

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

T-MOBILE USA, INC., T-MOBILE US, INC.,
SPRINT SPECTRUM L.P., and SPRINTCOM, INC.,
Petitioner,

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

Case IPR2018-01773
Patent 8,897,828 B2

Before KRISTEN L. DROESCH, MICHAEL W. KIM, and
JASON W. MELVIN, *Administrative Patent Judges*.

MELVIN, *Administrative Patent Judge*.

DECISION
Instituting *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Petitioner, T-Mobile USA, Inc., T-Mobile US, Inc., Sprint Spectrum L.P., and Sprintcom, Inc., filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1, 2, 5, 6, 8, 9, 12, 13, 15, 16, 19, 20, 22, 23, 26, 27, 29, 30, 33, 34, 36, 37, 40, and 41 (“the challenged claims”) of U.S. Patent No. 8,897,828 B2 (Ex. 1001, “the ’828 patent”). Patent Owner, Intellectual Ventures II LLC, timely filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). Pursuant to 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a), we have authority to determine whether to institute review.

An *inter partes* review may not be instituted unless “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). For the reasons set forth below, we conclude that Petitioner has shown a reasonable likelihood it will prevail in establishing the unpatentability of at least one challenged claim. We, therefore, institute *inter partes* review of the challenged claims of the ’828 patent in this proceeding.

A. RELATED MATTERS

As required by 37 C.F.R. § 42.8(b)(2), each party identifies various judicial or administrative matters that would affect or be affected by a decision in this proceeding. Pet. 2–3; Paper 4 (Patent Owner’s Mandatory Notices).

B. THE ’828 PATENT

The ’828 patent is titled “Power Control in a Wireless Communication System” and describes power-control systems that can operate in multiple

modes. Ex. 1001, (54), (57). In particular, the '828 patent describes open-loop power control, in which a user equipment (UE) can measure path loss and use it to determine the transmit power level. *Id.* at 2:5–16. The '828 patent also describes closed-loop power control, in which the network measures the “signal to noise-plus-interference ratio (SNIR)” and uses it to issue transmit power control (TPC) commands to the UE. *Id.* at 1:50–56, 2:17–32. The '828 patent discloses that a UE receiving TPC commands may accumulate the commands to determine the transmit power level. *Id.* at 6:39–46, 7:16–19. The UE may include both open- and closed-loop functionality so that it may respond to either TPC commands or to a change in the path loss. *Id.* at 8:5–7.

C. CHALLENGED CLAIMS

Challenged claims 1, 8, 15, 22, 29, and 36 are independent. Claim 15 is illustrative of the claimed subject matter and is reproduced below:

1. A method performed by user equipment (UE), the method comprising:
 - [a] receiving, by the UE, an indication of whether accumulation of transmit power control (TPC) commands is enabled;
 - [b] determining, by the UE, a path loss of a downlink channel;
 - [c] receiving, on a single physical channel by the UE if accumulation is enabled, an allocation of a scheduled uplink resource and a TPC command, wherein the TPC command is accumulated with other received TPC commands;
 - [d] calculating, by the UE if accumulation is enabled, transmit power in association with an uplink communication based on both the path loss and the accumulated TPC commands; and

[e] receiving, on the single physical channel by the UE if accumulation is not enabled, an allocation of a scheduled uplink resource to transmit data at a power level calculated by the UE based on the path loss.

Ex. 1001, 13:37–55.¹

D. PROPOSED GROUNDS OF UNPATENTABILITY

Petitioner asserts the following grounds of unpatentability, each based on 35 U.S.C. § 103:

References	Claims
Zeira, ² Krishnan, ³ and Khan ⁴	1, 2, 5, 6, 8, 9, 12, 13, 15, 16, 19, 20, 22, 23, 26, 27, 29, 30, 33, 34, 36, 37, 40, and 41
Zeira, Krishnan, Khan, and Andersson ⁵	2, 9, 16, 23, 30, and 37

Pet. 8. Petitioner also relies on the Declaration of Martin G. Walker, Ph.D. (Ex. 1002). *See generally* Pet. 1, 11, 16–67.

¹ We add square-bracketed annotations to separate claim limitations as identified by Petitioner. *See* Pet. 24–43.

² U.S. Patent No. 6,600,772 B1 (filed Mar. 21, 2000; iss. July 29, 2003) (Ex. 1004).

³ U.S. Patent No. 7,493,133 B2 (filed Feb. 5, 2004; iss. Feb. 17, 2009) (Ex. 1005).

⁴ U.S. Patent App. Pub. No. 2004/0190485 A1 (filed Mar. 24, 2003) (Ex. 1006).

⁵ U.S. Patent No. 6,334,047 B1 (filed Apr. 9, 1999; iss. Dec. 25, 2001) (Ex. 1007).

II. DISCUSSION

A. 35 U.S.C. § 325(D)

Patent Owner argues that we should deny institution because the Petition relies on Zeira, Krishnan, and Khan, which were “heavily considered during prosecution,” and because “the Petition’s arguments directly overlap with those considered during prosecution.” Prelim. Resp. 16; *see also id.* at 13–21.

We consider multiple factors when determining whether to exercise our discretion not to institute under 35 U.S.C. § 325(d), potentially including:

(a) the similarities and material differences between the asserted art and the prior art involved during examination; (b) the cumulative nature of the asserted art and the prior art evaluated during examination; (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art; (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson & Co. v. B. Braun Melsungen AG, Case IPR2017-01586, slip op. at 17–18 (PTAB Dec. 15, 2017) (Paper 8) (informative). As Patent Owner points out, Zeira was applied a number of times during prosecution. Prelim. Resp. 16–18. After the Board affirmed the Examiner’s rejection over

a combination of Zeira⁶ and two other references (Chen⁷ and Van Lieshout⁸) (Ex. 1008, 120–127), the applicant amended the claims (*id.* at 91–107). The Examiner, in a statement of reasons for allowance, stated that Zeira teaches “receiving by the UE, an indication of whether accumulation of transmit power commands (TPC) is enabled” and “determining, by the UE, a path loss of a downlink channel.” *Id.* at 16. According to the Examiner, however, none of the cited prior art, alone or in combination, teaches the remaining limitations of the independent claims. *Id.* at 17.

Petitioner discusses the prosecution history of the ’828 patent, including the claim amendments made after the Examiner’s rejection was affirmed by the Board. Pet. 11–16. Petitioner notes that the Examiner “did not substantively discuss the newly filed claims, including the added ‘single physical channel’ limitation, with reference to Zeira PCT, Krishnan, or any other prior art of record.” *Id.* at 15; *see also id.* at 6 (“Although Khan was cited in an IDS by the applicant, it was not substantively considered during the original prosecution.”).

Petitioner argues that, particularly when focusing on the limitations added after amendment, the allowed claims are unpatentable over Zeira, Krishnan, and Khan, and that the Office never considered the arguments presented by the Petition. *Id.* at 6 (“The combination of Khan with Zeira and Krishnan raises novel arguments regarding the patentability of the ’828 patent that were not considered during the original prosecution of the

⁶ The Examiner applied the international publication of Zeira, WO 00/57574. Ex. 1008, 935–65.

⁷ Published U.S. Patent Application No. US 2005/0025056 A1.

⁸ Published U.S. Patent Application No. US 2001/0036823 A1.

allowed claims. . . . Khan is particularly relevant in view of new limitations added by the patentee in the final set of claims.”), 7 (“In view of Khan’s bearing on this limitation [added after appeal], and the examiner’s prior findings as to Zeira and Krishnan, the Board should decline to exercise its discretion under § 325(d).”).

Thus, the art previously applied was extremely similar to the art now asserted. The Examiner, however, did not reject the amended claims based on prior art. *See* Ex. 1008, 74–78. Thus, we cannot compare how the Examiner applied the cited prior art references to the amended, and now issued, claims to contrast that with Petitioner’s assertions. We recognize the similarities between the prior version of the claims, for which the Board affirmed the Examiner’s rejection, and the amended claims the Examiner ultimately allowed.

In a statement of reasons for allowance, the Examiner stated that Zeira discloses certain limitations in the challenged claims, but that even a combination of the cited prior art did not disclose other limitations. Ex. 1008, 16–17. The Examiner’s statement, however, does not appear consistent with Zeira’s disclosures. For example, the Examiner stated that Zeira teaches “receiving, by the UE, an indication of whether accumulation of transmit power control (TPC) commands is enabled” and cited Zeira’s summary section. *Id.* at 16 (citing *id.* at 940:17–941:8). But Zeira’s summary does not provide a disclosure supporting that Zeira teaches that limitation. Thus, we have concerns with the Examiner’s statements regarding Zeira. Although the Examiner stated that neither Zeira alone nor a combination of the cited references discloses other limitations of the challenged claims, our

review of Petitioner's contentions as discussed below indicates the Examiner erred.

In light of Petitioner's convincing presentation of unpatentability discussed below, we decline to exercise our discretion not to institute review in this proceeding. *See Becton, Dickinson*, slip op. at 18 (factors (e) and (f)).⁹ We note additionally that our intervening, precedential *Schulhauser* case may provide additional reasons for a conclusion that departs from the Examiner's allowance. *See Ex parte Schulhauser*, Appeal 2013-007847, 2016 WL 6277792 (PTAB Apr. 28, 2016). As discussed below, our conclusion regarding *Schulhauser*'s applicability may affect our final decision in this case.

B. CLAIM CONSTRUCTION

In an *inter partes* review, the Board interprets claims of an unexpired patent using the broadest-reasonable construction in light of the specification of the patent.¹⁰ 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016).

Petitioner proposes a construction for one term: “multilevel TPC command.” Pet. 18–19. Patent Owner asserts no construction is required for

⁹ Similar § 325(d) facts and arguments were made in IPR2018-01641 and IPR2018-01694, each of which also involve the '828 patent. Our determination here is consistent with the determination made in those proceedings.

¹⁰ The Petition was filed before the November 13, 2018, effective date of the amendment to 37 C.F.R. § 42.100 changing the claim-construction standard applied in *inter partes* reviews. Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (to be codified at 37 C.F.R. pt. 42).

any term. Prelim. Resp. 12. We conclude that, for the purpose of this Decision, there is no need to construe any term to resolve issues presented by the Petition and Preliminary Response. *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).

As noted above, however, our precedential *Schulhauser* case may affect the outcome in this case. In *Schulhauser*, we held that a method claim directed to two alternative outcomes based on a binary indicator is construed to cover two different methods, and that the broadest-reasonable construction encompasses either one of those methods. *Schulhauser*, 2016 WL 6277792, *4. Thus, an obviousness showing for such a claim need only address one of the two claimed methods. *Id.* Whether *Schulhauser* applies to the challenged claims does not depend on any conclusions about the prior art; rather, the prior art may only affect the *result* of applying *Schulhauser*. In their briefing, the parties should discuss the applicability of *Schulhauser* in addition to the result of applying it to the claims here.

Additionally, discussing Petitioner's contentions, Patent Owner argues that "if accumulation is not enabled, the claims recite 'receiving . . . an allocation of a scheduled uplink resource to transmit data at a power level calculated by the UE based on the path loss' **without a TPC command.**" Prelim. Resp. 34. That appears to be an argument by Patent Owner that the claims require that, if operating such that accumulation is not enabled, a UE cannot receive a TPC command. To the extent Patent Owner wishes to pursue such a claim construction in this proceeding, it should explain the basis for such a position in the Response.

C. OBVIOUSNESS OVER ZEIRA, KRISHNAN, AND KHAN

Petitioner asserts that Zeira teaches a conditional open- and closed-loop power-control scheme and that Krishnan teaches a similar power-control technique and further discloses that “the receiving terminal enables closed-loop control by sending a feedback signal to the transmitting terminal.” Pet. 21; *id.* at 19–22. Petitioner asserts Khan teaches sending scheduling allocations and power-control information over a single physical channel. *Id.* at 22–24.

Zeira discloses a system and method for controlling wireless transmission power using combined open- and closed-loop operation. Ex. 1004, 1:12–16, 2:57–59. In closed-loop operation, Zeira describes a receiving unit measuring signal interference and sending a power command to a transmitting unit. *Id.* at 3:65–4:13. Zeira also describes that a transmitting unit can measure path loss to implement open-loop control. *Id.* at 4:14–17, 5:33–37. Zeira’s combined system applies weighting to the various factors for determining transmission power. *Id.* at 6:4–49, 7:13–20. That weighting factor, α , permits the network operator “to use solely open loop or solely closed loop power control” if desired. *Id.* at 7:23–27.

Krishnan discloses a system and method for configuring devices to enable or disable closed-loop power control. Ex. 1005, Abstract. Based on whether interference is detected, Krishnan’s system sends a “feedback signal indicating the status of closed-loop power control, such as an enable/disable bit.” *Id.* at 7:49–8:3.

Khan discloses “[a] method for transmitting control information in a wireless communication system.” Ex. 1006, Abstract. Khan’s transmitted information relates to “reverse link packet transmission,” or uplink

transmissions from UEs to base stations. *Id.* ¶¶ 3, 11, 12. The information sent to a UE includes both a scheduling grant and TPC information. *Id.* ¶ 12. Khan’s scheduling grant allows the system to manage resources for wireless units (UEs) to transmit information. *Id.* ¶¶ 33–35. Khan discloses sending information to a UE using a “Forward MAC Channel” composed of “Walsh Channels,” each identified by a “MACIndex value.” *Id.* ¶¶ 40, 47.

1. Power control process that depends on whether accumulation is enabled

Zeira discloses that, “[u]nder certain conditions, the network operator may desire to use solely open loop or solely closed loop power control,” and that “the operator may use solely closed loop power control by setting α to zero.” Ex. 1004, 1:60–65, 7:23–27. Petitioner asserts that because Zeira’s second station (the UE) receives a plurality of power commands, a person of skill would have understood that it also receives an indication of whether accumulation of TPC commands is enabled. Pet. 25 (citing Ex. 1002 ¶¶ 107–108).

Krishnan discloses that “receiving terminal sends a feedback signal indicating the status of closed-loop power control, such as an enable/disable bit.” Ex. 1005, 7:43–45. Petitioner submits that Krishnan’s feedback signal “indicates that accumulation of TPC commands is enabled because such accumulation is inherent in closed-loop power control.” Pet. 26 (citing Ex. 1002 ¶ 112); see Ex. 1002 ¶¶ 110–113.

Petitioner asserts that combining Krishnan’s feedback signal with Zeira’s power-control system would have amounted to using known, predictable elements according to their established functions. Pet. 26. Further, Petitioner asserts that causing Zeira’s closed-loop factor to be weighted to zero would have ceased accumulation of TPC commands.

Pet. 27–28 (citing Ex. 1004, 7:20–22, 6:4; Ex. 1002 ¶ 117). That disclosure by Zeira, continues Petitioner, would have led skilled artisans to consider Krishnan’s disclosures regarding how to use a feedback signal to enable or disable closed-loop and open-loop power control. *Id.* (citing Ex. 1002 ¶¶ 118–119). Petitioner argues further that implementing Zeira’s power-control options “would require some way to communicate to devices on a wireless network what power control scheme is being implemented,” and that using Krishnan’s feedback signal “was one of a limited number of design choices to do this and was thus ‘obvious to try’ as a means of communicating the power control scheme being used per Zeira.” Pet. 29 (citing Ex. 1002 ¶ 120).

Patent Owner argues “Zeira does not teach the claimed control process that depends on whether accumulation has been enabled.” Prelim. Resp. 28. Patent Owner recognizes that Zeira discloses using the parameter α to operate in solely open-loop or solely closed-loop power control, but maintains that Zeira does not describe the claimed process. *Id.* at 29–30. But Patent Owner does not explain its position other than to assert that Zeira fails to disclose the claimed process and that “the Office has already determined that Zeira’s iterative process does not teach the conditional control process.”¹¹ *Id.* at 30–31. As discussed above, the Office’s prior determination appears to have been in error.

¹¹ Patent Owner additionally points out that the Petition does not rely on Khan to teach the recited conditional control process. Prelim. Resp. 33–36. Petitioner relies on Zeira and Krishnan in this regard, so Patent Owner’s argument regarding Khan is inapposite.

Patent Owner further argues that “Krishnan also does not teach the specific control process recited in the claims.” *Id.* at 31–33. According to Patent Owner, “Krishnan describes controlling closed loop power and open loop power based on whether interference is detected not based on whether or not accumulation has been enabled as recited in the claims of the ’828 patent.” *Id.* at 31–32. That argument, however, ignores that the claims do not restrict how a system performing the claim decides when to send an “indication of whether accumulation of transmit power control (TPC) commands is enabled” or which operational mode the indication triggers when sent. Thus, that Krishnan discloses using detected interference to trigger an indication of open/closed-loop operation does not bear on the claim. Based on the present record, Petitioner shows that Krishnan uses an indication (its feedback signal) to inform a UE whether to operate with open- or closed-loop power control, as described above.

Patent Owner argues further that Krishnan’s feedback signal controls open/closed-loop operation, but does not necessarily indicate whether accumulation of TPC commands is enabled, because “[c]losed-loop power controls may be configured in numerous ways and may not include the accumulation of TPC commands.” *Id.* at 32. As an example, Patent Owner states that “a transmit power may be calculated after a single TPC command has been received.” *Id.* at 32–33 (citing Ex. 1001, 2:25–28, 6:31–38). Patent Owner’s argument fails for two reasons. First, Petitioner asserts a combination where Krishnan’s feedback signal controls Zeira’s operation, so whether the feedback signal necessarily controls accumulation of TPC commands in Krishnan is inapposite. Second, the example Patent Owner provides, in which the initial TPC command in closed-loop operation causes

transmit-power recalculation, does not mean that accumulation is not enabled. At most, Patent Owner's example states that "accumulation may not occur," which is not the same as accumulation not being enabled.

We determine that Petitioner has shown adequately, for purposes of institution, that Zeira teaches using its α parameter to selectively control operation in open-loop or closed-loop power control (and whether TPC commands are accumulated), that Krishnan teaches a feedback signal to control whether a UE operates in open- or closed-loop power control, and that skilled artisans would have had reason to combine the teachings of Krishnan and Zeira as asserted.

2. Single physical channel

The challenged claims require "a single physical channel" carry both "an allocation of a scheduled uplink resource and a TPC command." *E.g.*, Ex. 1001, 13:42–47.

Petitioner submits that Zeira teaches sending TPC commands in a "dedicated channel," and that skilled artisans would have understood that such a "dedicated channel" could have been a single physical channel. Pet. 34–35 (citing Ex. 1002 ¶ 131; Ex. 1004, 4:10–14, 4:31–34; Fig. 3).

Petitioner further relies on Khan disclosing "that a single physical downlink channel may include both TPC commands and such an allocation of a scheduled uplink resource." *Id.* at 35 (citing Ex. 1002 ¶¶ 138–140). In particular, Petitioner submits that skilled artisans "would recognize that 'scheduling grants' are an 'allocation of a scheduled uplink resource' because they designate a particular time or rate at which a UE may transmit on the uplink." *Id.* at 36 (citing Ex. 1002 ¶ 137; Ex. 1006 ¶¶ 33, 35). Further, Petitioner relies on Khan's disclosures that a UE may be allocated a

particular physical channel (a “Walsh channel” identified by a “MACIndex value”) carrying a scheduling grant and a TPC bit. *Id.* at 36–38 (citing Ex. 1006 ¶¶ 40, 45, 47, Fig. 5; Ex. 1002 ¶¶ 138–141).

Finally, Petitioner submits that it would have been obvious to combine Khan’s single physical channel, used to carry an allocation of a scheduled uplink resource and a TPC command, with Zeira’s power-control system, because doing so would have been using predictable, known elements according to their established functions. *Id.* at 38. Petitioner notes that Zeira discloses that UE transmits “in the appropriate time slots and codes of the assigned resource units” but does not specify how such resource units are assigned to the UE. *Id.* at 38–39 (quoting ex. 1004, 2:62–63, 6:63–65). Zeira’s reference to “assigned resource units” would have motivated skilled artisans to seek out Khan, according to Petitioner, by indicating “that Zeira contemplates some scheduling function located at the receiving station that allocates such resources for uplink transmission.” *Id.* at 39 (citing Ex. 1002 ¶¶ 142; Ex. 1006, Abstract).

At this stage, Patent Owner does not contest Petitioner’s contentions regarding the single physical channel. We determine that Petitioner has shown adequately, for purposes of institution, that the combination would satisfy the claims’ requirement for using a single physical channel.

3. Conclusion

We have reviewed Petitioner’s submissions and Patent Owner’s arguments, and we determine that Petitioner has shown a reasonable likelihood of prevailing with respect to unpatentability over Zeira, Krishnan, and Khan.

D. OBVIOUSNESS OVER ZEIRA, KRISHNAN, KHAN, AND ANDERSSON

Petitioner asserts that a combination of Zeira, Krishnan, Khan, and Andersson renders obvious claims 2, 9, 16, 23, 30, and 37. Pet. 62–67. At this time Patent Owner does not contest Petitioner’s assertions regarding Andersson. At this time and on this record, we are persuaded that a skilled artisan would have understood the benefit offered from using Andersson’s teachings, and would have applied those teachings to the combination of Zeira, Krishnan, and Khan to achieve that benefit. Petitioner has shown a reasonable likelihood of prevailing with respect to the combination of Zeira, Krishnan, Khan, and Andersson.

III. CONCLUSION

We have addressed all of Patent Owner’s arguments raised in the Preliminary Response. For the foregoing reasons, we determine the information presented in the Petition establishes a reasonable likelihood that Petitioner will prevail in showing the challenged claims unpatentable. Thus, based on the standard in 35 U.S.C. § 314(a), and our evaluation of the present record, we institute *inter partes* review.

IV. ORDER

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of the ’828 patent is instituted of the challenged claims on the grounds identified in the Petition.

Case IPR2018-01773
Patent 8,897,828 B2

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