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Paper 27
Date: June 23, 2026

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner,

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

IPR2025-00219
Patent 9,706,500 B2

Before KRISTEN L. DROESCH, FREDERICK C. LANEY, and AARON W. MOORE, *Administrative Patent Judges.*

LANEY, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
Denying Petitioner's Motion to Strike
35 U.S.C. § 318(a); 37 C.F.R § 42.64(c)

I. INTRODUCTION

We have authority to hear this *inter partes* review under 35 U.S.C. § 6, and this Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, Petitioner has not established by a preponderance of the evidence that claims 11–22 ("challenged claims") of U.S. Patent No. 9,706,500 B2 (Ex. 1001, "the '500 Patent") are unpatentable.

A. Background and Procedural History

Tesla, Inc. ("Petitioner") filed a petition requesting *inter partes* review of claims 11–22 of the '153 Patent. Paper 2 ("Petition" or "Pet."). Intellectual Ventures II LLC ("Patent Owner") timely filed a Preliminary Response. Paper 7. Upon review of the parties' arguments and supporting evidence, we instituted review with respect to all grounds and claims set forth in the Petition. Paper 11.

Following institution, Patent Owner filed a Response to the Petition (Paper 15, "PO Resp." or "Response") to which Petitioner filed a Reply (Paper 18, "Pet. Reply" or "Reply"), and Patent Owner filed a Sur-reply (Paper 19, "PO Sur-reply").

In support of the Petition, Petitioner relies upon the declaration of Michael D. Kotzin, Ph.D. Ex. 1003. In support of the Response, Patent Owner relies upon a declaration of Gary Lomp, Ph.D. Ex. 2016. In support of the Reply, Petitioner relies further upon the supplemental declaration of Dr. Kotzin (Ex. 1072) and Petitioner submits the transcript of Dr. Lomp's deposition (Ex. 1071).

An oral hearing was held on April 7, 2026, and a transcript of the hearing is included in the record. Paper 26.

B. Real Parties in-Interest

Petitioner and Patent Owner each identifies itself as the real party in interest. Pet. 80; Paper 3, 2 (Patent Owner's Mandatory Notices).

C. *Related Matters*

The parties identify the following related federal district-court litigation involving the '500 Patent: *Intellectual Ventures II LLC v. Tesla, Inc.*, No. 1-24-cv-00390 (W.D. Tex. April 11, 2024); *Intellectual Ventures II LLC v. Tesla, Inc.*, No. 6-24-cv-00188 (W.D. Tex. April 12, 2024); *Intellectual Ventures II LLC v. Tesla, Inc.*, No. 1-24-cv-00884 (W.D. Tex. April 12, 2024). Pet. 80; Paper 3.

D. The '153 Patent

The '500 Patent is titled "Power control in a wireless network" and relates to network-device transmit power control (TPC) commands that may have a plurality of predefined levels. Ex. 1001, codes (54), (57). The '500 Patent describes that "[a] wireless communication system often employ one of either an open loop scheme or a closed loop scheme to control uplink transmit power of a mobile radio." *Id.* at 1:49–51. Uplink refers to the link from user equipment (UE) to a base station. *Id.* at 1:51–56. Transmitting with increased power results in fewer errors as compared with decreased power, but can interfere with other signals sharing the radio link. *Id.* at 1:23–28. Transmissions are evaluated using a "received signal to noise-plus-interference ratio (SNIR)," and open-loop control uses an "SNIR Target value that is derived by the network and signalled to the UE." *Id.* at 1:61–66, 2:16–18. In closed-loop control, a "received SNIR measurement is made by the network on an uplink signal" and then transmit power control (TPC) commands are sent from the network to the UE. *Id.* at 2:32–39.

Because the "open loop method is relatively slow at compensating for changes due to interfering signals from other transmitters" and "closed loop methods demand a very high command update rate," the '500 patent uses a combination of both approaches. Ex. 1001, 2:29–31, 2:45–47, 2:53–56, 8:17–28. In addition, it discloses that a UE may accumulate TPC commands to determine uplink power level. E.g., *id.* at 6:60–64, 7:37–41, 10:11–17.

E. Challenged Claims

Petitioner challenges claims 11–22 of the '500 Patent. See Pet. 15. Claim 11 is independent and is reproduced below:

11. A user equipment (UE) comprising:

[11.1] a transmitter;

a receiver;

a processor operatively coupled to the transmitter and the receiver; and

[11.2] the processor and the receiver are configured to receive, on a single physical channel, an allocation of an uplink resource and a multi-level transmit power control (TPC) command;

[11.3] wherein the processor is further configured to determine a transmission power level based on a value of the multi-level TPC command out of a plurality of potential values for the multi-level TPC command;

[11.4] wherein the plurality of potential values for the multi-level TPC command includes at least two values up or at least two values down; and

[11.5] wherein the processor is configured to have the transmitter transmit an uplink signal on the allocated uplink resource at the determined transmission power level.

Ex. 1001, 14:47–62. Claims 12–16 depend directly or indirectly from claim 11. *Id.* at 14:63–15:12. Claim 17 is independent and recites a method with limitations similar to claim 11. *Id.* at 15:13–16:7. Claims 18–22 depend directly or indirectly from claim 17. *Id.* at 16:8–24.

F. Patentability Challenges and Asserted Prior Art

Petitioner challenges the patentability of on the following grounds and prior art (*see* Pet. 15):

Claim(s) Challenged	35 U.S.C. §[1]	Reference(s)/Basis
11, 15–17, 21, 22	103(a)	Andersson, Khan
12, 13, 18, 19	103(a)	Andersson, Khan, Baker
14, 20	103(a)	Andersson, Khan, Dick
11, 15–17, 21, 22	103(a)	Zeira, Khan, Tong
12, 13, 18, 19	103(a)	Zeira, Khan, Tong, Baker
14, 20	103(a)	Zeira, Khan, Tong, Dick

II. ANALYSIS

"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 the patent owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). Moreover, a petitioner should

[1] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application from which the '153 patent issued claims priority to an application filed before this date, the pre-AIA version of § 103 applies.

not "place the burden on [the Board] to sift through information presented by the Petitioners, determine where each element [of the challenged claims] is found in [the cited references], and identify any differences between the claimed subject matter and the teachings of [the cited references.]" *Google Inc. v. EveryMD.com LLC*, IPR2014-00347, Paper 9 at 25 (PTAB May 22, 2014).

A patent claim is unpatentable for obviousness under pre-AIA 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). In *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness that requires consideration of four factors: (1) the "level of ordinary skill in the pertinent art," (2) the "scope and content of the prior art," (3) the "differences between the prior art and the claims at issue," and (4) "secondary considerations" of nonobviousness such as "commercial success, long felt but unsolved needs, failure of others, etc."[2] *Id.* at 17–18; *KSR*, 550 U.S. at 407. An obviousness determination requires finding a reason to combine accompanied by a reasonable expectation of achieving what is claimed in the challenged patent. *See Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367 (Fed. Cir. 2016). "[A]ny need or problem known in the field of endeavor at the time of invention and

[2] The parties do not present evidence of secondary considerations.

addressed by the patent can provide a reason for combining the elements in the manner claimed." *KSR*, 550 U.S. at 419–20.

We analyze the asserted grounds of unpatentability in accordance with these principles

A. Level of Ordinary Skill in the Art

Petitioner asserts that ordinarily skilled artisans "would have a bachelor's degree in electrical engineering, computer engineering, computer science, or equivalent training, and approximately two years of experience working in the field of wireless communication systems or design of similar communication systems." Pet. 14. Petitioner's proposed definition, which Patent Owner does not dispute, appears reasonable and consistent with the asserted prior art and the '500 Patent. Therefore, we adopt it as the ordinary level of skill of an artisan in the field of the patented technology for our analysis below.

B. Claim Construction

We interpret the challenged claims

> using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

37 C.F.R. § 42.100(b). Under that standard, we generally give claim terms their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

In the Petition, Petitioner contends that "no claim term requires express construction." Pet. 14. This is so, Petitioner asserts, because all the terms in the challenged claims carry their ordinary and customary meaning to a skilled artisan. *Id.*

Patent Owner offers a proposed construction for the recited "single physical channel" found in limitation 11.2 and "an accumulation of TPC commands" found in independent claims 12 and 18. PO Resp. 9–17. Petitioner likewise addresses the scope of an accumulation of TPC commands, but Petitioner does not contest directly Patent Owner's proposed construction for "single physical channel." Pet. Reply 2–7. We determine, however, that no express construction of any claim term is necessary to resolve the dispute between the parties. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) ("[W]e need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy.'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

C. Overview of the Relevant Prior Art[3]

1. Andersson

Andersson is titled "Adaptive Power Control in a Mobile Radio Communications System" and states that it relates to "radio transmission power control in a code division multiple access cellular radio

[3] Petitioner contends that each asserted reference is within the scope of available prior art for the '500 Patent under 35 U.S.C. § 102 and Patent Owner does not dispute that assertion. Pet. 15–16; *See generally* PO Resp. We are persuaded that the asserted references are properly within scope of available prior art. In addition, we provide an overview of only those references that are relevant to the issues addressed in this Decision.

communications system." Ex. 1009, code (54), 1:6–8. Andersson identifies the problem it addresses, stating that a "drawback with sending variable step size power control commands is added overhead," because, "[i]n order to compensate for quickly changing transmission conditions, the variable step sizes must be transmit[ted] very frequently," such that "there is a need to reduce undesirable signaling overhead." *Id.* at 5:4–16.

As its general approach, Andersson states that "[i]ncluded with the transmit power control command is a power control indicator indicating whether a first or a second type of power control adjustment should be used by the radio transceiver depending upon the determined difference." Ex. 1009, code (57). Andersson describes the transmit power control command, stating that a station sends a "transmit power control bit having one value … instructing the other station to decrease its transmit power by a predetermined increment, e.g., 1 dB." *Id.* at 3:40–47. Andersson states that TPC commands "may include a command to increase, decrease, or maintain transmit power." *Id.* at 9:12–15.

Andersson describes an example using more than one bit, stating that "two redundant TPC bits" may be used, where "'00'=lower power and '11'=raise power." Ex. 1009, 10:63–65. Andersson describes the power control indicator, stating that the "power control indicator includes only a single flag bit." *Id.* at 3:16–17. Andersson states that the indicator indicates whether a "first or a second type" of adjustment is used, such as "first and second step sizes." *Id.* at 9:40–42. Andersson describes the setting of the indicator, stating that the base station sets its value "according to the determined power control adjustment factor." *Id.* at 12:41–43, Fig. 8.

As to signaling, Andersson states that the "dedicated physical control channel (DPCCH)" is divided into frames and slots. (Ex. 1009, 9:5–8.) Andersson states that each slot "may include a pilot field … a traffic power control (TPC) command … a power control indicator or flag, and other bits." Ex. 1009, 9:12–16, Fig. 5. As to timing, Andersson states that the DPCCH is "divided into 72 frames," where each "10 msec frame is made up of 16 time slots each lasting 0.625 msec." *Id.* at 9:6–11.

2. Khan

Khan is titled "Method of Scheduling Grant Transmission in a Wireless Communication System" and states that the "invention relates to telecommunications and, more particularly, to wireless communications." Ex. 1005 ¶ 1. Khan identifies the problem it addresses, stating that, in systems supporting reverse link packet access, a "scheduling grant channel may be difficult to realize, given the time-multiplexed slot structure," and that "[c]onsequently, a need exists for a method of carrying control information, such as scheduling grants, for reverse link packet access transmission." *Id.* ¶ 11.

As its general approach, Khan describes a method that comprises "transmitting forward link data having at least one time multiplexed scheduling grant." Ex. 1005 ¶ 13. Khan describes the contents of the scheduling grant, stating that it may include "user identification information (e.g., AT ID), rate indication information … and HARQ control information." *Id.* ¶ 12. Khan states that the control information for the reverse link may also include "transmit power control ('TPC') information." *Id.* ¶ 12. Khan describes the use of a MAC index, stating that each mobile

"may be allocated a unique MACIndex that is used as AT ID in order to indicate . . . if it has been scheduled." *Id.* ¶ 45.

Khan states that the forward link includes the "Pilot Channel, the Forward Medium Access Control ('MAC') Channel, and the Forward Traffic Channel or the Control Channel," which are "time-division multiplexed." Ex. 1005 ¶¶ 37–38. Khan describes the composition of the MAC Channel, stating that it includes subchannels such as the "Reverse Power Control ('RPC') Channel," the "Reverse Activity ('RA') Channel," and the DRCLock channel. *Id.* ¶ 39. Khan states that the RPC Channel is used "for the transmission of the RPC bit stream," and that the "RPC data rate may be 600 bps." *Id.* ¶ 42. Khan states that the forward link consists of "slots of length 2048 chips (1.66 … ms)," and that each slot is "divided into two half slots." *Id.* ¶ 38.

3. Zeira

Zeira is titled "Combined Closed Loop/Open Loop Power Control in a Time Division Duplex Communication System" and states that the "invention generally relates to spread spectrum time division duplex (TDD) communication systems." Ex. 1004, 1:6–8. Zeira describes TDD systems as using "repeating frames 34 divided into a number of time slots 36, such as fifteen time slots." *Id.* at 1:45–48. Zeira identifies limitations in the two power-control approaches it addresses. It states that "[t]he update rate of closed loop power control in TDD is 100 cycles per second which is not sufficient for fast fading channels," and that "[o]pen loop power control is sensitive to uncertainties in the uplink and downlink gain chains and interference levels." *Id.* at 2:13–17. Zeira further states that, in a highly

dynamic environment, "the path loss estimate for open loop severely degrades the overall system's performance." *Id.* at 2:43–47.

As its general approach, Zeira states that "[c]ombined closed loop/open loop power control controls transmission power levels in a spread spectrum time division duplex communication station." Ex. 1004, 2:52–55. Zeira describes setting a transmission power level "based on in part the path loss estimate weighted by a factor and power commands." *Id.* at 3:2–5. Regarding the closed-loop component, Zeira states that, "[b]ased on a comparison of the determined SIR with a target SIR (SIR_TARGET), a closed loop power command is generated, b_TPC." *Id.* at 4:5–8. Zeira states that the command b_TPC is "either +1 or -1." *Id.* at 6:24.

Zeira describes the application of the command, stating that the closed-loop factor "increases by 1 dB if b_TPC is +1 and decreases by 1 dB if b_TPC is -1." Ex. 1004, 6:29–31. Zeira states that this factor is "typically updated at a rate of 100 ms in a TDD system." *Id.* at 6:25–27.

Zeira teaches weighting the open-loop component and states that "[t]he weighting value, α, is determined by the quality measurement device 114," and that "α is a measure of the quality of the estimated path loss and is, preferably, based on the number of time slots, D, between the time slot of the last path loss estimate and the first time slot of the communication transmitted by the transmitting station 52." Ex. 1004, 6:32–38. Zeira further states that an "operator may use solely closed loop power control by setting α to zero." *Id.* at 7:11–12.

Zeira states that, where the receiving station is a base station, communications are "preferably sent over a downlink common channel or a common control physical channel (CCPCH)." Ex. 1004, 4:17–20. Zeira

states that TPC commands are "typically sent in a dedicated channel." *Id.* at 4:28–30. Zeira states that path-loss transmission power levels are "sent via the broadcast channel (BCH)." *Id.* at 5:24–25.

D. Grounds 1–6

Petitioner contends, in Grounds 1–3, that claims 11–22 are unpatentable because they recite obvious combinations in view of Andersson, Baker, Khan and Dick. Pet. 16. In Grounds 4–6, Petitioner contends that claims 11–22 are unpatentable because they recite obvious combinations in view of Zeira, Baker, Khan, Tong, and Dick. *Id.* Patent Owner asserts that all of the Grounds are deficient because Petitioner has failed to establish that the prior art discloses every recited limitation of independent claims 11 and 17; in particular, limitation 11.2 (subject matter recited also in independent claim 17). *See* PO Resp. 30–65. After studying the evidence and arguments developed by the parties throughout this proceeding, we agree with Patent Owner that limitation 11.2 is dispositive and, for the reasons discussed below, we find that Petitioner's evidence does not demonstrate persuasively that the prior art discloses or suggests the subject matter of limitation 11.2.

1. Limitation 11.2—the processor and the receiver are configured to receive, on a single physical channel, an allocation of an uplink resource and a multi-level transmit power control (TPC) command

Relying exclusively on Andersson, Khan, and Zeira of the cited prior art, Petitioner contends first that Andersson, in view of Khan, discloses or suggests receiving, on a single physical channel, an allocation of an uplink resource and a multi-level TPC command; Petitioner contends next that

Zeira, in view of Tong and Khan, discloses or suggests the same. *See* Pet. 28–32, 52–61. We address each combination in turn.

a. Andersson in View of Khan

Andersson is relied upon by Petitioner for a dedicated physical control channel (DPCCH) carrying a TPC command, and Khan is relied upon for an uplink scheduling grant. Pet. 28–32. The dispute is whether a skilled artisan would have placed an allocation of an uplink resource together with the power control information on a single physical channel in the manner claimed.

Petitioner's theory is one of simple substitution. Petitioner observes that Andersson describes a DPCCH time slot (*see* Ex. 1009, 9:14–21, Fig. 5) that, in addition to a pilot field, a TPC command, and a power control indicator, may contain "other bits," and Petitioner proposes to use those bits to carry Khan's scheduling grant: The "'other bits' may be transmitted along with the TPC command and power control indicator in the dedicated physical control channel (DPCCH). A [skilled artisan] would have found it obvious that those other bits may include a scheduling grant as described by Khan." Pet. 30 (citing Ex. 1009, 9:14–21; Ex. 1003 ¶ 65).

Petitioner characterizes the modification as requiring "nothing more than 'the predictable use of prior art elements according to their established functions,'" asserting that the combination would improve Andersson "in the same way" the elements function in the prior art. Pet. 21. In its mapping, Petitioner relies on Khan's disclosure that a single channel may "carry the TPC bit in some slots and the scheduling grant in one or more of the remaining slots." *Id.* at 31 (citing Ex. 1005 ¶ 47).

Patent Owner responds that Petitioner's combination "is based on a fundamental misunderstanding of the various channels described in each of the Andersson and Khan references and ignores portions of these documents that lead away from the alleged combination," such that the references "cannot, in fact, be properly combined to arrive at this feature of Claim 11 of the '500 Patent." PO Resp. 30. Patent Owner describes Petitioner's theory as a proposal to "graft a scheduling grant, as taught by Khan, onto the DPCCH of Andersson using Andersson's 'other bits,'" and contends that the theory rests on two mistaken assumptions: "First, it assumes that fast per TTI scheduling was the technology to use for the UE's uplink transmission to the BS/Node-B. Second, it assumes that the 'scheduling' signaling originates from the BS/Node-B. Both these assumptions are wrong." *Id.* at 31–32.

As to the first assumption, Patent Owner contends that, in Andersson's underlying WCDMA technology, "dynamic per-TTI scheduling grants were not used to 'schedule' UEs' uplink transmissions," which were instead "configured semi-statically through RRC signaling." PO Resp. 33 (citing Ex. 2016 ¶¶ 62–63). As to the second, Patent Owner contends that the configuring RRC signaling "originated from the RNC, not the BS/Node-B," so that Andersson "separates these functions: the RNC provided the 'scheduling' configuration signaling, while the Node-B received uplink transmissions from the UE." *Id.* at 34 (citing Ex. 2016 ¶¶ 62–63). From this, Patent Owner concludes that, "[s]ince the RRC signaling originates from the RNC, while the TPC originates from the BS/Node-B, they cannot be transmitted on the same physical channel." *Id.* at 35.

Patent Owner further contends that the advantages Petitioner asserts "do not withstand scrutiny," and that each "in fact highlights why a skilled artisan would have avoided such a combination rather than pursued it." PO Resp. 32–33. In Patent Owner's account, Andersson and Khan "use fundamentally incompatible channel multiplexing structures": Andersson "discloses a DPCCH in which every 0.625 msec uplink slot carries a fixed structure of control fields, a TPC command, a power control flag, and other bits, repeated in each slot without time-multiplexing or dynamic scheduling," whereas Khan's forward link "was explicitly organized into time-multiplexed slots." *Id.* at 36–37 (citing Ex. 1009, 9:12–22, Fig. 5; Ex. 2016 ¶¶ 58–61, 78–80, 95, 99). Because "TPC commands must be transmitted continuously and with extremely high reliability in every slot to maintain closed-loop power control, whereas scheduling information is larger, bursty, and tied to a different timing cycle," Patent Owner contends that combining the two "would either disrupt the timing-critical TPC stream or constrain scheduling flexibility, undermining both." *Id.* at 37 (citing Ex. 2016 ¶¶ 100–101).

Patent Owner thus contends that placing the TPC command and the scheduling grant together "was not a predictable or natural design choice, but rather a hindsight reconstruction that would require substantial re-design of Andersson's DPCCH/DPCH channel." PO Resp. 37–38 (citing Ex. 2016 ¶¶ 100–101). Patent Owner adds that Petitioner improperly relies on its expert to fill these gaps, because Dr. Kotzin's declaration "offers no citation to Andersson (or other evidence)" for the assertion that the "other bits" may include a scheduling grant, and "Andersson does not disclose or even suggest what the 'other bits' may be, nor does it disclose or suggest a need

in the art for scheduling UEs." PO Resp. 28–29 (citing Ex. 2016 ¶¶ 102–111).

Petitioner replies that its theory does not require bodily incorporation or redesign, but only use of Andersson's existing spare capacity: "[A]s described in the Petition, no redesign is needed. The proposed combination merely contemplates … the existing 'other bits' in Andersson's DPCCH for an uplink signaling grant." Pet. Reply 9 (citing Ex. 1005 ¶¶ 43, 47). Petitioner characterizes the combination as "a simple combination of Andersson and Khan" and asserts that Patent Owner's objections "address a physical incorporation of Khan's channel into Andersson's system, which the Petition does not propose." *Id.* at 8. Petitioner further contends that a person of ordinary skill would have had a reasonable expectation of success, observing that Andersson and Khan "are not exclusively directed to WCDMA and CDMA2000 HRPD" and that a POSITA "would have thus naturally expected to be successful applying well-known signaling techniques such as Khan's—especially in view of Andersson's statement that it utilizes 'well-known CDMA techniques.'" *Id.* at 10–11 (citing Ex. 1003 ¶ 65; Ex. 1009, 7:16–18; Ex. 1005 ¶¶ 5, 8, 18, 34, 37; Ex. 1072 ¶ 43).

Patent Owner responds that Petitioner "cannot satisfy that burden by abstractly asserting that the DPCCH has unused capacity ('other bits') that 'could' carry something else," and that Petitioner's position is "a hindsight 'you can always add bits' theory that evades the single physical channel requirements." PO Sur-reply 5. Patent Owner maintains that the references remain architecturally incompatible because Andersson's "dedicated channel is a continuous fixed-format stream rather than a slot-carved shared medium." *Id.* at 11.

Having considered the parties' positions and the cited evidence, we are not persuaded that Petitioner has shown limitation 11.2 would have been obvious over Andersson in view of Khan. Our reasoning follows.

We begin by fixing Petitioner's theory, because the obviousness inquiry must be measured against the specific modification proposed. Petitioner does not contend that Andersson itself discloses scheduling information on its control channel. Rather, Petitioner relies on a single sentence in Andersson describing the contents of a DPCCH time slot: "Each DPCCH time slot may include a pilot field used for synchronization, a traffic power control (TPC) command …, a power control indicator or flag, and other bits." Pet. 22; Pet. Reply 9; Ex. 1003 ¶ 80; Ex. 1072 ¶ 40; Ex. 1009, 9:24–31. From the bare phrase "and other bits," Petitioner reasons that a POSITA would have placed Khan's scheduling grant there. Pet. 22, 30–32. The modification is therefore precise and narrow: insert the recited scheduling information into the unspecified "other bits" of Andersson's existing control-channel slot. Petitioner repeatedly emphasizes the simplicity of that step, describing it as "the predictable use of prior art elements according to their established functions" (*id.* at 21) and as requiring that "no redesign . . . [be] needed" because the combination "merely contemplates . . . the existing 'other bits' in Andersson's DPCCH" (Pet. Reply 9; Ex. 1072 ¶ 40).

Petitioner supports the modification with three asserted benefits. First, Petitioner asserts that carrying scheduling information on the control channel would allow "a larger number of active wireless units," a benefit it attributes to Khan. Pet. 21 (citing Ex. 1005 ¶¶ 43, 47). Second, Petitioner asserts that "complexity (and thus power usage) is reduced." *Id.* at 21 (citing Ex. 1003

¶ 64). Third, Petitioner asserts that "[l]atency is similarly reduced." *Id.* (citing Ex. 1003 ¶ 64). Petitioner thus offers a rationale with an articulated underpinning, and we evaluate whether the evidence ties that rationale to the modification actually proposed.

A rationale supports obviousness only where the proffered benefit would flow from the specific modification proposed; a benefit that the prior art realizes in a different structural context does not, without more, establish that the same benefit would result from inserting one reference's element into the other. On this record, the nexus between Khan's benefits and Petitioner's "other bits" modification is missing.

The first asserted benefit illustrates the disconnect. The only Khan passage that articulates the "larger number of . . . active wireless units" benefit ties that benefit to Khan's separate-slot, time-multiplexed scheme—the opposite of placing a grant in the spare bits of a single TPC slot: "[I]t may also be possible to time-multiplex the TPC bits and the scheduling grant … carry the TPC bit in some slots and the scheduling grant in one or more of the remaining slots, as shown in FIG. 5. This may provide the benefit of supporting a larger number of simultaneously active wireless units, though it is conceivable that this may be achieved at the expense of decreased power control frequency." Ex. 1005 ¶ 47.

Two features of this passage undercut Petitioner's reliance on it. First, the benefit Khan describes arises from dividing control information across separate slots—"the TPC bit in some slots and the scheduling grant in … the remaining slots"—not from co-locating a grant with the TPC command in the leftover bits of one slot, which is the modification Petitioner proposes. Second, Khan itself qualifies the benefit by noting it may come

"at the expense of decreased power control frequency." Ex. 1005 ¶ 47. Petitioner does not address that the very benefit it borrows is, in Khan, paired with a cost to power-control cadence—the function for which Andersson's channel exists. Petitioner has therefore not shown that this benefit would be realized by the proposed substitution rather than by Khan's different arrangement.

The second and third asserted benefits—reduced complexity and reduced latency—rest on the declaration of Dr. Kotzin (Ex. 1003 ¶ 64) rather than on any disclosure of Andersson or Khan. We accord that testimony little weight on this point because it asserts the benefits in conclusory terms without explaining why they would result from inserting a scheduling grant into Andersson's undefined "other bits," as distinct from Khan's separate-slot design.

The weaker the correspondence between the structures of the two references, the harder it is to attribute a benefit observed in one to a modification made to the other. Here, the structures are materially different. Khan's benefit arises in the CDMA2000 High Rate Packet Data forward link, which uses a time-multiplexed slot "of length 2048 chips (1.66 … ms)" in which the pilot, MAC, and traffic or control channels are time-division multiplexed and the scheduling grant is carried in MAC fields on orthogonal Walsh codes. Ex. 1005 ¶¶ 35, 37–38, 47. Khan, in fact, explains that a code-multiplexed scheduling-grant channel "may not be used in the CDMA2000 HRPD," a circumstance Khan attributes to that system's "time-multiplexed slot structure." *Id.* (Ex. 1005 ¶ 43).

Andersson's channel is different in kind. Andersson describes a DPCCH organized as "16 time slots each lasting 0.625 msec" (Ex. 1009,

9:18–23), and Patent Owner's expert describes Andersson's WCDMA dedicated physical channels as "continuous streams with fixed slot structures," in contrast to Khan's forward link, which was "explicitly organized into time-multiplexed slots that could carve out separate fields for TPC commands and scheduling grants" (PO Resp. 36–37; Ex. 2016 ¶¶ 78–80, 100–101). A control slot of that kind is a fixed, time-bounded container whose bits are allocated to defined fields; the standardized uplink DPCCH, offered as background, confirms that each radio frame "is split into 15 slots, each of length Tslot = 2560 chips," that the "Layer 1 control information [that] consists of known pilot bits …, transmit power-control (TPC) commands, feedback information (FBI), and an optional transport-format combination indicator (TFCI)," and that "there are 10 bits per uplink DPCCH slot." Ex. 2014 §§ 5, 5.2.1. Petitioner offers no analysis of how many bits a scheduling grant requires, how many uncommitted bits remain in Andersson's fixed slot, or how the grant would coexist with the per-slot TPC command without displacing it. The record thus lacks evidence that the recited allocation of an uplink resource would, in fact, fit within the "other bits" of Andersson's slot.

The mismatch is compounded by the references' differing purposes. Andersson is not a packet-scheduling system; it is a power-control invention whose stated objective is to convey power-control information while minimizing the bits carried in each slot. Andersson teaches that "it is desirable not to use large numbers of bits to avoid increasing the signaling 'overhead'" (Ex. 1009, 3:55–58), that "only the indicator is sent (and not the details), [so that] signaling overhead and bandwidth consumption … are kept to a minimum" (*id.* at 6:6–12), and warns that adding content "adds

considerable overhead in terms of numbers of bits … [and] also reduces the bandwidth available for user traffic" (*id.* at 10:20–28). A reference whose design goal is to remove bits from the slot is an unlikely candidate for absorbing a scheduling grant, and Andersson supplies no scheduling function that would create a need to do so. This accords with Patent Owner's showing that, in Andersson's WCDMA framework, scheduling was performed semi-statically by the RRC in the RNC, not on the Node-B's power-control channel. PO Resp. 33–34, 35 (citing Ex. 2016 ¶¶ 62–63). Because Andersson's scheduling context differs from Khan's, the benefit Khan associates with its own scheduling architecture is correspondingly less probative of any benefit in Andersson.

Petitioner's characterization of the modification as a "simple combination" that needs "no redesign" (Pet. Reply 8–9) does not cure the deficiency; it reflects it. Describing the step as "merely" using "other bits" presumes the existence of fixed, sufficient, and available capacity that Andersson never defines and that Petitioner never quantifies. Invoking *KSR*'s "predictable use" and "improve … in the same way" formulations (Pet. 21) does not relieve Petitioner of showing that the benefits it claims would actually follow from the proposed modification; an apparent reason supported by a rational underpinning is required, not a conclusory assertion of predictability. We need not resolve whether Patent Owner is correct that the modification would demand wholesale redesign, because the burden rests with Petitioner, and Petitioner has not connected the benefits drawn from Khan's separate-slot architecture to inserting a scheduling grant into Andersson's undefined "other bits."

Independent of the foregoing nexus deficiency, the Andersson-Khan combination also fails to account for what claim 11 actually requires. Claim 11 does not recite scheduling information in the abstract; it requires the receiver to receive, on a single physical channel, "an allocation of an uplink resource," and requires that the transmitter "transmit an uplink signal on the allocated uplink resource." Ex. 1001, 14:45–64. Petitioner maps Khan's "scheduling grant" to that limitation, reasoning that a scheduling grant designates "a particular time or rate at which a UE may transmit on the uplink." Pet. 31 (citing Ex. 1005 ¶¶ 33, 35; Ex. 1003 ¶ 87). Petitioner does not, however, demonstrate that Khan's scheduling grant discloses or suggests an allocation of the specific uplink resource on which the UE then transmits its uplink signal, as the claim requires. Relabeling Khan's scheduling grant as an "allocation" does not, without more, show that a skilled artisan would have been led to modify Andersson's receiver so as to receive—on Andersson's single control channel—information allocating the particular uplink resource that the UE's transmitter would use for its uplink transmission. Petitioner identifies no allocation field in Khan designating such a resource, and does not tie the asserted grant to the specific resource "on" which the UE transmits. *See* PO Sur-reply 1–4; Pet. 25, 31; Ex. 1005 ¶¶ 33, 35–36. The Petition therefore does not bridge the gap between Khan's generalized scheduling grant and the recited allocation of an uplink resource that governs the UE's uplink transmission.

For the foregoing reasons, we determine that Petitioner has not demonstrated persuasively that limitation 11.2 would have been obvious over Andersson in view of Khan, for two independent reasons. First, the rationale Petitioner offers lacks a sufficient nexus to the modification

proposed: the benefits are tied to Khan's distinct, separate-slot communication scheme, the structural and functional differences between Andersson's control channel and Khan's forward-link slots are unaddressed, and the record does not establish that the recited allocation of an uplink resource would fit within, or appropriately occupy, the undefined "other bits" of Andersson's slot. Second, Petitioner has not shown that Khan's scheduling grant discloses or suggests the recited allocation of an uplink resource—that is, an allocation of the specific uplink resource on which the UE transmits its uplink signal—rather than a generalized scheduling grant relabeled as such.

b. Zeira in View of Khan

Petitioner addresses limitation 11.2, in relevant part, by relying on Zeira to supply the single physical channel carrying the power control information. *See* Pet. 57–61. Petitioner identifies Zeira's dedicated channel as the recited single physical channel, relying on Zeira's teaching that the closed loop power control command is "typically sent in a dedicated channel" that "is dedicated to the communication between the receiving station 50 and transmitting station 52." Pet. 57 (citing Ex. 1004, 4:27–30). For the recited allocation of an uplink resource, Petitioner relies on Khan's Figure 5, contending that Khan discloses a scheduling grant "multiplexed on the same physical channel as a TPC command" and a unit "receiving, over a single physical channel (e.g., Walsh channel, as identified by MACIndex value), both an allocation of a scheduled uplink resource (e.g., scheduling grant) and a TPC command (e.g., TPC bit)." *Id.* at 59 (citing Ex. 1005 ¶ 43, Fig. 5; Ex. 1003, ¶¶ 151–152).

To bridge Zeira to Khan, Petitioner relies on Zeira's statement that the unit transmits "in the appropriate time slots and codes of the assigned resource units" (Ex. 1004, 2:62–63, 6:63–65), while acknowledging that Zeira "does not specify how such resource units are assigned to it." Pet. 60. From that silence, Petitioner infers that Zeira's reference to "assigned resource units" "would indicate to a [skilled artisan] that Zeira contemplates some scheduling function located at the receiving station" and would have "motivated" a skilled artisan to seek out Khan. *Id.* (citing Ex. 1003 ¶ 153).

Petitioner contends that the combination would require "nothing more than the predictable use of prior art elements according to their established functions" and would "improve Zeira's system in the same way." Pet. 59–60 (citing Ex. 1003 ¶¶ 153–155). For the asserted advantages, Petitioner cross-references its earlier motivation section, stating that there are "several advantages of combining TPC commands and uplink scheduling information in the same control channel . . . including reduced complexity and latency." *Id.* at 60 (citing Ex. 1003 ¶¶ 64, 154). Petitioner adds that "Zeira's disclosure is not limited to transmission of TPC commands over any particular channel." *Id.* at 60–61 (citing Ex. 1003 ¶ 156; Ex. 1004, 4:27–30).

Patent Owner responds that Zeira's "assigned resource units" "refer to a combination of time slots and spreading codes used for transmission" and are "not the same as a scheduling grant as taught by Khan, which includes identification, rate, and HARQ control information transmitted dynamically by the BS to schedule uplink transmissions." PO Resp. 54 (citing Ex. 1004, 4:31–39; Ex. 2016 ¶ 137). Because Zeira's underlying UMTS/TDD technology "used RRC signaling to configure the uplink transport channel

for the UE rather than dynamic, per-TTI scheduling," Patent Owner contends that the "assigned resource units" language does not motivate the proposed combination. *Id.* at 54–55 (citing Ex. 1005 ¶¶ 13–15; Ex. 2016 ¶¶ 135, 137).

Patent Owner further contends that the references employ "fundamentally incompatible channel multiplexing structures." PO Resp. 55. Khan is from CDMA2000 HRPD, where "different types of control information, such as TPC bits, scheduling grants, rate indication, and HARQ, are transmitted in distinct fields within the same downlink slot," whereas Zeira's UTRA-TDD dedicated channel carries "continuous TPC commands at Layer 1 in every time slot," with scheduling and channel configuration "handled separately through Layer-3 RRC signaling procedures such as *Transport Channel Reconfiguration and Physical Channel Reconfiguration* in TS 25.331." *Id.* (citing Ex. 1005 ¶¶ 45–47, Fig. 5; Ex. 2016 ¶ 138). On that record, Patent Owner argues, a POSITA would not have viewed the channels as operating "in the same way" and the proposal is "a hindsight reconstruction that would require substantial re-design of the UTRA-TDD protocol stack." *Id.* at 56–57 (citing Ex. 1005 ¶¶ 43–47; Ex. 2016 ¶ 139).

As to the asserted advantages, Patent Owner contends each fails because importing Khan's multiplexing into Zeira "would not yield the claimed benefits, but instead would compromise power control stability, increase implementation burden, and degrade system performance." PO Resp. 57 (citing Ex. 2016 ¶¶ 140–143). Specifically, Patent Owner argues the combination would not support "more active units" but would "deprive users of the reliable slot-by-slot power control that Zeira requires"

(*id.* at 58 (citing Ex. 2016 ¶ 141)); "would in fact increase complexity" (*id.* at 58–59 (citing Ex. 2016 ¶ 142)); and that "adopting Khan's structure would risk less frequent or delayed power updates, not faster ones," such that "grafting on Khan's HRPD scheduling constructs would only degrade responsiveness" rather than reduce latency (id. at 59 (citing Ex. 2016 ¶ 143)).

Petitioner replies that the Petition presents "a simple combination of Zeira and Khan" in which both an allocation of an uplink resource and power control information are transmitted on Zeira's "dedicated channel" based on Khan's disclosure of "transmitting both parameters on a single physical channel." Pet. Reply 20 (citing Ex. 1003 ¶¶ 153–155; Ex. 1072 ¶ 47. Petitioner contends that Patent Owner does not engage that combination and instead attacks a physical incorporation of Khan into Zeira that the Petition does not propose. *See id.* at 20–21.

Petitioner maintains that the combination requires no "substantial re-design" of Zeira's channel, because it adds only a single parameter (an uplink signaling grant) to Zeira's existing dedicated channel rather than altering that channel's format. Pet. Reply 22 (citing Ex. 1072 ¶ 49). Petitioner further argues that no genuine incompatibility exists because neither Zeira nor Khan is limited to a single network type, noting that the terms UTRA and UMTS do not appear in Zeira's disclosure and that Zeira's reference to TDD denotes only a broadly applicable duplexing technique used in many networks. *Id.* at 22–23 (citing Ex. 1004, 1:7–11, 4:10–30; Ex. 1005 ¶¶ 5, 8, 18, 34, 37; Ex.1071, 33:9–34:1; Ex. 1072 ¶¶ 50–51).

In its Sur-reply, addressing the single-physical-channel limitation across the Khan-based grounds, Patent Owner contends that Petitioner's

"technology family" rebuttal "do[es] not cure Petitioner's failure of proof, because the dispute is about whether a POSITA would have combined disparate channel structures to achieve the claimed co-carriage—not whether both systems can be described under a broad CDMA umbrella." PO Sur-reply 8. The question, Patent Owner urges, "turns on whether the prior art teaches receiving scheduling information and power control information on the same physical-channel instance addressed to the UE for the relevant uplink transmission." *Id.*

Patent Owner adds that the dedicated-versus-shared mismatch "is not superficial," because shared-channel structures "require additional multiplexing methods and addressing mechanisms precisely because multiple UEs can demodulate shared channels," whereas a dedicated channel "is a continuous fixed-format stream rather than a slot-carved shared medium." PO Sur-reply 11.

Having considered the parties' positions and the cited evidence, we are not persuaded that Petitioner has shown limitation 11.2 would have been disclosed or suggested by the combination of Zeira and Khan. Our reasoning follows.

Petitioner's theory is a modification theory: it proposes to convey, on Zeira's existing dedicated channel, both the TPC command Zeira already transmits and an allocation of an uplink resource, which Petitioner derives from Khan's scheduling grant. Pet. 59–60. Petitioner casts that modification as a small one, contending it requires "nothing more than the predictable use of prior art elements according to their established functions" and would "improve Zeira's system in the same way." Pet. 59–60; Ex. 1003 ¶¶ 153–155. We take Petitioner at its word as to the modification it

proposes, and we evaluate the obviousness of that modification on the rationale and evidence Petitioner has supplied.

Petitioner's rationale has two parts. First, Petitioner infers a motivation from Zeira itself: that Zeira's reference to "assigned resource units" "would indicate to a POSITA that Zeira contemplates some scheduling function located at the receiving station," which in turn "motivated" resort to Khan. Pet. 60; Ex. 1003 ¶ 153. Petitioner makes that inference while expressly acknowledging that Zeira "does not specify how such resource units are assigned to it." Pet. 60. Second, Petitioner asserts that combining scheduling and power control on one channel yields "several advantages . . . including reduced complexity and latency," cross-referencing its general motivation section and the supporting declaration testimony. Pet. 60; Ex. 1003 ¶¶ 64, 154.

A motivation to combine must be supported by articulated reasoning with a rational underpinning, and an asserted benefit carries weight only if it would flow from the proposed modification. Petitioner's benefits do not clear that bar on this record.

The capacity benefit — a "larger number of active wireless units" — is a benefit Khan attributes to its own scheme, and Khan obtains it precisely by reducing the frequency of power control: Khan teaches carrying the grant in slots in a manner that comes "at the expense of decreased power control frequency." Ex. 1005 ¶ 47. Petitioner does not show that this benefit would be realized when Khan's approach is imported into Zeira; to the contrary, the persuasive testimony is that doing so "would not increase capacity; it would erode the reliability of TPC that Zeira relies on, destabilizing the loop and defeating Zeira's purpose." Ex. 2016 ¶ 141. The remaining benefits—

reduced complexity and reduced latency—rest on a single, conclusory paragraph of declaration testimony (Ex. 1003 ¶ 64) that addresses the abstract idea of co-locating control information, not the specific consequences of conveying both a TPC command and an uplink scheduling grant on Zeira's dedicated channel. Patent Owner's expert explains, without persuasive rebuttal, that the modification would in fact "increase complexity" by forcing "significant additional logic in both the UE and BS to parse mixed control types" (Ex. 2016 ¶ 142), and would "risk delaying or thinning TPC updates" rather than reduce latency (Ex. 2016 ¶ 143). On this record, Petitioner has not tied the benefits it borrows from Khan's separate system to the modification it proposes for Zeira, and we accord that rationale little weight.

The weaker a benefit's connection to a reference's own architecture, the harder it is to assume the benefit will survive transplantation into a different architecture — and here the two architectures are markedly different. Khan arises from CDMA2000 HRPD, in which the forward link time-multiplexes "TPC bits, scheduling grants, rate indication, and HARQ" control information "in distinct fields within the same downlink slot." PO Resp. 55 (citing Ex. 1005 ¶¶ 45–47, Fig. 5; Ex. 2016 ¶ 138). Zeira, by contrast, is a power control invention whose dedicated channel exists to carry "continuous TPC commands at Layer 1 in every time slot to maintain closed-loop power control," with scheduling and channel configuration "handled separately through Layer-3 RRC signaling procedures." *Id.* The functions Petitioner would merge are thus assigned, in Zeira's technology, to different protocol layers and different network elements—fast Layer-1

power control at the Node B, and semi-static Layer-3 configuration at the RNC. *Id.* at 55–56.

That difference also undermines the predicate for Petitioner's motivation. Petitioner reads "assigned resource units" as implying a base-station scheduling function (Pet. 60), but the unrebutted evidence is that a skilled artisan would read that phrase as "the time-slot + spreading-code allocations used for transmission, not as a dynamic, per-TTI grant carrying identity, rate, and HARQ fields as in Khan." Ex. 2016 ¶ 137. Because Zeira is a power control invention that routes scheduling and configuration off of its dedicated channel, Zeira's need — and any corresponding benefit — to fold a dynamic scheduling grant onto that channel is different from, and weaker than, the need Petitioner posits. The greater the architectural distance, the less Khan's in-context benefits can be attributed to the proposed Zeira modification, and Petitioner has not bridged that distance with evidence.

Petitioner's emphasis on simplicity — that the combination is "a simple combination" requiring "the predictable use of prior art elements" (Pet. 59; Pet. Reply 8) — does not fill the evidentiary gap; it presumes the very things that must be shown. Characterizing the modification as predictable assumes that Zeira contemplates a dynamic scheduling function on its dedicated channel, that Khan's shared-slot grant mechanism is compatible with Zeira's continuous, fixed-format dedicated stream, and that Khan's benefits would result once the mechanism is moved. Each premise is contested and, on this record, unproven. As Patent Owner observes, the dispute "turns on whether the prior art teaches receiving scheduling information and power control information on the same physical-channel

instance," not on whether both systems can be grouped under a "broad CDMA umbrella." PO Sur-reply 8. Invoking *KSR*'s "predictable use" language does not relieve Petitioner of supplying a rational underpinning for the specific modification it proposes.

Giving Petitioner's rationale the weight the record supports, we find that Petitioner has not shown that a skilled artisan would have been motivated to place a dynamic scheduling grant on Zeira's dedicated power-control channel with a reasonable expectation of success, or that the asserted benefits would result from that modification. The motivation Petitioner draws from Zeira's "assigned resource units" rests on conceded silence and an inference the unrebutted evidence contradicts; the asserted advantages are tied to Khan's different HRPD architecture and to conclusory testimony rather than to the proposed Zeira modification; and the architectural distance between the references makes the proposed transplantation neither predictable nor supported. For the further reason explained above in connection with the Andersson-Khan combination, Petitioner's Zeira-Khan theory also does not account for the recited "allocation of an uplink resource." Claim 11 requires the receiver to receive, on a single physical channel, an allocation of an uplink resource, and requires that the UE "transmit an uplink signal on the allocated uplink resource." Ex. 1001, 14:62–64. Petitioner again maps Khan's "scheduling grant" to that limitation, Pet. 59 (citing Ex. 1003 ¶¶ 151–152), but does not demonstrate that Khan's grant discloses or suggests allocating the specific uplink resource on which the UE then transmits, as distinct from a generalized scheduling grant. Petitioner therefore has not shown that a skilled artisan would have been led to place, on Zeira's dedicated channel, information

allocating the particular uplink resource that the UE's transmitter would use for its uplink transmission. Accordingly, on this record, we determine that Petitioner has not demonstrated persuasively that limitation 11.2 is met by the Zeira-Khan combination.

2. Conclusion

Independent claim 11 requires, among other limitations, that the processor and the receiver be configured to receive, on a single physical channel, an allocation of an uplink resource and a multi-level TPC command (limitation 11.2). Independent claim 17 recites a corresponding method that includes a substantially similar limitation. *See* Ex. 1001, claim 17. The remaining challenged claims—claims 12–16 and 18–22—depend directly or indirectly from claims 11 and 17.

For the foregoing reasons, we are not persuaded that Petitioner has shown, by a preponderance of the evidence, that any asserted ground discloses or suggests limitation 11.2. Neither the Andersson-Khan combination (Grounds 1–3) nor the Zeira-Khan-Tong combination (Grounds 4–6) demonstrates that the prior art teaches or suggests receiving, on a single physical channel, both an allocation of an uplink resource and a multi-level TPC command, as the challenged claims require. Because that deficiency is common to every asserted ground, and because the dependent claims incorporate the limitations of the independent claims from which they depend, the deficiency in Petitioner's showing as to limitation 11.2 extends to all challenged claims.

Accordingly, we determine that Petitioner has not demonstrated, by a preponderance of the evidence, that the challenged claims in Grounds 1–6 would have been unpatentable under 35 U.S.C. § 103.

III. PETITIONER'S MOTION TO STRIKE

Petitioner filed a Motion to Strike a Portion of Patent Owner's Sur-Reply (Paper 23, "Mot.") because, it argues, Patent Owner's "Sur-Reply presents, for the first time, a new 'stand-alone' theory not included in prior briefing—i.e., that there is a disclosure 'gap' with respect to the claimed '*allocation*.'" Mot. 1 (citing PO Sur-reply 1–5). Petitioner contends that, at pages 1–5, Patent Owner's Sur-reply "is not responsive or tied to any relevant portion of the prior briefing" because the Response only argues "that 'Petitioner has not properly established a motivation to combine' the Andersson and Khan references (Ground 1) and the Zeira and Khan references (Ground 4)." *Id.* at 2 (citing PO Resp. 30–42, 49–60).

In Patent Owner's opposition (Paper 24, "PO Mot. Resp."), Patent Owner asserts that the subject matter at page 1–5 of its Sur-reply "was a proper response to Petitioner's 'bodily incorporation' position advanced in the Reply." PO Mot. Resp. 1 (citing Pet Reply 1, 8–9). Patent Owner asserts that the criticized portion of its Sur-reply, even absent bodily incorporation, "properly explained that the Petitioner still failed to explain how a POSITA would have arrived at the claimed invention by failing to identify within the 'fundamentally incompatible channel multiplexing structures.'" *Id.* Patent Owner explains that it properly pointed out that Petitioner still failed to explain how a skilled artisan would have arrived at the claimed invention because a gap still remains even without what Petitioner alleged to involve bodily incorporation. *Id.* at 1–2.

We find that page 1–5 of the Patent Owner's Sur-reply was sufficiently responsive to Petitioner's arguments in its Reply to not warrant striking. Additionally, we do not find that Patent Owner introduced a new

argument, but responsively rebutted Petitioner's counterpoints with additional facts and reasoning to further bolster its earlier position that Petitioner failed to establish why a person of ordinary skill in the art would combine the cited references in the manner claimed and how they would arrive at the claimed invention. Therefore, Petitioner's motion to strike pages 1–5 of Patent Owner's Sur-reply is DENIED.

IV. CONCLUSION

For the foregoing reasons, we determine that Petitioner has not demonstrated by a preponderance of the evidence that claims 11–22 of the '500 Patent are unpatentable. Our conclusions are summarized in the following table.

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
11, 15–17, 21, 22	103(a)	Andersson, Khan		11, 15–17, 21, 22
12, 13, 18, 19	103(a)	Andersson, Khan, Baker		12, 13, 18, 19
14, 20	103(a)	Andersson, Khan, Dick		14, 20
11, 15–17, 21, 22	103(a)	Zeira, Khan, Tong		11, 15–17, 21, 22
12, 13, 18, 19	103(a)	Zeira, Khan, Tong, Baker		12, 13, 18, 19
14, 20	103(a)	Zeira, Khan, Tong, Dick		14, 20
Overall Outcome				11–22

V. ORDER

For the foregoing reasons, it is:

ORDERED that Petitioner has not demonstrated by a preponderance of the evidence that claims 11–22 of the ’500 Patent are unpatentable;

FURTHER ORDERED that Petitioner Motion to Strike a Portion of Patent Owner’s Sur-reply is DENIED; and

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

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