also “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Whether a combination of prior art elements would have produced a predictable result weighs in the ultimate determination of obviousness. *Id.* at 416–417.

In an *inter partes* review, the petitioner must show with particularity why each challenged claim is unpatentable. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016); 37 C.F.R. § 42.104(b) (2020).

³ At this stage of the proceeding, Patent Owner has not presented objective evidence of non-obviousness.

The burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

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

C. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art at the time of the alleged invention “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.” Pet. 36 (citing Ex. 1002 ¶¶ 52–54). Petitioner further asserts that one of ordinary skill “would also have familiarity with the 3GPP2 and other wireless standard technical specifications,” and “would have understood how to search available literature for relevant publications, including contributions to standardization organizations.” *Id.* (citing Ex. 1002 ¶¶ 52–54, 88; Ex. 1001, 1:33–55, 1:65–2:5).

Patent Owner argues that a person of ordinary skill in the art “would be one with a bachelor’s degree in electrical engineering, computer engineering, computer science, or telecommunications, along with a minimum of three to five years of practical experience in the field.” Prelim. Res. 9–10. Patent Owner also contends that “[a] combination of more experience in the field and less education or more education and less experience in the field would also suffice.” *Id.* at 10.

We find the parties’ definitions of the person of ordinary skill to be very similar. To the extent necessary, and for purposes of this Decision, we

adopt Petitioner’s assessment of the level of skill in the art because Mr. Proctor’s identification of relevant industry experience applicable to designing or implementing wireless radio systems for data transmission or retransmission is consistent with the ’653 patent and the asserted prior art. We note, however, that our determinations in this Decision would not change under either party’s definition of the level of ordinary skill in the art.

D. Priority Date of the ’653 Patent

The parties dispute the priority date of the ’653 patent. Pet. 8–9; Prelim. Resp. 13–20, Pet. Reply; PO Sur-reply. This dispute is significant at this stage of the proceeding because Patent Owner contends that the ’653 patent’s priority date pre-dates Samsung and Airvana and renders them unavailable as prior art. Prelim. Resp. 13, 19.

As noted above, the ’653 patent claims priority to three Korean applications: 2001-0006839 filed February 12, 2001 (the “first Korean application”), 2001-0041363 filed July 10, 2001 (the “second Korean application”), and 2001-0057600 filed September 18, 2001 (the “third Korean application”). Ex. 1001, code (30). Petitioner argues that, of these three applications, only the third Korean application “possibly supports any priority claim.” Pet. 8–9 (citing Exs. 1011–1016; Ex. 1002 ¶¶ 115–119). The first and second Korean applications, according to Petitioner, “do not describe the claimed increase availability bit (referred to as ‘MS_IAB’ in the ’653 patent)—*i.e.*, the bit transmitted from the mobile station to the base station indicating that the mobile station has sufficient power and enough data to be transmitted to increase its data transmission rate,” which each of the challenged claims require. *Id.* at 9 (citing Ex. 1002 ¶¶ 115–117). Accordingly, Petitioner contends that the earliest potential priority date for

the challenged claims is the September 18, 2001 date of the third Korean application, which is after the effective date of all of the prior art relied upon in the Petition. *Id.* (citing Ex. 1002 ¶¶ 119, 144–148).

Patent Owner disagrees, arguing that “the first Korean [a]pplication and the ’653 patent both expressly disclose an RRI bit that is transmitted from the mobile station to the base station to indicate whether the mobile station has sufficient power and data to increase its data transmission rate.” Prelim. Resp. 14 (citing Ex. 1011 ¶ 7; Ex. 1001, 9:58–63; Ex. 2002 ¶ 72). For support, Patent Owner points to the first Korean application’s disclosure of a “mobile station that . . . informs a base station of its transmission rate through an RRI (Reverse Rate Indicator),” and argues that “[t]he ’653 patent discloses the same RRI bit.” *Id.* (citing Ex. 1011 ¶ 7; Ex. 2002 ¶¶ 73–74; Ex. 1001, 9:61). Patent Owner argues that one of ordinary skill “would understand that the purpose of the RRI is to indicate whether the mobile station has enough power and data to increase the mobile station’s data transmission rate on a reverse packet data channel,” due to “the direct relationship between data transmission rate and the mobile station’s data and power.” *Id.* at 17 (citing Ex. 2002 ¶¶ 84–85); *see* Sur-reply 3.

Additionally, according to Patent Owner, the first Korean application discloses the same structure in Figure 3 for achieving this bit transmission as the ’653 patent discloses in Figure 2. Prelim. Resp. 14–15 (citing Ex. 2002 ¶¶ 76–77; Ex. 1011, Fig. 3; Ex. 1001, Fig. 2). Patent Owner further argues that slide 8 of the Samsung reference “recognizes that an indicator bit such as the RRI can indicate whether the mobile station has enough power and data to increase the data transmission rate.” *Id.* at 17–18 (citing Ex. 1003, 8; Ex. 2002 ¶ 86); *see* Sur-reply, 4. In support of this argument, Patent Owner

points to a table in Samsung suggesting that one can “[j]ust use a top of RRI symbols as an IAB bit,” and that the RRI symbol correlates to a bit indicating whether the data rate can be increased. Sur-reply 4 (citing Ex. 1003, 8).

Petitioner responds that the RRI messages in the first Korean Application do not “indicate whether the mobile station has enough power and data to increase its data transmission rate on a reverse packet data channel,” but rather merely “informs a base station of its transmission data rate.” Pet. Reply 1–2 (citing Ex. 1011 ¶¶ 7, 22, 48; Ex. 1001, claims 34, 37). According to Petitioner, “the RRI informs the base station of the data rate the mobile station *will use*, . . . rather than being sent by [the] mobile station to indicate whether the mobile station has enough power and data for an increase.” *Id.* at 3 (citing Ex. 1011 ¶¶ 7, 22, 48); Ex. 1001, 9:56–63). Petitioner argues that the ’653 patent specifically describes the MS_IAB as a bit sent to indicate whether a mobile station has enough power and data for an increase in its data rate, but this MS_IAB bit was not added until the third Korean application. *Id.* at 4 (citing Ex. 1001, Fig. 7, Fig. 9, 14:4–19, 14:40–44, 15:32–41; Ex. 1015 ¶¶ 63–69).

Petitioner also contests Patent Owner’s argument that Samsung recognizes that the RRI can indicate whether the mobile station has enough power and data to increase the data transmission rate. Pet. Reply 5. According to Petitioner, “Samsung *modifies* known, existing ways of using RRIs by redefining those signals or adding an extra bit (*i.e.*, beyond a conventional RRI message) to transmit the information required by the ’653 claims.” *Id.* Thus, Petitioner asserts, “Samsung proposes a novel way that the existing RRIs could be modified to provide for a *new* IAB.” *Id.* (citing

Ex. 1003, 3, 8). Petitioner also argues that Samsung is dated after the first Korean application, and Petitioner's addition of Samsung's IAB to the second and third Korean applications "does not retroactively imbue [the first Korean application] with the ideas of Samsung." *Id.*

Based on the present record, Petitioner has made a sufficient showing for purposes of institution that claims 34 and 37 of the '653 patent are not supported by the first Korean application. Claim 34 requires that "a bit is sent on a reverse packet data control channel to ***indicate whether the mobile station has enough power and data to increase its data transmission rate*** on a reverse packet data channel," and claim 37 includes a similar limitation. Ex. 1001, 20:19–22 (emphasis added), 20:44–48. The '653 patent discloses an MS_IAB bit that indicates whether the mobile station has enough power and data to increase its data transmission rate on a reverse packet data channel. *Id.* at 14:3–20. More specifically, the '653 patent states that the MS_IAB value is set to "increase" when "transmission power margin (i.e., remaining transmission power) is above a certain level," the "number of bits in the transmission buffer is above a certain level," and "the data rate of the current transfer . . . is below a maximum data rate . . . set by the system." *Id.* at 14:10–19. We agree with Petitioner that this disclosure does not appear in the first Korean application, and Patent Owner does not contend otherwise. *See* Pet. 8–9; Prelim. Resp. 13–19; Pet. Reply 3–4; PO Sur-reply.

We also agree that Petitioner has sufficiently shown that the claim limitation at issue is not disclosed by the RRI in the first Korean application. The relevant portion of the first Korean application states that the base station determines "information on the increase and decrease of transmission data rate (Reverse Activity Bit, RAB) for each mobile station" and sends the

RAB to the mobile station. Ex. 1011 ¶¶ 6–7. “[T]he mobile station that has received its RAB information changes the transmission data rate one step at a time according to the RAB command and transmits it, and ***informs a base station of its transmission data rate through an RRI (Reverse Rate Indicator).***” *Id.* ¶ 7 (emphasis added); *see id.* ¶¶ 22 (“the mobile station that has received its RAB information changes the transmission data rate one step at a time according to the RAB command and transmits it, and informs the base station of its transmission data rate through an RRI (Reverse Rate Indicator),” 44 (same)). These disclosures merely state that the RRI informs the base station of the mobile station’s transmission rate; they do not disclose that the RRI “indicate[s] whether the mobile station ***has enough power and data*** to increase its data transmission rate,” as the claims require.

We note that Patent Owner relies on testimony from Dr. Cooklev that one of ordinary skill in the art “would understand that the purpose of the RRI is to indicate whether the mobile station has enough power and data to increase the mobile station’s data transmission rate on a reverse packet channel” because “of the direct relationship between data transmission rate and the mobile station’s data and power.” Ex. 2002 ¶¶ 84–85, *cited in* Prelim. Resp. 17. As explained above, however, the first Korean application merely states that the RRI “informs a base station of its transmission rate.” Ex. 1011 ¶¶ 7, 22, 44. Dr. Cooklev fails to sufficiently explain why the first Korean application’s disclosure that the RRI “informs a base station of its transmission rate” would have disclosed to one of ordinary skill that the RRI also indicates “whether the mobile station has enough power and data to increase the mobile station’s data transmission rate.” Moreover, Dr. Cooklev’s statement that there is a “direct relationship” between data

transmission rate and the mobile station's data and power is insufficient, because Dr. Cooklev fails to explain how this "direct relationship" conveys to a skilled artisan that the RRI indicates that the mobile station has *enough power and data* to increase the mobile station's data transmission rate, in addition to simply indicating the transmission rate itself.

Based on the present record, we also are not convinced that slide 8 of Samsung necessarily means that the RRI disclosed in the first Korean application "indicate[s] whether the mobile station has enough power and data to increase its data transmission rate." *See* Prelim. Resp. 17–18; Sur-reply 4. Samsung is dated after the first Korean application, and we see insufficient information in the record at this stage of the proceeding to conclude that the RRI described in Samsung's slide 8 is the same RRI as that disclosed in the first Korean application. The parties may further address this issue during the trial.

Consequently, based on the present record, we determine that there is a reasonable likelihood that the '653 patent is not supported by the first Korean application.

E. Grounds 1 and 2: Obviousness of Claims 34–40 Based on Samsung and C.S0002-0 or Samsung, Airvana, and C.S0002-0

Petitioner contends that claims 34–40 are obvious over Samsung and C.S0002-0 or Samsung, Airvana, and C.S0002-0. Pet. 13, 39–58. Other than its arguments about whether the references qualify as prior art, Patent Owner does not address Petitioner's obviousness contentions at this stage of the proceeding. Prelim. Resp. 13–24.

1. Overview of Samsung (Ex. 1003)

Relying on the testimony of Dr. Yaqub and Mr. Proctor, Petitioner asserts that Samsung “is a contribution made available at or before the end of a 3GPP2 meeting in Palm Springs, California, which was held in May 2001.” Pet. 9–10 (citing Ex. 1002 ¶¶ 149–156; Ex. 1010 ¶¶ 53–64).

Petitioner further argues that testimony from Dr. Yaqub and Mr. Proctor “confirm[s] that 3GPP2 made Samsung . . . publicly available to any interested persons of skill in the art before the September 18, 2001 priority date.” *Id.* at 11 (citing Ex. 1010 ¶¶ 64, 74, 78; Ex. 1002 ¶¶ 145–147, 153–155, 164–165). Accordingly, Petitioner asserts, Samsung was published in or before May 2001, and is prior art under at least pre-AIA 35 U.S.C.

§ 102(a). *Id.* at 9. Because, as discussed above, we preliminary determine that the ’653 patent is not entitled to an effective filing date earlier than the July 10, 2001 date of the second Korean application, and because we find that Petitioner has made a sufficient showing of public availability at this stage of the proceeding, we determine for purposes of institution that Samsung is prior art. *See* § II.D, *supra*.

Samsung “proposes the IAB [Increase Availability Bit] concept for the effective data rate control of the 1xEV-DV reverse link.” Ex. 1003, 1. The IAB is a “1 bit indicator” that can be set to “0” to enable an increase in data rate and to “1” to disable an increase in the data rate. *Id.* at 6. The mobile may send an IAB set to “1” (no increase requested) if any of the following are met: (1) the “[c]urrent data rate is the same as [the] data rate limited by [the] RRL message”; (2) the “[d]ata rate is limited due to [the] MS’s transmission power”; (3) “[t]he MS has a small amount of data to be sent in [the] Tx buffer” (“[l]ess than the threshold of [the] Tx Buffer”); or (4) “[a]t least one RAB is set to ‘Down’ when the MS is being controlled by

two or more base stations.” *Id.* On the other hand, the “MS may (will) set an IAB to ‘0’ when the MS wants to increase its data rate due to buffer overflow.” *Id.*

Samsung also summarizes existing control schemes for the reverse link. Ex. 1003, 3–4. For example, Samsung describes the 1xEV-DO scheme as a “common control scheme,” using a “1 bit RAB[](Up and Down Reverse Activity Bit) through [a] Forward common control channel.” *Id.* at 3. Samsung further describes “Dedicated Control Schemes” where “[d]esignated information from the BS is sent to each MS in the cell,” providing “dynamic and efficient reverse link data rate control.” *Id.* at 4. Additionally, Samsung states that “LGE and Airvana’s proposals for 1xEV-DV” uses “2 bits RAB[](Up, Down and Keep) through [a] Forward dedicated control channel.” *Id.*

2. Overview of Airvana (Ex. 1004)

Relying on the testimony of Dr. Yaqub and Mr. Proctor, Petitioner asserts that Airvana “is a contribution made available at or before the end of a 3GPP2 meeting in Phoenix, Arizona, which was held in February 2001—*i.e.*, approximately three months before the meeting where Samsung was presented.” Pet. 10 (citing Ex. 1002 ¶¶ 157–160; Ex. 1010 ¶¶ 65–74). Petitioner further argues that testimony from Dr. Yaqub and Mr. Proctor “confirm[s] that 3GPP2 made . . . Airvana . . . publicly available to any interested persons of skill in the art before the September 18, 2001 priority date.” *Id.* at 11 (citing Ex. 1010 ¶¶ 64, 74, 78; Ex. 1002 ¶¶ 145–147, 153–155, 164–165). Accordingly, Petitioner asserts, Airvana was published in or before February 2001, and is prior art under at least pre-AIA 35 U.S.C. § 102(a). *Id.* at 10. Because, as discussed above, we preliminary determine

that the '653 patent is not entitled to an effective filing date earlier than the July 10, 2001 date of the second Korean application, and because we find that Petitioner has made a sufficient showing of public availability at this stage of the proceeding, we determine for purposes of institution that Airvana is prior art. *See* § II.D, *supra*.

Airvana describes a Forward Rate Control Channel (F-RCCH) for each active mobile station sharing a packet data channel, that can be implementing by using a 2-bit indicator to indicate whether the data rate should be increased (“rate up”), decreased (“rate down”), or maintained (“no change”). Ex. 1004, 5–6. Specifically, Airvana includes the following disclosure:

In this contribution, we propose a per-user Forward Rate Control CHannel (F-RCCH) for each active MS sharing a packet data channel. This channel can be used to control each MS's reverse link rate as a function of its reverse link channel condition

The F-RCCH can be implemented in different ways. Since rapid rate changes are not necessary ~~desirable~~ it may be sufficient to use a 2-bit indicator to send “rate up”/”rate down”/”no change” information once every L frames of 20 ms. The value of L can be ~~determined by the~~ configurable ~~access~~ network.

Id. at 6 (underlining and strikethrough in original). Airvana further explains that “[t]o effectively support such variable-rate reverse link operation, a per-user rate control mechanism needs to be included 1xEV-DV.” *Id.* at 2.

3. *Overview of C.S0002-0 (Ex. 1006)*

Petitioner asserts that C.S0002-0 is the Physical Layer Specification for the cdma2000 system, which 1xEV-DV and 1xEV-DO are built upon. According to Petitioner, C.S0002-0 was published on or before October

1999, and is prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and 102(b). Pet. at 11. Petitioner further argues that testimony from Dr. Yaqub and Mr. Proctor “confirm[s] that 3GPP2 made . . . C.S0002-0 . . . publicly available to any interested persons of skill in the art before the September 18, 2001 priority date.” *Id.* (citing Ex. 1010 ¶¶ 64, 74, 78; Ex. 1002 ¶¶ 145–147, 153–155, 164–165). Because we find that Petitioner has made a sufficient showing of public availability at this stage of the proceeding, we determine for purposes of institution that C.S0002-0 is prior art. *See* § II.D, *supra*.

C.S0002-0 discloses, among other things, a method of “single point mapping” a symbol (set to either 0 or 1) and its presence or lack thereof to a three-value signal where a value of 0 maps to +1, a value of 1 maps to -1, and no value (the symbol not being present) maps to a value of 0. Ex. 1006, 226. C.S0002-0 also discloses the use of a power control bit to control the power levels of a mobile station. *Id.* at 80.

4. *Motivation to Combine Samsung and Airvana*

Petitioner argues that one of ordinary skill would have been motivated to combine Samsung and Airvana because “Samsung incorporates Airvana by reference.” Pet. 39. “Specifically,” Petitioner asserts, “Samsung expressly references the disclosures of Airvana and then, importantly, makes a proposal that builds upon and improves Airvana’s ideas.” *Id.*

Petitioner also argues that, even if Samsung and Airvana are “treated as entirely separate references,” one of ordinary skill would have been motivated to combine them because “Samsung specifically references and discusses the content of ‘Airvana’s proposal[] for 1xEV-DV’ in the context of reverse link rate control.” Pet. 40. “Moreover,” Petitioner contends, “Samsung was a contribution to the same 3GPP2 TSG working group

(3GPP2 TSG-C WG5) as Airvana, so Samsung’s reference to ‘Airvana’s proposal[]’ for a dedicated control scheme for reverse link data rates could not be misunderstood.” *Id.* (citing Ex. 1004, 4; Ex. 1002 ¶¶ 161–163).

Petitioner further argues that Samsung “states that its proposal for an increase availability bit (‘IAB’) from the mobile station ‘can be applicable for both common and dedicated control scheme[s] for reverse link data rate,” and that “Airvana proposes such a control scheme.” *Id.* (citing Ex. 1003, 5).

Based on the present record, Petitioner has presented sufficient evidence to establish a reasonable likelihood that one of ordinary skill would have been motivated to combine Samsung and Airvana.

5. *Motivation to Combine Samsung with C.S0002-0, and Samsung and Airvana with C.S0002-0*

Petitioner argues that it would have been obvious to combine Samsung and/or Airvana with “C.S0002-0’s disclosure of signal point mapping a single bit (and its presence) to a ternary (three-value) signal.” Pet. 41. According to Petitioner, one of ordinary skill would have been motivated to combine these references “because all three references relate to 3GPP2 standards,” and “C.S0002-0 is part of the very cdma2000 standard that Samsung and Airvana were improving upon.” *Id.* (citing Ex. 1002 ¶¶ 173–174; Ex. 1003, 1; Ex. 1004, 1; Ex. 1005, title page, xxxiii–xxxiv). In particular, Petitioner asserts, one of ordinary skill would have known to look to C.S0002-0 for the protocols for allowing a base station to signal control data to mobile stations. *Id.* at 42 (citing Ex. 1006, xxxiii; Ex. 1002 ¶ 175).

Petitioner further argues that one of ordinary skill “would have been aware of the advantages of mapping the presence and value of a single bit to three different values, as taught in C.S0002-0, to increase the efficiency of messages and save bits by not using two bits for signaling three possible

values.” Pet. 42 (citing Ex. 1002 ¶ 176; Ex. 1003, 5, 15; Ex. 1004, 2). The signal point mapping technique in C.S0002-0, according to Petitioner, “was a known, proven and reliable means for signaling similar control information (for power control) with three possible states.” *Id.* Additionally, Petitioner argues, one of ordinary skill “would have had a reasonable expectation of success in implementing the signal point mapping in C.S0002-0 in Samsung’s system (which uses the IAB and controls mobile stations in a dedicated manner) because signal point mapping had known effects.” *Id.* at 43 (citing Ex. 1006, 3–8; Ex. 1002 ¶ 179). Moreover, according to Petitioner, “the ’653 patent even admits that signal point mapping is a ‘conventional’ technique that was particularly used for ‘sending transmission data rate increase information from a base station to a mobile,’ and identifies signal point mapper 11 as ‘prior art.’” *Id.* (citing Ex. 1001, 4:13–27, Fig. 1; Ex. 1002 ¶¶ 173–180).

Based on the present record, Petitioner has presented sufficient evidence to establish a reasonable likelihood that one of ordinary skill would have been motivated to combine Samsung and/or Samsung and Airvana with C.S0002-0.

6. *Analysis of Independent Claim 34*

- a) 34[pre]: “[a] mobile station apparatus for use in a mobile communications system for controlling a data transmission rate on a reverse link, the apparatus comprising:”

Petitioner asserts that, to the extent the preamble of claim 34 is limiting, Samsung discloses the preamble. Pet. 44. Petitioner points to “Samsung’s disclosure of a mobile station (‘MS’) connected to and in communication with a base station (‘BS’) in a mobile communication system—specifically, a 1xEV-DV system.” *Id.* (citing Ex. 1003, 1, 4, 7).

According to Petitioner, “Samsung further discloses that the mobile station controls the data transmission rate on the reverse link (from the mobile station to the base station) using a dedicated control scheme,” by referencing and discussing “Airvana[’s] proposal for a dedicated control scheme for the reverse link rate (one where the reverse link data rate is controlled for each mobile in a cell individually),” in which “the base station sends ‘2 bits RAB (Up, Down and Keep) through the Forward dedicated control channel’ to each mobile station in order to signal to the mobile station whether to increase, decrease or maintain its data transmission rate.” *Id.* (citing Ex. 1003, 4; Ex. 1002 ¶¶ 181–185, 223, 257).

We determine that, on the record before us, Petitioner’s cited evidence sufficiently supports its contentions regarding the preamble at this stage of the proceeding.⁴

b) 34(a): “*receiving means adapted to receive a data rate control command of a base station on a forward link common channel in a dedicated manner;*”

Petitioner argues that Samsung, either alone or in combination with Airvana, teaches this limitation. Pet. 45. Specifically, Petitioner asserts that “Samsung references Airvana, which Samsung describes as teaching that the mobile station receives a 2-bit RAB command from a base station that contains ‘designated information for each mobile.’” *Id.* (citing Ex. 1003, 4; Ex. 1002 ¶¶ 186–187). “This RAB,” according to Petitioner, “is part of a dedicated control scheme transmitted over a forward control channel that

⁴ Because we are persuaded that Petitioner has shown that the prior art teaches the subject matter recited in the preamble, we need not decide whether the preamble is limiting for purposes of this Decision.

transmits a $2 \times N$ RAB bits per cell (one ‘2 bit RAB’ message for each active mobile station in the cell).” *Id.*

Additionally, Petitioner argues that, to the extent Samsung does not expressly teach this limitation through its incorporation and summary of Airvana’s proposals, Airvana itself teaches it. Pet. 45. Specifically, according to Petitioner, “Airvana proposes ‘**a per-user Forward Rate Control Channel (F-RCCH)** for each active MS sharing a packet data channel’ used by the base station to send messages to control the data rate at which each mobile station may transmit on the reverse link, noting that ‘it may be sufficient to use a **2-bit indicator to send “rate up”/“rate down”/“no change” information** once every L frames of 20 ms.’” *Id.* at 45–46 (citing Ex. 1004, 6 (emphasis added); Ex. 1002 ¶ 188).

Petitioner further argues that the combination of Samsung and Airvana, with or without C.S0002-0, would have rendered the “control means” of claim 34 obvious. Pet. 51. According to Petitioner, one of ordinary skill “would have understood that Samsung and/or Airvana’s mobile station includes hardware (*e.g.*, a transmission data rate controller and/or transmission processor) that controlled the data rate at which the mobile transmitted data back to a base station,” which was “known and standard in the art.” *Id.* (citing Ex. 1003, 3–7, 15; Ex. 1004, 5–6; Ex. 1002 ¶¶ 202–203; Ex. 1001, Fig. 2, 5:50–54, 5:57–60, 5:64–6:19).

We determine that, on the record before us, Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation at this stage of the proceeding.

- c) 34(b): “the data rate control command being formed of at least one rate control bit that is signal point mapped to at least one symbol of +1, -1, and 0 to indicate whether the mobile station should increase, decrease, or maintain its current data transmission rate;”

Petitioner argues that Samsung (or Samsung/Airvana) and C.S0002-9 teach this limitation. Pet. 47. According to Petitioner, “Airvana and Samsung both teach signaling three different values for the rate control command (increase/rate up, decrease/rate down, or maintain/not change the current rate) using a 2-bit message.” *Id.* (citing Ex. 1003, 4–5; Ex. 1004, 5–6; Ex. 1002 ¶¶ 192–194). Petitioner asserts that it was well known that a 2-bit message could be used to convey four different commands, but it was also known in the art, as taught in C.S0002-0, that transmitting a single bit (or its absence) “could be mapped to three different symbols (*e.g.*, values) by assigning a value to whether the bit is present or not.” *Id.* at 47–48 (citing Ex. 1002 ¶¶ 194–195; Ex. 1006, 3-8, 3-21, 3-113–3-115). Thus, according to Petitioner, it would have been obvious “to use signal point mapping as taught in C.S0002-0, to indicate the three possible states of Samsung/Airvana’s 2-bit rate control command.” *Id.* at 48. Petitioner argues that “the ’653 patent’s specification does not focus on signal point mapping or suggest that LGE believed itself to have invented this concept” but, to the contrary, “admits that ‘signal point mappers’ that map a bit from 0 or 1 to +1 or -1 were conventional.” *Id.* (citing Ex. 1001, Fig. 1, 4:22–27; Ex. 1002 ¶¶ 196–197).

“Moreover,” Petitioner contends, “C.S0002-0 taught mapping control messages, such as power control messages each having a binary value, to three potential values of +1, -1, and 0, with the bit: not present meaning a value of 0; being present and set to 1 meaning a value of -1; and being

present and set to 0 to mean a value of +1.” Pet. 48–49 (citing Ex. 1006, 3-8, 3-21). To show this disclosure, Petitioner relies on an annotated version of C.S0002-0’s Figure 3.1.3.1.1-4, reproduced below:

3GPP2 C.S0002-0 v1.0

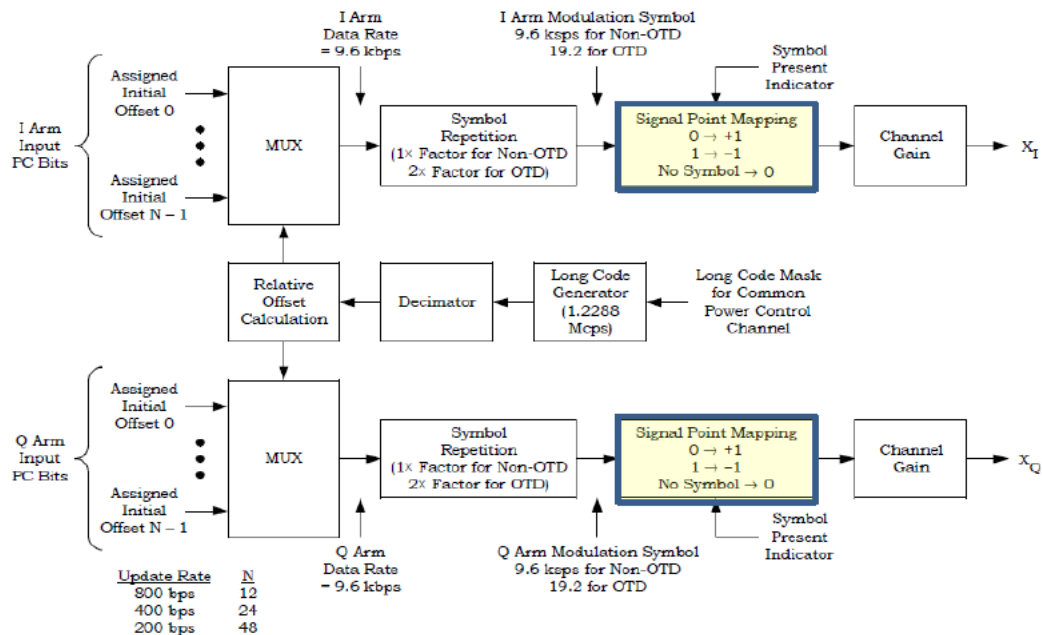


Figure 3.1.3.1.1-4. Common Power Control Channel Structure for Spreading Rate 1

Petitioner’s annotated Figure 3.1.3.1.1-4 of C.S0002-0 shows a “common power control channel structure” with the signal point mapping function highlighted, in which that function maps a “0” to +1, a “1” to -1, and “No Symbol” to 0. Pet. 49 (citing Ex. 1006, 3-8).

Based on these disclosures, Petitioner asserts, one of ordinary skill “would have been motivated to use ternary signal mapping, such as that described in C.S0002-0, because it enables reliable and efficient communications.” *Id.* (citing Ex. 1002 ¶¶ 192–198, 225). Specifically, according to Petitioner, C.S0002-0’s ternary signal mapping “allows the system to save sending at least 1 bit per frame because the desired three values could be signaled using a single bit rather than two (Ex. 1002, ¶ 198)

and provides desired granularity in rate control (allowing for a no-change command) while still minimizing the number of bits used.” *Id.*

We determine that, on the record before us, Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation at this stage of the proceeding.

d) 34(c): “control means connected with the receiving means adapted to control the data transmission rate based on the data rate control command;”

Petitioner argues that Samsung (or Samsung/Airvana) teach this limitation. Pet. 50. Specifically, Petitioner contends that “both Samsung and Airvana disclose the mobile station increasing (rate up), decreasing (rate down), or not changing (keeping) the mobile station’s data rate for transmitting data on the reverse link based on control commands, *e.g.*, a 2-bit signal sent by the base station.” *Id.* (citing Ex. 1003, 4–6, 9; Ex. 1004, 1, 5–6, 9; Ex. 1002 ¶¶ 199–201). Petitioner further argues that “Samsung discusses and expressly references the control scheme in Airvana, which sends signals from the base station to mobile stations over a forward channel to command the mobile stations as to whether and how to change the mobile station’s data transmission rate.” *Id.* (citing Ex. 1003, 3–6).

Petitioner further argues that the combination of Samsung and Airvana, with or without C.S0002-0, would have rendered the “control means” aspect of this limitation obvious. Pet. 50–51. According to Petitioner, one of ordinary skill “would have understood that Samsung and/or Airvana’s mobile station includes hardware (*e.g.*, a transmission data rate controller and/or transmission processor) that controlled the data rate at which the mobile transmitted data back to a base station,” which was

“known and standard in the art.” *Id.* (citing Ex. 1003, 3–7, 15; Ex. 1004, 5–6; Ex. 1002 ¶¶ 202–203; Ex. 1001, Fig. 2, 5:50–54, 5:57–60, 5:64–6:19).

We determine that, on the record before us, Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation at this stage of the proceeding.

- e) 34(d): “*wherein a bit is sent on a reverse packet data control channel to indicate whether the mobile station has enough power and data to increase its data transmission rate on a reverse packet data channel;*”

Petitioner argues that Samsung discloses this limitation. Pet. 52. Specifically, Petitioner contends that “Samsung discloses that the mobile station sends a ‘1 bit indicator IAB’ (Increase Availability Bit) that provides ‘effective reverse link data rate control.’” *Id.* (citing Ex. 1003, 5–6; Ex. 1002 ¶¶ 205–206). According to Petitioner, Samsung also discloses “that the IAB signals to the base station whether the mobile requests an increased data rate on the reverse link (‘IAB is set to “0”’: Rate Increase Enabled’) or does not request a change to the data rate (‘IAB is set to “1”’: Rate Increase Disabled’).” *Id.* (citing Ex. 1003, 6; Ex. 1002 ¶ 207).

Petitioner also argues that Samsung discloses that “the mobile station will only set the IAB sent on the reverse link to ‘0’ or ‘Rate Increase Enabled’ if it has enough power for an increase.” *Id.* (citing Ex. 1003, 6; Ex. 1002 ¶ 207). In support, Petitioner points to Samsung’s disclosure that the “MS may(will) set an IAB to ‘1’ when . . . [d]ata rate is limited due to MS’s transmission power.” *Id.* Petitioner further argues that Samsung discloses that “the mobile station will only set the IAB to ‘0’ if the mobile station has enough data in the transmission (Tx) buffer that needs to be transmitted,” pointing to Samsung’s disclosure that the “MS may (will) set

an IAB to ‘1’ when . . . [t]he MS has a small amount of data to be sent in the Tx buffer.” *Id.* at 52–53 (citing Ex. 1003, 6; Ex. 1002 ¶ 207). Thus, Petitioner asserts, “Samsung discloses that the IAB indicates whether the criteria for a requested increase in data rate is met, including that [the] mobile station has enough power and data in its buffer to justify requesting an increase in the data rate on the reverse link.” *Id.* at 53 (citing Ex. 1002 ¶¶ 207–208).

We determine that, on the record before us, Petitioner’s cited evidence sufficiently supports its contentions regarding this limitation at this stage of the proceeding.

f) Summary for Claim 34

For the foregoing reasons, we are persuaded that Petitioner’s cited evidence and reasoning demonstrates a reasonable likelihood that Petitioner would prevail in its contentions regarding claim 34.

7. Claim 37

Claim 37 is similar to claim 34, but written in the form of a method claim instead of an apparatus claim. Ex. 1001, 20:32–49. Petitioner contends that claim 37 is obvious over Samsung and C.S0002-0, or Samsung, Airvana, and C.S0002-0, for essentially the same reasons as claim 34. Pet. 43–53. For the reasons discussed above with respect to claim 34, we determine that Petitioner has demonstrated a reasonable likelihood that claim 37 is unpatentable over the prior art.

8. Dependent Claims 35–36 and 38–40

Petitioner contends that claims 35–36 and 38–40 are obvious over Samsung and C.S0002-0, or Samsung, Airvana, and C.S0002-0. Pet. 53–58. As noted above, Patent Owner does not provide any separate argument

against these claims, at this stage of the proceeding. *See generally* Prelim. Resp. Based on the evidence of record, we determine that Petitioner has demonstrated a reasonable likelihood that claims 35–36 and 38–40 are unpatentable over the prior art.

9. Summary for Grounds 1 and 2

Based on the foregoing, we determine that Petitioner has shown a reasonable likelihood that claims 34–40 are unpatentable over Samsung and C.S0002-0, and Samsung, Airvana, and C.S0002-0. We therefore institute trial on all challenged claims and grounds raised in the Petition. *See PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (indicating that a decision whether to institute an *inter partes* review “require[s] a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”).

F. Ground 3: Obviousness of Claims 34–40 Based on Samsung, Chung, and C.S0002-0

Petitioner contends that claims 34–40 would have been obvious over the combination of Samsung, Chung, and C.S0002-0. Pet. 58–65. Patent Owner does not specifically address Petitioner’s obviousness arguments in its Preliminary Response but, instead, argues that the Board should exercise its discretion to deny institution under 35 U.S.C. § 325(d) because Chung was already considered by the Examiner during prosecution. *See* Prelim. Resp. 20–23. In view of the Office’s policy to institute on all challenges or none, when only some challenges implicate § 325(d), the Board “evaluate[s] the challenges and determine[s] whether § 325(d) is sufficiently implicated that its statutory purpose would be undermined by instituting on all challenges. If so, the panel will evaluate whether the entire petition should

be denied.” *See* SAS Q&As, at D1 (June 5, 2018).⁵ In this case, having determined that Petitioner has shown a reasonable likelihood of unpatentability under Grounds 1 and 2, we conclude that irrespective of whether § 325(d) is implicated for Ground 3, it would be inappropriate to deny institution of the entire Petition under § 325(d). Thus, we institute trial on all grounds raised in the Petition, and need not further discuss Ground 3 at this stage of the proceeding. *See PGS Geophysical* 891 F.3d at 1360.

III. CONCLUSION

After considering the evidence and arguments presented in the current record, we determine that Petitioner has demonstrated a reasonable likelihood of success in proving that at least one of the challenged claims of the ’653 patent is unpatentable. We therefore institute trial on all challenged claims and grounds raised in the Petition.

At this stage of the proceeding, we have not made a final determination as to the patentability of any challenged claim or as to the construction of any claim term.

IV. 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 34–40 of the ’653 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 ’653 patent shall commence

⁵ Available at www.uspto.gov/sites/default/files/documents/sas_qas_20180605.pdf.

on the entry date of this Order, and notice is hereby given of the institution of a trial.

PETITIONER:

Daniel Keese
Keese-ptab@perkinscoie.com

Amanda Tessar
Tessar-ptab@perkinscoie.com

John Hutchins
jhutchins@bannerwitcoff.com

Chunhsi Mu
amu@bannerwitcoff.com

Wesley Jones
wjones@bannerwitcoff.com

Craig Kronenthal
ckronenthal@bannerwitcoff.com

Brian Buroker
bburoker@gibsondunn.com

Paul Torchia
ptorchia@gibsondunn.com

Nathan Curtis
ncurtis@gibsondunn.com

Meredith Addy
meredith@addyhart.com

Robert Hart
robert@addyhart.com

IPR2021-01141
Patent 7,215,653 B2

Gregory Gulliver
Gbgulliveer65@gmail.com

Benjamin Weed
Benjamin.weed.ptab@klgates.com

Brian Bozzo
Brian.bozzo@klgates.com

Erik Halverson
Erik.halverson@klgates.com

Jeremy Peterson
Jeremy.peterson@pvuslaw.com

Bradford Cangro
Bradford.cangro@pvulaw.com

Jacob Baron
Jacob.baron@hklaw.com

Allison Lucier
Allison.lucier@hklaw.com

PATENT OWNER:

Timothy Devlin
Td-ptab@devlinlawfirm.com