

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HEWLETT PACKARD ENTERPRISE COMPANY,
Petitioner,

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

IPR2021-01376
Patent 8,725,132 B1

Before KEN B. BARRETT, NABEEL U. KHAN, and
STEPHEN E. BELISLE, *Administrative Patent Judges*.

BARRETT, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background and Summary*

Hewlett Packard Enterprise Company (“Petitioner”)¹ filed a Petition requesting *inter partes* review of U.S. Patent No. 8,725,132 B1 (“the ’132 patent,” Ex. 1001). Paper 1 (“Pet.”). The Petition challenges the patentability of claims 1 and 3 of the ’132 patent. Intellectual Ventures II LLC (“Patent Owner”)² filed a Preliminary Response to the Petition. Paper 7 (“Prelim. Resp.”). With our authorization, Petitioner filed a Reply (Paper 10, “Pet. Reply”) and Patent Owner filed a Sur-reply (Paper 14, “PO Sur-reply”).

An *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . 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) (2018). Having considered the arguments and evidence presented by Petitioner and Patent Owner, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing on at least one of the challenged claims of the ’132 patent. Accordingly, we institute an *inter partes* review as to all the challenged claims of the ’132 patent on all the grounds of unpatentability set forth in the Petition.

¹ Petitioner identifies Hewlett Packard Enterprise Company and Aruba Networks as real parties-in-interest. Pet. 1.

² Patent Owner identifies Intellectual Ventures II LLC as the real party-in-interest. Paper 5, 1.

B. Related Proceedings

Both parties identify, as a matter involving or related to the '132 patent, *Intellectual Ventures I LLC et al. v. Hewlett Packard Enterprise Co.*, Case No. 6:21-cv-00226 (W.D. Tex.)³. Pet. 1; Paper 5, 1; Paper 8, 1.

C. The '132 Patent

The '132 patent “relates generally to wireless networks, and more particularly to wireless network configuration and power level adjustment for network performance optimization.” Ex. 1001, 1:18–21. According to the '132 patent, wireless networks had available only a limited number of channels and “wireless access points cannot effectively share the same channel in the same area because of radio and control protocol interference,” which resulted in bandwidth over a given area being limited. *Id.* at 1:34–38. The '132 patent states that, to address this issue, it provides, *inter alia*, a mechanism where access points (“APs”) “can perform automatic power adjustment so that multiple APs can operate on the same channel while minimizing interference with each other.” *See id.* at 1:61–63. The '132 patent further explains, in discussing access point optimization, as follows:

Power Adjustment: When the number of APs in a wireless communications environment exceeds the number of non-overlapping channels, APs and STAs [(stations)] adjust their power such that APs and STAs on the same channel can co-exist in an area without interference. For APs using the same channel, APs continually re-adjust their power levels based on environmental factors such as signal strength changes due to movement of doors, people, background noise floor, and

³ Patent Owner indicates that, on November 30, 2021, the district court case was ordered to be transferred to the Northern District of California. Paper 8, 1

the like, so that the users' optimal bandwidth is maintained without undue interference.

Id. at 5:39–49. Similarly, there can be station optimization via power adjustment. *See id.* at 5:58, 6:5–9. “[Stations] perform power adjustment such that they can maintain throughput to and from their currently associated AP while minimizing the interference with nearby wireless devices that may be using the same channel.” *Id.* at 6:5–9.

D. The Challenged Claims

Of the challenged claims of the '132 patent, claim 1 is an independent claim. Claim 3 depends directly from claim 1. Claim 1 is reproduced below with Petitioner's bracketed annotations⁴ inserted.

1. [1-PRE] Apparatus, comprising:
[1a] control circuitry; and
[1b-1] a variable power transmitter operable in response to the control circuitry [1b-2] to transmit wireless communication signals at a selected power level up to a maximum power level,
[1c] wherein the selected power level is repeatedly adjusted in order to reduce interference, and [1d] to transmit a signal with information indicative of a power level at which a variable power transmitter of an associated device should be set in order to reduce interference.

Ex. 1001, 43:13–23. Dependent claim 3 recites: “The apparatus of claim 1, wherein the apparatus is operable to transmit at the maximum power level, regardless of the selected power level, the signal with information indicative of a power level.” *Id.* at 43:34–37.

⁴ We utilize Petitioner's annotations for claim 1 (Pet. vi) but have retained the paragraph formatting from the issued patent.

E. Evidence

Petitioner relies on the following references:

Reference	Exhibit No.
VIJAY K. GARG, IS-95 CDMA AND CDMA 2000: CELLULAR/PCS SYSTEMS IMPLEMENTATION (Prentice-Hall Inc. 2000) (“Garg”)	1004
US 7,308,279 B1; filed Dec. 28, 2000; issued Dec. 11, 2007 (“Zweig”)	1005
US 2003/0100328A1; filed Nov. 28, 2001; published May 29, 2003 (“Klein”)	1006
WO 02/082751 A2; filed Apr. 9, 2002; published Oct. 17, 2002 (“Larsson”)	1007
ANSI/IEEE Std 802.11, 1999 Edition; IEEE Standard for information technology–telecommunications and information exchange between systems–local and metropolitan area networks–specific requirements, Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications (“802.11-1999”)	1016
GARRET T. OKAMOTO, SMART ANTENNA AND WIRELESS LANS (Kluwer Academic Publishers 1999) (“Okamoto”)	1019

Petitioner also relies on the Declaration of Matthew B. Shoemake, Ph.D. (Ex. 1003) in support of its arguments. The parties rely on other exhibits as discussed below.

F. Asserted Grounds of Unpatentability

Petitioner asserts that the challenged claims are unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 3	102(b), 103(a)	Garg
1, 3	103(a)	Larsson, 802.11-1999, Okamoto
1, 3	103(a)	Zweig, Klein

II. ANALYSIS

A. Discretion Under 35 U.S.C. § 325(d)

Patent Owner argues that “the Office already considered art substantially the same as Garg, relied on in Ground 1, and thus the Office should defer to the Office’s previous evaluation with respect to this ground.” Prelim. Resp. 8; *see id.* at 2 (“[U]nder Section 325(d), the Board should defer to the Office’s previous analysis with respect to Ground 1, favoring denial of institution.”). Patent Owner further argues that, because Garg is cumulative of art already considered by the Office “[a]nd because Petitioner failed to establish that the art relied upon in Grounds 2 and 3 render obvious claims 1 and 3 of the ’132 patent . . . the Board should exercise its discretion under § 325(d) to deny the Petition.” *Id.* at 10–11. As we would need to reach the merits of Grounds 2 and 3 to determine whether Patent Owner is correct that Petitioner failed in the obviousness challenges, Patent Owner effectively is requesting that we exercise discretion only as to the first ground.

Section 325(d) provides that, in determining whether to institute an *inter partes* review, “the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. § 325(d) (2018). The Board uses a two-part framework in determining whether to exercise its discretion under § 325(d), specifically:

- (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and
- (2) if either condition of [the] first part of the framework is satisfied, whether the petitioner has demonstrated that the

Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential) (“*Advanced Bionics*”).

The Petition contains three grounds and relies on six references.

Pet. 6. Garg only is involved in the first ground. *Id.* Thus, Patent Owner’s § 325(d) arguments do not implicate sufficiently the Petition as a whole, or demonstrate that the same art or arguments that are set forth in the Petition were previously presented to the Office. As such, we decline to exercise discretion under § 325(d) to deny institution.

B. Principles of Law

Petitioner bears the burden of persuasion to prove unpatentability of the claims challenged in the Petition, and that burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. Inc., v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987); *see also Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1334 (Fed. Cir. 2008) (to anticipate a patent claim under 35 U.S.C. § 102, “a single prior art reference must expressly or inherently disclose each claim limitation”). Moreover, “[b]ecause the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d

1359, 1369 (Fed. Cir. 2008) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)). Whether a reference anticipates is assessed from the perspective of one of ordinary skill in the art. See *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368–69 (Fed. Cir. 2003) (“[T]he dispositive question regarding anticipation [i]s whether *one skilled in the art* would reasonably understand or infer from the [prior art reference’s] teaching’ that every claim element was disclosed in that single reference.” (second and third alterations in original) (quoting *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991))).

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

C. The Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (internal quotation marks and citation omitted).

Petitioner's declarant, Dr. Shoemake, opines that:

[A person of ordinary skill in the art] in the field of the '132 patent at the time of the earliest possible priority date (February 24, 2003) would have had at least a bachelor's degree in electrical engineering, plus three years of experience in the field of wireless networking/communications. Additional educational in the field of electrical engineering such as a masters or doctorate degree may serve as a substitute for experience in the field.

Ex. 1003 ¶ 37; *see* Pet. 10. Patent Owner, at this stage, does not disagree or propose a different definition of the person of ordinary skill in the art.

Dr. Shoemake's definition is consistent with the level of ordinary skill reflected in the prior art references of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (recognizing that the prior art itself may reflect an appropriate level of skill in the art). For purposes of this decision, we apply Dr. Shoemake's definition of the person of ordinary skill in the art.

D. Claim Construction

We apply the same claim construction standard used in district court actions under 35 U.S.C. § 282(b), namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b) (2020).

In applying that standard, claim terms generally are given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc.*

v. Medtronic Sofamor Danek, Inc., 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner asserts that no “specific constructions are required at this time,” and that the Petition applies the ordinary and customary meaning of all the claim terms. Pet. 10. Petitioner, however, also asserts that the claims recite two different signals. *Id.* at 11–12.

Patent Owner, in its Claim Construction section, addresses the signal limitations and the phrase “in order to reduce interference.” Prelim. Resp. 4–8. Patent Owner asserts that, otherwise, “all claim terms should be afforded their ordinary and customary meaning in light of the claims, specification, and file history of the ’132 patent as would have been read by a [person of ordinary skill in the art].” *Id.* at 4.

1. The signal limitations

Claim 1 recites “a variable power transmitter operable in response to the control circuitry to transmit *wireless communication signals* . . . and to transmit *a signal with information indicative of a power level* at which a variable power transmitter of an associated device should be set in order to reduce interference.” Ex. 1001, 43:15–23 (emphasis added).

As mentioned, Petitioner asserts that the claims recite two different signals. Pet. 11–12. Petitioner specifically asserts that “the Challenged Claims require a variable power transmitter operable to transmit *two different signals*: the ‘wireless communication signals’ of limitation [1b-2] and the ‘signal with information indicative of a power level’ of limitation [1d].” *Id.* at 12 (emphasis added) (citing Ex. 1003 ¶ 77). Petitioner’s basis for this contention primarily is that the second recitation of a signal in independent claim 1 begins with the indefinite article “a” rather than the

definite article “the,” and thus, according to Petitioner, indicating that the two signals are presumptively different. *Id.*

Patent Owner states that it “has applied the Petition’s interpretation of the signal limitations (without agreeing that this is the correct construction).” Prelim. Resp. 4. Patent Owner, however, impliedly proposes a construction of Petitioner’s proposed construction and argues that the recited signals must be *separate* from each other. *See id.* at 34 (Patent Owner referring to “Petitioner’s assertion that these signals must be separate from each other.”); *see also, e.g., id.* at 21 (section heading), 23 (“[T]he Petition did not (and cannot) establish that Garg transmits ‘wireless communication signals’ with speech or data information separate from power control information.”), 33 (“Larsson does not transmit these signals with TPC information separately from other wireless communication signals, as required by Petitioner’s interpretation of the claims (*see Pet.*, 11); rather, they are one and the same.”). Patent Owner does not explain why Petitioner’s use of the term “different” should be construed as “separate,” and, more importantly, Patent Owner does not explain why the intrinsic or extrinsic evidence supports a construction of the claim requiring “separate” signals or what a person of ordinary skill in the art would consider to constitute “separate” signals. Therefore, at this stage of the proceeding, we do not construe the claim to include a limitation requiring the two signals to be separate. We need not construe the claim further to resolve the dispute between the parties. We encourage the parties to meet and confer to determine whether and to what extent there is a dispute as to the meaning of the recited signals and to fully develop their respective claim construction positions in further briefing.

2. In order to reduce interference

Claim 1 recites the phrase “in order to reduce interference” twice:

[1c] wherein the selected power level is repeatedly adjusted *in order to reduce interference*, and [1d] to transmit a signal with information indicative of a power level at which a variable power transmitter of an associated device should be set *in order to reduce interference*.

Ex. 1001, 43:19–23 (emphasis added).

Patent Owner argues that the phrase should be construed as limiting. Prelim. Resp. 4, 5–8. The basis for Patent Owner’s argument is that the applicant argued that the phrase distinguished the claim over the prior art during prosecution. *See id.* at 5–8.

Patent Owner contends that the phrase requires that “the recited power adjustment elements (including ‘transmi[ssion] of a signal with information indicative of a power level’) must be performed, at least in part, ‘in order to reduce interference.’” *Id.* at 7 (alterations in original). Patent Owner adds the qualification that “this language does not indicate that the sole purpose of the recited power adjustment elements must be ‘*to reduce interference*,’ but rather that these elements must be performed, at least in part, ‘*in order to reduce interference*.’” *Id.* at 7–8 n.2.

Lastly, Patent Owner asserts, based on its characterizations of Petitioner’s arguments in the district court litigation, that “there is no real dispute between the parties—this claim language is limiting.” *Id.* at 8.

At this point in the proceeding, we do not have Petitioner’s views on Patent Owner’s proposed claim construction. However, we determine below that Petitioner has demonstrated a reasonable likelihood that the prior art discloses or suggests the “in order to reduce interference” recitations, even under Patent Owner’s proposed construction. Therefore, we need not expressly construe the phrase at this stage of the proceeding. The parties should meet and confer to discuss the matter, and, if there remains a dispute,

the parties should fully develop their respective claim construction positions in further briefing.

On this record and for purposes of this decision, we determine that no claim terms require express construction. We, however, address certain claim construction issues below in the context of the parties' arguments regarding the application of the prior art to the claim language.

E. The Alleged Anticipation of Claims 1 and 3 by Garg or Obviousness of Claims 1 and 3 over Garg

Petitioner alleges that claims 1 and 3 of the '132 patent are anticipated by or would have been obvious over Garg. *See* Pet. 31–42. Petitioner contends that Garg discloses all of the limitations of the challenged claims and that “it was also obvious to use a single transceiver in Garg’s CDMA system to complete the actions claimed by the '132 patent.” *Id.* at 31.

Patent Owner argues that Petitioner has failed to show that Garg discloses certain claim recitations. *See* Prelim. Resp. 20.

1. Garg (Ex. 1004)

Garg is a textbook pertaining to Code Division Multiple Access (CDMA), a digital wireless technology for use in cellular communications, under the IS-95 standard. Ex. 1004, xvii–xviii⁵. Garg refers to a reference model that includes a “Mobile Switching Center (MSC)” that “interfaces the user traffic from the wireless network with the wireline network or other wireless networks,” a “Base Station (BS)” that “connects to the Mobile Switching Center,” and a “Mobile Station (MS)” that “enables the user to gain access to services from the network.” *Id.* at 81. Garg’s Base Station

⁵ For Garg, we, like the parties, cite to the page numbers of the underlying document rather than the exhibit page numbers.

includes a “Base Transceiver System (BTS)” that “consists of one or more transceivers placed at a single location” and is at the end on the network side. *Id.* Garg describes the IS-95 CDMA air interface, including the “important aspects of the forward link (base station to mobile) and reverse link (mobile to base station) and . . . modulation parameters for the channels.” *Id.* at 91.

Garg explains that “[a] power control subchannel is continuously transmitted on the forward traffic channel” and that there are power control bits, where a “0 specifies that the mobile increases its mean output power level by 1 dB (nominal), and a 1 indicates a decrease in mean output power level by 1 dB (nominal).” *Id.* at 122 (italicizing omitted). “The power control bits are always transmitted at full power.” *Id.* at 123.

2. Independent Claim 1—The Alleged Anticipation by or Obviousness Over Garg

Independent claim 1, generally speaking, recites an apparatus comprising structure in the form of control circuitry and a variable power transmitter operable in response to that circuitry to transmit certain signals. *See* Ex. 1001, 43:13–23.

a. [1-PRE] Apparatus, comprising:

[1a] control circuitry; and

[1b-1] a variable power transmitter operable in response to the control circuitry [1b-2] to transmit wireless communication signals at a selected power level up to a maximum power level

Petitioner contends that, “in view of Garg’s disclosure that the base station can ‘increase or decrease power’ of the forward traffic channels, Garg discloses ‘a variable power transmitter’ (the transceiver of Garg’s BTS, or similar).” Pet. 36–37 (citing Ex. 1003 ¶ 207). Petitioner further contends

that a person of ordinary skill in the art would recognize that Garg's transceivers would have control circuitry or, alternatively, that a person of ordinary skill in the art would have found it obvious to use control circuitry in connection with the transceivers. *See id.* at 37–38.

Petitioner additionally contends that Garg's forward traffic channels are the recited “wireless communication signals,” noting that Garg discloses that the “traffic channels are used to carry user information (speech or data).” Pet. 34–35 (citing Ex. 1003 ¶¶ 202–203; Ex. 1004, 111). Petitioner also contends that Garg discloses that the forward traffic channels are transmitted at a selected power level up to a maximum power level, as recited in claim 1. *Id.* at 36 (citing Ex. 1003 ¶¶ 202–207; Ex. 1004, 206, 208–210).

Patent Owner does not raise any arguments regarding these contentions.

b. [1c] wherein the selected power level is repeatedly adjusted in order to reduce interference

Petitioner contends that Garg discloses this limitation. Pet. 41 (citing Ex. 1003 ¶ 219; Ex. 1004, 206). Garg, at the page cited by Petitioner, states:

Forward link power control (FLPC) aims at reducing interference on the forward link. The FLPC not only limits the in-cell interference, but it is especially effective in reducing other cell/sector interference.

The forward link power control attempts to set each traffic channel transmit power to the minimum required to maintain the desired FER at the mobile. *The mobile continuously measures forward traffic channel FER. It reports this measurement to the base station on a periodic basis. After receiving the measurement report, the base station takes the appropriate action to increase or decrease power on the measured logical channel.* The base station also restricts the power dynamic range so that the transmitter power never

exceeds a maximum value that would cause excessive interference or so that it never falls below the minimum value required for adequate voice quality.

Ex. 1004, 206 (emphasis added). Petitioner contends that. “[b]ecause the base station ‘periodically’ receives the ‘measurement report,’ and because the base station increases or decreases power based on this periodically received report to ‘reduce interference on the forward link,’ Garg discloses that the selected power is repeatedly adjusted to reduce interference.”

Pet. 41 (citing Ex. 1003 ¶ 219); *see also id.* at 35 (quoting Ex. 1004, 181 (“IS-95 uses both power control and soft handoff as an interference reduction mechanism.”)).

Patent Owner, in the context of the claim’s second recitation of a signal (“a signal with information indicative of a power level at which a variable power transmitter of an associated device should be set in order to reduce interference”), argues that Garg’s power adjustments are not performed for the purpose of reducing interference. *See* Prelim. Resp. 24–27. We discuss that argument below in the context of the “information indicative” signal. Patent Owner does not otherwise raise any arguments regarding Petitioner’s contentions as to limitation 1c.

c. [1d] [a variable power transmitter operable in response to the control circuitry] to transmit a signal with information indicative of a power level at which a variable power transmitter of an associated device should be set in order to reduce interference.

Petitioner notes that Garg discloses that “[a] *power control subchannel* is continuously transmitted on the forward traffic channel [and a] 0 specifies that the mobile increases its mean output power level by 1 dB (nominal) and a 1 indicates a decrease in mean output power level by 1 dB (nominal).” Pet. 38–39 (quoting Ex. 1004, 122) (alteration in

original). Petitioner contends that “[t]hese ‘0’ and ‘1’ bit signals instruct the mobile to increase or decrease its transmit power level by a specific amount.” *Id.* at 39 (citing Ex. 1004, 122, 172). Petitioner further contends that “[t]he purpose of the power control subchannel is to minimize the amount of power required to achieve adequate communications, which reduces interference.” *Id.* (citing Ex. 1004, 181–182, 196, 199, 202–206). Thus, according to Petitioner, a person of ordinary skill in the art “would have recognized from at least these disclosures that Garg discloses sending signals ‘with information indicative of a power level at which a variable power transmitter of an associated device should be set in order to reduce interference.’” *Id.* (citing Ex. 1003 ¶¶ 211–215).

Petitioner also contends that Garg’s BTS transceiver is the recited variable power transmitter that transmits both the “wireless communication signals” of limitation 1b-2 and “a signal with information indicative of a power” of limitation 1d. Pet. 40. Petitioner, in the alternative, additionally contends that a person of ordinary skill in the art would have found it obvious to use a single transceiver to transmit both the “information” and “power control bits” (mapped to the recited “wireless communication signals” and “signal with information indicative of a power level,” respectively). *Id.* at 40–41.

Patent Owner does not raise any arguments regarding Petitioner’s contentions as to a single variable power transmitter, but does present arguments concerning other aspects of this limitation.

Patent Owner first notes that Petitioner asserts that “limitations [1b-2] and [1d] require two different ‘signals,’” and argues that Petitioner has failed to show that Garg transmits two *different* signals. Prelim. Resp. 21 (quoting

Pet. 11). Patent Owner argues that, in Garg, “‘user information (speech or data)’ is transmitted **at the same time** as power control information, i.e., as part of the same signal[.]” *Id.* at 22. Patent Owner further argues that, “in Figure 7-6, Garg illustrates that traffic channels carry both ‘Speech or Data’ information along with ‘Associated Signaling,’ including ‘Power Control’ information,” and Patent Owner impliedly asserts that this evidences that those two types of information are part of the same signal. *Id.* at 22–23 (citing Ex. 1004, 111). Patent Owner additionally argues that Garg describes that “‘scrambled data are multiplexed with power control information,’ creating a single ‘multiplexed signal’ . . . [and t]hus, Garg describes that speech information and power control information (e.g., power control bits) are transmitted **together** as part of the same signal.” *Id.* at 23 (quoting Ex. 1004, 122). Thus, Patent Owner concludes, “the Petition did not (and cannot) establish that Garg transmits ‘wireless communication signals’ with speech or data information *separate* from power control information.” *Id.* (emphasis added).

We disagree with Patent Owner’s argument that Petitioner has failed to demonstrate a threshold showing that Garg discloses a transmitter operable to transmit the recited signals. Claim 1 calls for “a variable power transmitter operable . . . to transmit wireless communication signals . . . and to transmit a signal with information indicative of a power level at which a variable power transmitter of an associated device should be set in order to reduce interference.” Ex. 1001, 43:12–23. Dr. Shoemake describes two items in Garg as the signals recited in the claim. For example and for the first recited signal, Dr. Shoemake testifies that “a POSITA would recognize that the ‘forward traffic channels’ employ wireless communication signals.”

Ex. 1003 ¶ 203; *see also id.* ¶ 207 (“a POSITA would recognize that Garg discloses ‘a variable power transmitter’ (the transceiver of Garg’s BTS, or similar), that ‘transmit[s] wireless communication signals’ (forward traffic channels)” (alterations in original)); *id.* ¶ 209 (“the BTS is specifically suited for sending the forward traffic channel signals at the correct power level”). For the second recited signal, Dr. Shoemake refers to the control bits on the power control subchannel as the “‘0’ and ‘1’ bit *signals*.” *Id.* ¶ 212 (emphasis added); *see also id.* ¶ 215 (Dr. Shoemake testifying that “Garg discloses sending signals ‘with information indicative of a power level’” and that the power control bits are the “information indicative.”). At this stage of the proceeding, we credit the expert’s testimony that there are two signals. Also, Patent Owner does not provide sufficient evidence or support for its many technical propositions, such as the implied argument that two pieces of information sent at the same time must be the same signal. *See* Prelim. Resp. 22. These issues may be further developed during the trial.

Patent Owner next argues that Garg’s purpose for power control is not to reduce interference. *See* Prelim. Resp. 24⁶. Patent Owner characterizes Garg’s “intention” as “to address the near-far problem common in cellular CDMA networks” and that “Garg’s power control operates to **harmonize** the transmit power levels of mobiles so that the corresponding base station

⁶ Patent Owner states: “As the Applicant told the Office during prosecution, however, Garg’s power control subchannel does not operate ‘*to reduce interference*’ as required by claim 1.” Prelim. Resp. 24. Patent Owner does not provide a citation to the prosecution history in support of this proposition, and the assertion is in contrast to Patent Owner’s Section 325(d) argument that Garg is *cumulative* of art that was before the Examiner. *See* Prelim. Resp. 14–19.

receives equal strength signals from each mobile.” *Id.* at 24–25. Patent Owner argues that those purposes are not for interference adjustment. *See id.* Patent Owner also argues that “Garg’s only other stated purpose for its power adjustments is to counter environmental changes caused, for example, by fading,” and “to the extent Garg’s power adjustments are also made for purposes of countering fading, such adjustments are not made ‘in order to reduce interference’ within the scope of claim 1.” *Id.* at 26–27.

Even if Patent Owner’s characterizations of Garg are correct and Garg discloses certain intended purposes, Patent Owner does not address Petitioner’s contentions and evidence that Garg also discloses Garg’s power control being performed in a way to reduce interference. *See, e.g.*, Pet. 39 (Petitioner contending that “[t]he purpose of the power control subchannel is to minimize the amount of power required to achieve adequate communications, which reduces interference.” (citing Ex. 1004, 181–182, 196, 199, 202–206)); *see also, e.g.*, Ex. 1004, 196 (“The transmit power from each mobile must be controlled to limit interference.”); Ex. 1003 ¶ 213 (Dr. Shoemake testifying that Garg’s power control is used to reduce interference). We find that Petitioner has demonstrated a reasonable likelihood of proving that Garg discloses the “in order to reduce interference” recitations of claim 1.

Patent Owner also argues that Garg’s power control bits are not the recited “information indicative of a power level at which a variable power transmitter of an associated device should be set in order to reduce interference.” Prelim. Resp. 27–30. Specifically, Patent Owner argues that “Garg’s ‘power control bits’ specify a binary value that indicates a relative

increase or decrease in power level” and are incremental values that do not indicate the power level at which the associated device should be set. *Id.* at 28–30. Patent Owner contends that, “[d]uring prosecution, the Applicant made clear that the claims are not directed to relative values based on another power level—the claims require an actual power level to be indicated in the transmitted signal.” *Id.* (citing Ex. 1002, 895). We disagree with Patent Owner’s argument that the applicant “made clear” that the claim phrase has the limited meaning Patent Owner now proposes or that the plain meaning of the phrase excludes Garg’s power control bits. Patent Owner seemingly argues that Garg would have met the claim language prior to amendment and then makes the conclusory argument that Garg does not meet the claim language in its current form. *See* Prelim. Resp. 28–29 (“Such a ‘level of attenuation’ is a difference value, as in Garg, but is not the ‘*power level at which a variable power transmitter of an associated device should be set,*’ as required by issued claim 1.”). On the present record, we determine that Petitioner has demonstrated a reasonable likelihood of proving that Garg’s power control bits are “indicative of a power level at which a variable power transmitter of an associated device should be set” as recited in claim 1. *See, e.g.,* Ex. 1003 ¶ 215 (Dr. Shoemaker opining that “the power control bits are ‘information indicative of a power level,’ because they indicate the amount that the mobile station’s transmit power level should be adjusted.”). The parties may develop this issue further during the trial, and we specifically are interested in hearing the parties’ position on how intrinsic evidence, and particularly the Specification of the ’132 patent, informs the proper construction of this aspect of the claim language.

d. Conclusion as to Independent Claim 1

Having considered the parties' arguments and evidence, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in its challenge to claim 1 as being anticipated by or rendered obvious over Garg.

3. Dependent Claim 3

Claim 3 depends directly from independent claim 1 and recites that "the apparatus is operable to transmit at the maximum power level, regardless of the selected power level, the signal with information indicative of a power level." Ex. 1001, 43:34–36. Petitioner (Pet. 42) points to Garg's disclosure that "[t]he power control bits are always transmitted at full power." Ex. 1004, 123. Patent Owner does not separately dispute Petitioner's arguments with respect to this dependent claim.

On the current record, we determine Petitioner presents sufficient evidence to establish a reasonable likelihood it would prevail in showing that dependent claim 3 is anticipated by or rendered obvious over Garg.

*F. The Alleged Obviousness of Claims 1 and 3
Over Larsson, Okamoto, and 802.11-1999*

Petitioner alleges that claims 1 and 3 would have been obvious over Larsson, optionally with Okamoto, and/or 802.11-1999. Pet. 42–66; *see id.* at 6 (Petitioner identifying the challenge as based on "Larsson . . . alone or in view of 802.11-1999 . . . and/or Okamoto.").

1. Larsson (Ex. 1007)

Larsson pertains to "the field of wireless communications, in particular to transmit power control and link adaptation techniques and mechanisms." Ex. 1007, 1:8–10.

In accordance with an exemplary embodiment of the invention, a method for closed loop link adaptation based on a Request To Send-Clear To Send (RTS-CTS) channel access

scheme includes the following steps. Designating a station as an originating station. Transmitting a RTS frame with predetermined transmit power from an originating station, prior to an intended DATA transmission, sounding the channel such that reception characteristics can be evaluated at a designated receiving station. Transmitting, in response to the originating station, a CTS frame with a predetermined transmit power from the receiving station with directives of link adaptations. Transmitting a DATA frame from the originating station to the receiving station frame complying with link adjustment directives to the extent of the originating stations capabilities. Transmitting an acknowledge (ACK) frame in response to the originating stations from the receiving station indicating result of DATA frame reception.

Id. at 7:12–24.

Larsson's Figure 7 is reproduced below.

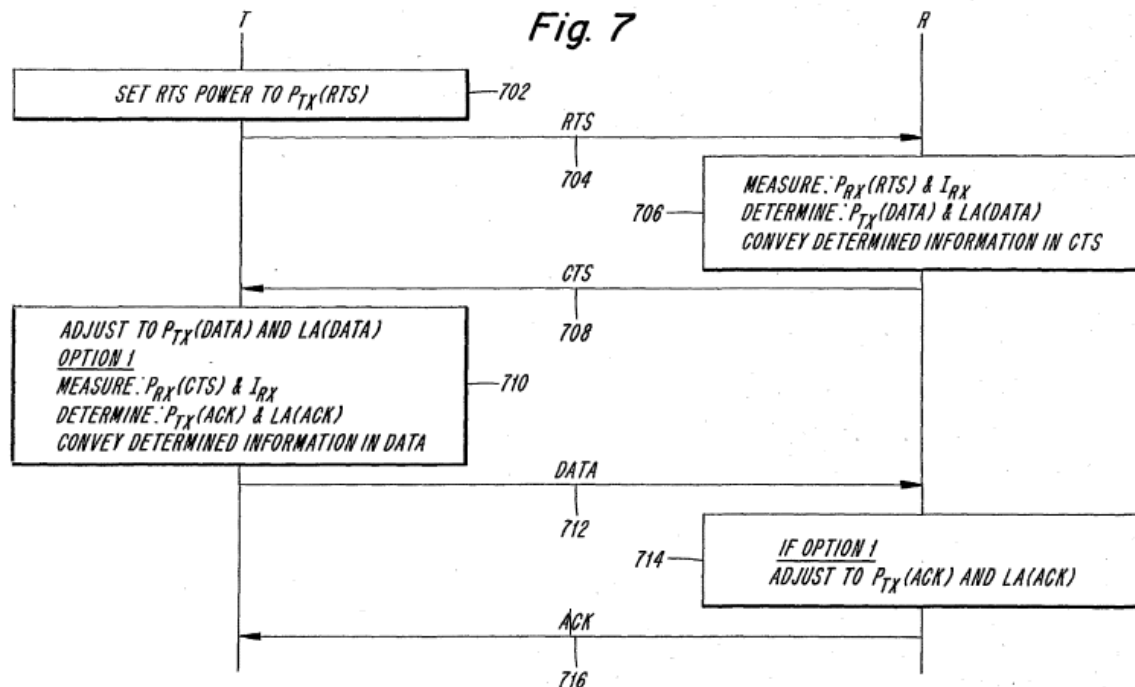


Figure 7 depicts “an example of Joint TPC [(transmit power control)] and LA [(link adaptation)] on DATA with an optional extension to ACK.” *Id.* at 10:8–10.

Larsson explains that:

[E]ach node or station receiving an RTS message assesses preferably the instantaneous carrier to interference ratio, CIR, and other channel parameters of choice. Subsequently, a desired reduction or increase of transmit power used for the RTS frame is determined. A relative transmit power adjustment request $P_{TX_Request}$ is then conveyed in the CTS message back to the originating station. The originating station adjusts the transmit power level accordingly for the subsequent DATA frame transmission. The same procedure is repeated for the ACK, i.e., the originating station conveys a corresponding transmit power adjustment request targeted for the ACK.

Id. at 17:11–19.

Larsson also explains that, “[a]s the bulk interference comes (or should come) from data transmission, a very tight instantaneous TPC and LA reduces the generated interference to a bare minimum.” *Id.* at 35:10–12.

2. *Okamoto (Ex. 1019)*

Okamoto is a book that describes the IEEE 802.11 wireless LAN standard and certain details thereof. *See, e.g.*, Ex. 1019, 17–18, 46–47⁷.

3. *802.11-1999 (Ex. 1016)*

802.11-1999 is the 1999 edition of the Institute of Electrical and Electronics Engineers (IEEE) standard that specifies “[t]he medium access control (MAC) and physical characteristics for wireless local area networks (LANs).” Ex. 1016, 3 (Abstract).

⁷ For Okamoto, we, like Petitioner, cite to the page numbers of the underlying document rather than the exhibit page numbers.

4. Petitioner's Contentions—Claim 1

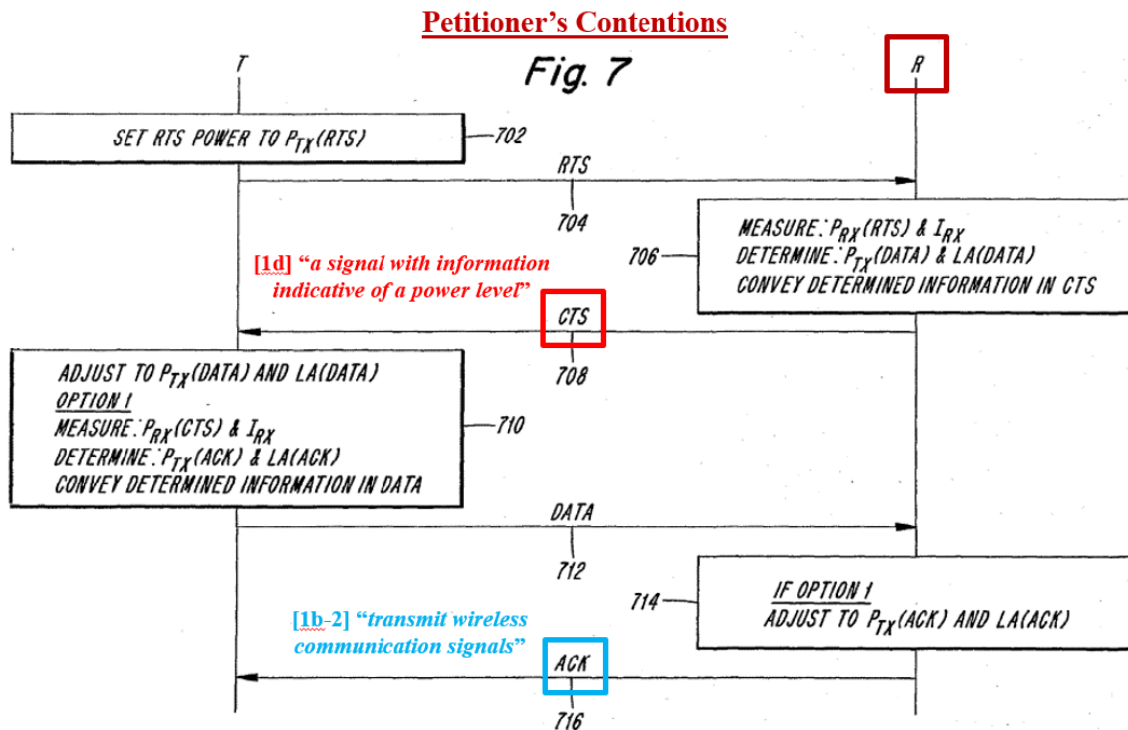
Petitioner contends that Larsson discloses most of the limitations of the challenged claims except that Larsson does not expressly disclose a variable power transmitter and corresponding control circuitry. Pet. 42. Petitioner further contends that those features would have been obvious in light of Larsson alone and also would have been obvious in light of Okamoto and/or 802.11-1999. *Id.* at 42–43. Petitioner, in explaining its reasoning why a person of ordinary skill in the art would combine the references' teachings, contends that “Larsson expressly refers the reader to Okamoto and 802.11-1999 for relevant 802.11 teachings and a POSITA would be motivated to use those teachings with Larsson's system.” *Id.* at 43 (citing Ex. 1003 ¶ 224; Ex. 1007, 3:5–9); *see also, e.g., id.* at 47 (“[I]n describing WLAN operations, Larsson refers the reader to Okamoto and 802.11-1999. . . . Thus, a POSITA considering how to configure/operate Larsson's stations would be motivated to consult, and would consult, these references.”).

Patent Owner argues that Larsson does not disclose the two signals recited in claim 1 and does not disclose transmitting a signal with information indicative of a power level to an “associated device.” *See* Prelim. Resp. 33, 41.

Petitioner contends that Larsson discloses the two signal limitations (1b-2 and 1d) in at least three ways. Pet. 49–62.

The First Way

Reproduced below is an annotated version of Larsson.



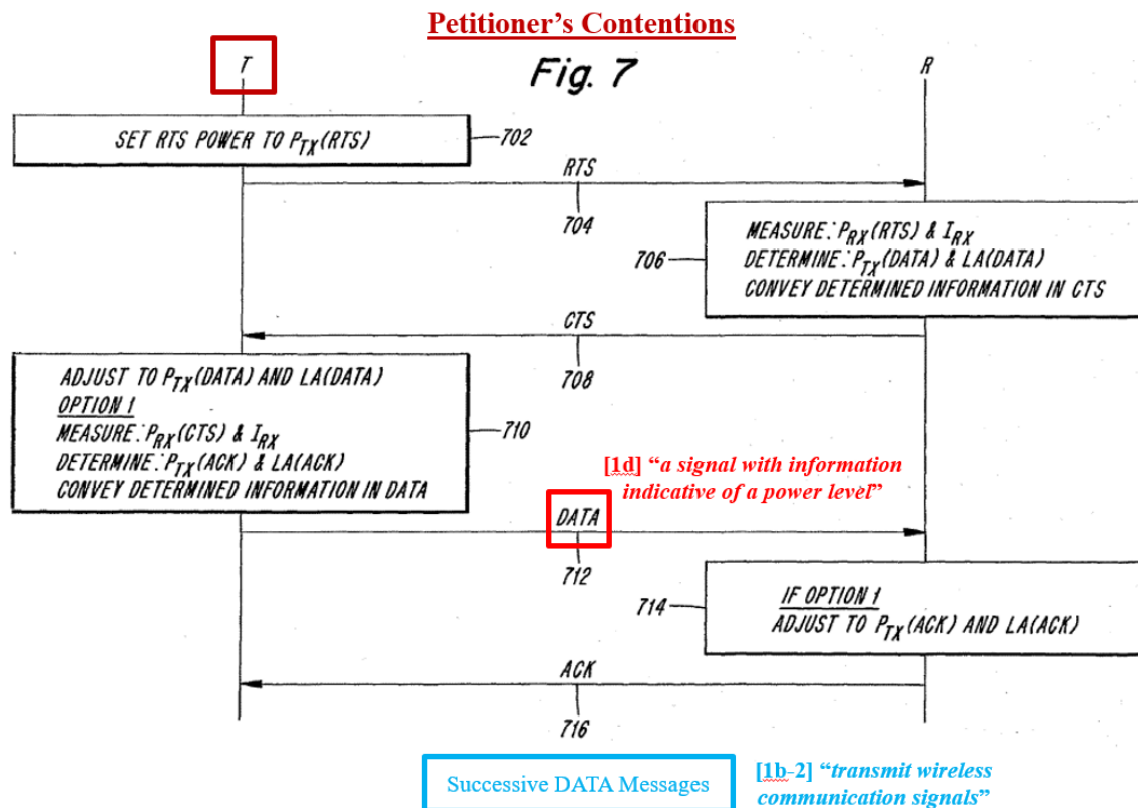
EX1007, FIG. 7 (annotated).

Above is Larsson's Figure 7 as annotated by Patent Owner to depict Petitioner's contentions as to the first way that Larsson discloses the signal limitations of independent claim 1. *See* Prelim. Resp. 35. As shown, Petitioner contends that Station R is the claimed apparatus that transmits a CTS message with "information indicative of a power level" of limitation 1d and an ACK message, which Petitioner maps to the recited "wireless communication signals" of limitation 1b-2. Pet. 49. Petitioner contends that Larsson discloses that "Station R receives the RTS message [from station T], measures $P_{TX}(RTS)$ [(the transmit power of the RTS message)] and I_{RX} (the current interference conditions) and uses this information to determine $P_{TX}(DATA)$, i.e., what power station T should use when transmitting a DATA message." *Id.* at 49–50 (citing Ex. 1007, 18:6–24, 19:20–27). Petitioner further contends that a person of ordinary skill in the art "would

recognize that Larsson discloses the power level at which station T should send the DATA message ‘in order to reduce interference.’” *Id.* at 50 (citing Ex. 1003 ¶¶ 237–238; Ex. 1007, 17:11–23, 18:22–24, 35:3–17). Petitioner also contends that Larsson discloses that the selected power level of the ACK message is repeatedly adjusted in order to avoid interference. *Id.* at 63 (citing Ex. 1003 ¶¶ 255–257); *see also id.* at 64 (“As discussed in §X.F, Larsson further discloses that stations T and R repeatedly adjust the transmit power levels of the DATA messages and ACK messages, respectively.”).

The Second Way

Reproduced below is an annotated version of Larsson.



EX1007, FIG. 7 (annotated).

Above is Larsson’s Figure 7 as annotated by Patent Owner to depict Petitioner’s contentions as to the second way that Larsson discloses the

signal limitations of independent claim 1. *See* Prelim. Resp. 36. As shown, Petitioner contends that Station T is the claimed apparatus that transmits a DATA message to Station R. Pet. 54. Petitioner further contends that “Station T may also optionally determine $P_{TX}(ACK)$, i.e., the transmission power level that station R should use when transmitting the ACK message, by measuring $P_{TX}(CTS)$ and I_{RX} [(the current interference conditions)] . . . [and w]hen this optional step is done, the DATA message sent to station R includes $P_{TX}(ACK)$, i.e., the power level at which station R should send the ACK message.” *Id.* at 54–55 (citing Ex. 1007, 19:8–13, 20:2–5, 34:1–15, Figs. 7, 15; Ex. 1003 ¶¶ 245–246). According to Petitioner, when station T sends such a DATA message, it is transmitting a “signal with information indicative” as recited in limitation 1d. *Id.* at 56. Petitioner further contends that a person of ordinary skill in the art would know that, in some circumstances, station T would send successive DATA messages, and contends that “[t]he successive DATA messages meet the requirements of limitation [1b-2] because they are transmitted ‘wireless communication signals at a selected power level.’” *Id.* at 56–57.

The Third Way

Petitioner contends that “Larsson also discloses limitations [1b-2] and [1d] in a third way, if Patentee’s implicit claim construction is adopted.” Pet. 57. Petitioner asserts that Patent Owner’s infringement contentions in the district court litigation indicate that Patent Owner is implicitly construing limitation [1d] (the “signal with information indicative”) as being “met by a signal that includes information that an associated device can use to

calculate its own transmit power level.” *Id.* at 57–58 (citing Ex. 1020, 7–8) (emphasis omitted). Petitioner argues that “[s]uch a reading is improper.” *Id.* at 58.

Patent Owner responds that “Petitioner’s argument is based on an incorrect interpretation of Patent Owner’s infringement contentions in the parallel litigation. . . . The recited ‘information indicative of a power level’ need not take on any particular form or preclude some processing of the ‘information’ by the receiving device.” Prelim. Resp. 39.

Because Petitioner’s Third Way is offered in the alternative and based upon a claim construction not advocated by either party, we do not discuss the Third Way further in this decision.

5. Patent Owner’s Arguments

Signals

Patent Owner offers an implied proposed construction of Petitioner’s proposed construction of the “signal” limitations, and argues that Petitioner’s mapping of the references’ features to the recited signals fails to meet Petitioner’s own construction. *See* Prelim. Resp. 33–34. Although Patent Owner acknowledges that Petitioner’s proposed construction is that “limitations [1b-2] and [1d] require two *different* ‘signals,’” Patent Owner, without sufficient explanation, characterizes Petitioner’s position as “these signals must be *separate* from each other.” *Id.* at 34 (citing Pet. 10–12) (emphasis added).

As mentioned above, Petitioner, for the First Way, maps the ACK message to the recited “wireless communications signals” (limitation 1b-2) and the CTS message to the “signal with information indicative” (limitation 1d). *See* Pet. 49. We view this as consistent with Petitioner’s contention that the subject limitations require different signals. For the Second Way,

we similarly regard Petitioner’s mapping of the two signal limitations, respectively, to a DATA message and to subsequent DATA messages to be consistent with Petitioner’s assertion that the recited signals must be different.

Patent Owner asserts that, under Petitioner’s theories, the transmit power control (TPC) data is mapped to the “signal with information indicative” and is included in every frame, including successive DATA and ACK frames. Prelim. Resp. 36–37. Patent Owner argues that, therefore, “Larsson’s stations do not send ‘wireless communication signals’ **separate from** ‘a signal with information indicative of a power level at which a variable power transmitter of an associated device should be set in order to reduce interference.’” *Id.* at 37.

We disagree with Patent Owner’s argument. Patent Owner does not provide sufficient evidence or support for the implied position that the recited “variable power transmitter operable in response to the control circuitry to transmit wireless communication signals” (limitations 1b-1 and 1b-2) is limited such that those signals cannot also include “information indicative of a power level.”

Associated Device

Limitation 1d recites “[a variable power transmitter operable in response to the circuitry] to transmit a signal with information indicative of a power level at which a variable power transmitter of *an associated device* should be set in order to reduce interference.” Ex. 1001, 43:15–16, 43:20–23 (emphasis added).

Patent Owner asserts that Petitioner’s theories rely on messages transmitted between two stations, namely Larsson’s stations R and T.

Prelim. Resp. 42. Patent Owner argues this situation fails to satisfy the claim requirements because the challenged claims are limited to transmissions between formally associated stations and access points, not between two stations. *Id.* at 41–42. According to Patent Owner:

The '132 patent consistently uses the term “*associated device*” to refer to an association between a station (STA) and an access point (AP). As disclosed by '132 patent, STAs formally “associate” with and AP to “allow them to receive messages from invention enabled APs.” . . . Importantly, the '132 patent does disclose any association process performed between two stations or two access points. Therefore, in the context of the '132 patent, neither two stations nor two access points are considered “*associated device[s]*.”

Id. at 41–42 (citing Ex. 1001, 4:22–34, 5:55–57, 6:5–9, 6:32–39, 18:58–61, 19:12–14, 36:31–40) (second alteration in original).

We do not agree with Patent Owner’s argument. Claim 1 is an apparatus claim and that apparatus is a transmitter device having control circuitry. Claim 1 does not require structure in the form of “an associated device.” Rather, claim 1 calls for circuitry and a transmitter that is *operable* to transmit a particular signal to an associated device. Even if Larsson does not disclose actually transmitting such a signal to an “associated device,” Patent Owner does not indicate, for example, how the claimed circuitry would differ from that of the proposed combination. Additionally, Patent Owner does not provide sufficient evidence or support that the recited “associated device” should be limited by the Specification’s description. *Cf. Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (“[T]his court has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment. . . . Even when the specification describes

only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using ‘words or expressions of manifest exclusion or restriction.’”).

At this stage of the proceeding, we determine that Petitioner has demonstrated a reasonable likelihood of proving that the combination of Larsson, Okamoto, and 802.11-1999 discloses or suggests “a variable power transmitter operable in response to the circuitry . . . to transmit a signal with information indicative of a power level at which a variable power transmitter of an associated device should be set in order to reduce interference.”

6. Conclusion as to Independent Claim 1

Having considered the parties’ arguments and evidence, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in its challenge to claim 1 as being obvious over Larsson, Okamoto, and 802.11-1999.

7. Claim 3

Dependent claim 3, as mentioned, recites that the transmitter is operative to transmit at maximum power the signal with information indicative of a power level. Ex. 1001, 43:34–37. Petitioner contends that Larsson discloses that the messages mapped to the “signal with information indicative,” the CTS and DATA messages, may be transmitted at maximum power. Pet. 66 (citing Ex. 1003 ¶¶ 258–260; Ex. 1007, 14:24–15:4, 17:23–26). Patent Owner does not separately dispute Petitioner’s arguments with respect to these claims.

We determine Petitioner presents sufficient evidence to establish a reasonable likelihood it would prevail in showing that claim 3 would have been obvious over Larsson, Okamoto, and 802.11-1999.

G. The Alleged Obviousness of Claims 1 and 3 Over Zweig and Klein

Petitioner alleges that claims 1 and 3 would have been obvious over Zweig and Klein. Pet. 67–82. Petitioner contends that Zweig discloses all the limitations of independent claim 1 except for that pertaining to the “signal with information indicative of a power level.” *Id.* at 67. Petitioner relies on Klein for that feature. *Id.*

Patent Owner argues that Petitioner has failed to set forth an adequate reason to combine the references’ teachings and that the proposed combination lacks the recited “information indicative of a power level at which a variable power transmitter of an associated device should be set in order to reduce interference.” Prelim. Resp. 45–46, 50.

Petitioner, referring to limitation 1c, contends that Zweig repeatedly adjusts access point power levels to reduce interference in three ways. Pet. 79 (citing Ex. 1003 ¶¶ 264–267); *see also id.* at 68–70. Those three ways appear to be separate and distinct embodiments. For example, the portion of Zweig cited for Petitioner’s first way begins: “Referring now to FIG. 8, a fourth exemplary embodiment of the protocol followed to adjust the communication range of an AP is shown.” Ex. 1005, 6:17–19; *see also* Pet. 68–69 (citing, for the first way, Ex. 1005, 6:17–36). The second way is “[r]eferring now to FIG. 6, a second exemplary embodiment of the protocol followed to automatically adjust the coverage distance during communications between an AP and a wireless unit (WU).” Ex. 1005, 5:34–37; Pet. 69–70 (citing, for the second way, Ex. 1005, 5:34–64). And, the third way is “[r]eferring now to FIG. 7, a third exemplary embodiment of the protocol followed to dynamically adjust the coverage distance during communications between multiple devices.” Ex. 1005, 5:65–6:1; Pet. 70 (citing, for the third way, Ex. 1005, 5:65–6:16).

In a similar fashion, Petitioner offers “several reasons” why a person of ordinary skill would have been motivated to include power data in Zweig’s beacon transmission. *See* Pet. 71; *id.* at 71–74 (explicitly identifying three reasons). It appears that some proffered reasons may be specific to one of the three ways that Petitioner applies to limitation 1c. *See, e.g., id.* at 73 (“Third, and as it relates to Zweig’s FIG. 8 embodiment . . .”).

Thus, Petitioner has merged into one ground at least three different theories. In doing so, Petitioner has not set forth a coherent, comprehensive, and readily discernable articulation of a single theory with a proposed combination that addresses all the claim limitations and with a reason why a person of ordinary skill in the art would have made that particular combination.

At this stage of the proceeding, we determine that Petitioner has not demonstrated a likelihood of prevailing on its challenge to claims 1 and 3 as obvious over Zweig and Klein.

III. CONCLUSION

Petitioner has demonstrated a reasonable likelihood of prevailing in showing the unpatentability of at least one of the challenged claims of the ’132 patent. At this stage of the proceeding, we have not made a final determination with respect to the patentability of any of the challenged claims.

IV. ORDER

For the foregoing reasons, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1 and 3 of the ’132 patent is instituted with respect to all grounds of unpatentability 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 '132 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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Patent 8,725,132 B1

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