

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

QUECTEL WIRELESS SOLUTIONS CO. LTD.,
Petitioner,

v.

KONINKLIJKE PHILIPS N.V.,
Patent Owner.

IPR2021-00560
Patent 7,089,028 B1

Before KEVIN F. TURNER, ROBERT J. WEINSCHENK, and
RUSSELL E. CASS, *Administrative Patent Judges*.

CASS, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background

In this *inter partes* review, Quectel Wireless Solutions Co. Ltd. (“Petitioner”) challenges the patentability of claims 11–17 (the “challenged claims”) of U.S. Patent No. 7,089,028 B1 (Ex. 1001, “the ’028 patent”), which is assigned to Koninklijke Philips N.V. (“Patent Owner”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision, issued pursuant to 35 U.S.C. § 318(a), addresses issues and arguments raised during the trial in this *inter partes* review. For the reasons discussed below, Petitioner has not proven by a preponderance of the evidence that any of claims 11–17 are unpatentable.

B. Procedural History

In this proceeding, Petitioner relies upon the following references:

Lomp et al., US Patent No. 5,799,010, issued Aug. 25, 1998 (Ex. 1004, “Lomp”);

Luddy, US Patent No. 5,953,356, issued Sept. 14, 1999 (Ex. 1005, “Luddy”);

Chen, US Patent No. 6,067,458, issued May 23, 2000 (Ex. 1006, “Chen”).

Paper 2 (“Pet.”), iii, 1–2.

Petitioner submits declarations from Dr. Zhi Ding (Exs. 1003, 1103). Patent Owner submits a declaration from Dr. Mark Lanning (Ex. 2004).

Petitioner requests *inter partes* review on the following grounds:

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
11–12, 15–17	103(a) ¹	Lomp, Luddy
11–17	103(a)	Lomp, Chen

¹ 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

Pet. 1. Patent Owner filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). We instituted trial on all grounds of unpatentability. Paper 7 (“Inst. Dec.”), 37.

During the trial, Patent Owner filed a Response (Paper 10, “PO Resp.”), Petitioner filed a Reply (Paper 13, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 15, “PO Sur-reply”).

An oral hearing was held on June 15, 2022, a transcript of which appears in the record. Paper 22 (“Tr.”).

C. Real Parties in Interest

Petitioner states that “Quectel Wireless Solutions Co. Ltd.” is the real party in interest. Pet. 88. Patent Owner states that “Koninklijke Philips N.V. is the sole assignee of the ’028 patent.” Paper 5, 1.

D. Related Proceedings

The parties identify the following district court case involving the ’028 patent: *Koninklijke Philips N.V. v Quectel Wireless Solutions Co. Ltd.*, No. 1:20-cv-01707 (D. Del.). Pet. 88; Paper 5, 1.

E. The ’028 Patent (Ex. 1001)

The ’028 patent relates to “[a] radio communication system” that “has means for ensuring that power control of a communication channel has been established before the transmission of data.” Ex. 1001, code (57). The ’028 patent explains that, in a radio communication system, there are two basic types of communication between a Base Station (BS) and a Mobile Station (MS): (1) user traffic for speech or packet data, and (2) control information required to set and monitor various parameters of the transmission channel

after the filing of the application that led to the ’028 patent. Therefore, we apply the pre-AIA version of 35 U.S.C. § 103.

to enable the BS and MS to exchange the required user traffic. *Id.* at 1:11–17. According to the '028 patent, in many communication systems, the control information enables power control of various signals. *Id.* at 1:18–19. Power control of signals transmitted from an MS ensures that the BS receives signals from different MSes at approximately the same power level while minimizing the transmission power required by each MS. *Id.* at 1:19–23. Power control of signals transmitted by the BS ensures that the MS receives those signals while minimizing transmission power by the BS to reduce interference with other cells and radio systems. *Id.* at 1:23–27.

According to the '028 patent, a problem with known techniques for power control “is that at the start of a transmission, or after a transmission is interrupted, the power control loops may take some time to converge satisfactorily.” Ex. 1001, 1:40–43. “Until such convergence is achieved,” the '028 patent explains, “data transmissions are likely to be received in a corrupted state if their power level is too low, or to generate extra interference if their power level is too high.” *Id.* at 1:43–46.

To illustrate this problem, the '028 patent describes one embodiment for establishing a communication between an MS and a BS in Figure 2, reproduced below.

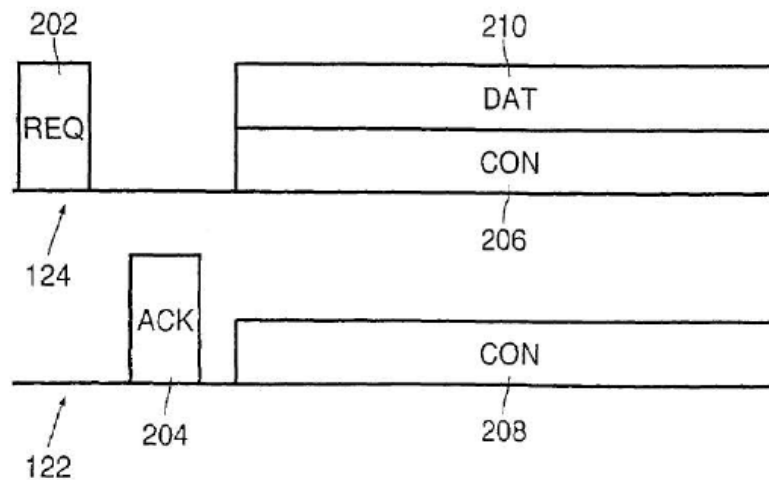


FIG. 2

Ex. 1001, Fig. 2.

As shown in Figure 2, the MS transmits a request REQ 202 for resources on uplink channel 124, and the BS responds by transmitting an acknowledgement ACK 204 on downlink channel 122. Ex. 1001, 3:18–26. After ACK 204 is sent, the system establishes two control channels (CON) for transmitting data between the BS and MS, uplink control channel 206 and downlink control channel 208, and one uplink data channel (DAT) 210 for transmitting data from the MS to the BS. *Id.* at 3:26–30. According to the '028 patent, a problem exists with this arrangement because “data transmissions at the start of the data channel 210 are likely to be received in a corrupted state if they are transmitted at too low a power level, or to generate extra interference if they are transmitted at too high a power level.” *Id.* at 3:46–50.

The '028 patent proposes a solution to this problem that “ensur[es] that power control of a communication channel has been established before the transmission of data” by “delaying initial transmission of a data channel (either at the start of a transmission or after a pause) until after the initial

transmission of control channels.” Ex. 1001, code (57). This solution is illustrated in Figure 3, reproduced below:

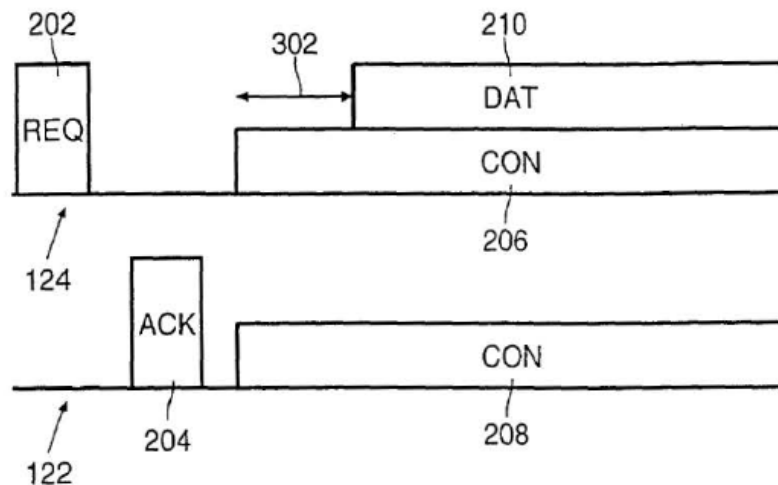


FIG. 3

Ex. 1001, Fig. 3. As shown in Figure 3, “the start of the uplink data transmission 210 is delayed by a time 302 sufficient for the power control to have converged sufficiently to enable satisfactory reception of data transmissions by the BS.” *Id.* at 3:58–62. The ’028 patent explains that “[t]he delay 302 could be predetermined or it could be determined dynamically, either by the [MS] (which could detect convergence by monitoring downlink power control information) or the [BS].” *Id.* at 4:1–4. The ’028 patent further explains that the invention has “been described using spread spectrum Code Division Multiple Access (CDMA) techniques,” but is not limited to CDMA systems. *Id.* at 6:45–49.

F. Illustrative Claims

Of the challenged claims, claims 11 and 15 are independent. Claim 11 is illustrative and is reproduced below.

11. [Pre] A secondary station, comprising:

- [(a)] means for transmitting a request for resources to a primary station;
- [(b)] means for receiving an acknowledgement of a reception of the request for resources by the primary station;
- [(c)] wherein, subsequent to a reception of the acknowledgement by said secondary station, control information is initially transmitted on an uplink control channel and a downlink control channel between the primary station and said secondary station;
- [(d)] wherein, subsequent to the reception of the acknowledgement by said secondary station, data is initially transmitted on an uplink data channel from said secondary station to the primary station; and
- [(e)] wherein the initial transmission of data on the uplink data channel is determinedly delayed until after the initial transmission of control information on the uplink control channel and the downlink control channel.

Ex. 1001, 8:4–21 (bracketed paragraph identifiers added).

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). Among other terms, the parties dispute the meaning of the phrase in claim 11 requiring that “subsequent to a reception of the acknowledgement by the secondary station, ***control information is initially transmitted on an uplink control channel and downlink control channel*** between the primary station and said secondary station.”² PO Resp. 15–17; Pet. Reply 3–4; PO Sur-reply 2–5

² Claim 15 includes a similar limitation reciting “subsequent to the reception of the acknowledgement by said secondary station, initially transmitting data

(emphasis added). Patent Owner argues that Figure 2 of the '028 patent shows that the control channels are “established in response to a request for resources and set[] and monitor[] transmission on a data channel.” PO Resp. 16 (citing Ex. 2004 ¶ 112) (emphasis omitted). “Accordingly,” Patent Owner contends, “each challenged claim requires that an *acknowledgement* of a request for resources by a secondary station *precedes any initial transmission of control information (such as power control commands) on the uplink and downlink control channels.*” *Id.* at 17 (citing Ex. 2004 ¶ 104).

Petitioner responds by arguing that Patent Owner “imports the term ‘any’” into the claims by “proposing a requirement that the claimed acknowledgement must precede ‘any initial transmission of control information’ on any control channel.” Pet. Reply 3. Petitioner argues that this attempt to import the term “any” into the claims is contrary to the '028 patent, which “describes different types of control information being transmitted prior to and subsequent to receipt of the acknowledgement,” including request 202 in Figures 2 and 3, which are shown “as occurring prior to receipt of the acknowledgement 204.” *Id.* (citing Ex. 1102, 16:17). Petitioner also asserts that “between the ACK 204 and the establishment of the control channels 206 and 208” in Figures 2 and 3, there “may be additional signaling information that occurs in the UMTS network” that is also “control information.” *Id.* at 3–4 (citing Ex. 1102, 18:8–16). Thus, according to Petitioner, “there is no dispute that the '028 patent describes transmission of some control information that precedes the reception of the acknowledgement and the establishment of control channels 206 and 208.”

on an uplink data channel from said secondary station to said primary station.” Ex. 1001, 8:48–52.

Id. at 4 (citing Ex. 1103 ¶ 12). “Further,” Petitioner contends, “the ’028 patent clearly indicates that ‘initial transmission’ can occur after a pause or gap in transmission.” *Id.* (citing Ex. 1001, 1:40–43, 4:64–5:5; Ex. 2004 ¶ 69).

Patent Owner responds that it does not “seek[] to import the term ‘any’ into the challenged claims.” PO Sur-reply 4 (citing Pet. Reply 3–4). “In fact,” Patent Owner contends, “the challenged claims explicitly require a particular uplink control channel, a particular downlink control channel, and ‘initial transmission’ of ‘control information’ on those particular channels after an acknowledgement (and prior to initial transmission on a particular uplink data channel).” PO Sur-reply 4 (citing PO Resp. 15–17; Ex. 2004 ¶¶ 97–104).

During the hearing, Petitioner’s counsel further clarified that Petitioner’s position was that the claimed “initial transmission” of control information on the uplink and downlink control channels need not be the first transmission of control information on those control channels, but rather can be “an initial transmission of *that particular message*, that control signal.” Tr. 58:4–6 (emphasis added). Thus, Petitioner contends, “regardless of whether there was some previously transmitted control information on this assigned logical control channel,” the claim language is met if “this is the first time that *this particular instruction* has been transmitted.” *Id.* at 58:10–13 (emphasis added). Consequently, according to Petitioner, the term “initially” could cover “the start of the transmission of *a particular control message*.” *Id.* at 58:18–25 (emphasis added); *see* Ex. 1103 ¶ 12 (“the initial transmission of control information . . . is the initial transmission of a particular type of control information”).

To construe this claim limitation, we start with the claim language itself. Claim 11 states that, after the secondary station receives the acknowledgement, “control information is *initially transmitted* on an uplink control channel and a downlink control channel” between the primary station and secondary station. The use of the word “initially” here signifies something that occurs first, or at the beginning.³ Thus, saying that control information is “initially transmitted on an uplink control channel and a downlink control channel” signifies that control information is transmitted for the first time on those particular uplink and downlink control channels. Thus, the plain meaning of the claim language indicates that, after the secondary station receives the acknowledgement, control information is transmitted for the first time on the claimed “uplink control channel” and “downlink control channel” “between the primary station and said secondary station.”

This understanding is supported by the '028 patent specification. The '028 specification explains that “[a]fter the acknowledgement 204 has been sent, two control channels (CON) are established, an uplink control channel 206 and a downlink control channel 208.” Ex. 1001, 3:26–29. After being established “transmissions *start* on the control channels 206, 208.” *Id.* at

³ See Ex. 2004 ¶ 110 (“According to the plain language of the challenged claims, a [person of ordinary skill in the art] would understand that the ‘*initial transmission of data on the uplink data channel*’ refers to the *first* transmission of data following establishment of the uplink data channel and the uplink and downlink control channels.” (second emphasis added)); Tr. 25:19–26:2 (Petitioner’s counsel stating that “the initial transmissions of that particular control information” is “the *first* time that instruction is transmitted.” (emphasis added)).

3:40–41 (emphasis added). This is shown in Figures 2 and 3 of the '028 patent, reproduced below.

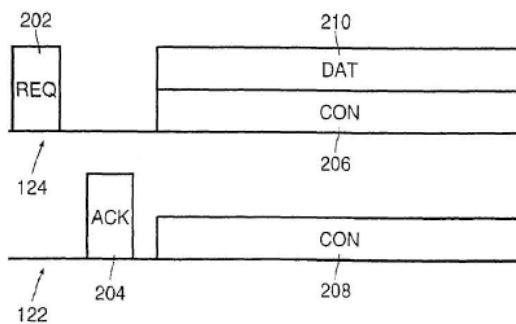


FIG. 2

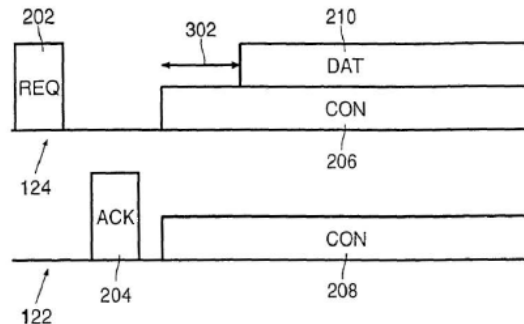


FIG. 3

Figures 2 and 3 of the '028 patent show control channels 206 and 208 being established after acknowledgement 204 is received. Ex. 1001, Figs. 2, 3, 3:18–4:4.

We do not find Petitioner’s claim construction arguments persuasive. First, Petitioner’s argument that Patent Owner “imports the term ‘any’ into the claims by “proposing a requirement that the claimed acknowledgement must precede ‘any initial transmission of control information’ on any control channel” does not fairly represent Patent Owner’s proposed claim construction. *See* Pet. Reply 3. Patent Owner clarifies that “[t]he claimed initial transmission of control information does not encompass ‘any’ control information transmitted on any control channel at any time,” but rather requires “a particular uplink control channel, a particular downlink control channel, and ‘initial transmission’ of ‘control information’ on those particular channels after an acknowledgement.” PO Sur-reply 4.

Second, we do not agree that Petitioner’s claim construction is supported by the '028 patent’s statement that “between the ACK 204 and the establishment of the control channels 206 and 208” in Figures 2 and 3, there “may be additional signaling that occurs in the UMTS network” that is also “control information.” Pet. Reply 3–4 (citing Ex. 1102, 18:8–16). Petitioner

argues that this communication shows that “the ’028 patent describes transmission of some control information that precedes the reception of the acknowledgement and the establishment of control channels 206 and 208.” *Id.* at 4 (citing Ex. 1103 ¶ 12). This argument, however, like the previous one, relies on Petitioner’s assumption that Patent Owner is seeking to construe the claim language to require that the acknowledgement precede transmission of control information on **any** control channel. As noted above, that is not the construction Patent Owner is proposing. PO Sur-reply 4. Rather, Patent Owner is proposing to construe the claims to require that control information must be transmitted for the first time on ***the particular claimed control channels*** (such as control channels 206 and 208 in the specification) after the acknowledgement. Thus, the ’028 specification’s disclosure of some control information on different channels that precedes the reception of the acknowledgement and the establishment of control channels 206 and 208 is not inconsistent with Patent Owner’s proposed construction.

Next, we turn to Petitioner’s argument that “the ’028 patent clearly indicates that ‘initial transmission’ can occur after a pause or gap in transmission.” Pet. Reply 4 (citing Ex. 1001, 1:40–43, 4:64–5:5; Ex. 2004 ¶ 69); Tr. 21:15–23:8, 61:14–64:2. Petitioner points to the statement in the background of the ’028 patent that “[a] problem with these known techniques is that at the start of a transmission, or ***after the transmission is interrupted***, the power control loops may take some time to converge satisfactorily.” *Id.*; Ex. 1001, 1:40–43 (emphasis added). Petitioner also references the specification’s statement that the embodiment of Figure 4 (performing power control operations having a variable step size) “is

particularly suited to the case of re-starting a transmission after an interruption, where the state of the power control loop (e.g., current power level) may be retained from before the interruption” and defining “[a]n interruption” as “a pause or gap in transmission during which time one or more of the control and data channels are either not transmitted or not received (or both), but the logical connection between the BS 100 and MS 110 is maintained.” Ex. 1001, 4:60–5:1.

We agree with Petitioner that the ’028 specification generally discusses that power control issues may be an issue after the transmission is interrupted, as well as at the start of a transmission. However, the claim language states that the control information is “initially transmitted” on the claimed uplink and downlink control channels after reception of the acknowledgement, not that control transmission is transmitted after an interruption on already existing control channels that were previously transmitting control information. Notably, the portions of the specification that discuss an interruption in transmission do not describe the resumption of transmission as an “initial transmission” on the control channel. Thus, we do not construe limitation 11(c) to cover a situation where control information was initially transmitted on the claimed uplink and downlink control channels before the acknowledgement, even if there was an interruption since that initial transmission. However, even if we were to interpret limitation 11(c) to cover such a situation, it would not change the outcome of this proceeding because, as discussed further in Sections II.D.4 and II.E.2 below, Petitioner has failed to prove that this situation is taught by the prior art.

Finally, we do not agree with Petitioner's argument that the claimed initial transmission of control information on the uplink and downlink control channels need only be an initial transmission of a particular control message or signal, even though other control information may have been previously transmitted on those control channels. Claim 11 states that "control information" is initially transmitted, and does not restrict the "control information" to a particular control message or signal. Moreover, if the claim covered a situation where control information was transmitted on the claimed uplink and downlink control channels both before and after the acknowledgement, that would read out the limitation that "control information" is "initially" transmitted on those channels "subsequent to a reception of the acknowledgement." In other words, the claim scope would be the same as saying that control data is "transmitted" on those channels after reception of the acknowledgement.

Consequently, we construe the language of limitation 11(c) to require that, subsequent to a reception of the acknowledgement by said secondary station, control information is transmitted for the first time on the particular claimed uplink and downlink control channels between the primary station and the secondary station. Similarly, we construe claim 15's comparable language to require that, subsequent to the reception of the acknowledgement by said secondary station, control information is transmitted for the first time on an uplink control channel and a downlink control channel between said primary station and said secondary station.

We determine that it is not necessary to provide an express interpretation of any other claim terms for purposes of this decision. *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

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.⁴ *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). The burden of persuasion never shifts to Patent Owner. *Dynamic*

⁴ Patent Owner has not presented objective evidence of non-obviousness.

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 “at least a bachelor’s degree in electrical engineering, computer engineering, computer science, or a related technical field, and at least 2–3 years of experience in the field of wireless communications or wireless networking, or an equivalent advanced education in the field of wireless communications or wireless networking.” Pet. 5–6 (citing Ex. 1003 ¶ 25). Patent Owner states that, “[f]or purposes of this proceeding only,” it “does not dispute Petitioner’s identification of the level of ordinary skill in the art.” PO Resp. 15.

We adopt Petitioner’s assessment of the level of skill in the art, which we find to be consistent with the ’028 patent and the asserted prior art of record.

D. Ground 1: Obviousness of Claims 11–12 and 15–17 Based on Lomp and Luddy

Petitioner contends that claims 11–12 and 15–17 would have been obvious over the combination of Lomp and Luddy. Pet. 1, 12–57; Pet. Reply 6–15. Patent Owner disagrees. PO Resp. 19–45; PO Sur-reply 9–20.

1. Overview of Lomp (Ex. 1004)

Lomp discloses a “multiple access, spread-spectrum communication system” that “processes a plurality of information signals received by a Radio Carrier Station (RCS) over telecommunication lines for simultaneous

transmission over a radio frequency (RF) channel as a code-division-multiplexed (CDM) signal to a group of Subscriber Units (SUs).” Ex. 1004, code (57). The system “includes several methods for efficient utilization of spread-spectrum channels,” including “a bearer channel modification system which comprises a group of message channels between a first transceiver and a second transceiver.” *Id.* at 6:31–35. “The Bearer Channel Modification (BCM) method is used to change a 32 kb/s [Adaptive Differential Pulse Code Modulation ([ADPCM])] channel to a 64 kb/s [Pulse Code Modulation ([PCM])] channel to support high speed data and fax communications through the spread-spectrum communication system.” *Id.* at 59:24–28.

Lomp describes procedures for establishing a bearer channel, changing the bearer channel from a 32 kb/s channel to a 64 kb/s channel, and switching over to the 64 kb/s channel. Ex. 1004, 56:45–60:26. In one procedure, a bearer channel is first established between the RCS and the SU at a digital transmission rate of, for example, 32 kb/s. *Id.* at 59:36–42. The wireless access controller (WAC) of the RCS “monitors the encoded digital data information of the link received” by the RCS and, if it “detects the presence of [a] 2100 Hz tone in the digital data, the WAC instructs the SU through [an] assigned logical control channel and causes a second, 64 kb/s duplex link to be established between the RCS modem and the SU.” *Id.* at 59:42–48. “Once the second link is established,” the WAC controller “switch[es] transmission only to the 64 kb/s link” and “instructs the RCS modem and the SU to terminate and tear down the 32 kb/s link.” *Id.* at 59:54–58.

2. *Overview of Luddy (Ex. 1005)*

Luddy discloses “[a] CDMA communication system which prevents the transmission of data between communicating nodes until the data communication rate required by the communicating nodes has been completely established throughout the system.” Ex. 1006, code (57). In order to do this, “the system selectively suppresses the confirmation tone that a receiving node sends to an originating node.” *Id.* Thus, “[t]he transmission of voice, facsimile or modem data is prevented until the communication path has been established at the desired communication rate,” which “permits the system to reliably transport encoded data at a plurality of data rates across a telecommunication system which may lack precise synchronization.” *Id.*

3. *Petitioner’s Combination of Lomp and Luddy*

Petitioner asserts that one of ordinary skill would have combined Luddy with Lomp “to prevent the transmission of data between communicating nodes, such as SUs communicating through an RCS, until the 64 kb/s data communication rate required by the communicating nodes has been completely established throughout the system.” Pet. 14 (citing Ex. 1005, 1:66–2:15; Ex. 1003 ¶¶ 66–68). Petitioner cites three reasons why one of skill would have combined these references.

First, according to Petitioner, combining the references would “achieve the known benefits of preventing transmission of data before the 64 kb/s channel has been completely established, including preserving the integrity of data transmitted between communicating nodes.” *Id.* (citing Ex. 1005, 1:59–2:15, 1:16–21, 3:35–39; Ex. 1003 ¶ 69). Second, Petitioner argues, Lomp explicitly cites Luddy as including “[a]dditional details of [the

BCM] technique,” and incorporates Luddy by reference. *Id.* at 15 (citing Ex. 1004, 59:22–35; Ex. 1003 ¶ 70). Third, Petitioner contends, combining Luddy and Lomp “would have merely been the application of a known technique (e.g., Luddy’s suggestion to prevent transmission of data before the 64 kb/s channel has been completely established) to a known system (Lomp’s CDMA communications system) ready for improvement to yield predictable results.” *Id.* at 16 (citing Ex. 1003 ¶ 71).

4. *Analysis of Independent Claims 11 and 15*

The parties dispute, among other things, whether the combination of Lomp and Luddy discloses limitation 11(c), which recites

wherein, subsequent to a reception of the acknowledgement by said secondary station, control information is initially transmitted on an uplink control channel and a downlink control channel between the primary station and said secondary station.

Ex. 1001, 8:9–13; Pet. 28–34; PO Resp. 30–37; Pet. Reply 8–11; PO Sur-reply 10–17. Claim 15 includes similar language reciting that, after the secondary station receives the acknowledgement, “initially transmitting control information on an uplink control channel and a downlink control channel between said primary station and said secondary station.” Ex. 1001, 8:43–47. The parties rely on the same arguments for this language in claims 11 and 15. Pet. 28–34, 54. PO Resp. 30–37. For brevity, we will focus on limitation 11(c), with the understanding that the same issues and arguments also apply to the comparable language in claim 15.

Petitioner relies on Lomp for limitation 11(c). Pet. 28. According to Petitioner, “Lomp discloses that *subsequent* to the SU (*secondary station*) receiving the MAC_BEARER_CFM message (*acknowledgement*), a bearer channel is established between the SU and RCS (EX1004, 58:16–22, 58:33–

34, 58:63–59:18, FIGS. 24–25) and then changed from ‘a 32 kb/s ADPCM channel to a 64 kb/s PCM channel to support ***high speed data and fax communications***’ (emphasis added) EX1004, 59:20–60:26, 12:57–65, 15:13–16).” Pet. 34–35 (citing Ex. 1003 ¶¶ 85–92). Petitioner asserts that Lomp’s bearer channels “include both control data, and traffic channel data.” Pet. 31 (citing Ex. 1004, 37:6–9, 14:55–15:29).

For the control data, Petitioner points to Lomp’s disclosure that, after a bearer channel is established between the RCS and SU, the RCS instructs the SU through an “assigned logical control channel” to establish the 64 kb/s high speed link, and that the SU and RCS “exchange control messages over the bearer control channel of the assigned channel group” to identify and determine the particular portion of the bearer channel’s spreading code sequence within which the RCS will begin transmitting 64 kb/s data to the SU. Pet. 31. Petitioner argues that one of ordinary skill “would have understood that each of the assigned logical control channel and the bearer control channel is an ***uplink control channel*** . . . when used by the SU to transmit control information to the RCS and is a ***downlink control channel*** . . . when used by the RCS to transmit control information to the SU.” *Id.* at 32–33 (citing Ex. 1003 ¶ 90; Ex. 1004, 55:1–2, 55:22–44, 56:13–44, 11:31–46, 15:6–16; Ex. 1001, 3:14–17).

Patent Owner argues that “the Petition fails to specifically identify what in Lomp is alleged as disclosing *control information* that is *initially* transmitted on the uplink and downlink control channels.” PO Resp. 31 (citing Ex. 2004 ¶¶ 213–214). Patent Owner asserts that, even if it is assumed that Lomp’s MAC_BEARER_CFM is an acknowledgement of a request for resources, the MAC_BEARER_CFM “is only received by the

SU at step 2410 and 2510 *after* the RCS modem has started sending APC commands at 2409,” and that “APC commands would be understood as control information.” *Id.* at 31–32 (citing Ex. 2005, 119:8–11). Thus, according to Patent Owner, the APC commands are not control information that is “initially transmitted” on an uplink and downlink control channel between the primary station and the secondary station. *Id.* at 31–35.

Patent Owner also argues that Lomp’s “bearer channel” does not initially transmit control information after reception of the acknowledgement. PO Resp. 35–36. Patent Owner contends that “Petitioner’s imprecise reliance on Lomp’s general reference to a ‘bearer channel’ fails to establish what ‘control channel’ of Lomp would allegedly correspond to the ‘uplink control channel’ and ‘downlink control channel’ of the challenged claims.” *Id.* at 36. In light of this imprecision, Patent Owner asserts, “Petitioner has also failed to disclose what would allegedly disclose, teach, or suggest the initial transmission on those channels.” *Id.* Patent Owner further argues that Petitioner’s reliance on “column 59 line 20 to column 60 line 26 of Lomp as showing the ‘exchang[e] of control messages over the bearer control channel’ ‘through the assigned logical control channel’” is misplaced, because Petitioner does not “specify which ‘logical control channel’ of the several logical control channels disclosed by Lomp that [it] contend[s] as ‘initially’ transmitting control information,” and thus Petitioner “fail[s] to establish when initial transmission on such channels occur.” *Id.* at 37.

Petitioner responds that “[t]he Petition established that Lomp discloses after the SU (the secondary station) receives the acknowledgement, the RCS (the primary station) instructs the SU ‘through the assigned logical

control channel’ to cause a 64 kb/s duplex link to be established and to switch processing to receive data on the 64 kb/s duplex link.” Pet. Reply 8 (citing Pet. 31; Ex. 1004, 59:44–48). “Here,” according to Petitioner, “the control information that is initially transmitted is the instruction that causes the 64 kb/s duplex link to be established and the switch in processing, and the uplink/downlink control channel is the assigned logical control channel.” *Id.* (citing Pet. 31; Ex. 1004, 59:44–48; Ex. 1003 ¶ 13).

Petitioner also points to Lomp’s statement in column 60, lines 13–17 that

[t]he SU and RCS exchange control messages over the bearer control channel of the assigned channel group to identify and determine the particular subepoch of the bearer channel spreading code sequence within which the RCS will begin transmitting 64 kb/s data to the SU.

Pet. Reply 8 (citing Ex. 1004, 60:13–17). In this portion of Lomp, Petitioner contends, “the control information that is initially transmitted is control messages to identify and determine the particular subepoch, and the uplink/downlink control channel is the bearer control channel of the assigned channel group.” *Id.* at 8–9 (citing Pet. 31–32; Ex. 1004, 60:13–17; Ex. 1103 ¶ 14).

Petitioner further argues that Patent Owner’s discussion of Lomp’s APC commands is a “strawman” because Petitioner does not rely on the APC commands, and “the assigned logical control channel and the bearer control channel are control channels different from the APC channel.” Pet. Reply 9–10.

In its Sur-reply, Patent Owner responds that Petitioner “has failed to identify what specific control channels of Lomp would *initially* transmit control information following an acknowledgement.” PO Sur-reply 10.

Patent Owner contends that Petitioner relies on: (1) Lomp’s “bearer channels” that “include both control data and traffic data”; (2) Lomp’s disclosure that the RCS instructs the SU through an “assigned logical control channel” to establish the 64 kb/s high speed link; and (3) Lomp’s disclosure that the SU and RCS “exchange control messages over the bearer control channel of the assigned channel group” to identify and determine the particular portion of the bearer channel’s spreading code sequence within which the RCS will begin transmitting 64 kb/s data to the SU. *Id.* at 10–11 (citing Pet. 31–32). However, according to Patent Owner, “[n]othing in Lomp discloses or suggests that ‘initial transmission of control information’ would occur on these ‘channels’ as required by the claims.” *Id.* at 11 (citing PO Resp. 30–37; Ex. 2004 ¶¶ 170–173, 212–219). Patent Owner further argues that, during his second deposition, “Dr. Ding was unable to identify[] which, if any, of the[] assigned channels would constitute either the ‘assigned logical control channel’ or the ‘bearer control channel of the assigned channel group’ and how they would differ, other than that Lomp used different terms to refer to them.” *Id.* at 15 (citing Ex. 2012, 65:1–69:4). “[I]n fact,” Patent Owner contends, “Dr. Ding testified that Lomp does not identify which particular channel would be used to establish a 64 kb/s duplex link.” *Id.* (citing Ex. 2012, 64:8–22).

During the hearing, Petitioner’s counsel clarified that it is arguing that limitation 11(c) is met because ***the particular instruction to establish 64 kb/s link*** is transmitted for the first time on the assigned logical control channels after the acknowledgement is received. Tr. 26:24–27:18, 58:10–17. Specifically, Petitioner’s counsel clarified that “regardless of whether there was some previously transmitted control information on this assigned

logical control channel, this is the first time that this particular instruction has been transmitted,” and thus “this particular control information is initially transmitted at this time.” *Id.* at 58:10–17; *see id.* at 27: 3–7 (“Based on Lomp’s description,” the “instruction to the SU to switch to the 64 kilobit per second data link” is an “initial transmission of control information because it’s the first time that Lomp has transmitted those particular control messages.”)

Based on the full trial record, we find that Petitioner has not proven by a preponderance of the evidence that Lomp discloses that “subsequent to a reception of the acknowledgment by said secondary station, control information is *initially transmitted* on an uplink control channel and a downlink control channel between the primary station and said secondary station,” as required by claim 11(c) and comparable language in claim 15. As noted in Section II.A above, we have construed this claim language to require that, subsequent to a reception of the acknowledgement by said secondary station, control information is transmitted ***for the first time*** on the particular claimed uplink and downlink control channels between the primary station and the secondary station.

We first turn to Petitioner’s reliance on Lomp’s disclosure in column 59, lines 44–48 that the primary station (RCS) “instructs the SU *through the assigned logical control channel* and causes a second 64 kb/s duplex link to be established between the RCS modem and the SU.” Petitioner has not pointed to any disclosure in Lomp of when this “assigned logical control channel” is established or whether any information is transmitted on this control channel before the instruction from the RCS to cause a second 64 kb/s link to be established. Indeed, during the hearing, counsel for Petitioner

acknowledged that “Lomp doesn’t specify when the assigned logical control channel is established,” and that it is not certain what might have occurred on those channels before the instruction that Petitioner points to as the “initial” transmission of control information. Tr. 10:4–5, 57:4–9; *see id.* at 19:24–20:2, 57:9–14. Additionally, when asked which of Lomp’s channels would be used to establish the 64 kb/s link, Dr. Ding testified at his deposition that his understanding “is that Lomp did not specify which channel will be providing the instruction” to establish that link. Ex. 2012, 64:8–14. In light of this testimony, we find insufficient evidence that Lomp teaches that the instruction on the “assigned logical control channels” to establish the 64 kb/s link, which Petitioner points to as the “initial” transmission of control information, would have been the first time that control information was transmitted on those “assigned logical control channels,” as the claims require.

We also are not persuaded by Petitioner’s argument that limitation 11(c) is met because, even if Lomp doesn’t make clear when control information is first transmitted on the assigned logical control channels, the *particular instruction to establish 64 kb/s link* is transmitted for the first time on those channels after the acknowledgement is received. Tr. 26:24–27:18, 58:10–17. As noted above, we have construed limitation 11(c) to require that, after the secondary station receives the acknowledgement, control information is transmitted *for the first time* on the particular claimed uplink and downlink control channels between the primary station and the secondary station, and do not accept Petitioner’s proposed construction that the claimed “initial transmission of control information” is only an initial transmission of a particular control message or signal, even though other

control information may have been previously transmitted on those control channels. *Id.* See § II.A, *supra*. Consequently, Petitioner’s argument relies on a claim construction that is contrary to the one we have adopted.

Second, we turn to Petitioner’s reliance on Lomp’s disclosure in column 60, lines 13–17 that “[t]he SU and RCS exchange control messages over the bearer control channel of the assigned channel group” to identify and determine the particular subepoch of the bearer channel spreading code sequence within which the RCS will begin transmitting 64 kb/s data to the SU. Pet. Reply 8 (citing Ex. 1004, 60:13–17). Here too, Petitioner has failed to point to sufficient disclosure in Lomp as to what this “bearer control channel of the assigned channel group” is, when it is established, or whether it transmits control information before the “control messages” relied on by Petitioner. At the hearing, Petitioner’s counsel acknowledged that “Lomp doesn’t specify whether” the “assigned logical control channels” are “separate from the bearer channel or a part . . . of the bearer channel.” Tr. 12:2–9. Additionally, when Dr. Ding was asked at his deposition whether the “bearer control channel of the assigned channel group is different than the assigned logical channels described by Lomp,” he stated that he “ha[d] not provided [an] opinion” and was “not able to do that right now without further analysis.” Ex. 2012, 67:17–69:4. In light of this testimony, we find insufficient evidence that Lomp teaches that the “control messages over the bearer control channel of the assigned channel group” referenced in column 60 of Lomp are transmitted over a different channel than the “assigned logical control channels” previously discussed, or that these “control messages” are the first time that control information is transmitted on that particular channel.

Moreover, as with the “assigned logical control channels,” we do not agree with Petitioner’s argument that the control messages to determine the subepoch within which to transmit data on the 64 kb/s channel sent on the “bearer control channel of the assigned channel group” are “initially transmitted” on that channel because this is the first time these particular control messages have been sent. Tr. 27:13–18, 60:2–10. As before, this argument relies on Petitioner’s proposed construction, which we have not adopted, that the claimed “initial transmission of control information” is only an initial transmission of a particular control message or signal, even though other control information may have been previously transmitted on the claimed control channels. *Id.*

Finally, as noted above, even if Petitioner were correct that the “initial transmission” of control information on a channel can occur after an interruption on that channel (*see* § II.A, *supra*), Petitioner has failed to prove that Lomp teaches such a limitation. As discussed previously, Petitioner fails to establish that Lomp discloses the nature of the “assigned logical control channels” or the “bearer channel of the assigned channel group,” when those channels were established, or what information might or might not have been transmitted on those channels before reception of an acknowledgement by the secondary station. Petitioner also fails to show that Lomp discloses an interruption of transmission on those channels, followed by a resumption of transmission of control information after reception of the acknowledgement by the secondary station. Thus, even if we were to accept Petitioner’s construction that an “initial transmission” of control information on a channel can occur after an interruption on that channel, that would not alter the outcome in Petitioner’s favor.

Consequently, Petitioner has failed to prove by a preponderance of the evidence that claims 11 and 15 are unpatentable over Lomp and Luddy.

5. Dependent Claims 12 and 16–17

Because claims 12 and 16–17 depend from claims 11 or 15 and include the limitations of the independent claims, Petitioner has also failed to prove that claims 12 and 16–17 are unpatentable over Lomp and Luddy.

E. Ground 2: Obviousness of Claims 11–17 Based on Lomp and Chen

Petitioner contends that claims 11–17 would have been obvious over the combination of Lomp and Chen. Pet. 1, 58–82; Pet. Reply 15–25. Patent Owner disagrees. PO Resp. 45–63; PO Sur-reply 20–28.

1. Overview of Chen (Ex. 1006)

Chen discloses a CDMA system “for providing improved power control when changing the rate at which data is sent.” Ex. 1006, code (57). Chen explains that, “[w]hen data arrives at the transmitter for transmission at a high rate, power control feedback is changed from a slow mode (with a low bandwidth feedback channel) to a fast mode (with a high feedback channel),” which occurs “even before the data is transmitted at the high rate.” *Id.* “Once the power level is accurately estimated for data transmission at the high rate, then data transmission begins at the high rate.” *Id.*

Chen shows an exemplary routine for controlling the power level when changing from a slow rate to a fast rate in Figure 7, reproduced below:

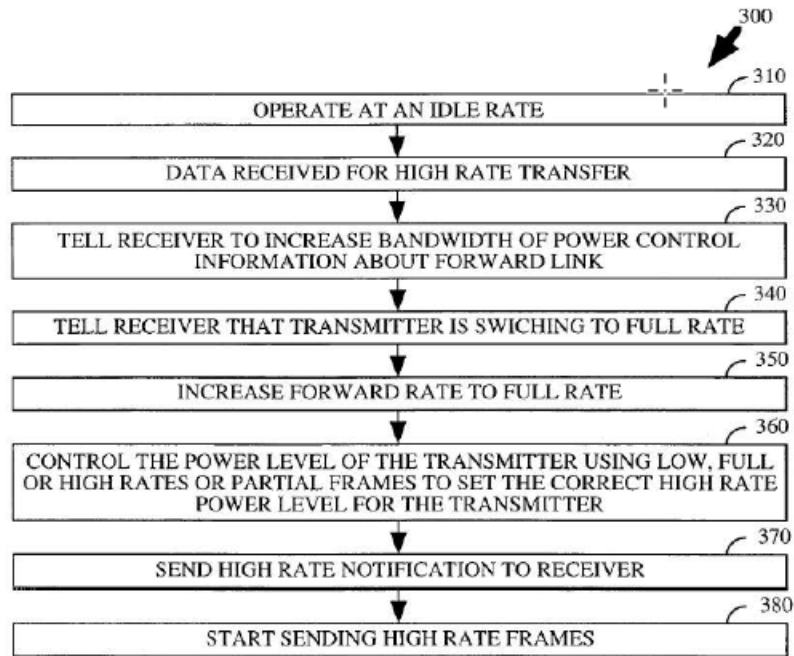


FIG. 7

As shown in Figure 7, routine 300 begins at step 310, with the base station operating at an “idle rate,” which “occurs when the base station . . . is sending no voice or data to the receiving system” in the mobile station. Ex. 1006, 11:41–45. In step 320, the base station receives data to be transferred at a high rate. *Id.* at 11:49–50. Next, in step 330, the base station sends a signal to the mobile station telling the mobile station “to increase the bandwidth of the forward link power control information transmitted over the reverse link,” causing the mobile station to “increase[] the bandwidth of its power control information,” which “is necessary to accurately predict the power needed to transmit data at the higher data rate over the forward link.” *Id.* at 11:64–12:6, 12:14–16. In steps 340 and 350, the base station sends a signal to the mobile station indicating that the base station will begin transmitting frames at the full rate, and the base station switches to the full

rate. *Id.* at 12:22–25, 12:40–42. In step 360, the base station attempts to obtain additional power control information to more accurately estimate the forward link channel condition and the amount of power necessary to transmit frames at the high rate. *Id.* at 12:63–67. In step 370, the base station sends a high rate notification to the mobile station. *Id.* at 13:66–14:1. Finally, “[a]fter the power level has been correctly set and the mobile station . . . has been properly notified about the increased data rate, the base station . . . sends frames at the high data rate.” *Id.* at 14:4–7.

2. Analysis of Independent Claims 11 and 15

The parties dispute, among other things, whether the combination of Lomp and Chen discloses limitation 11(c) and the comparable language in claim 15. Pet. 61–65; PO Resp. 55–57; Pet. Reply 18–20; PO Sur-reply 22–24. As we did with Ground 1, we will focus for brevity on limitation 11(c) with the understanding that the same issues, arguments, and findings also apply to the comparable language in claim 15.

In its Petition, Petitioner relies on the same portions of Lomp for limitation 11(c) as it did for Ground 1. Pet. 61–65. Petitioner, however, also argues that “Chen discloses exchanging power control messages on control channels between a mobile station and a base station.” *Id.* at 62 (citing Ex. 1003 ¶ 133). “For example,” Petitioner asserts, “Chen discloses that transmissions from the mobile station to the base station are along the reverse link,” and “[t]he forward link and reverse link each contain a communication channel and a feedback channel” with “power control messages” being “received over the feedback channel.” *Id.* (citing Ex. 1006, 14:42–58). According to Petitioner, one of ordinary skill “would have understood that the feedback channel of the reverse link by which the user

station transmits power control signals to the base station is an uplink control channel,” and “the feedback channel of the forward link by which the user station receives power control signals is a downlink control channel.” *Id.* (citing Ex. 1003 ¶ 133) (emphasis omitted). Petitioner further contends that, “[i]n Chen’s method for changing the power level of the base station when it switches from the low rate to the high rate, the mobile station transmits power control messages to the base station,” and “the base station transmits power control messages to the mobile station,” as shown in steps 330 and 350 of Figure 7. Pet. 62 (citing Ex. 1006, 11:64–12:13, 12:40–54, Fig. 7).

Petitioner argues that “implementing Chen’s suggestion into Lomp’s system would have predictably resulted in a bearer channel being established between the SU (secondary station) and RCS (primary station) subsequent to the SU receiving the MAC_BEARER_CFM message (acknowledgement).” Pet. 63–64 (citing Ex. 1004, 58:16–22, 58:33–34, 58:63–59:18, Figs. 24–25). Then, “when switching from the 32 kb/s rate to the 64 kb/s rate, the power level of the SU” would be “changed to match the power level appropriate for the 64 kb/s rate by exchanging power control messages on the uplink control channel and the downlink control channel between the RCS and SU.” *Id.* at 64 (citing Ex. 1006, 11:64–12:13, 12:40–54, Fig 7; Ex. 1003 ¶¶ 124–128, 135).

Patent Owner argues that “[e]ven if Chen’s process of Figure 7 could somehow be implemented after establishment of a bearer channel . . . , nothing in the resulting combination identifies when control information is ‘initially’ transmitted.” PO Resp. 55. According to Patent Owner, “Chen does not identify when any ‘control channel’ is established or when initial

transmission on such control channel occurs.” *Id.* at 56. “In fact,” Patent Owner asserts, “the control information that is exchanged in steps 330 and 350 of Chen is not the initial transmission of control information,” because “initial control information would have been exchanged in Chen before the operation of Chen at the idle rate in step 310.” *Id.* at 56–57 (citing Ex. 2004 ¶ 276).

Petitioner responds that Patent Owner’s argument that “Chen does not identify ‘when initial transmission on such control channel occurs’” is flawed because Patent Owner “fails to meet its burden to show that its proposed construction of elements 11[c]/15[c] is correct, and specifically fails to show that initial transmission of control information means any initial transmission of control information on any control channel.” Pet. Reply 19. Petitioner contends that “Chen’s control messages for correctly setting the power level for a high data rate satisfies elements 11[c]/15[c] because, in the Lomp-Chen combination, ***these control messages*** would be initially transmitted after the acknowledgement.” *Id.* (citing Pet. 64) (emphasis added). “Specifically,” Petitioner asserts, “Chen’s control messages for increased bandwidth of power control information are not sent until after data for a high rate transfer is received, which occurs after an acknowledgement and after the idle rate channel has been established.” *Id.* (citing Pet. 64; Ex. 1006, 11:49–50, 11:64–12:8, 12:14–16, Fig. 7). “Thus,” according to Petitioner, “Chen’s control messages for increased bandwidth of power control information are initially transmitted after the acknowledgement.” *Id.* at 20 (citing Ex. 1103 ¶ 18).

Patent Owner responds that “[n]othing in Chen indicates when or how” Chen’s “alternative” or “feedback” channels “are established,” or

“indicates that the power control commands sent at a higher rate would be ‘initially transmitted’ subsequent to a reception of the acknowledgement.” PO Sur-reply 23. Rather, Patent Owner asserts, one of ordinary skill “would understand that Chen continuously sends power control commands according to conventional closed-loop power control techniques.” *Id.*

At the hearing, Petitioner’s counsel further clarified its argument that “Chen’s transmission of power control information at step 330 is the initial transmission of control information on the uplink control channel because the mobile station starts transmitting the power control information at a higher rate.” Tr. 28:15–19. Petitioner also argued that, when Chen switches to the higher rate, “there would be a gap in transmission of the power control information.” *Id.* at 28:21–23.

Based on the full trial record, we find that Petitioner has not proven by a preponderance of the evidence that Lomp and Chen teach limitation 11(c) and the comparable limitation in claim 15. Petitioner’s arguments concerning Lomp are discussed above with respect to Ground 1. As to Chen, Petitioner identifies Chen’s feedback channels of the forward and reverse link as the claimed uplink and downlink control channels, but does not establish when control information is “initially transmitted” on those channels. Pet. 62 (citing Ex. 1003 ¶ 133). On the other hand, Dr. Lanning testifies that “[t]he control information that is exchanged in steps 330 and 350 of Chen is not the *initial* transmission of control information,” because “[s]uch initial control information would have been exchanged in Chen before the operation of Chen at the idle rate in step 310” in order to adjust the transmission power to an appropriate level for the idle rate. Ex. 2004 ¶ 276. We find Dr. Lanning’s testimony to be credible because it is

consistent with Chen’s statement that “each base station must rapidly and accurately adjust the transmission power for the signals which it transmits to the mobile station,” and Chen’s description of a closed loop power control system for adjusting the transmission power by comparing measured power level against a threshold value, such that “if the power level is lower than desired, the base station increases the transmission power of its transmitted signals, otherwise the transmission power is decreased.” Ex. 1006, 1:56–59, 1:66–2:11; Ex. 2004 ¶¶ 191–193.

We also are not persuaded by Petitioner’s argument that limitation 11(c) is met by Chen because the particular control messages for increased bandwidth of power control information are sent for the first time after data for a high rate transfer is received. Pet. Reply 19. As noted above, we have construed limitation 11(c) to require that, after the secondary station receives the acknowledgement, control information is transmitted *for the first time* on the particular claimed uplink and downlink control channels between the primary station and the secondary station. See § II.A, supra. We do not accept Petitioner’s proposed construction that the claimed “initial transmission of control information” is only an initial transmission of a particular message or signal, even though other control information may have been previously transmitted on those control channels. *Id.* Consequently, Petitioner’s argument relies on a claim construction that is contrary to the one we have adopted.

Moreover, to the extent Petitioner is arguing that Chen establishes a new control channel when switching to a higher data rate, and that the power control signals for switching to that higher rate are the ones that are “initially transmitted” on that new control channel, we do not find this argument

persuasive. Chen does not describe the creation of a “new” control channel when switching to the higher data rate, but rather describes the control channels as “feedback channels” having a “bandwidth” that can be increased and decreased. Ex. 1006, 14:43–61. Indeed, Dr. Ding testifies that one of ordinary skill “would have understood that the feedback channel of the reverse link (often known as uplink) by which the user station transmits power control signals to the base station as an ***uplink control*** channel and the feedback channel of the forward link (often known as downlink) by which the user station receives power control signals is a ***downlink control channel***.” Ex. 1003 ¶ 133; *see* Pet. 62. Thus, as Dr. Ding explains, Chen describes a single uplink control channel and a single downlink control channel, which each vary in bandwidth based on the data rate. Ex. 1003 ¶¶ 133–134.

Finally, as noted above, even if Petitioner were correct that the “initial transmission” of control information on a channel can occur after an interruption on that channel (*see* § II.A, *supra*), Petitioner has failed to prove that Chen teaches such a limitation. Patent Owner introduces the testimony of Dr. Lanning that Chen’s “‘idle rate’ transmission comprises a data transmission to transmit what a speaker would regard as ‘silence’ and in which the transmission occurs ‘at the eighth rate’ including a ‘reduce[d] . . . number of bits transmitted.” Ex. 2004 ¶ 204. Thus, Dr. Lanning explains, “transmission at Chen’s ‘idle rate’ . . . still involves a transmission of data,” and is not an interruption in the transmission. *Id.* We find Dr. Lanning’s testimony credible because it is consistent with Chen’s disclosure that

[w]hen used, for example in a cellular telephone environment, the signal is transmitted at the full rate to transmit speech (i.e., when a user is talking) and is transmitted at the eighth rate, or

idle rate, to transmit silence (i.e., when the user is not talking). The eighth rate reduces the number of bits transmitted, thereby saving power and reducing interference with other channels.

Ex. 1006, 6:18–24. Based on this record, we find that Petitioner has not established that Chen teaches that its “idle rate” is an interruption of transmission on the feedback (control) channels. Thus, even if we were to accept Petitioner’s construction that an “initial transmission” of control information on a channel can occur after an interruption on that channel, that would not alter the outcome in Petitioner’s favor.

Consequently, Petitioner has failed to prove by a preponderance of the evidence that claims 11 and 15 are unpatentable over Lomp and Chen.

3. Dependent Claims 12–14 and 16–17

Because claims 12–14 and 16–17 depend from claims 11 or 15 and include the limitations of the independent claims, Petitioner has also failed to prove that claims 12–14 and 16–17 are unpatentable over Lomp and Chen.

III. CONCLUSION

For the reasons discussed above, Petitioner has failed to prove, by a preponderance of the evidence, that the challenged claims are unpatentable, as summarized in the following table:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
11–12, 15–17	103(a)	Lomp, Luddy		11–12, 15–17
11–17	103(a)	Lomp, Chen		11–17
Overall Outcome				11–17

IV. ORDER

Accordingly, it is

ORDERED that claims 11–17 of the '028 patent have not been shown, by a preponderance of the evidence, to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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