

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

WILUS INSTITUTE OF STANDARDS AND TECHNOLOGY INC.,
Patent Owner.

Case No. IPR2026-01164
U.S. Patent No. 12,004,262

PATENT OWNER'S RESPONSE

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TABLE OF EXHIBITS

No.	Description
2001	Order, <i>Wilus Institute of Standards and Technology Inc. v. HP Inc.</i> , Case No. 2:25-cv-00069-JRG-RSP, Dkt. No. 51 (E.D. Tex., June 13, 2025) (“Docket Control Order”)
2002	Press Release, “Lenovo and Wilus Agree Wi-Fi License Deal,” April 10, 2025
2003	Excerpts of Defendants’ P.R. 3-3 and 3-4 Invalidity Contentions and Subject Matter Eligibility Contentions, <i>Wilus v. HP</i> , Case No. 2:25-cv-00069-JRG-RSP (E.D. Tex.), dated July 9, 2025
2004	Docket Navigator Stay Statistics
2005	Excerpt from U.S. District Court -- National Judicial Caseload Profile for the Eastern District of Texas, March 31, 2025
2006	Judge Rodney Gilstrap’s median time to trial from August 25, 2024 until August 25, 2025, retrieved from www.docketnavigator.com
2007	Samsung “Letter of Assurance for Essential Patent Claims,” January 14, 2022
2008	Declaration of Jin Sam Kwak
2009	List of Licensees to Wi-Fi 6 from Sisvel
2010	Letter re “Notice of Wi-Fi 6 License offer” from Sisvel to Samsung Electronics Co., Ltd. with Attachments 1-2, August 24, 2022
2011	IEEE P802.11, Document IEEE 802.11-18/0367r, dated March 1, 2018
2012	IEEE P802.11ax™/D2.3, dated April 2018
2013	Excerpts of IEEE 802.11-17/1682r13, Comments on TGAX/D2.0

No.	Description
2014	Defendants' P.R. 4-1 Exchange of Proposed Terms and Claim Elements for Construction, October 23, 2025
2015	November 5, 2025 email re: Samsung v. Wilus IPRs — requests for supplemental briefing
2016	November 13, 2025 email withdrawing contentions as to indefiniteness
2017	Declaration of Todor V. Cooklev, Ph.D.
2018	Declaration of Paul Nikolich
2019	Transcript of the Deposition of Christopher Hansen, Ph.D. (April 9, 2026)

I. INTRODUCTION

The Petition fails on both a threshold evidentiary point and on the merits of every ground.

Threshold. Petitioner’s Grounds 1A, 1B, and 2B all depend on IEEE 802.11ax Draft 1.0 (Ex. 1005). Petitioner has not shown D1.0 was publicly accessible before the April 14, 2017 Critical Date. D1.0 was circulated only internally within the IEEE 802.11 Working Group behind a password-protected member area; the Petition’s proffered pathways for access — voting membership, “ask a Working Group member,” the “Aspirant” and listserv theories, and RFC 7241 IETF cooperation — are each unsupported by any evidence of actual dissemination to a member of the relevant public exercising reasonable diligence. (Nikolich Decl. ¶ 17); Ex. 2019 (Hansen Depo.) at 45:18–25; 57:1–9; 59:13–24. D1.0 does not qualify as a “printed publication” under 35 U.S.C. § 102.

Merits. Even if D1.0 qualified as prior art, each ground fails. The challenged claims recite an operational rule: when a wireless communication terminal receives a trigger frame in a non-HE PPDU, the terminal sets the BSS color of its trigger-based PPDU according to an “active BSS color” — a value co-defined by [1.7]/[4.5] (Operation-element origin) and [1.8]/[4.6] (time-

gated update at an AP-announced change time point). *See infra* § V. That “active BSS color” mechanism does not appear in any of the references Petitioner asserts.

Ground 1A. D1.0 contains only a static Operation-element rule (§ 27.5.2.3) and a terminal-side “start using” instruction (§ 27.16.2) that contradicts the static rule without reconciling it. The ’262 Patent’s “active BSS color” is the resolution D1.0 lacks. *See infra* § VI.

Ground 1B. Adding Yang (Ex. 1006) and 802.11-2016 (Ex. 1010) does not cure D1.0’s defect. Petitioner cites Yang only for generic hardware elements, and 802.11-2016 does not contain the 802.11ax BSS-color framework introduced in D1.0, nor does it disclose anything bearing on [1.5]/[1.8]. *See infra* § VII.

Grounds 2A and 2B. Yang addresses a fundamentally different problem — AP-side BSS-color collision — and its two-stage design is incompatible with the combinations Petitioner proposes. 802.11-17/0250r2 (Ex. 1007) mirrors D1.0’s static Operation-element rule and shares the same defect; 802.11-16/1415r0 (Ex. 1008) mirrors § 27.16.2’s AP-side procedure. Ground 2B stacks an additional reference, 802.11-17-0230r1 (Ex. 1011), only for claim 3’s Partial-AID limitation — which rides on claim 1’s nonobviousness in any event. *See infra* §§ VIII–IX.

Prosecution history and amendment history. The Patent Office allowed the claims in 2024 after considering an obviousness rejection over Verma in view of Yang. The examiner conceded that “Verma does not expressly teach” the dispositive limitations, and the applicant distinguished Yang on the non-HE-PPDU-versus-HE-PPDU point that defeats Petitioner’s grounds today. Ex. 1002 at 262; *id.* at 229–231, 39. The broader IEEE amendment history confirms what the Patent Office already decided: the “active BSS color” concept was not adopted by IEEE until D2.3 in 2018, after the ’262 Patent’s inventor proposed it via CID 11730 in November 2017 — more than six months after the Critical Date. *See infra* § X.

The Petition has not shown by a preponderance of the evidence that any challenged claim is unpatentable. The Board should deny the Petition in its entirety.

II. OVERVIEW OF THE ’262 PATENT

The ’262 Patent issued on June 4, 2024 from Application No. 17/670,419, filed February 11, 2022 as a continuation of U.S. Patent No. 11,284,475. Ex. 1001 (the ’262 Patent) at pgs. 1–2. Through a chain of priority applications, the ’262 Patent claims priority to Korean applications filed in 2017, including KR10-2017-0048762 filed April 14, 2017. ’262 Patent at 1:9–20. Petitioner treats April 14, 2017 as the Critical Date.

The '262 Patent describes that there is a continued need “for providing a high-efficiency and high-performance wireless communication technology in a high-density environment” and recognizes that “in a next-generation wireless communication environment, communication having high frequency efficiency needs to be provided indoors/outdoors under the presence of high-density terminals and base terminals.” '262 Patent at 2:38-48. The '262 Patent's technology is utilized by products implementing the IEEE 802.11ax (Wi-Fi 6) standard, such as the 2021 version of the IEEE 802.11ax standard.

Wi-Fi 6 uses a new feature, BSS color, to enable devices operating in the same frequency space to quickly distinguish between data units from their own BSS and those from another BSS by simply referencing the BSS color value contained in the HE PPDU's header. *See* '262 Patent at FIGS. 1-2.

In OFDMA communications, based on the trigger frame from the access point, multiple wireless communication terminals send trigger-based PPDU's to the access point to ensure time-aligned reception at the access point. '262 Patent at 12:9-13 (“In the embodiment of FIG. 6, the AP transmits a trigger frame to the first station STA1 to the fourth station STA4. The first station STA1 to the fourth station STA4 receive a trigger frame and simultaneously transmit a trigger-based PPDU to the AP based on the trigger frame.”), FIG. 6.

The Wi-Fi 6 devices typically can obtain the BSS color from the HE-SIG-A field of the trigger frame. As such, the Wi-Fi 6 devices can set the BSS color as that in the HE-SIG-A field when responding to the access point with the trigger-based PPDU. *See, e.g.*, '262 Patent at 20:41-49, FIGS. 14, 20-23.

However, there are instances where the wireless communication terminals cannot obtain BSS color information from the HE-SIG-A field of the trigger frame. '262 Patent at 54:19-35. One example would be when a trigger frame is received in a non-HE PPDU. In that situation, the wireless communication terminals can instead use the color set by an Operation element. '262 Patent at 38:64-39:12, FIG. 22. But when the access point changes the BSS color, color conflict may result between the color sent by an Operation element and the color changed by the access point. '262 Patent at 38:40-55, 39:12-20. The '262 Patent solves this issue. For example, if the trigger frame does not have the field indicating BSS color (e.g., trigger frame in a non-HE PPDU), the '262 Patent describes setting the new color as an active BSS color if the BSS color change time point is reached; otherwise, the active BSS color is set to be the color from the Operation element. '262 Patent at 20:49-58.

The '262 Patent has two independent claims, claims 1 and 4. The Petition uses claim 1 as the representative claim, which is reproduced below.

[1.pre] A wireless communication terminal wirelessly communicating with a base wireless communication terminal, the wireless communication terminal comprising:

[1.1] a transceiver configured to transmit and receive wireless signals; and

[1.2] a processor configured to process the wireless signals,

[1.3] wherein the processor is configured to:

receive a physical layer protocol data unit (PPDU) including a trigger frame for triggering transmission to the base wireless communication terminal, wherein the trigger frame indicates a resource unit (RU) which is allocated to the wireless communication terminal,

[1.4] when a format of the PPDU including the trigger frame is a PPDU format in which at least one of physical layer signaling fields including a field for indicating a Basic Service Set (BSS) color is included, set a value of a BSS color to be indicated by a trigger-based PPDU based on the BSS color indicated by the field,

[1.5] when the format of the PPDU including the trigger frame is a PPDU format in which any physical layer signaling field including the field for indicating the BSS color is not included, set the value of the BSS color to be indicated by the trigger-based

PPDU according to an active BSS color of the wireless communication terminal, and

[1.6] transmit the trigger-based PPDU based on the trigger frame,

[1.7] wherein the active BSS color is a BSS color actually used by the wireless communication terminal and set by an Operation element,

[1.8] wherein when the wireless communication terminal receives information on a BSS color change from the base wireless communication terminal and a BSS color change time point indicated by the information on the BSS color change is reached, the active BSS color is set to a value of a BSS color indicated by the information on the BSS color change, and

[1.9] wherein the BSS color is one of identifiers identifying a BSS.

Independent claim 4 is a method claim with limitations parallel to claim 1 (including [4.3] parallel to [1.5] and [4.6] parallel to [1.8]). As discussed in §§ VI–IX below, the asserted references do not disclose these elements.

A. Overview of the File History of the '262 Patent

During prosecution, the examiner rejected the independent claims as obvious over Verma (U.S. Publ. No. 2017/0325202) in view of Yang (U.S. Publ.

No. 2017/0367129). The applicant's December 11, 2023 response distinguished the references on the active-BSS-color limitations, and the examiner found the applicant's arguments persuasive and allowed the claims. Ex. 1002 at 229–231, 39. Section V.D below addresses the prosecution history in detail.

III. LEVEL OF ORDINARY SKILL IN THE ART

The Petition proposes that a POSITA “would have had a Bachelor's degree in electrical engineering, computer engineering, computer science, or a related field, and at least 3 years of experience in the research, design or development of wireless communication devices, systems, and/or networks, or equivalent, as of the Critical Date. Increased education experience can make up for less work experience and vice versa.” Petition at 3. Patent Owner does not challenge Petitioner's definition for purposes of this Response.

IV. LEGAL STANDARDS

A patent claim is unpatentable as obvious under 35 U.S.C. § 103 if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). Obviousness is a question of law based on underlying factual determinations, including: (1) the scope and content of the prior art; (2) the differences between the prior art and the claimed invention;

(3) the level of ordinary skill in the art; and (4) objective indicia of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

The petitioner bears the burden of proving unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e). That burden never shifts to the patent owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

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*, 550 U.S. at 418. But the analysis must account for the “reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does,” and must guard against the impermissible use of hindsight. *Id.*

A reference may be said to teach away when “a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994).

A printed publication qualifies as prior art only if it was “sufficiently accessible to the public interested in the art.” *In re Lister*, 583 F.3d 1307, 1311

(Fed. Cir. 2009). The ultimate question is whether the reference was “available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it.” *SRI Int’l, Inc. v. Internet Sec. Sys., Inc.*, 511 F.3d 1186, 1194 (Fed. Cir. 2008).

The petitioner has the burden to clearly set forth the basis for its challenges in the petition. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) as “requiring IPR petitions to identify ‘with particularity . . . the evidence that supports the grounds for the challenge to each claim’”). A petitioner may not rely on the Board to substitute its own reasoning to remedy the deficiencies in a petition. *SAS Inst., Inc. v. Iancu*, 584 U.S. 357, 364 (2018) (“Congress chose to structure a process in which it’s the petitioner, not the Director, who gets to define the contours of the proceeding.”); *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (rejecting the Board’s reliance on obviousness arguments that “could have been included” in the petition but were not, and holding that the Board may not “raise, address, and decide unpatentability theories never presented by the petitioner and not supported by record evidence”); *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1367 (Fed. Cir. 2015) (holding that “a challenge can fail even if different evidence and arguments might have led to success”); *Wasica Finance GMBH v. Continental Auto. Systems*, 853

F.3d 1272, 1286 (Fed. Cir. 2017) (holding that new arguments in a reply brief are “foreclosed by statute, our precedent, and Board guidelines”).

The Board “may reject even uncontroverted expert testimony when it is intrinsically unpersuasive.” *Granite Constr. Co. v. United States*, 962 F.2d 998, 1006 (Fed. Cir. 1992). The petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *Magnum*, 829 F.3d at 1380.

An obviousness determination requires finding that a POSITA would have been motivated to modify or combine teachings in the prior art. *In re Stepan Co.*, 868 F.3d 1342, 1345–46 (Fed. Cir. 2017). Obviousness concerns “whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.” *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015). The “mere fact that these possible arrangements existed in the prior art” does not provide a motivation to substitute the arrangement in one prior art embodiment with the arrangement in another.” *Virtek Vision International ULC v. Assembly Guidance Systems, Inc.*, 97 F.4th 882, 887 (Fed. Cir. Mar. 27, 2024). Because a motivation to modify or combine is part of the *prima facie* case for obviousness that must be set forth in the petition, a petitioner should not be permitted to present “an entirely new rationale to explain why

one of skill in the art would have been motivated to combine” in its reply. *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1370 (Fed. Cir. 2016).

V. CLAIM CONSTRUCTION

Petitioner submits that “no formal claim constructions are necessary.” Pet. at 3. Patent Owner agrees. The plain and ordinary meaning of the claim terms applies, *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc), and no term requires formal construction to resolve the grounds in the Petition. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (claims need only be construed “to the extent necessary to resolve the controversy”). Patent Owner’s position here is the same one it has taken in district court: no claim term requires formal construction. Paper 9 at 1 (Petitioner’s suggestion to the contrary). Proposing no formal construction, however, is not the same as offering no operational understanding of how the claim’s limitations work together. The discussion that follows in this section is not a proposed construction of any term; it is an account of how [1.5]/[4.3] and [1.8]/[4.6] operate together — which is exactly what the Petition’s separate-element treatment of those limitations invites.

To evaluate those grounds, however, the Board should have a clear understanding of how two claim limitations operate together: [1.5]/[4.3] and

[1.8]/[4.6]. These limitations define a combined operational rule that the '262 Patent introduced to 802.11ax. Petitioner treats them in isolation — as if each were a standalone disclosure requirement — and reads out of the claims the interrelationship between [1.5]/[4.3] and [1.8]/[4.6] that the Patent Office found made the claims patentable over Yang (on which the Petition again leans). That treatment cannot be squared with the claim language, the specification, or the prosecution history.

A. Element [1.5]/[4.3] — Using an “Active BSS Color” When the Trigger Frame Is in a Non-HE PPDU

Element [1.5] of claim 1 specifies how a wireless communication terminal must derive the BSS color for a trigger-based PPDU when the trigger frame arrives in a PPDU that carries no physical-layer BSS color indication.

The element reads:

[1.5] when the format of the PPDU including the trigger frame is a PPDU format in which any physical layer signaling field including the field for indicating the BSS color is not included, set the value of the BSS color to be indicated by the trigger-based PPDU according to an active BSS color of the wireless communication terminal

Ex. 1001 (the '262 Patent), claim 1; *accord id.*, claim 4 element [4.3] (method claim, parallel language).

By its terms, element [1.5] applies only when the trigger frame arrives in a PPDU that carries no physical-layer BSS color indication — *i.e.*, a non-HE PPDU that lacks an HE-SIG-A field. Ex. 1001 (the '262 Patent), claim 1 ("a PPDU format in which any physical layer signaling field including the field for indicating the BSS color is not included"). In that scenario, the terminal must use an "active BSS color" — not a value received in the trigger frame PPDU, and not any other value. The claim is explicit: the terminal "set[s] the value of the BSS color to be indicated by the trigger-based PPDU according to an active BSS color of the wireless communication terminal." *Id.*, claim 1. That mandatory phrasing matters. It tells the terminal to reach for a dynamically maintained value that the claims themselves define.

B. Element [1.8]/[4.6] — The "Active BSS Color" Is Dynamic, Not Static

Element [1.8] supplies the rule that governs how the active BSS color is set:

[1.8] wherein when the wireless communication terminal receives information on a BSS color change from the base wireless communication terminal and a BSS color change time point indicated by the information on the BSS color change is reached, the active BSS color is set to a value of a BSS color indicated by the information on the BSS color change

Ex. 1001 (the '262 Patent), claim 1; *accord id.*, claim 4 element [4.6].

Element [1.8] does more than define a term. It prescribes a time-gated update mechanism. When the AP announces a BSS color change — a routine occurrence under 802.11ax when an AP detects a BSS color collision with an OBSS — the terminal does not immediately adopt the new color. It updates its active BSS color only when “a BSS color change time point indicated by the information on the BSS color change is reached.” *Id.* Up to that point, the active BSS color remains unchanged. After that point, the active BSS color “is set to a value of a BSS color indicated by the information on the BSS color change.” *Id.*

The active BSS color is therefore not simply whatever color the STA last saw advertised in an Operation element; it is a dynamically maintained value that updates at the AP-announced change time point. The specification illustrates the rule’s application in the color-change scenario. *See* Ex. 1001 (the ’262 Patent) at 38:40–55; 39:12–20. But the specification’s illustration of one scenario does not narrow the claim to that scenario. The claim’s rule — use an “active BSS color” governed by the time-gated update — applies whenever the STA sends a trigger-based PPDU in response to a non-HE-PPDU trigger frame, regardless of whether a particular deployment happens to encounter a divergence. FIG. 22 illustrates the point. The figure shows both STA1 (which received the AP’s color-change beacon) and STA2 (which

missed it). *See* Ex. 1001 (the '262 Patent) at FIG. 22. Both practice the claimed rule, setting the BSS color of their trigger-based PPDU according to their own active BSS color. For STA1, the change time point has been reached and the active BSS color is the new color per [1.8]/[4.6]. For STA2, the change time point has not been reached — because STA2 missed the beacon — and the active BSS color remains the prior Operation-element color. The claim's rule is the same in both cases; only the run-time state differs. STA1 is not excluded from the reading set out above — STA1 is the case in which [1.8]/[4.6]'s update condition has been satisfied and the active BSS color has been updated accordingly.

C. Together, [1.5]/[4.3] and [1.8]/[4.6] Require a Dynamically Updated Active BSS Color, Not a Static Operation-Element Rule

Read together, [1.5]/[4.3] and [1.8]/[4.6] impose a single operational rule: when the trigger frame arrives in a non-HE PPDU, the terminal sets the BSS color of its trigger-based PPDU according to a dynamically maintained “active BSS color” that updates at the AP-announced change time point. The rule's two components — the non-HE-PPDU trigger scenario and the time-gated update — are inseparable; the '262 Patent's inventive contribution lies in their interrelationship, not in either alone.

In its Reply to Patent Owner’s Preliminary Response, Petitioner contends that [1.5]/[4.3]’s “setting” requirement can be satisfied by [1.7]/[4.5] alone — that is, that [1.8]/[4.6]’s time-gated update is merely a conditional modifier. Paper 9 at 2. That misreads the claim. [1.7] and [1.8] are both “wherein” clauses co-defining the “active BSS color” referenced in [1.5]: [1.7] specifies that it is “a BSS color actually used by the wireless communication terminal and set by an Operation element”; [1.8] specifies how it updates when the AP-announced change time point is reached. For the prior art to disclose [1.5]/[4.3]’s active BSS color, it must disclose the value as defined by both clauses. Petitioner’s reading would render [1.8]/[4.6] surplus. *See Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005). Each limitation limits; the “active BSS color” in [1.5] takes its meaning from the interrelationship of [1.7]/[4.5] and [1.8]/[4.6].

Petitioner’s grounds treat the two elements separately and attempt to show each one satisfied by a different passage of D1.0 or its cousins. Pet. at 29–36, 60–67. But the claims do not tolerate that separation. The asserted references describe a *static* rule — always use the Operation element color when the trigger frame is in a non-HE PPDU — and a separate AP-side procedure for announcing a color change to the network. Neither feature, alone or combined, teaches the time-gated *terminal-side* update that [1.8]/[4.6] requires the

active BSS color to undergo. *See, e.g.*, 802.11ax/D1.0 (Ex. 1005) at 168 (D1.0 § 27.5.2.3: BSS_COLOR “set to the value of the BSS Color subfield of the most recently received HE Operation element for that BSS”); 802.11-17/0250r2 (Ex. 1007) at 17 (same rule). The prior art uses neither the term “active BSS color” nor any equivalent mechanism. It discloses only the static Operation-element rule — the very rule the claims replace with a dynamically updated active BSS color.

D. The Prosecution History Confirms This Reading

The Patent Office allowed claims 1–4 in 2024 after considering an obviousness rejection over Verma in view of Yang — the same Yang Petitioner now recycles across Grounds 1B, 2A, and 2B. The examiner expressly acknowledged that “*Verma does not expressly teach* when the format of the PPDU including the trigger frame is a PPDU format in which a physical layer signaling field including the field for indicating the BSS color is not included, set the value of the BSS color indicated by the trigger-based PPDU according to an active BSS color of the wireless communication terminal, **and when the wireless communication terminal receives information on BSS color change from the base wireless communication terminal and a BSS color change time point indicated by the information on the BSS color change is reached, the active BSS color is a value of a BSS color indicated by the**

information on the BSS color change.” Ex. 1002 at 262. The rejection therefore rode entirely on Yang.

Responding on December 11, 2023, the applicant distinguished Yang on a narrow but dispositive point. Yang’s BSS Color Change procedure operates on the “*BSS Color subfield in the HE-SIG-A field* of the DL HE PPDU” — the HE PPDU format, where the physical-layer BSS color field is *present*. *Id.* at 230 (quoting Yang ¶ 0052). The claim requires the opposite: a “PPDU format in which a physical layer signaling field including the field for indicating the BSS color is *not included*,” *i.e.*, a non-HE PPDU. *Id.* at 231. Because Yang’s teachings address only the HE-PPDU scenario, Yang “does not make up Verma’s failure” of teaching the claimed non-HE-PPDU scenario. *Id.*

The applicant also amended claim 21 to add the limitation now at [1.7]/[4.5] — “*the active BSS color is a BSS color actually used by the wireless communication terminal and set by an Operation element*” — reinforcing the textual tie between the “active BSS color” in [1.5]/[4.3] and the Operation element. *Id.* “Neither Verma nor Yang,” the applicant wrote, teaches even that amended limitation. *Id.* The examiner found the applicant’s arguments “have been fully considered and are persuasive along with an interview held on 01/30/2024,” and allowed claims 1–4. *Id.* at 39.

Petitioner's grounds now re-raise Yang as a primary reference (Grounds 2A, 2B) or combined with D1.0 (Ground 1B), and substitute D1.0 § 27.5.2.3 or 802.11-17/0250r2 for Verma on the [1.5]/[4.3] limitation. Pet. at 30–31, 61. But D1.0's § 27.5.2.3 rule and 0250r2's materially identical rule share Yang's defect: they describe HE-PPDU operations and Operation-element rules, not the terminal's non-HE-PPDU response the claim requires. They use neither the term “active BSS color” nor anything equivalent. And [1.8]/[4.6]'s time-gated update — which the applicant did not need to reach in the 12/11/2023 response because the non-HE-PPDU distinction alone defeated the rejection — now reinforces the same conclusion. The distinction the applicant drew in prosecution survives into the Petition's own grounds.

No claim term requires formal construction, but the Board should apply the plain and ordinary meaning of elements [1.5]/[4.3] and [1.8]/[4.6] as a combined operational rule: in the non-HE PPDU trigger scenario, the terminal sets the BSS color of its trigger-based PPDU according to an “active BSS color” that is time-gated to the AP's announced color change. Applied correctly, that rule defeats each of the Petition's grounds.

**VI. GROUND 1A: CLAIMS 1–4 ARE NOT OBVIOUS OVER
802.11AX/D1.0 ALONE**

Ground 1A is the Petition’s lead ground and its foundation. It relies solely on IEEE P802.11ax/D1.0 (Ex. 1005) to render all four challenged claims obvious. Pet. at 9, 29–35. It fails at the threshold because D1.0 is not a prior art printed publication. And it fails on the merits because D1.0 does not disclose the combined operational rule that elements [1.5]/[4.3] and [1.8]/[4.6] together require — the rule the Patent Office found made these claims patentable over Yang.

A. 802.11ax/D1.0 Is Not a Prior Art Printed Publication

Petitioner bears the burden of establishing that each asserted reference qualifies as a printed publication. *In re Lister*, 583 F.3d 1307, 1311 (Fed. Cir. 2009); *SRI Int’l, Inc. v. Internet Sec. Sys., Inc.*, 511 F.3d 1186, 1194 (Fed. Cir. 2008). The Petition does not carry that burden. On December 1, 2016, D1.0 was released only to a password-protected, members-only area of the IEEE 802.11 website and circulated only to members of the IEEE 802.11 Working Group and, by reciprocal agreement, members of other IEEE 802 working groups. Ex. 1015 (Hansen 2d Decl.) ¶¶ 52–53; (Nikolich Decl. ¶ 17); (Nikolich Decl. ¶ 33); (Nikolich Decl. ¶ 30). Patent Owner’s expert on IEEE standards-setting — Paul Nikolich, Chairman of the IEEE 802 LAN/MAN Standards Committee (the body that oversaw the 802.11 Working Group)

from 2001 to 2024, recipient of the 2025 IEEE Charles Proteus Steinmetz Award for his leadership in the development and advancement of IEEE 802 network standards, and an IEEE Fellow — confirms as much on multiple independent grounds. (Nikolich Decl. ¶ 11). That is not public accessibility under any Federal Circuit precedent.

1. The Petition Does Not Establish Conventional Public Accessibility

A publication “uploaded to a website or deposited in a library” that is “indexed or cataloged in some way” may be publicly accessible. *Samsung El-ecs. Co. v. Infobridge Pte. Ltd.*, 929 F.3d 1363, 1369 (Fed. Cir. 2019). For publications deposited in an internet location, the inquiry includes whether “a person of ordinary skill could have reasonably found the website and then found the reference on that website.” *Id.* Whether persons interested in the art “would have been independently aware” of the publication before the critical date is also relevant. *Voter Verified, Inc. v. Premier Election Sols., Inc.*, 698 F.3d 1374, 1381 (Fed. Cir. 2012).

D1.0 fits none of these scenarios. It was not uploaded to a public website. It was not in a library. It was not indexed or cataloged anywhere a member of the public could search. Petitioner’s own expert confirms the point. Dr. Hansen testified he “really [doesn’t] know” whether D1.0 was on the IEEE mentor website, Ex. 2019 (Hansen Depo.) at 48:5–11, and that he “d[oes]n’t know if

1.0 was ever available on IEEE Xplore,” *id.* at 48:16–21. On December 1, 2016, only “a person with a password to the members’ area would be able to download” D1.0. *Id.* at 45:18–25.

Because Petitioner cannot anchor D1.0 to any of the recognized public-accessibility scenarios, it has tried to invent new ones.

2. The Petition’s “Join the Working Group” Pathway Fails

Petitioner first contends that a POSITA could have become a voting member of the IEEE 802.11 Working Group and downloaded D1.0 through the members-only area. Pet. at 73–74; Ex. 1015 (Hansen 2d Decl.) ¶¶ 62–63. The theory collapses on its own facts.

Voting privileges required more than one-time attendance; they required sustained participation in the Working Group’s balloting process. Ballot 223 opened August 15, 2016; ballot 224 opened September 10, 2016; ballot 225 — which concerned D1.0 itself — opened December 1, 2016. (Nikolich Decl. ¶ 19). Voting status eligible to access D1.0 on December 1, 2016 therefore required sustained participation through the preceding ballots, not a late-fall decision to join. The earliest practical deadline for a POSITA to have become eligible to access D1.0 on that date was well before December 1 itself — long before any POSITA could have been on notice of D1.0’s existence.

Voting membership required an interested person to attend three IEEE 802 working group meetings *in person*, two of which had to be week-long “plenary” meetings. Ex. 1015 (Hansen 2d Decl.) ¶¶ 58, 62; (Nikolich Decl. ¶ 24). The candidate plenaries before the April 14, 2017 Critical Date were Macau (March 2016), San Diego (July 2016), and San Antonio (November 2016); the candidate non-plenary interims were Waikoloa, Hawaii (May 2016) and Warsaw, Poland (September 2016). (Nikolich Decl. ¶ 24). The Petition thus posits that a POSITA — whom Petitioner defines as someone with a bachelor’s degree and three years of experience, Pet. at 3 — would have strategically self-funded travel and week-long hotel stays to three such sessions, potentially including Macau, Poland, or Hawaii, for the chance to access a then-unreleased draft. (Nikolich Decl. ¶ 25). The Federal Circuit requires a realistic pathway a reasonably diligent POSITA would have used; a theoretical pathway that “defies logic” is not enough. *Infobridge*, 929 F.3d at 1369; (Nikolich Decl. ¶ 25); (Nikolich Decl. ¶ 26); (Nikolich Decl. ¶ 27).

The pathway is doubly implausible for a POSITA who first learned of D1.0 in or after December 2016, because the membership requirements could not be satisfied before the Critical Date. (Nikolich Decl. ¶ 26); (Nikolich Decl. ¶ 27). And even Dr. Hansen — Petitioner’s proffered example of someone accessing the Working Group — was already a “senior staff scientist” at

Broadcom when he first joined as a voting member in 2000, Ex. 2019 (Hansen Depo.) at 23:14–23, not a 3-year-experience POSITA. The Working Group’s 243 voting members as of early 2018 are, as a group, senior engineers from major technology companies; the alphabetically first voting member (Osama Aboulmagd of Huawei, an 802.11 participant since 2003 and chair of 802.11ax and 802.11ac) is typical of the cohort. (Nikolich Decl. ¶ 21); (Nikolich Decl. ¶ 22). IEEE 802 LAN/MAN participants, moreover, are expected to contribute “as individual technical experts,” not as junior engineers placed by their employer to observe. (Nikolich Decl. ¶ 22). The Federal Circuit’s “interested public” means POSITAs, not senior industry veterans; Dr. Hansen’s theory that the 600 senior-engineer Working Group members are themselves the “interested public” fails as a matter of logic. (Nikolich Decl. ¶ 23); (Nikolich Decl. ¶ 20).

3. The “Ask a Working Group Member” Pathway Fails

Petitioner alternatively contends that a POSITA would have obtained D1.0 by asking a Working Group member (or an intermediary). Pet. at 74; Ex. 1015 (Hansen 2d Decl.) ¶ 64; (Nikolich Decl. ¶ 28). This pathway presupposes, without evidence, that a POSITA would have known D1.0 existed and what it contained — a factually dubious premise given Petitioner’s own POSITA definition. (Nikolich Decl. ¶ 29).

Dr. Hansen’s deposition confirms the pathway is evidence-free. Asked whether he had evidence of even one specific person who received D1.0 (outside the voting bloc), he had none: “With regard to Draft 1.0, I don’t think I make any statement regard to someone I know personally who’s been — has received a copy of the draft.” Ex. 2019 (Hansen Depo.) at 59:7–16. His estimate in his second declaration that D1.0 “would have been disseminated to thousands” of interested members of the public, Ex. 1015 (Hansen 2d Decl.) ¶ 66, is an extrapolation from general practice, not actual-distribution evidence. Ex. 2019 (Hansen Depo.) at 59:13–24; (Nikolich Decl. ¶ 38). The Federal Circuit requires actual evidence of dissemination, not generalized evidence about the distribution of similar documents. *Cf. Infobridge*, 929 F.3d at 1369; *Norian Corp. v. Stryker Corp.*, 363 F.3d 1321, 1330 (Fed. Cir. 2004); (Nikolich Decl. ¶ 29); (Nikolich Decl. ¶ 47).

Dr. Hansen’s attempts to identify specific recipients collapse on examination. The Tsodik/Epstein March 2017 submission references “pre-D1.0,” not D1.0 itself — undermining rather than supporting Dr. Hansen’s theory that D1.0 was publicly available on December 1, 2016. (Nikolich Decl. ¶ 39). Evidence about a different draft, even a similar one, is not evidence of D1.0’s public availability. *See Norian*, 363 F.3d at 1330. Each of the specific individ-

uals Dr. Hansen names (Tsodik, Epstein, Hsu, Sutskov, Simon) was a Working Group participant already permitted to download D1.0 under IEEE rules — not a member of the general public receiving a leak — and none matches Petitioner’s 2-3-year-experience POSITA definition. (Nikolich Decl. ¶ 40); (Nikolich Decl. ¶ 43); (Nikolich Decl. ¶ 44); (Nikolich Decl. ¶ 41); (Nikolich Decl. ¶ 42).

Petitioner’s librarian declaration (Ex. 1016 (Munford Decl.)) does not fill the gap. The screen captures of the 802.11 Timeline table are dated 2025 and do not reflect any public availability around the April 2017 Critical Date. The remaining Wayback Machine screenshots contain no information that D1.0 was actually publicly available then.

4. The “Aspirant” and STDS-802-11 Listserv Pathways Fail

Petitioner’s Supplemental Public Accessibility Declaration (Ex. 1018 (Hansen Supp. Decl.)) introduces two additional theories. First, members of the general public could have become “Aspirant” IEEE 802.11 participants by attending one 802.11 session and received members-area credentials. Ex. 1018 (Hansen Supp. Decl.) ¶¶ 14–16. Second, any “Active 802.11 participant” could subscribe to the STDS-802-11 listserv and receive the December 1, 2016 email announcing D1.0. *Id.* ¶¶ 17–19. Both theories require WG participation, and both fail for the reasons the voting-member pathway fails.

Neither theory has evidentiary support. Dr. Hansen conceded he is “not aware of a specific aspirant” who received D1.0. Ex. 2019 (Hansen Depo.) at 57:1–9. The Supplemental Declaration cites no evidence that any member of the public subscribed to the read-only reflector before December 1, 2016 and then used that subscription to obtain D1.0. The Members Area’s written restriction — “Documents whose circulation is restricted to members of IEEE 802.11, and by reciprocal agreement, members of other IEEE 802 working groups” — has been in place throughout the relevant period. (Nikolich Decl. ¶ 33); (Nikolich Decl. ¶ 31). Observing an announcement that a password-protected document exists is not the same as having access to it. (Nikolich Decl. ¶ 29); (Nikolich Decl. ¶ 45). IEEE drafts are, moreover, IEEE copyrighted work product subject to defined distribution restrictions that bind Working Group participants. (Nikolich Decl. ¶ 36).

5. The November 2016 Plenary Session Does Not Establish Public Accessibility

The Supplemental Declaration describes a November 7–14, 2016 San Antonio plenary at which the Working Group voted to prepare D1.0 and initiate a 30-day letter ballot. Ex. 1018 (Hansen Supp. Decl.) ¶¶ 21–23. But the plenary predates D1.0 by more than two weeks — no attendee received a copy there because D1.0 did not yet exist. Dr. Hansen himself confirms attendees were only “made aware of the imminent release of D1.0.” Ex. 1018 (Hansen

Supp. Decl.) ¶ 23 (emphasis added). Being made aware of a forthcoming draft is not the same as having access once it is released.

6. The RFC 7241 / IETF Cooperation Theory Is Speculative and Unsupported

The Supplemental Declaration relies on RFC 7241, an IETF document describing IEEE 802/IETF cooperation, for the proposition that IETF Working Group chairs could share IEEE 802 WG credentials with “anyone who requests it.” Ex. 1018 (Hansen Supp. Decl.) ¶¶ 24–26. The theory requires a hypothetical chain: a POSITA would have to (i) know D1.0 existed, (ii) know about RFC 7241, (iii) identify and contact the relevant IETF WG chair, (iv) have that chair agree to share IEEE 802.11 credentials, and (v) use those credentials to download D1.0 from the private area — all before the Critical Date. (Nikolich Decl. ¶ 46). Dr. Hansen has no evidence any IETF participant actually requested and obtained D1.0, no analysis that such a person matched the POSITA definition, and no evidence the IETF chair would have agreed to share IEEE credentials with that participant — a step RFC 7241 leaves to the chair’s discretion. Ex. 2019 (Hansen Depo.) at 57:10–58:1. A hypothetical cascading chain no one actually followed is not a realistic pathway a POSITA “exercising reasonable diligence” would have used. *Infobridge*, 929 F.3d at 1369.

7. Dr. Hansen’s “First-Hand Experience” Example Is Inapposite

The Supplemental Declaration closes with an anecdote that Dr. Hansen personally shared an 802.11 draft with his UCLA students via email. Ex. 1018 (Hansen Supp. Decl.) ¶ 28; App. CH. The document was not D1.0 — it was 802.11ax D6.0, a substantially complete, near-final draft from 2020, shared more than three years after the Critical Date. Ex. 2019 (Hansen Depo.) at 56:24–57:9; 59:7–12. Evidence about D6.0’s 2020 dissemination is not evidence of D1.0’s December 2016 public availability. *See Norian*, 363 F.3d at 1330. Dr. Hansen’s own deposition confirms he cannot identify any analogous pre-Critical-Date sharing of D1.0. *Id.*; (Nikolich Decl. ¶ 48). Academic sharing by a faculty member with his own students in an instructional setting is not public dissemination; it appears to violate the IEEE 802 rules. (Nikolich Decl. ¶ 48).

Dr. Hansen’s further assertion that it was “common practice” for voting members to share drafts generally, Ex. 1018 (Hansen Supp. Decl.) ¶ 28, is unsupported by any specific instance of D1.0 being shared with any member of the general public before the Critical Date. The Federal Circuit has squarely held that evidence of a “general practice” of distribution does not supply the “substantial evidence of actual availability” a public-accessibility finding requires. *Norian*, 363 F.3d at 1330.

8. Dr. Hansen’s Own Deposition Undermines His Declarations

In sum, Dr. Hansen has no evidence of actual dissemination of D1.0 to the public — only an extrapolation that D1.0 “would have been” shared with “thousands.” Ex. 2019 (Hansen Depo.) at 45:18–25, 57:1–9, 59:13–24. That does not clear the *Lister/SRI International/Infobridge* bar.

Petitioner bears the burden on prior-art status. Petitioner has not carried it. Ground 1A should be denied for this reason alone.

B. D1.0 Does Not Disclose Elements [1.5]/[4.3]

Even if D1.0 qualified as prior art, it does not teach the claimed invention. Elements [1.5]/[4.3] require that when the PPDU carrying the trigger frame has no physical-layer BSS color field, the wireless communication terminal “set the value of the BSS color to be indicated by the trigger-based PPDU according to an active BSS color of the wireless communication terminal.” Ex. 1001 (the ’262 Patent), claim 1 element [1.5]; *accord id.*, claim 4 element [4.3]. As the Board should read [1.5]/[4.3] and [1.8]/[4.6] together, *see supra* § V, the claimed rule requires a *dynamically maintained* active BSS color that tracks the AP-announced color-change time point. D1.0 teaches only a *static* Operation-element rule.

1. D1.0 § 27.5.2.3 Teaches a Static Rule, Not an “Active BSS Color”

Section 27.5.2.3 of D1.0 defines the operation of a non-AP STA responding to a trigger frame as follows:

A STA transmitting an HE trigger-based PPDU in response to a Trigger frame sets the TXVECTOR parameter as follows:

- The FORMAT parameter shall be set to HE_TRIG
- The PE_DURATION parameter shall be set according to the value of the Packet Extension field in the soliciting Trigger frame
- The TXOP_DURATION parameter shall be set according the rules defined in 27.2.2 (Updating two NAVs)
- The BSS_COLOR parameter shall be set as follows:
- If the preceding Trigger frame was received in an HE PPDU, then set to the value of the RXVECTOR parameter BSS_COLOR of the HE PPDU
- **If the Trigger frame was received in a non-HE PPDU, then set to the value of the BSS Color subfield of the most recently received HE Operation element for that BSS**

802.11ax/D1.0 (Ex. 1005) at 168 (emphasis added); *see also* Pet. at 30–31.

The emphasized rule is static. In all non-HE-PPDU cases, D1.0 tells the terminal to set the BSS color to the Operation element value — period. There is

no conditional logic tied to an announced color change, and no “active BSS color” concept. (Cooklev Decl. ¶ 51).

Petitioner’s own expert confirmed this at deposition. Asked whether the cited passage “refer[s] to a[n] active BSS color,” Dr. Hansen admitted it “doesn’t use — doesn’t use the label ‘active’ here.” Ex. 2019 (Hansen Depo.) at 64:5–10. Asked whether the phrase “active BSS color” appears anywhere in D1.0, he testified, “I — I’m not certain if — if that particular phrase appears in Draft 1.0 or not.” *Id.* at 64:12–15.

The defect runs through both of the “wherein” clauses that co-define the “active BSS color” [1.5]/[4.3] requires: [1.7]/[4.5] (Operation-element origin) and [1.8]/[4.6] (time-gated update upon an announced change). *See supra* § V.C. D1.0’s § 27.5.2.3 at most satisfies the first. It does not describe the update mechanism [1.8]/[4.6] imposes, and a value that cannot change is not the “active BSS color” the claims require.

That the IEEE 802.11 Working Group adopted the “active BSS color” terminology later, in D2.3, is not accidental. It reflects a recognized change to D1.0’s rule that the Working Group did not make until the inventor, Geonjung Ko, proposed it in response to his own comment on the D2.0 draft. *See infra* § X (amendment history).

2. D1.0 Does Not Recognize the Color-Conflict Scenario [1.5]/[4.3] and [1.8]/[4.6] Address

The “active BSS color” concept is unnecessary in D1.0 because D1.0 does not recognize the color-conflict scenario the ’262 Patent addresses. Under D1.0’s static rule, a STA responding to a non-HE-PPDU trigger frame always uses the Operation element color — even when the AP has announced a BSS color change and that Operation element color is therefore stale. That is precisely the scenario the ’262 Patent identifies and addresses. *See* Ex. 1001 (the ’262 Patent) at 38:40–55 (describing the scenario in which the terminal “fails to obtain signaling information on the BSS color change and fails to obtain the HE Operation Element after the BSS Color is changed”); 39:12–20. D1.0’s drafters did not identify the scenario as one requiring its own rule. As the next subsection explains, that omission produces a collision between D1.0’s two terminal-side rules at exactly the scenario the claims address.

3. Table 28-1 Identifies the Absence of the BSS Color Field, But Not the Solution

The Petition’s citation to D1.0 Table 28-1 for the proposition that the BSS_Color parameter may not be present, Pet. at 30, is true but immaterial. Identifying the *absence* of a BSS color field is not the same as disclosing what a terminal should do when the field is absent and the AP has announced a color

change. The '262 Patent's claims specify that terminal behavior at [1.5]/[4.3] and [1.8]/[4.6]; Table 28-1 does not.

4. The HE-PPDU Path Is the Opposite of [1.5]/[4.3]'s Scenario

The Petition's observation that a STA supporting an HE PPDU sets its BSS color based on the HE-SIG-A field, Pet. at 31–32, has no bearing on element [1.5]. Element [1.5] applies only when the PPDU carrying the trigger frame is “a PPDU format in which any physical layer signaling field including the field for indicating the BSS color is *not* included.” Ex. 1001 (the '262 Patent), claim 1. An HE PPDU *includes* the HE-SIG-A field, so the HE-PPDU path does not satisfy [1.5] — it is the opposite scenario. That Petitioner resorts to HE-PPDU behavior to fill the [1.5] gap only underscores that D1.0 has no non-HE-PPDU disclosure of the claimed rule.

C. D1.0 Does Not Disclose the Time-Gated Terminal-Side Update That [1.8]/[4.6] Require

Element [1.8] requires that when the terminal receives BSS color change information and the change time point is reached, the active BSS color “is set to a value of a BSS color indicated by the information on the BSS color change.” Ex. 1001 (the '262 Patent), claim 1; *accord id.*, claim 4 element [4.6]. That is a terminal-side, time-gated update rule that operates together with [1.5]/[4.3]'s non-HE-PPDU trigger condition. *See supra* § V. D1.0 discloses

no such rule. What D1.0 does contain are two terminal-side rules that contradict each other in exactly the scenario the claim addresses.

1. D1.0's § 27.16.2 and § 27.5.2.3 Contradict in the Non-HE-PPDU Trigger Scenario

The Petition relies on D1.0 § 27.16.2 (page 206) for element [1.8]. Pet. at 33–35. But § 27.16.2, read together with § 27.5.2.3, does not supply the active-BSS-color update rule [1.8]/[4.6] requires. Instead, the two sections create the very contradiction the '262 Patent was drafted to resolve.

Section 27.16.2 contains a terminal-side instruction directed at the non-AP STA: “A HE non-AP STA that receives a BSS Color Change Announcement element shall start using the BSS Color specified in the received BSS Color Change Announcement element subsequent to the BSS Color change TBTT.” 802.11ax/D1.0 (Ex. 1005) at 206. By this rule, once the BSS Color change TBTT is reached, a non-AP STA that received the announcement is to “start using” the new BSS color.

Section 27.5.2.3 — quoted in full above, *see supra* § VI.B — imposes a different rule for the non-HE-PPDU trigger scenario: “If the Trigger frame was received in a non-HE PPDU, then set to the value of the BSS Color sub-field of the most recently received HE Operation element for that BSS.” 802.11ax/D1.0 (Ex. 1005) at 168. This rule directs the STA to the value carried in the most recently received HE Operation element — no more, no less.

The two rules collide at the precise scenario [1.5]/[4.3] and [1.8]/[4.6] address: a non-HE-PPDU trigger received at or after the BSS Color change TBTT by a STA that has missed the beacon carrying the new HE Operation element. *See* Ex. 1001 (the '262 Patent) at 38:40–55, 39:12–20. Section 27.16.2 tells that STA to “start using” the new color. Section 27.5.2.3 tells that STA to use the old Operation-element value. D1.0 does not reconcile them. (Cooklev Decl. ¶ 57).

The '262 Patent does. [1.7]/[4.5] defines the active BSS color as “a BSS color actually used by the wireless communication terminal and set by an Operation element.” [1.8]/[4.6] updates the active BSS color to the new value at the announced change time point, overriding the Operation-element value when the two diverge. [1.5]/[4.3] then directs the STA to use the active BSS color in the non-HE-PPDU trigger case. The active BSS color resolves what D1.0 leaves unresolved.

An obviousness ground built on references that leave the conflict unresolved cannot establish the obviousness of claims whose inventive contribution is that resolution.

2. The Petition Mischaracterizes § 27.16.2

Petitioner’s reliance on § 27.16.2 for element [1.8] thus fails. The “start using the new color” provision does not teach a time-gated update of an independent active-BSS-color variable — which is why it contradicts, rather than complements, § 27.5.2.3. And § 27.16.2’s other provisions are AP-side: “An HE AP shall announce its decision to change the BSS Color via the BSS Color Change Announcement element” 802.11ax/D1.0 (Ex. 1005) at 206. Those provisions are not [1.8]’s terminal-side update either.

Petitioner’s own expert conceded the AP-side aspects. Asked whether § 27.16.2 “is describing the behavior of the access point,” Dr. Hansen testified, “It would be an allowed — like, an access point would be allowed to do this.” Ex. 2019 (Hansen Depo.) at 73:15–21. The section’s terminal-side “start using” instruction fares no better. It does not use the term “active BSS color”; it does not describe a dynamically maintained independent variable; and it leaves the contradiction with § 27.5.2.3 in place. Dr. Hansen could not confirm that the phrase “active BSS color” appears anywhere in D1.0. *Id.* at 64:12–15. On that record, § 27.16.2 does not teach [1.8]/[4.6]’s terminal-side, time-gated update of a dynamic active-BSS-color variable — and no portion of D1.0 does.

D. Ground 1A Should Be Rejected as to All Claims

Claim 1 fails for the reasons above. The same analysis disposes of claims 2–4.

1. Claim 4 — Parallel Method Claim

Claim 4 is a method claim whose substantive limitations track claim 1 limitation-for-limitation, with only verb-form differences and without the apparatus-only transceiver and processor elements. *See* (parallel-mapping table). Elements [4.1]–[4.7] pair with [1.3]–[1.9]; elements [4.3] and [4.6] are the method-claim analogs of the dispositive limitations [1.5] and [1.8]. *Id.* Because D1.0 fails to disclose the “active BSS color” rule required by [1.5] and [1.8], it necessarily fails to disclose the identical rule in [4.3] and [4.6]. The Petition’s analysis for claim 4 incorporates its claim 1 analysis by reference, Pet. at 45–46, and the same deficiencies carry over.

2. Claims 2 and 3 — Dependent Claims

Claims 2 and 3 each depend from claim 1 and so incorporate every limitation of claim 1, including [1.5], [1.7], and [1.8]. 35 U.S.C. § 112(d). A dependent claim cannot be obvious over prior art that does not render its independent claim obvious. *In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988) (“Dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious.”). Because Ground 1A fails

as to claim 1, it fails as to claims 2 and 3 on the same reasoning — regardless of whether D1.0 addresses the additional limitations those dependent claims add.

The Petition’s treatment of claims 2 and 3 does not change the result. Petitioner contends D1.0 discloses claim 2’s “target beacon transmission time” limitation, Pet. at 36–37; and claim 3’s Partial-AID-field limitation, Pet. at 37–44. But those limitations ride on top of claim 1, and if claim 1 is not obvious, neither is a claim that adds further limitations to claim 1.

3. Summary

Ground 1A should be rejected as to claims 1, 2, 3, and 4.

VII.GROUND 1B: CLAIMS 1–4 ARE NOT OBVIOUS OVER 802.11AX/D1.0 IN VIEW OF YANG AND 802.11-2016

Ground 1B combines D1.0 (Ex. 1005) with Yang (Ex. 1006) and 802.11-2016 (Ex. 1010). Pet. at 13–16, 35–36. But the combination does not cure D1.0’s deficiencies. D1.0 remains the primary reference and the only reference Petitioner relies on for the dispositive limitations — elements [1.5]/[4.3] and [1.8]/[4.6]. Yang is cited only for generic hardware elements, and 802.11-2016 is cited for an irrelevant management-frame feature. Neither supplies what D1.0 lacks, and Petitioner identifies no motivation to combine that would bridge the gap.

A. 802.11ax/D1.0 Is Not a Prior Art Printed Publication

The public-accessibility failure identified for Ground 1A applies with equal force to Ground 1B. *See supra* § VI.A (Ground 1A). Because Ground 1B uses D1.0 as its primary reference, Ground 1B fails on the prior-art point for all the same reasons. (Nikolich Decl. ¶ 17); Ex. 2019 (Hansen Depo.) at 45:18–25; 57:1–9; 59:13–24.

B. Yang Is Cited Only for the Transceiver and Processor Elements, and Does Not Cure D1.0’s Silence on [1.5]/[4.3] and [1.8]/[4.6]

The Petition uses Yang solely for two generic hardware elements — element [1.1] (transceiver) and element [1.2] (processor). Pet. at 13–14. For every other limitation of claim 1, including [1.3], [1.5], [1.6], [1.7], [1.8], and [1.9], the Petition relies on D1.0 alone. *Id.* The same is true for claim 4’s parallel limitations.

Petitioner’s own expert confirmed this at deposition. Asked whether any portion of Yang is cited in his obviousness analysis for any of limitations 1.3 through 1.9 or for claims 2 or 3, Dr. Hansen answered: “For the Draft 1.0 Yang in 802.11-2016 combination, I — I — I don’t see a specific reference in my declaration, you know, related to those claim elements.” Ex. 2019 (Hansen Depo.) at 43:20–44:10. And as to the dispositive limitations [1.5]–[1.8], Dr.

Hansen admitted his Ground 1B analysis “reference[s] back to Ground 1A” — that is, to D1.0 alone. *Id.* at 44:12–21.

Yang therefore cannot cure any D1.0 gap on [1.5]/[4.3] or [1.8]/[4.6]. The Petition’s Ground 1B analysis on those elements is its Ground 1A analysis, and the arguments that defeat Ground 1A defeat Ground 1B with it. *See supra* § VI.B–C (Ground 1A).

That is dispositive. Asked whether he had any opinion that would survive a Board finding that D1.0 fails on [1.5] or [1.8], Dr. Hansen could not answer: “I really don’t — I don’t really — I don’t understand the question.” Ex. 2019 (Hansen Depo.) at 44:23–45:8. Ground 1B has no fallback. If D1.0 does not teach [1.5]/[4.3] or [1.8]/[4.6] — and it does not, *see supra* § VI.B–C — Ground 1B fails on the merits independently of any public-accessibility determination.

C. Yang Is Directed to an AP-Side Collision Problem, Not the Terminal-Side Update Rule the Claims Require

Even if Petitioner had pressed Yang further, it would not help. Yang is directed to a fundamentally different problem: how an *access point* selects a new BSS color when it detects an OBSS collision. Yang (Ex. 1006) at [0035]–[0039], [0046]. Yang’s two-stage process (set a temporary BSS color; then decide on a new permanent BSS color) is an AP-side collision-resolution pro-

cedure. *Id.* at [0051]–[0055]. The ’262 Patent, in contrast, is about how a *wireless communication terminal* sets the BSS color of a trigger-based PPDU when the trigger frame is in a non-HE PPDU and the AP has announced a color change. *See supra* § V (claim construction). These are different problems with different actors, and combining D1.0’s static terminal-side rule with Yang’s AP-side collision logic does not produce the claimed time-gated terminal-side update rule.

D. 802.11-2016 Has No Bearing on [1.5]/[4.3] or [1.8]/[4.6]

The Petition’s treatment of 802.11-2016 is conspicuously thin. The Petition provides no specific analysis of elements [1.5] or [1.8] that relies on 802.11-2016. The only citation in the Petition’s Ground 1B analysis is a general reference to legacy management frames. Pet. at 35 (citing 802.11-2016 (Ex. 1010) at 694, 724). Management-frame disclosures have no bearing on the terminal-side active-BSS-color update rule.

Petitioner effectively concedes the point. The Petition acknowledges that 802.11-2016 is the pre-802.11ax baseline D1.0 proposed to amend, and does not contain the 802.11ax features on which D1.0 is built, much less the inventive contribution of the ’262 Patent. Pet. at 15. A reference that predates the 802.11ax BSS-color framework cannot cure D1.0’s silence on a concept — “active BSS color,” and the time-gated update of that value — that appears

nowhere in the 802.11 standards track before the inventor introduced it in D2.3. *See supra* § VI.B.1 (Ground 1A). Combining 802.11-2016 with D1.0 therefore does nothing for Petitioner’s Ground 1B theory.

E. A POSITA Would Not Have Been Motivated to Combine D1.0, Yang, and 802.11-2016 as Proposed

Obviousness requires “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007); *see also In re Stepan Co.*, 868 F.3d 1342, 1345–46 (Fed. Cir. 2017) (obviousness requires finding that a POSITA “would have been motivated to modify or combine teachings in the prior art”); *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (obviousness concerns whether a skilled artisan “not only *could have made* but *would have been motivated to make*“ the proposed combination). Petitioner does not carry that burden here. Yang is cited for generic hardware and 802.11-2016 for an irrelevant management-frame disclosure; neither reference has any teaching that would have prompted a POSITA to modify D1.0 in a way that produces the claimed active-BSS-color rule. (Cooklev Decl. ¶ 67).

The “mere fact” that the three references “existed in the prior art” does not supply a motivation. *Virtek Vision International ULC v. Assembly Guidance Systems, Inc.*, 97 F.4th 882, 887 (Fed. Cir. 2024). And “mere conclusory

statements” of motivation are not enough. *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Petitioner’s Ground 1B motivation story is exactly the kind of “could have combined” reconstruction that *KSR* and its progeny forbid.

F. A POSITA Would Have Had No Reasonable Expectation of Success

A POSITA attempting the proposed combination would have had no reasonable expectation of arriving at the claimed terminal-side, time-gated update rule. (Cooklev Decl. ¶ 68). None of D1.0, Yang, or 802.11-2016 addresses the color-conflict scenario elements [1.5]/[4.3] and [1.8]/[4.6] cover. Without recognition of the problem, a POSITA would have had no reason to expect the combination to produce a solution to it. *Cf. Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1370 (Fed. Cir. 2016) (reasonable-expectation requirement).

G. Ground 1B Should Be Rejected as to All Claims

Ground 1B fails as to claim 1 for the reasons above. The same analysis disposes of claims 2–4.

1. Claim 4 — Parallel Method Claim

Claim 4 is a method claim with limitations parallel to claim 1. [4.3] pairs with [1.5] and [4.6] pairs with [1.8]; the claim 1 and claim 4 texts for those limitations are identical but for the verb form. *See* (parallel-mapping table).

Because Ground 1B fails to render claim 1's limitations [1.5]/[1.8] obvious, it fails on the identical text at [4.3]/[4.6]. The Petition does not contend otherwise; it supplies no separate Ground 1B analysis for claim 4's dispositive limitations, instead relying on its claim 1 analysis. Pet. at 45–46.

2. Claims 2 and 3 — Dependent Claims

Claims 2 and 3 each depend from claim 1 and incorporate every limitation of claim 1. 35 U.S.C. § 112(d). A dependent claim is necessarily non-obvious when its independent claim is non-obvious over the same art. *In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988) ("Dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious."). Ground 1B's failure to render claim 1 obvious therefore disposes of claims 2 and 3 as well.

3. Summary

Ground 1B should be rejected as to claims 1, 2, 3, and 4.

VIII. GROUND 2A: CLAIMS 1, 2, AND 4 ARE NOT OBVIOUS OVER YANG IN VIEW OF 802.11-17/0250R2 AND 802.11-16/1415R0

Ground 2A is a three-reference combination: Yang (Ex. 1006), 802.11-17/0250r2 (Ex. 1007), and 802.11-16/1415r0 (Ex. 1008). Pet. at 2, 47–68. The Petition uses Yang as the primary reference. Yang, however, addresses a fundamentally different problem — AP-side BSS color *collisions* — and does not

disclose the claimed terminal-side, time-gated update rule. The two secondary references, 0250r2 and 1415r0, share the same deficiencies as D1.0 addressed in Ground 1A. And Petitioner’s proposed combination of Yang with 1415r0 would fundamentally alter Yang’s two-stage design — a modification a POSITA would not have been motivated to make.

A. Overview of the Asserted References

Yang describes a method by which an access point selects a new BSS color when the AP detects an OBSS color collision. Yang (Ex. 1006) at [0035]–[0039], [0046]. 802.11-17/0250r2 and 802.11-16/1415r0 are IEEE Working Group proposals; Petitioner cites them to supply features Yang itself does not teach. Pet. at 60–66.

B. Yang Addresses an AP-Side Collision Problem, Not the Terminal-Side Update Rule the Claims Require

Yang’s disclosure reflects a different problem from the ’262 Patent’s. “BSS color collision” in Yang occurs when devices in a BSS and an overlapping BSS use the same BSS color, causing confusion in BSS-color-based operations. Yang (Ex. 1006) at [0035]–[0039], [0046]. Yang’s solution is a two-stage process for the *access point* to change its BSS color:

1. *First stage.* The AP sets a temporary BSS color value and signals it to non-AP devices. Yang (Ex. 1006) at [0051]–[0053]. The temporary color allows the AP to test the value without committing to it.

2. *Second stage.* Based on the first-stage signaling, the AP decides on a new permanent BSS color and sets the BSS Color field in HE-SIG-A to the new color. *Id.* at [0054]–[0055].

Yang’s design is AP-side through and through. The ’262 Patent’s claims are not. Elements [1.5]/[4.3] and [1.8]/[4.6] govern how a *wireless communication terminal* sets the BSS color in a trigger-based PPDU in response to a non-HE PPDU when the terminal has received (or failed to receive) BSS color change information. *See supra* § V (claim construction). That is a different problem, a different actor, and a different solution.

The Petition’s characterization of Yang as disclosing “the BSS color indicated in the ‘Trigger frame’ would be used in the responsive trigger-based PPDU transmitted by the STA to the AP,” Pet. at 50, is unsupported. Yang does not teach that mapping — it teaches AP-side color-selection logic. And Yang does not address the color-conflict scenario that arises when the Operation element color is stale because the AP has announced a color change. The color-conflict scenario is the one the ’262 Patent addresses, and Yang does not reach it.

C. 802.11-17/0250r2 Has the Same Deficiency as D1.0

Petitioner admits that Yang does not disclose element [1.5]. Pet. at 60–62. Petitioner instead points to 802.11-17/0250r2 (Ex. 1007). But the relevant

portion of 0250r2 mirrors the static Operation-element rule in D1.0. 0250r2 specifies that the BSS color for a non-HE PPDU trigger frame is “set to the value of the BSS Color subfield of the most recently received HE Operation element for that BSS.” 802.11-17/0250r2 (Ex. 1007) at 17. That is the same static rule already addressed in Ground 1A. *See supra* § VI.B.1.

The Petition’s Ground 2A analysis for [1.5] is materially identical to its Ground 1A analysis. *Compare* Pet. at 61 *with* Pet. at 30–31. The arguments that defeat Ground 1A’s reliance on D1.0 § 27.5.2.3 defeat Ground 2A’s reliance on 0250r2 for the same reason: 0250r2 does not use the term “active BSS color,” does not provide a time-gated update mechanism, and does not recognize the color-conflict scenario the ’262 Patent addresses. *See supra* § VI.B (Ground 1A). Petitioner’s own expert acknowledged the point at deposition: when shown the identical non-HE-PPDU/Operation-element text in both D1.0 and 0250r2, Dr. Hansen agreed the quoted rule is the same in both sources. Ex. 2019 (Hansen Depo.) at 65:1–21.

Petitioner’s reliance on 0250r2 also sits uneasily with the prosecution history. The 09/08/2023 Office Action lists a contemporaneous March 2017 IEEE P802.11 “Proposed resolution for comments related to Section 27.11.4 (BSS Color)” — authored by the same Qualcomm team active in the 802.11ax CR process — among the “prior art made of record and not relied upon.” Ex.

1002 at 271. The examiner evaluated that March 2017 § 27.11.4 BSS-Color CR and declined to use it. Petitioner has offered no reason why 0250r2 — another March 2017 IEEE BSS-Color CR in the same CR series — should carry more weight than the one the examiner saw and rejected.

D. 802.11-16/1415r0 Has the Same Deficiency as D1.0 § 27.16.2

Petitioner relies on 1415r0 for element [1.8]. Pet. at 62–65. But the relevant information in 1415r0 is the same AP-side color-change-announcement procedure already in D1.0 § 27.16.2. *See* 802.11-16/1415r0 (Ex. 1008) at 2 (CID statement of purpose); *id.* at 7 (procedure); *see also supra* § VI.C (Ground 1A). As with § 27.16.2, 1415r0 describes the *access point's* role — announcing a color change via beacons and transitioning to the new color at the BSS Color change TBTT. It does not describe any terminal-side update mechanism, and it does not tell a terminal how to handle conflicting color information when setting the BSS_COLOR parameter of a trigger-based PPDU in response to a non-HE-PPDU trigger frame.

The commentator who submitted 1415r0 confirms this. The stated purpose was to “[a]llow an AP to change its Color value during the existence of the BSS.” 802.11-16/1415r0 (Ex. 1008) at 2. That is the AP’s problem, not the terminal’s. 1415r0 therefore fails to disclose element [1.8]/[4.6] for the same reason D1.0 § 27.16.2 does. *See supra* § VI.C.

The examiner’s own treatment of this document family confirms the point. The 09/08/2023 Office Action lists IEEE 802.11-16/1415r2 — the revised version of the very 1415r0 Petitioner cites, and which Petitioner itself submits as Ex. 1130 — as “prior art made of record and not relied upon.” Ex. 1002 at 271. The examiner had 1415r2 in hand during prosecution and declined to rely on it. A document the Patent Office expressly evaluated and found insufficient to support a rejection does not acquire new disclosure value when Petitioner re-packages it as the r0 version here.

E. A POSITA Would Not Have Been Motivated to Combine Yang With 1415r0

The Petition’s motivation-to-combine theory for Yang + 1415r0 fails on its own terms. Yang acknowledges that its two-stage collision-resolution approach has tradeoffs, Pet. at 53, and the Petition proposes to collapse Yang into a one-stage process by combining it with 1415r0. But a POSITA would not have been motivated to make that combination, because it would defeat the purpose of Yang’s design.

Yang’s temporary-color stage is not an accidental design choice. Its purpose is to allow the AP to *test* a candidate new BSS color — to find a value that is not already in use by an OBSS — before committing to it. Yang (Ex. 1006) at [0053]–[0054]; (Cooklev Decl. ¶ 78). Removing the first stage strips Yang of that testing capability. A POSITA seeking to solve Yang’s OBSS-

collision problem would not modify Yang in a way that breaks Yang’s collision-avoidance logic. *See In re Stepan Co.*, 868 F.3d 1342, 1345–46 (Fed. Cir. 2017) (obviousness requires a reason a POSITA “would have been motivated to modify” the art).

The Petition’s only contrary rationale — that the combination would “increase the number of BSS colors that are in use,” Pet. at 62 — is unsupported attorney argument. *See In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“mere conclusory statements” are insufficient). And the modification is more than a simple substitution: it requires new protocols and new uplink/downlink frame exchanges that Yang does not contemplate. (Cooklev Decl. ¶ 79).

F. Even if Yang Were Combined With 1415r0, the Result Would Not Teach the Claimed Terminal-Side Update

Even if a POSITA had been motivated to combine Yang with 1415r0, the result would at most be an AP-side color-change procedure. The claims are about terminal-side behavior. Combining an AP-side collision procedure (Yang) with an AP-side color-change procedure (1415r0, or D1.0 § 27.16.2) produces an AP-side system, not a terminal-side update rule. *See supra* § V; § VI.B–C.

G. A POSITA Would Have Had No Reasonable Expectation of Success

Even taking Petitioner’s proposed combination at its best, a POSITA would have had no reasonable expectation of arriving at the claimed terminal-side, time-gated update rule. (Cooklev Decl. ¶ 81). The three references address different problems — Yang addresses AP-side collisions; 0250r2 repeats the static Operation-element rule; 1415r0 adds AP-side color-change signaling. None of them addresses the terminal-side color-conflict scenario, and none of them provides the active-BSS-color construct on which the claims turn. A POSITA would have had no reason to expect that combining these three references would produce the rule of [1.5]/[4.3] and [1.8]/[4.6]. *Cf. Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1370 (Fed. Cir. 2016).

H. Ground 2A Should Be Rejected as to Claims 1, 2, and 4

Claim 1 fails for the reasons above. The same analysis disposes of claims 2 and 4.

1. Claim 4 — Parallel Method Claim

Claim 4’s substantive limitations are parallel to claim 1. Elements [4.3] and [4.6] are textually identical to [1.5] and [1.8] but for the verb form. *See* (parallel-mapping table). Because Ground 2A fails to render claim 1’s limitations [1.5]/[1.8] obvious — whether because 0250r2 repeats D1.0’s static rule

(§ C), 1415r0 repeats § 27.16.2 (§ D), or the Yang-1415r0 combination is implausible (§ E–F) — it fails on the identical text at [4.3]/[4.6].

2. Claim 2 — Dependent Claim

Claim 2 depends from claim 1 and adds only that “the BSS color change time point is set based on a target beacon transmission time transmitted by the base wireless communication terminal.” Ex. 1001 (the ’262 Patent), claim 2. That limitation assumes the claim 1 rule — an active BSS color updated at a BSS color change time point. If Ground 2A fails to render claim 1 obvious, it fails as to claim 2 regardless of whether the claim 2 limitation is separately addressed. *In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988) (“Dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious.”).

3. Summary

Ground 2A should be rejected as to claims 1, 2, and 4.

IX. GROUND 2B: CLAIM 3 IS NOT OBVIOUS OVER YANG IN VIEW OF 802.11-17/0250R2, 802.11-16/1415R0, 802.11AX/D1.0, 802.11-2016, AND 802.11-17-0230R1

Ground 2B is the Petition’s most strained combination. To reach dependent claim 3, Petitioner stacks six prior-art references: Yang (Ex. 1006), 802.11-17/0250r2 (Ex. 1007), 802.11-16/1415r0 (Ex. 1008), 802.11ax/D1.0 (Ex. 1005), 802.11-2016 (Ex. 1010), and 802.11-17-0230r1 (Ex. 1011). Pet. at 2,

68–72. Ground 2B fails for multiple independent reasons. D1.0 is not prior art. The underlying Yang + 0250r2 + 1415r0 combination fails for the reasons set out in Ground 2A. Claim 3 depends from claim 1, and Ground 2B has no theory for claim 1’s dispositive limitations [1.5]/[1.8] that is not already defeated by Grounds 1A and 2A. And the sheer act of stacking six references to reach claim 3’s narrow additional subject matter is itself the tell: it is hindsight reconstruction, not a POSITA’s motivated combination.

A. 802.11ax/D1.0 Is Not a Prior Art Printed Publication

Ground 2B includes D1.0 as one of its six references. Because the Petition has not shown that D1.0 was publicly accessible before the Critical Date, D1.0 cannot support any unpatentability ground that relies on it. *See supra* § VI.A (Ground 1A). That failure is independently fatal to Ground 2B. (Nikolich Decl. ¶ 17); Ex. 2019 (Hansen Depo.) at 45:18–25; 57:1–9; 59:13–24.

B. Ground 2B Inherits Ground 2A’s Failures on Claim 1

Claim 3 depends from claim 1. 35 U.S.C. § 112(d); Ex. 1001 (the ’262 Patent), claim 3. A dependent claim can only be obvious if its independent claim is obvious over the same art. Ground 2B therefore cannot succeed unless Petitioner first renders claim 1 obvious over the Yang + 0250r2 + 1415r0 combination — the same combination Ground 2A uses. It does not. For the reasons set out in § VIII, the combination fails on [1.5]/[4.3] and [1.8]/[4.6]: Yang

addresses an AP-side collision, not the claimed terminal-side update (§ VIII.B); 0250r2 repeats D1.0's static Operation-element rule (§ VIII.C); 1415r0 describes an AP-side color-change procedure (§ VIII.D); and a POSITA would not have been motivated to collapse Yang's two-stage design into 1415r0's single-stage procedure (§ VIII.E). Dr. Hansen acknowledged at deposition that the 0250r2 non-HE-PPDU rule is the same text as D1.0 § 27.5.2.3. Ex. 2019 (Hansen Depo.) at 65:1–21.

Ground 2B adds D1.0, 802.11-2016, and 0230r1 to that mix, but none of these three references addresses — let alone cures — the deficiencies in the underlying combination. Neither D1.0 nor 802.11-2016 discloses the active-BSS-color construct or the time-gated terminal-side update rule of [1.5]/[1.8]. *See supra* § VI.B–C (Ground 1A); § VIII.D (Ground 2A). And 0230r1, as discussed below, is cited only for the Partial-AID rule addressed in claim 3 — it does not address the non-HE-PPDU trigger scenario of [1.5] or the color-change update of [1.8].

Because Ground 2B has no independent theory for [1.5]/[1.8] beyond the defective Ground 2A combination, Ground 2B fails on claim 1's limitations before claim 3's additional limitation is even reached.

C. 802.11-2016 Adds Nothing New

Petitioner cites 802.11-2016 in Ground 2B for the same legacy VHT-PPDU and Partial-AID features that were previously addressed in Ground 1B. *Compare* Pet. at 68–72 *with* Pet. at 38–42. Those features are not the inventive contribution of the '262 Patent. As in Ground 1B, 802.11-2016 is the pre-802.11ax baseline D1.0 proposed to amend, does not contain the 802.11ax features on which D1.0 is built, and does not address the terminal-side color-conflict scenario. *See supra* § VII.D (Ground 1B). It therefore cannot cure the Ground 2A combination's silence on [1.5]/[4.3] or [1.8]/[4.6].

D. 802.11-17-0230r1 Does Not Supply the Missing Terminal-Side Update Rule

The only reference in Ground 2B that is not also in Grounds 1A, 1B, or 2A is 802.11-17-0230r1. The Petition uses 0230r1 for a narrow proposition — that “[t]he value of RXVECTOR parameter PARTIAL_AID [5:8] in the received VHT PPDU with the RXVECTOR parameter GROUP_ID equal to 63” compared to “the partial BSS color announced by the AP” can be used to classify a PPDU as intra-BSS or inter-BSS. Pet. at 70–71 (quoting 802.11-17-0230r1 (Ex. 1011) at 10). That is claim 3's subject matter, not claim 1's.

0230r1 does not address — and the Petition does not contend that 0230r1 addresses — either of the dispositive limitations [1.5]/[4.3] (non-HE-PPDU trigger frame, active-BSS-color mapping) or [1.8]/[4.6] (time-gated terminal-

side update). It does not use the term “active BSS color.” It does not address the color-conflict scenario the ’262 Patent addresses. Adding 0230r1 to a combination that fails on [1.5] and [1.8] does not rescue it.

E. The Petition’s Motivation Story Is Hindsight

Obviousness requires “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). The Petition’s motivation theory here fails that test on its own terms, and fails more sharply because the combination is assembled across six references to reach a narrow dependent claim.

The Petition’s rationale is this: Yang addresses only HE PPDU formats, so a POSITA “would have looked to other references for specific guidance regarding how to perform operations pertaining to signaling and synchronizing BSS color between devices in the context of non-HE PPDU formats.” Pet. at 69. But this is the definition of hindsight. Yang says nothing about legacy non-HE PPDU formats and gives no hint that a POSITA should consider them. Pet. at 69 (“Yang does not expressly address certain legacy non-HE PPDU formats.”). And Yang says even less about Partial-AID-based Intra-BSS/Inter-BSS classification. The Petition’s claim that a POSITA would have looked from Yang to five other references in order to assemble a Partial-AID-based

rule for non-HE PPDU assumes the conclusion. (Cooklev Decl. ¶ 89). *See In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“mere conclusory statements” of motivation insufficient); *Virtek Vision Int’l ULC v. Assembly Guidance Sys., Inc.*, 97 F.4th 882, 887 (Fed. Cir. 2024) (“mere fact” references existed does not supply motivation).

The sheer reference count matters. Stitching six independent references together to reach claim 3’s narrow Partial-AID subject matter is the pattern of reconstruction *KSR* forbids. 550 U.S. at 421 (obviousness analysis must avoid the “temptation to read into the prior art the teachings of the invention in issue”); *see also In re NuVasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016) (“conclusory statements’ alone are insufficient”).

The burden does not shift. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375 (Fed. Cir. 2015).

F. A POSITA Would Have Had No Reasonable Expectation of Success

Even if a POSITA had been motivated to try the six-way combination — and they would not — no reasonable expectation supports arriving at the claimed terminal-side, time-gated rule plus claim 3’s Partial-AID classification. (Cooklev Decl. ¶ 90). None of the six references addresses the color-conflict scenario claim 1 resolves, and none supplies the active-BSS-color

mechanism claim 3 inherits from claim 1. *Cf. Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1370 (Fed. Cir. 2016).

G. Ground 2B Should Be Rejected as to Claim 3

Claim 3 is a dependent claim. It “incorporate[s] by reference all the limitations of the claim to which it refers” — here, claim 1 — and adds only the Partial-AID-based Intra-BSS/Inter-BSS determination rule when the PPDU indicates a partial BSS color via a Partial AID field. 35 U.S.C. § 112(d); Ex. 1001 (the ’262 Patent), claim 3. A dependent claim cannot be obvious when its independent claim is not obvious over the same art. *In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988) (“Dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious.”).

Because Ground 2B does not render claim 1 obvious — whether because D1.0 is not prior art (§ B), or because Ground 2A’s Yang + 0250r2 + 1415r0 combination fails on [1.5]/[1.8] (§ C), or because the motivation-to-combine and reasonable-expectation-of-success showings fail on the Petition’s own terms (§§ F–G) — Ground 2B necessarily fails as to claim 3 regardless of anything 0230r1 is said to teach about Partial AID fields.

Ground 2B should be rejected as to claim 3.

X. 802.11AX AMENDMENT HISTORY AND SECONDARY CONSIDERATIONS OF NONOBVIOUSNESS

Between late 2016 and 2018, the IEEE 802.11 Working Group drafted 802.11ax D1.0 through D2.3. The contemporaneous record of that effort, and the near-absence of anything resembling the claimed “active BSS color” mechanism until after the April 14, 2017 Critical Date, is powerful evidence that the claims are not obvious. The Working Group did not identify the color-conflict scenario, let alone propose its solution, until the ’262 Patent’s inventor raised it.

A. The Contemporaneous IEEE Record Shows the Claimed Solution Was Not Obvious

Each of the IEEE documents Petitioner asserts across Grounds 1A–2B — D1.0 (Ex. 1005), 802.11-2016 (Ex. 1010), 802.11-17/0250r2 (Ex. 1007), and 802.11-16/1415r0 (Ex. 1008) — predates the April 14, 2017 Critical Date. Yet none identifies or addresses the color-conflict scenario the ’262 Patent’s claims resolve. Each contains only a static Operation-element rule (for the non-HE-PPDU trigger case) and, in D1.0’s case, an AP-side color-change procedure accompanied by a terminal-side “start using” instruction that contradicts the static rule rather than reconciles it. *See supra* Grounds 1A–2B. The “active BSS color” concept — the mechanism that makes the color-conflict resolution work — appears in none of them.

That uniform silence is significant. These documents reflect the state of the Working Group’s understanding before the ’262 Patent’s inventor raised the issue. If the solution had been obvious, someone on the Working Group would have proposed it. No one did.

B. The Inventor Proposed the Claimed Solution to IEEE After the Critical Date

Geonjung Ko — an inventor of the ’262 Patent — submitted two comments on the D2.0 draft of 802.11ax in November 2017, more than six months after the April 14, 2017 Critical Date. *See* TGax D2.0 Comments (Ex. 2013) (TGax D2.0 comments by Geonjung Ko, CIDs 11730 and 11731).

1. CID 11730 — “Active BSS Color” Proposal Adopted in D2.3

CID 11730 precisely identifies the scenario [1.5]/[4.3] and [1.8]/[4.6] address:

When the AP announced the BSS Color Change, for STAs that failed to receive a Beacon frame at the BSS color change TBTT, the value of the BSS Color subfield of the most recently received HE Operation element is the previous BSS color, not the new BSS color. This may cause different HE-SIG-A signals between STAs solicited by the Trigger frame.

TGax D2.0 Comments (Ex. 2013) (CID 11730). The inventor’s proposed change: “If the Trigger frame was received in a non-HE PPDU, then the

BSS_COLOR shall be set to the active BSS color.” *Id.* The Working Group agreed with the comment and revised the draft “to indicate that the responding STA shall use the active color as defined in 27.11.4.” 802.11-18/0367r1 (Ex. 2011) (Resolution of CID 11730). The resulting edits were incorporated in D2.3. *See* 802.11ax/D2.3 (Ex. 2012).

The mechanism the Working Group adopted — the “active BSS color” defined in § 27.11.4 — is the mechanism the ’262 Patent’s claims require. The Working Group adopted it only in D2.3, after the inventor proposed it — long after D1.0, which was the state of the art on the Critical Date.

2. CID 11731 — Related Gap Identified by the Inventor

CID 11731, also submitted by the inventor in November 2017, identified a related gap: “There is no BSS_COLOR setting rule when the Trigger frame is in a non-HE PPDU and the STA is an unassociated STA.” TGax D2.0 Comments (Ex. 2013) (CID 11731). The inventor proposed three alternative resolutions: (i) “[u]se the active BSS color,” (ii) “use an HE PPDU when soliciting unassociated STAs,” or (iii) “define the BSS Color field in the Trigger frame format.” *Id.* The Working Group adopted the second alternative — requiring an HE PPDU — with edits incorporated in D2.2. *Id.*

The Working Group’s choice among the three proposals does not weaken the nonobviousness point — it confirms it. The inventor identified a real gap;

the Working Group agreed and resolved it by adopting one of his proposed fixes. That the Working Group’s default treatment of BSS color in D1.0, 0250r2, and 1415r0 did not address the gaps he identified is direct evidence that the claims were not obvious over those documents.

C. Secondary Considerations of Nonobviousness

“[S]econdary considerations . . . include evidence of long-felt need, failure of others, copying by competitors, commercial success, and praise from the industry or others.” *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). The IEEE amendment-history record establishes the first two.

1. Failure of Others

The IEEE Working Group drafted 802.11ax D1.0 through D2.0 over more than a year. Over that period, no Working Group engineer — despite the depth of wireless engineering expertise represented among the major technology companies participating — identified or proposed a solution to the color-conflict scenario [1.5]/[4.3] and [1.8]/[4.6] address. That is direct evidence of failure of others. *See Leo Pharm. Prods., Ltd. v. Rea*, 726 F.3d 1346, 1359 (Fed. Cir. 2013) (gap between prior art and invention “speaks volumes to the nonobviousness” of the claims).

2. Long-Felt Need

The color-conflict scenario is not hypothetical. It is an operational gap inherent in D1.0's pairing of § 27.5.2.3 (static Operation-element rule) with § 27.16.2 ("start using the new color") — one every 802.11ax deployment encounters whenever a non-AP STA misses the beacon carrying the updated HE Operation element at the BSS Color change TBTT. The gap persisted unaddressed throughout D1.0 through D2.0 until the inventor proposed his solution in CIDs 11730 and 11731.

A long-felt need and failure of others independently confirm the nonobviousness conclusion the claim language and prosecution history already command. *See Graham*, 383 U.S. at 17–18.

XI. CONCLUSION

For the foregoing reasons, Patent Owner respectfully requests that the Board find that Petitioner has failed to establish by a preponderance of the evidence that any challenged claim is unpatentable, and affirm the validity of all challenged claims.

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U.S. Patent No. 12,004,262

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I certify that there are 13,939 words in this paper, excluding the portions exempted under 37 C.F.R. § 42.24(a)(1), according to the word count tool in Microsoft Word.

/Neil A. Rubin/

CERTIFICATE OF SERVICE

I hereby certify that “Patent Owner’s Response” was served on April 17, 2026

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