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Paper 36
Date: April 1, 2025

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.

IPR2021-00563
Patent 8,195,216 B2

Before KEVIN F. TURNER, MICHELLE N. WORMMEESTER, and RUSSELL E. CASS, *Administrative Patent Judges*.

TURNER, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision on Remand
Determining All Challenged Claims Unpatentable
35 U.S.C. §§ 314, 318

I. INTRODUCTION

This case is on remand from the United States Court of Appeals for the Federal Circuit ("Federal Circuit") to address the patentability of claim 9 of U.S. Patent No. 8,195,216 B2 (Ex. 1001, "the '216 Patent"), where that Court affirmed-in-part and vacated-in-part the Final Written Decision (Paper 25) in this proceeding, and remanded for further proceedings. *Koninklijke Philips N.V. v. Quectel Wireless Sols.*, No. 2023-1896, 2024 WL 3983189 (Fed. Cir. Aug. 29, 2024) (Paper 30; "Fed. Cir. Dec."). Subsequently, the mandate for the Federal Circuit's decision issued October 7, 2024. For the reasons discussed herein, we determine that Petitioner has shown, by a preponderance of the evidence, that claim 9 is unpatentable.

A. Procedural Background

Quectel Wireless Solutions Co. Ltd. ("Petitioner") filed a Petition (Paper 2, "Pet.") requesting institution of *inter partes* review of claim 9 of the '216 Patent. Pursuant to 35 U.S.C. § 314(a), we instituted *inter partes* review on the ground of:

Claim Challenged	35 U.S.C. §[1]	References
9	103(a)	Agin,[2] Chen[3]

See Pet. 1; Paper 7 ("DI"), 27. Petitioner relied upon a Declaration of Zhi Ding, Ph.D. (Ex. 1003).

[1] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103. Because the effective filing date of the '734 Patent is before March 16, 2013 (the effective date of the relevant amendment), the pre-AIA version of § 103 applies. *See* Ex. 1001, codes (60), (63).

[2] U.S. Patent No. 6,337,988 B1, filed June 22, 1999, issued January 8, 2002 (Ex. 1004, "Agin").

[3] U.S. Patent No. 6,512,925 B1, filed December 3, 1998, issued January 28, 2003 (Ex. 1005, "Chen").

Patent Owner, Koninklijke Philips N.V., filed a Patent Owner Response (Paper 12, "PO Resp."), along with a Declaration of Dr. Charles Jackson (Ex. 2001) to support its positions. Petitioner filed a Reply (Paper 14, "Pet. Reply") to the Patent Owner Response, along with a second Declaration by Dr. Ding (Ex. 1111). Patent Owner filed a Sur-reply to Petitioner's Reply (Paper 16, "PO Sur-reply"). An oral hearing was held on June 17, 2022, with a transcript of the hearing included in the record. Paper 24 ("Tr.").

On September 13, 2022, we issued a Final Written Decision, determining that Petitioner had shown, by a preponderance of the evidence, that claim 9 of the '216 Patent was unpatentable. Paper 25 ("FWD"). On October 13, 2022, Patent Owner filed a Request for Rehearing (Paper 26, "Reh'g Req.") seeking reconsideration of the FWD, where that request for rehearing was subsequently denied on March 7, 2023 (Paper 27, "Reh'g Denial").

Thereafter, on May 5, 2023, Patent Owner filed its Notice of Appeal to the Federal Circuit (Paper 28), and the Federal Circuit, on August 29, 2024, affirmed-in-part and vacated-in-part the FWD, and remanded for further proceedings. Fed. Cir. Dec. 12. The Federal Circuit determined that 1) "the Board thus did not err by not providing a construction of 'offset'" (*id*. at 5); 2) "[s]ubstantial evidence supports the Board's finding that Agin teaches the claimed 'offset'" (*id*. at 6); 3) "[s]ubstantial evidence supports the Board's determination that a skilled artisan would have been motivated to combine Agin and Chen" (*id*. at 11); and 4) "[s]ubstantial evidence supports the Board's finding [that the combination of Agin and Chen discloses the claimed 'means for determining the offset']" (*id*. at 12). In

contrast, the Federal Circuit determined the Board erred in "[failing] to address [Patent Owner's] argument as to how Agin's system would adjust the initial transmission following an interruption without having received any power control commands during the interruption." *Id*. at 8.

After the Federal Circuit issued its mandate on October 7, 2024, we requested briefing on October 31, 2024, specifically addressing the issues that must be decided to reach a conclusion on the patentability of claim 9 of the '216 patent. Paper 31 (Order, Conduct of the Proceeding). The parties then filed the following briefs: Petitioner's Brief on Remand (Paper 33, "Pet. Remand Br."), Patent Owner's Brief on Remand (Paper 32, "PO Remand Br."), Petitioner's Responsive Brief on Remand (Paper 35, "Pet. Remand Resp. Br."), and Patent Owner's Response Brief on Remand (Paper 34, "PO Remand Resp. Br.").

B. The '216 Patent

The '216 Patent is directed to a radio communication system that includes base stations (BSs) and mobile stations (MSs) that perform bi-directional communication to exchange two types of information, such as a Universal Mobile Telecommunications System (UMTS) or a system that uses Code Division Multiple Access (CDMA). Ex. 1001, 1:8–19, 42–45. The first type of communication includes user traffic (e.g., speech, packet data), and the second type includes "control information [used] to set and monitor various parameters of the transmission channel" to enable power control. *Id*. at 1:17–25. A station can determine any required changes in power transmission and signal these changes to the opposite station, such that the BSs receive signals "at approximately the same power level, while minimi[z]ing the transmission power required by each MS," and enable the

MSs to receive signals "with a low error rate while minimi[z]ing transmission power, to reduce interference with other cells and radio systems." *Id.* at 1:25–33.

In the Background section of the '216 Patent, it details that in prior systems, the transmission power was increased or decreased by some power-control step size (e.g., 2dB-step) until the transmission power of the signals successfully converged. Ex. 1001, 1:38–52. That same section also details that, for those systems, "at the start of a transmission, or after the transmission is interrupted, the power control loops may take some time to converge satisfactorily," whereby transmitted data may be received in a corrupted state if the power level is too low, or extra interference is generated if the power level is too high. *Id.* at 1:46–52.

To offset those disadvantages, the '216 patent discloses that the system may "set[] the initial transmission power after a pause in transmission to that before the pause adjusted by an offset." Ex. 1001, 2:36–38. "The offset may be predetermined" or "[a]lternatively it may be determined from the difference between the last transmission power and a weighted average of the transmission power over a period (possibly predetermined) before the pause in transmission, or may be determined from a weighted sum of the power control commands applied before the pause in transmission." *Id.* at 2:39–46. The '216 patent describes that "[a] suitable averaging period would depend on particular conditions but could be of the order of 20 slots (i.e. 20 power control cycles)." *Id.* at 5:21–23. The '216 Patent also details embodiments that set a power control step size initially to a large value after an interruption, "then reduce it progressively until it reaches the value set for normal operation." *Id.* at 4:30–37.

C. Challenged Claim

Claim 9 is the sole claim challenged in this proceeding, and is reproduced below:

> 9. [9.p] A secondary station for use in a radio communication system having a communication channel between the secondary station and a primary station, the channel including an uplink and a downlink control channel for transmission of control information, including power control commands, and a data channel for the transmission of data, the secondary station comprising:
>
> [9.a] power control means for adjusting the power of the uplink control and data channels in response to the downlink power control commands;
>
> [9.b] means for setting an *initial transmission power* after an interruption in transmission to that before the interruption adjusted by an *offset*; and
>
> [9.c] means for determining the offset from a difference between a last transmission power and a weighted average of the transmission power over a predetermined period before the interruption in transmission.

Ex. 1001, 8:44–60 (with annotations from Patent Owner's Response, *see* PO Resp. 16–17; with emphases added by the Federal Circuit, Fed. Cir. Dec. 5).

D. Issues on Remand

As part of our Final Written Decision, we determined that:

> We agree with Petitioner in terms of the initial transmission power. Both parties agree that Agin's power control command instructs the MS regarding the step size for increasing or decreasing power after the interruption. As we stated in our Institution Decision, "[i]t is logical that the MS and BTS not only communicate about a change in transmission power but also utilize signals at that transmission power to accomplish their communication. *See* Ex. 1004, 1:19–48." [DI] 16. We are persuaded that one of ordinary skill in the art would have interpreted Agin as setting an initial transmission power after an

> interruption in transmission to that before the interruption adjusted by a step size.

FWD 17–18. The Federal Circuit characterizes Patent Owner's arguments as "Agin's system cannot possibly adjust its initial transmission following an interruption by a step size . . . since it does not receive [a] power control command during the interruption," and, as "[p]ut another way 'Agin could not possibly apply a step size adjustment to the initial transmission [after an interruption], because Agin's closed loop power control algorithm requires receipt of a power command for the mobile station to know whether to increase or decrease its power.'" Fed. Cir. Dec. 8. The Federal Circuit details that the Board "failed to address [Patent Owner's] argument as to *how* Agin's system would adjust the initial transmission following an interruption without having received any power control commands during the interruption. *Id*.

We have jurisdiction under 35 U.S.C. § 6. We issue this Final Written Decision on Remand pursuant to 35 U.S.C. § 328(a) and 37 C.F.R. § 42.73. For the reasons discussed below, we conclude that Petitioner has shown, by a preponderance of the evidence, that claim 9 of the '216 Patent is unpatentable.

II. ANALYSIS

A. Principles of Law

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden of persuasion never

shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

> As set forth in 35 U.S.C. § 103(a),
>
> > [a] patent may not be obtained . . . 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.

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 ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness.[4] *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). An obviousness analysis "need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007); *accord In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). However, Petitioner cannot satisfy its burden of proving obviousness by employing "mere conclusory statements." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Instead, Petitioner must articulate a reason why a person of ordinary skill in the art would have combined the prior art references. *In re NuVasive, Inc.*, 842 F.3d 1376, 1382 (Fed. Cir. 2016).

[4] Neither party presents evidence of objective considerations of non-obviousness.

We analyze the asserted ground of unpatentability in accordance with these principles to determine whether Petitioner has met its burden of establishing unpatentability of the challenged claim by a preponderance of the evidence.

B. Level of Ordinary Skill in the Art

Petitioner, supported by Dr. Ding's testimony, proposes that a person of ordinary skill in the art at the time of the invention would have had "at least a Bachelor's degree in computer science, electrical engineering, computer engineering, or a related field, with 2-3 years of experience in wireless communication systems." Pet. 5 (citing Ex. 1003 ¶ 25). Patent Owner does not dispute Petitioner's identification of the level of skill in the art. PO Resp. 17.

As such, we continue to adopt and apply Petitioner's unopposed position as to the level of ordinary skill in the art for purposes of this decision. *See* DI 5; FWD 6.

C. Claim Construction

In this *inter partes* review, "claims are construed using the same claim construction standard that would be used to construe the claim[s] in a civil action under 35 U.S.C. § 282(b)." *See* 37 C.F.R. § 42.100(b) (2019). The claim construction standard includes construing claims in accordance with their ordinary and customary meaning as understood by one of ordinary skill in the art at the time of the invention. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc). In construing claims in accordance with their ordinary and customary meaning, we take into account the specification and prosecution history. *Phillips*, 415 F.3d at 1315–17. The specification is the single best guide to the meaning of a disputed term

and is usually dispositive. *Id.* at 1315 (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

In the Institution Decision, we discussed the interpretation of the certain claim terms, including "interruption in transmission," as well as "means-plus- function" elements of claim 9. DI 6–8. In the Final Written Decision, we considered whether the preamble of claim 9 should be determined to be limiting, the power control means in element [9.a], the limitation "interruption in transmission," contained in element [9.b], and the means for determining the offset contained in element [9.c]. FWD 6–11. To the extent applicable to the analysis below, we incorporate our discussions of the claim constructions of the elements of claim 9 herein. As discussed above, Patent Owner, on appeal, argued that we erred by failing to explicitly construe the term "offset" in claim 9, but the Federal Circuit disagreed, determining that we did not err by not providing a construction of "offset." Fed. Cir. Dec. 4–5.

D. Obviousness over Agin and Chen

Petitioner asserts that the combination of Agin and Chen would have rendered the subject matter of claim 9 obvious to one of ordinary skill in the art at the time of the invention. Pet. 13–28; *see also* Pet. Reply; Pet. Remand Br.; Pet. Remand Resp. Br. Patent Owner argues that the asserted prior art references fail to disclose all elements of claim 9, and that Petitioner has provided inadequate motivation for ordinarily skilled artisans to have combined the teachings of Agin and Chen. PO Resp. 24−60; *see also* PO Sur-reply; PO Remand Br.; PO Remand Resp. Br. We begin with brief discussions of the cited references, and then consider Petitioner's arguments with respect to the references' teachings applied to the instant

claims, as well as Patent Owner's arguments asserting deficiencies in this ground of unpatentability.

1. Agin

Agin relates to "[a] method for improving performances of a mobile radio communication system using a power control algorithm, wherein the system may be subject to transmission interruptions." Ex. 1004, code (57). Agin describes power control techniques used in radio communication systems, such as code division multiple access (CDMA) systems, including Universal Mobile Telecommunication Systems (UMTS). *Id*. at 1:9–18. Agin discloses that, in radio telecommunications, it was known that CDMA systems used two types of power control techniques: open-loop power control and closed-loop power control. *Id.* at 1:19–30. Agin describes that "when transmission is resumed after a transmission interruption, said power control algorithm is implemented with at least one modified parameter, for a given duration, said at least one modified parameter and said given duration being determined so as to compensate for the effects of said transmission interruption on power control." *Id*. at 2:17–24. "More generally, the present invention enables to better compensate for the effects of such transmission interruptions on power control, thereby improving performances." *Id*. at 2:42–44.

Agin also discloses that its radio communication system utilizes primary and secondary stations, with a communication channel therebetween, including an uplink and a downlink control channel for transmission of control information, including power control commands, as well as a data channel. Ex. 1004, 6:61–7:3, 8:35–39. The system also has a means for setting an initial transmission power after an interruption in

transmission to that before the interruption adjusted by an offset. *Id.* at 7:4–32. That process is illustrated in Agin's Figure 2, reproduced below:

FIG_2 PRIOR ART

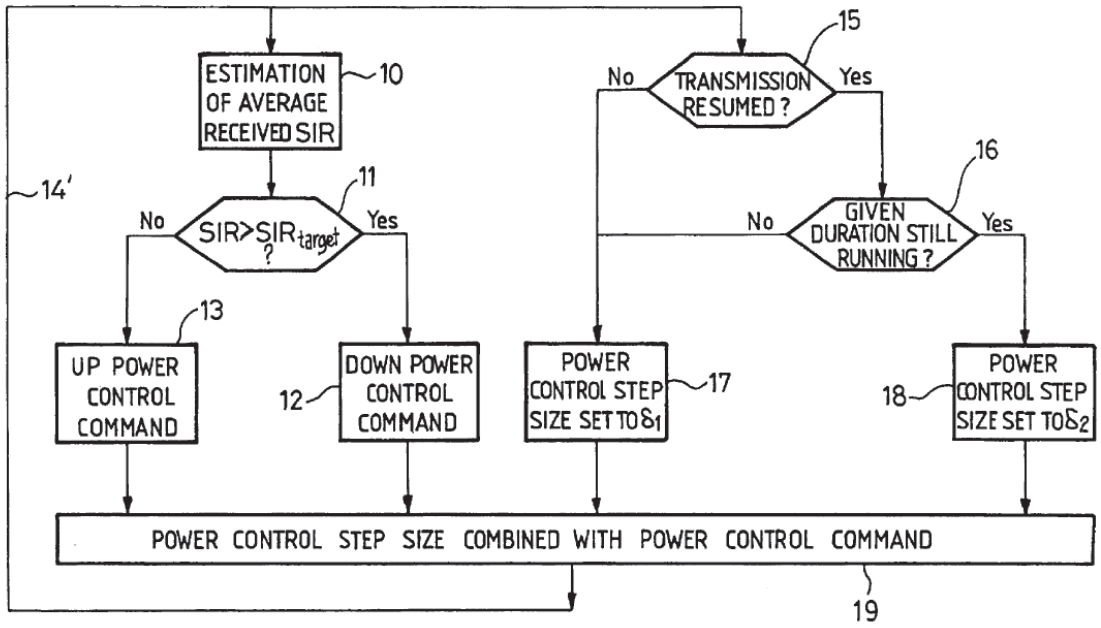

Figure 2 of Agin illustrating a closed loop power control process

Agin describes setting the power control step size to "$\delta = \delta_1$" (step 17) or "$\delta = \delta_2$" (step 18), and at the same time, a determination is made whether to employ an up power control command (step 13) or a down power control command (step 12), and thereafter combined to obtain a resulting power control command (step 19), that is sent to the mobile station, instructing the mobile station to either increase or decrease its transmittal power level. Ex. 1004, 5: 31–38, 44–57.

2. Chen

Chen describes radio communications that implement a technique for "gating the transmission of signals in a wireless communication system," including CDMA systems. Ex. 1005, 1:10–25. Chen discloses that a

"useful method of power control of a mobile in a communication system is to monitor the power of the received signal from the mobile station at a base station," where the base station would monitor and transmit "power control bits to the mobile station at regular intervals." *Id.* at 2:27–34. Chen includes a base station controller that performs certain calculations for controlling the base stations' transmission power, such as determining the average transmission power to determine or estimate an average or "correct" quality indicator. *Id.* at 11:28–46. Chen describes "base station controller 2 computes a weighted average of the different transmit powers from base stations 4 and 6. Power control processor 12 computes the weighted average and sends this weighted average to base stations 4 and 6." *Id.* at 14:48–55.

3. Claim 9

a. Preamble

With respect to the preamble of claim 9, Petitioner asserts that Agin discloses a secondary station in the form of Agin's mobile station (MS), and a primary station in the form of base transceiver station (BTS). Pet. 20 (citing Ex. 1004, 1:14–30, 1:51–56). Petitioner asserts that those stations are used in a radio communication system, which may be of the CDMA or UMTS type. *Id*. (citing Ex. 1004, 1:14–30; Ex. 1003 ¶¶ 79–81). The radio communication system includes a communication channel between the secondary station and a primary station. *Id*. (citing Ex. 1004, 1:14–30; Ex. 1003 ¶ 81). Petitioner also asserts that Agin discloses that the channel includes uplink and downlink control channels for transmission of control information, including power control commands, as well as a data channel. *Id*. at 21 (citing Ex. 1004, 6:61–7:3, 8:6–52; Ex. 1003 ¶¶ 66, 82–84). Petitioner also asserts that Agin discloses that when transmission is resumed

after a transmission interruption, said power control algorithm is implemented. *Id*. (citing Ex. 1004, 2:17–23; Ex. 1003 ¶ 84).

Patent Owner does not raise any argument specifically addressing the preamble of claim 9. *See generally* PO Resp.; PO Sur-reply; PO Remand Br.; PO Remand Resp. Br. We are persuaded that Petitioner has shown by a preponderance of the evidence that Agin meets the limitations of the preamble of claim 9 for the reasons explained by Petitioner.

b. "power control means"

With respect to the "power control means," element [9.a], of claim 9, Petitioner asserts that Agin discloses adjusting power of uplink and data channels in response to downlink power control commands. Pet. 22 (citing Ex. 1004, 1:39–47, 3:17–20). Petitioner also asserts that Agin discloses means for determining a preferred form in which a power control algorithm should better be implemented when transmission is resumed after a transmission interruption. *Id*. (citing Ex. 1004, 4:12–16). Additionally, Petitioner asserts that Agin discloses that the means for determining the preferred form involves the method as disclosed in Figure 3 which describes "down" and "up" power control commands provided by the BTS to the MS. *Id*. at 23 (citing Ex. 1004, 6:29–7:3, Fig. 3).

Patent Owner does not raise any argument specifically addressing element [9.a]. *See generally* PO Resp.; PO Sur-reply; PO Remand Br.; PO Remand Resp. Br. We are persuaded that Petitioner has shown by a preponderance of the evidence that Agin meets the limitations of element [9.a] of claim 9 for the reasons explained by Petitioner.

c. "means for setting an initial transmission power"

i. Previously raised assertions and arguments

With respect to "means for setting an initial transmission power," element [9.b], Petitioner asserts that Agin discloses that "said preferred form may be determined as the preferred one among: at least one modified form, wherein at least one parameter of said power control algorithm is modified, for a given duration, when transmission is resumed." Pet. 23 (quoting Ex. 1004, 6:45–49, Fig. 3). Petitioner relies upon Agin's disclosure that a) the power control step size is set to $\delta = \delta 1$ if transmission is resumed after an interruption and if a duration T' is passed, where $\delta 1$ is a non-modified power control step size, and b) if transmission is resumed and the duration T' is still running, then $\delta = \delta 2$, where $\delta 2$ corresponds to a modified power control step size, in particular an increased power control step size, wherein $\delta 1$ or $\delta 2$ are combined with the "up" or "down" power control command to obtain a resulting power control command. *Id*. at 24 (citing Ex. 1004, 5:44–57). Petitioner also notes that Agin states that part or all of the aforementioned steps may be performed at the MS, where it was known to be advantageous to perform these steps at the MS to avoid an increase in the size of the corresponding power control messages to be sent to the MS. *Id*. (citing Ex. 1003 ¶ 91; Ex. 1004, 5:61–65).

Patent Owner previously argued that Petitioner's reliance on Agin to teach element [9.b] "is misplaced because it is premised on a failure to distinguish between '*initial transmission power* after an interruption. . . . adjusted by an *offset*' and a step size adjustment that is made after such 'initial' transmission has been resumed." PO Rep. 51–52 (emphasis in original). Patent Owner continues that Agin is silent as to what the power

level is upon resumption, it also says nothing about applying an "offset." *Id.* at 52–53.

Petitioner responded that Dr. Jackson agrees a person of ordinary skill in the art would have understood that the transmission power, to be adjusted by the step size of Agin, is the transmission power before the interruption. Pet. Reply 14 (citing Ex. 1112, 107:24–108:13). Also, with respect to the initial transmission power, Petitioner pointed out that the '216 Patent reflects the understanding of skilled artisans that "the state of the power control loop (e.g., current power level) may be retained from before the interruption." *Id.* (citing Ex. 1001, 4:59–5:2; Ex. 1111, ¶¶ 19–22).

With respect to the terms "step size" and "offset," Patent Owner previously argued that a person of ordinary skill in the art would have recognized the distinction between the terms, not only from the '216 Patent, but from how the terms were used in the field. PO Rep. 54–55; PO Sur-reply 5–7, 10–15. Patent Owner previously argued that "step size" is reflected in UMTS technical specifications, but should be contrasted with an "offset," which is applied to the initial transmission power on a one-time basis. *Id*. at 54 (citing Ex. 2006; Ex. 2001 ¶¶ 62–67). Patent Owner also cites to Dr. Jackson's testimony that the use of a variable step size after interruption is disclosed in one embodiment of the '216 Patent, but Patent Owner continues that one of ordinary skill in the art would have recognized that using a step size to adjust transmission power is not the same as applying an offset to an initial transmission power after an interruption. *Id*. at 12–13, 52–53 (citing Ex. 2001 ¶¶ 51–54 62–67, 154). Additionally, Patent Owner previously argued that the inventors of the '216 Patent recognized that the first transmission power after an interruption is different

from subsequent transmission powers, such that they distinguished the "start" of an interruption from "after" the interruption. PO Sur-reply 14.

Petitioner responded that the specification specifically teaches that an offset and a step size are related, such that a person of ordinary skill in the art would have understood that the offset can be expressed as a step size and is not necessarily distinct from a step size. Pet. Reply 6–7, 10 (citing Ex. 1001, 2:39–46; Ex. 1003 ¶¶ 38–40; Ex. 1111 ¶¶ 28–29). Additionally, Petitioner argued that the UMTS specification also provides that the change in the resume power is expressed as a factor of a minimum step size. *Id*. at 10–11 (citing Ex. 2006, 13). Petitioner also responded that, contrary to Patent Owner's arguments that an offset is a one-time change in quantity which is different from a step size, Dr. Jackson acknowledges that one of ordinary skill in the art would have understood that the step size value of an offset may be recursively computed every slot during uplink transmission. *Id*. at 11–12 (citing Ex. 1112, 84:12–85:4).

We agree with Petitioner, as we did in the Final Written Decision, and note that the Federal Circuit determined that substantial evidence supported the Final Written Decision's finding that Agin teaches the claimed "offset." FWD 18–19; Fed. Cir. Dec. 6. From the specification of the '216 Patent, the offset can be "quantised [sic] to an available power control step size before it is applied" (Ex. 1001, 2:45–46), such that if the offset is quantized to a single step size, it is not clear that it would be distinguishable from what Patent Owner insists are the separate concepts of offset and step size. *See also* Ex. 1001, 5:25–26 ("Optimum values of such offsets for particular circumstances could be determined empirically."). In other words, an offset applying a single step size alteration is not distinguishable from the

application of a step size. We are also not persuaded by Patent Owner's arguments that Agin treats the resumption of transmission differently from the rest of the transmission, where modifications of the transmit power level are disclosed to occur. *See* PO Resp. 26; Ex. 2001 ¶ 102. We find persuasive the testimony of Dr. Ding that Agin contemplates the application of a step size modification to the transmit power after interruption. *See* Ex. 1111 ¶¶ 35–39.

Patent Owner also previously argued that Petitioner's reliance on the prosecution history is misplaced, because although the examiner initially pointed to Agin as disclosing element [9b], he did not maintain that assertion in the relevant notice of allowance. PO Resp. 56–57. Petitioner responded that the examiner allowed claim 9 over Agin following Patent Owner's amendment to add the means for determining the offset, element [9.c], and that in the actual Notice of Allowance, where the examiner made remarks regarding Ali (U.S. Patent No. 5,896,411), that reference, Agin, was never applied against amended claim 9. Pet. Reply 16–17 (citing Ex. 1002, 408, 428–29, 444). Patent Owner replied that "the examiner withdrew [his prior] position," but even if that was not true, Patent Owner "never agree[d] or acquiesced to that position." PO Sur-reply 16.

We agree with Petitioner that an accurate interpretation of the prosecution history is that the examiner determined that Agin disclosed element [9.b]. *See* Ex. 1002, 408, 428–29, 444. Although we do not take the examiner's determination to be dispositive of whether Agin discloses element [9.b], it would be improper to ignore the evidence of the examiner's determination. Based on the discussion herein, we are persuaded that Petitioner has demonstrated that element [9.b] is taught by Agin.

Additionally, we have interpreted element [9.b] according to the structure disclosed in the specification. *See* FWD 7–9. The equivalent structure is the power control means 118, such that if the identified structure in Agin, namely the processor running the closed-loop power control algorithm (Pet. 23–25), is capable of performing that functionality, it would teach or suggest the subject element of claim 9. During the oral hearing, Patent Owner's counsel was questioned about a difference in structure between a controller that would adjust the power by a step size or an offset and how they could be distinguished, with counsel asserting the difference would arise from the "algorithm that's recited," with that algorithm being "functionally in the claim." Tr. 22–25. However, the offset itself is determined by a different element, element [9.c], such that we remain persuaded that Agin discloses, structurally, element [9.b], capable of setting the initial transmission power to a prior power with an offset. As discussed above, the magnitude of the difference between the prior transmission power and the initial transmission power (i.e., the "offset") can be denominated in terms of step sizes, and is determined by the last means-plus-function limitation of claim 9, discussed further below.

ii. Assertions and arguments raised post-appeal

The Federal Circuit, on appeal, characterized Patent Owner's arguments as "Agin's system cannot possibly adjust its initial transmission following an interruption by a step size . . . since it does not receive [a] power control command during the interruption," and, as "[p]ut another way 'Agin could not possibly apply a step size adjustment to the initial transmission [after an interruption], because Agin's closed loop power control algorithm requires receipt of a power command for the mobile

station to know whether to increase or decrease its power.'" Fed. Cir. Dec. 8. The Federal circuit determined that we failed to address the argument as to *how* Agin's system would adjust the initial transmission following an interruption without having received any power control commands during the interruption (*id.*), which we consider based on the parties' briefings below.

Petitioner asserts that "[b]oth the Final Written Decision and the Denial of Rehearing cited to evidence that amply explained *how* Agin's system would adjust the initial transmission following an interruption," and that crediting Dr. Ding's testimony "will full[y] resolve this narrow factfinding task on remand." Pet. Remand Br. 1 (citing Paper 25, 17; Paper 27, 7–9). Petitioner asserts that Dr. Ding testified that the "initial power" to be used after an interruption would be the level from before, adjusted by an offset. *Id.* at 2 (citing Ex. 2002, 108:13–112:16).

Portions of Dr. Ding's testimony provide that: "immediately after the interruption, you need to check on the figure 2 algorithm to understand that we just experienced interruption so what is the new step size," "your power stays where you were, and the algorithm will just wait to get an indication that now you have resumed from box 15 and then you come up with either a new step size or the same step size. But you will still continue with the power control algorithm," and "[r]egardless of whether it's running or not, you're going to come up with a step size, either δ_1 or δ_2, because you have resumed the transmission." Pet. Remand Br. 2–5 (quoting Ex. 2002, 115:13–16, 113:16–22, 110:13–16).

Petitioner also asserts that:

> Contrary to [Patent Owner's] misplaced theory, there is no need to "freeze" or exit Agin's power control loop in the event of an

> interruption. Rather, when the interruption ends (the interrupted transmission will then begin to resume), the answer at box 15 is simply "yes" and the step size (δ_2 or δ_1) will be used with the last UP/DOWN command that was received—typically only a fraction of a second earlier.

Id. at 5 (citing Ex. 1004, 5:39–57; Ex. 2002, 109:1–118:7). Petitioner also cites to Dr. Ding's second declaration, testifying that Agin's system would adjust the initial transmission following an interruption without having received control commands during the interruption. *Id*. at 6 (citing Ex. 1111 ¶ 16).

Patent Owner argues and responds that nothing provided by Petitioner takes into account or refutes Agin's explicit disclosure that no power control commands are received by the mobile station during an interruption, such that the mobile station cannot adjust the initial power immediately following the interruption by a step size as shown in Figure 2 of Agin. PO Remand Br. 1–2; PO Remand Resp. Br. 1. Patent Owner continues that a determination whether to increase or decrease power is based on the measured SIR (step 11), but because the mobile station is not transmitting during an interruption, the base station cannot obtain the SIR of the uplink signal to compare with the target SIR, such that no UP or DOWN power command can be provided. PO Remand Resp. Br. 2 (citing Ex. 1004, 2:3–8; Paper 30, 6–9); PO Remand Br. 3.

Patent Owner argues that the Federal Circuit, during oral argument, was concerned as to whether it would make sense for Agin to use "stale" commands received from a time prior to the interruption, and that neither Petitioner nor Dr. Ding addressed this issue. PO Remand Resp. Br. 2 (citing Ex. 2009, 8:11–12:8, 19:18–20:20); PO Remand Br. 4. Patent Owner also argues that there is "no objective evidence suggesting that Agin would

somehow retain 'unused' and 'outdated' commands, and then apply them when transmission resumes." PO Remand Br. 6. Patent Owner also argues that "Agin never describes the power setting immediately after an interruption," and that persons of ordinary skill in the art would have understood that Agin's power adjustment cannot be made to the first transmission because there can be no valid command indicating whether to increase or decrease power. PO Remand Resp. Br. 3–4; PO Remand Br. 4–5.

Petitioner replies that "[d]uring many types of an 'interruption in transmission,' the mobile station would continue to receive power control commands (and other control channel transmissions) from the base station," which Petitioner asserts was acknowledged by the '216 Patent and both declarants. Pet. Remand Resp. Br. 1–2 (citing Ex. 1001, 5:2–6; Ex. 1111 ¶¶ 21–22; Ex. 2007, 9:16–10:21, 25:6–26:6; Ex. 2001 ¶¶ 31–33, 80–81; Ex. 1112, 112:1–24). Petitioner continues that Agin discloses that the power control loop of Figure 2 is applicable to "any cases of transmission interruptions, whatever the reason." *Id*. (quoting Ex. 1004, 6:25–28). Petitioner also argues that for the particular type of interruption specified in Agin as a compress mode interruption (Ex. 1004 2:2–8), and relied upon by Patent Owner in its arguments, Dr. Ding's testimony provided how a person of ordinary skill in the art would have recognized Agin's power control loop to adjust the initial transmission power after such a momentary interruption. *Id*. at 2–3 (citing Ex. 2002, 108:13–118:7). Further, Petitioner argues that Dr. Ding "repeatedly confirmed a POSITA would have recognized from Agin's FIG. 2 that this command—"the last power control command you received" only several milliseconds earlier—was used in the event of such a

momentary interruption," where that possibility was acknowledged by Dr. Jackson. *Id*. at 3–4 (citing Ex. 2002, 110:7–111:13, 115:5–118:7; Ex. 1111 ¶¶ 20–22; Ex. 1112, 110:12–111:5).

In addition, Petitioner argues that "Agin's loop plainly depicts that the power level is adjusted by either δ_1 or δ_2 for *each and every* transmission both before and after the interruption—a category which includes the initial transmission after the interruption." Pet. Remand Resp. Br. (citing Ex. 1004, Fig. 2, 2:18–26, 5:39–57). As well, Petitioner points out that the Federal Circuit panel stated, during its oral hearing, that "I guess I could accept the [B]oard's logic but I'd like to see the written find[ing]," with respect to Dr. Ding's testimony, and the Federal Circuit did not mandate that we change the logic applied to Agin and its combination with Chen. *Id*. at 5 (quoting Ex. 2009, 22:3–23:1).

Reviewing Patent Owner's arguments and Petitioner's assertions, we remain persuaded that one of ordinary skill in the art would have applied the previous power level, i.e., the power level prior to the interruption, and also an offset according to the process illustrated in Agin's Figure 2. Agin makes clear that its processes in Figure 2 are run "[i]f transmission is not resumed after a transmission interruption" and "[i]f transmission is resumed after a transmission interruption." Ex. 1004 5:44–50. Figure 2 of Agin is used to make a determination of what the power level would be after an interruption, and that process should be followed, for the first transmission, as well as subsequent transmissions. Agin does not address a separate procedure for the initial transmission after an interruption because the process in Agin's Figure 2 is generally applicable to *all* interruptions. This understanding

comports with Dr. Ding's testimony, discussed above, that we credit. *See* Ex. 2002, 115:13–16, 113:16–22, 110:13–16.

In addition to Dr. Ding's testimony, we are also persuaded that the application of a prior step command, along with the previous power level, would be the most logical inference to draw from the disclosure of Agin. We acknowledge that Agin is not *explicit* regarding the *power level* of the initial transmission after an interruption, which both parties appear to acknowledge, with Dr. Ding testifying, however, that Figure 2 *implicitly* guides one of ordinary skill in the art to achieve such a power level. *See* Ex. 2002, 112:17-114:11; Ex. 2001 ¶ 115. With respect the interpretation of Agin on this point, the panel of the Federal Circuit was explicit:

> THE COURT: [Agin] doesn't explain expressly what that initial transmission would look like. But I think it's fair to assume that you would just draw from as a default whatever was the last power level before the interruption occurred.

Ex. 2009, 11:11–15. The Federal Circuit goes on to question whether a δ_1 or δ_2 would be applied to the initial transmission after interruption (*id*. at 11:15–12:3), but the same logical inference can be drawn for the step to be applied, namely that a previously determined offset or step would be applied to comport with the logic of Figure 2 of Agin. To assume otherwise, would require extemporaneously expanding on the actual disclosure of Agin to presume some special and undisclosed process applicable only to initial transmissions after interruption. As discussed above, Agin makes no such distinction, indicating that the process of Figure 2 is appliable to all transmissions.

Additionally, we agree with Patent Owner that Agin uses an explicit determination as to whether to increase or decrease power, i.e., based on the

measured SIR, step 11 of Figure 2 of Agin, and that during an interruption, because the mobile station is not transmitting, the base station cannot provide *new* UP or DOWN power commands. PO Remand Resp. Br. 2; PO Remand Br. 3. Patent Owner argues that Agin would not retain "unused" and "outdated" commands, and then apply them when transmission resumes (PO Remand Br. 6), but Agin does not provide for an alternative process to be followed. The best guide in making a judgement regarding the behavior of the system in Agin, absent explicit disclosure, is to rely on how persons of ordinary skill in the art would have viewed the disclosure of Agin. "[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom." *In re Preda*, 401 F.2d 825, 826 (CCPA 1968). Here, we again credit the testimony of Dr. Ding, testifying that one of ordinary skill in the art would have followed the procedures disclosed in Figure 2 of Agin, applying prior power level, and also a previously determined offset.

As such, we are persuaded that Petitioner has shown by a preponderance of the evidence that Agin meets the limitations of element [9.b] of claim 9 for the reasons explained by Petitioner.

d. "means for determining the offset"

With respect to "means for determining the offset," element [9.c], Petitioner asserts that Chen expressly describes a control processor that "generates a command to adjust the transmit power of the transmitter sending traffic signals to mobile station 8 and provides the command to transmit subsystem 20," and that this adjustment is "the difference between the 'correct' level from control processor 2 and the level actually used by

transmit subsystem 20 at the same time." Pet. 25 (quoting Ex. 1005, 13:13–18; Ex. 1003 ¶ 97). Petitioner also asserts that Chen suggests that the "correct" level can be based on a quality-indicator weighted average of the power control commands. *Id.* (citing Ex. 1005, 12:64–13:4; Ex. 1003 ¶ 97). Petitioner also quotes Chen's disclosure: "Power control processor 12 computes the weighted average and sends this weighted average to base stations 4 and 6. These methods improve the estimate of the aligned transmit power because they emphasize the transmit power of the base stations that have superior reverse link characteristics." *Id.* at 26 (quoting Ex. 1005, 14:58–65; citing Ex. 1003 ¶¶ 101–103).

Petitioner further asserts that a person of ordinary skill in the art would have been motivated to combine the teachings of Agin and Chen for multiple reasons. Pet. 17–19. Petitioner asserts that Chen's suggested technique (implemented in Agin's system) would have beneficially provided a weighted-average offset from the initial power level after an interruption. *Id.* at 17 (citing Ex. 1005, 14:57–65; Ex. 1003 ¶¶ 93–102). Petitioner asserts that ordinarily skilled artisans would have recognized that the predictable combination of Agin with Chen would have been beneficially employed to calculate the initial transmit power after an interruption. *Id.* (citing Ex. 1003 ¶¶ 106–109). Petitioner further asserts that the combination would have allowed for power levels to be more optimally established to improve performance and transmission quality. *Id.* at 17–18 (citing Ex. 1005, 3:15–17; Ex. 1003 ¶ 104). Petitioner further asserts that ordinarily skilled artisans would have been prompted to combine Agin with Chen for controlling transmission power in situations when there is uncertainty as to a correct transmission power for effective radio transmissions. *Id.* at 18 (citing Ex.

1004, 1:65–67; Ex. 1003 ¶¶ 105–107). Petitioner further argues that by using a weighted average over a period before handover, Chen helps to smooth power levels used by the transmitters during and after the soft handoff, and thus, the concept of a weighted average to smooth power levels would have been obvious to use in the case of an interruption in transmissions to achieve a predicable result—to tune power levels in the middle of a communication to ensure efficient and reliable radio communications. *Id*. at 19 (citing Ex. 1003 ¶¶ 105–107). Lastly, Petitioner argues that a person of ordinary skill in the art would have had a reasonable expectation of success in combining Agin and Chen as they both are directed to the same aspect of the same technology, and the particularized methods of computing an adjustment to power levels (suggested by Chen) were predictable options for a system like that of Agin. *Id*. (citing Ex. 1003 ¶¶ 93–108).

Patent Owner argues that element [9.c] refers to a microcontroller, and that Chen discloses a controller, but that controller is not part of a mobile station. PO Resp. 57–58 (Ex. 1005, 10:34–45; Ex. 2001 ¶¶ 136, 148, 194–197). We disagree and continue to be persuaded that the "means for determining the offset," in the combination of Agin and Chen, would be provided by the structure of the combined system. *See* FWD 23.

Patent Owner also previously argued that the weighted average in the '216 patent is computed based on transmission power history of a single mobile station in communication with a base station, but the weighted average in Chen is computed between values of current powers at multiple base stations. PO Resp. 59 (citing Ex. 2001 ¶¶ 150–151, 199). Patent Owner also previously argued that Agin does not clarify what is meant by

"power control results" and in no way suggests using a weighted average of transmission power prior to the interruption to determine an offset, and that Petitioner's assertion regarding what one of ordinary skill in the art would have understood from "statistics" is unsupported. PO Sur-reply 22. Patent Owner also asserts that the use of a weighted average in Chen is entirely different than what is claimed. *Id.* at 23 (citing Ex. 2001 ¶¶ 137–140, 160, 162, 171, 198–199).

We continue to be unpersuaded by Patent Owner's arguments. *See* FWD 24–25. Although Patent Owner is correct that Chen is utilizing a weighted average for one purpose, we are not persuaded that one of ordinary skill in the art could not review the disclosure of Chen and see its application to other aspects of computing an adjustment to power levels. "[T]he test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art." *In re Mouttet*, 686 F.3d 1322, 1333 (Fed. Cir. 2012) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)). We note that the test does not require that Chen must review and improve on the system of Agin; we are persuaded that Agin's disclosure that parameters may be determined based on statistics on power control results for a transmission period before said transmission interruption is sufficient to suggest the use of different types of statistics, including those disclosed by Chen. Further, with respect to the argument regarding Chen's use of multiple base stations, Chen discusses other options, i.e., "a number of possible methods," that can utilize a single base station in making a power control decision, such that ordinarily skilled artisans would have applied the weighted average in Agin as Petitioner has asserted. *See* Ex. 1005, 10:47–56. As such, we do not find Patent Owner's arguments to be persuasive.

With respect to Petitioner's proffered motivation to combine the teachings of Agin and Chen, with respect to this element of claim 9, Patent Owner previously argued that there is no motivation to combine Agin and Chen as alleged. PO Resp. 41–51. While acknowledging that both Agin and Chen relate to power control in a radio communication system, Patent Owner asserts that the power control algorithms in each pertain to completely different problems and involve completely different solutions, such that there is no reasonable way to combine their teachings. *Id*. at 42 (citing Ex. 2001 ¶ 153). Petitioner responds that Patent Owner's arguments are akin to bodily incorporation and the disclosure elements of Agin and Chen need not be physically combinable to render claim 9 obvious. Pet. Reply 18–19 (citing *Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016); *In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983); *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc)). Patent Owner replies that a skilled artisan reading Agin and Chen as a whole would have no such motivation to combine their disclosures. PO Sur-reply 17.

We disagree with Patent Owner's arguments and continue to be persuaded that there was sufficient motivation to combine Agin and Chen. *See* FWD 25–26. Petitioner cites multiple rationales for the combination of Agin and Chen, including the benefits of Chen's techniques, the predictability of such a combination, improvements in performance and transmission quality, reducing uncertainty, smoothing power levels, and argues that these approaches would have had a reasonable expectation of success. Pet. 17–19. Although Agin and Chen are directed to different problems, with different solutions, we discern no negative teaching that

would proscribe their combination, and we can envision, via the arguments made in the Petition, combining aspects of each to improve the resulting system.

Patent Owner also previously argued that Petitioner's asserted rationales to combine Agin and Chen, supported by testimony of Dr. Ding, should be rejected as inadequate. PO Rep. 44–50 (citing Ex. 2001 ¶¶ 157–174). Patent Owner argues that "'alignment' transmitter power control among different base stations communicating with a single mobile station during handover as in Chen involves a different problem than varying the step size of power control adjustments following an interruption as in Agin." *Id*. at 44. Patent Owner also argues that Dr. Ding is incorrect in his analyses of Chen because Chen does not involve an initial power level, but rather it involves the current power level in an ongoing series of transmissions, and Chen never describes or suggests using a weighted average of previous power levels from a single transmitter because its weighted average comes from the current power levels from multiple base stations. *Id*. at 45 (citing Ex. 2001 ¶¶ 160, 162). Patent Owner also relies on Dr. Jackson's testimony that "a process conducted *in preparation for* a handover," per Dr. Ding's testimony (Ex. 1003 ¶ 67), "does not involve power control *during a handover*." *Id*. at 46 (citing Ex. 2001 ¶ 165).

We disagree with Patent Owner's arguments, as we did in the Final Written Decision. *See* FWD 25–26. We acknowledge the different aims and solutions detailed in Agin and Chen, but we are not persuaded that they are sufficiently different that aspects of Chen could not be utilized in Agin. We also acknowledge that Dr. Jackson's testimony is clear and he testifies that Chen is sufficiently different and that the processes of Chen would not

be readily adaptable to Agin. Weighing the testimonies of Drs. Ding and Jackson, we determine Dr. Ding's testimony to be more persuasive as to the combination. For example, we concur with Dr. Ding that handover is directly related to communication interruptions in that the handover mechanism exists in order to try to avoid interruptions. Ex. 1003 ¶¶ 67–68, 102, 105–108; Ex. 1111 ¶ 47. Dr. Ding's testimony is applied to support the conclusion that one of ordinary skill in the art would have been motivated to make the combination. Patent Owner asserts that such a characterization is misleading (PO Sur-reply 20), but we are persuaded that Dr. Ding's testimony demonstrates overlapping aspects of the disclosures of Agin and Chen and support the Petition's rationales for their combination.

Additionally, Patent Owner argues that Petitioner's assertion that Chen's "weighted average calculation" would somehow "improve performance and transmission quality" are unsupported. PO Rep. 47 (citing Pet. 17–18). Patent Owner argues that such an assertion could make sense only if Agin contained multiple transmitters and they were operating at different powers. *Id*. (citing Ex. 2001 ¶ 169). Patent Owner also argues that the methods by which Chen computes adjustment to power level are not relevant to adjustment of step size following an interruption as described by Agin. *Id*. at 48–49 (citing Ex. 2001 ¶ 171). We disagree with Patent Owner and do not wish to take such a myopic view of Chen. Per the discussion in the Petition, one of ordinary skill in the art could view the weighted averages of Chen and their utility to other issues with power control in a radio communication system. Simply because Chen applies its techniques to modulating power levels from multiple transmitters does not mean that Chen's techniques do not have expanded operability. Additionally, as noted

above, Agin contemplates the use of statistics from the prior power control results to determine certain parameters, and weighted averages are examples of statistics well within the contemplation of such skilled artisans.

Patent Owner also previously argued that references to the Greek letter δ and signal-to-noise ratio (SNR) in both Chen and Agin are used to connote different things in the references and should not be used to suggest equivalence between the processes disclosed in each. PO Resp. 59–60 (Ex. 1004, 5:7–7:35; Ex. 1005, 3:29–35, 67–4:3; Ex. 2001 ¶¶ 61, 146, 201–202, 205). We take Patent Owner's notations about the use of similar citations into account, but we are still persuaded that one of ordinary skill in the art would have had motivation to combine the indicated aspect of Agin and Chen as asserted in the Petition. *See* Fed. Cir. Dec. 11 (determining substantial evidence supports the Board's determination that a skilled artisan would have been motivated to combine Agin and Chen).

As such, we are persuaded that Petitioner has shown by a preponderance of the evidence that Agin and Chen meet the limitations of element [9.c] of claim 9 for the reasons explained by Petitioner.

e. Conclusion

Neither party presents evidence of objective considerations of nonobviousness. We have reviewed the arguments and evidence and determine, on the present record, Petitioner has shown by a preponderance of the evidence that the combination of Agin and Chen teaches or suggests all of the limitations of claim 9 for the reasons explained by Petitioner.

III. CONCLUSION

For the reasons discussed above, Petitioner has demonstrated, by a preponderance of the evidence, that claim 9 is unpatentable[5]. Our conclusions regarding the challenged claim are summarized below:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
9	103	Agin, Chen	9	

IV. ORDER

For the reasons given, it is:

ORDERED that Petitioner has established, based on a preponderance of evidence, that claim 9 of U.S. Patent No. 8,195,216 B2 are unpatentable as obvious under 35 U.S.C. § 103; and

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

[5] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. §§ 42.8(a)(3), (b)(2).

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