

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMERICAN AIRLINES, INC.,

and

SOUTHWEST AIRLINES, CO.,

Petitioners,

v.

INTELLECTUAL VENTURES II LLC,

Patent Owner

Case No. IPR2025-01509
U.S. Patent No. 11,032,000

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Ex. 2001	<i>American Airlines, Inc. and v. Intellectual Ventures II LLC</i> , IPR2025-00785 and IPR2025-00786, Paper 11 (PTAB August 29, 2025) (declining to exercise discretion to deny IPRs).
Ex. 2002	<i>American Airlines, Inc. and v. Intellectual Ventures II LLC</i> , IPR2025-00782 and IPR2025-00931, Paper 12 (PTAB September 19, 2025) (declining to exercise discretion to deny IPRs).
Ex. 2003	<i>American Airlines, Inc. and v. Intellectual Ventures II LLC</i> , IPR2025-00987 and IPR2025-01055, Paper 9 (declining to exercise discretion to deny IPRs).
Ex. 2004	Defendant Southwest Airline Co.'s Preliminary Invalidity Contentions

I. INTRODUCTION

Petitioners American Airlines, Inc. and Southwest Airlines Co. seek inter partes review of claims 1–24 of U.S. Patent No. 11,032,000 (the “‘000 Patent”) based on two asserted obviousness grounds: Ground 1 (Papasakellariou in view of Classon and further in view of Liu) and Ground 2 (Muharemovic in view of Onggosanusi and further in view of Classon). (Petition, 2.)

The Petition does not satisfy Petitioners’ burden to demonstrate a reasonable likelihood of prevailing. At the outset, Petitioners’ case rests on asserted prior-art dates that Petitioners do not substantiate with evidence. Petitioners rely on provisional priority dates for key asserted references, yet the provisional applications themselves are not in evidence and Petitioners make no attempt to show that the claims or relied-upon disclosures of the asserted references are supported by those provisionals as required to obtain the asserted effective filing dates. Where, as here, Petitioners need the earlier provisional filing dates to establish prior-art status, Petitioners must carry the burden of going forward with evidence establishing entitlement to those dates. Petitioners do not.

In addition, Petitioners’ evidentiary showing depends heavily on an expert declaration (EX1003) that largely mirrors the Petition and is used to supply inferential bridgework rather than independent technical analysis. Large portions of the expert declaration are virtually identical to the Petition’s technical background,

patent overview, claim construction positions, prior art summaries, motivation-to-combine narrative, and element-by-element claim mapping. Where Petitioners' case relies on such "parroting" testimony to fill gaps in the asserted references through unsupported "POSITA would have understood" assertions, the testimony should be afforded little, if any, weight.

For these reasons, and as detailed below, Petitioners have not demonstrated a reasonable likelihood of prevailing, and the Board should deny institution.

II. THE '000 PATENT

The '000 Patent issued from U.S. Patent Application No. 16/682,854, which Petitioners acknowledge was filed on November 13, 2019 and claims priority by way of continuation applications to a utility application filed on December 27, 2006. (Petition, 2.) Petitioners further rely on the prosecution of an earlier family member, U.S. Patent No. 8,811,356 (the "'356 Patent"), asserting that inventor Paul Howard submitted a declaration under 37 C.F.R. § 1.131 stating that he "conceived of and completed the invention" prior to November 29, 2006. (Petition, 2.) Petitioners then premise their prior-art narrative on the proposition that every reference asserted in their two invalidity grounds predates both (i) the December 27, 2006 priority date and (ii) the asserted pre-November 29, 2006 conception-and-completion date. (Petition, 2).

The '000 Patent is directed to improving uplink control in wireless systems when a design premised on TDD (unpaired) operation is expanded to operate in FDD (paired) operation, where channel reciprocity may be unavailable or unreliable. (EX1001, 2:25-33). To enable active feedback control between a base station and user equipment, the patent describes transmitting an uplink physical channel control signal, referred to as an "uplink beacon" or "UL_Beacon," that can be transmitted independently of the uplink physical channel, so that closed-loop feedback can operate even when the UE is not otherwise transmitting uplink data. (EX1001, 2:29-38). In one embodiment, the UE allocates a time slot for a beacon signal that is separated from time slots for data in a frame, and the base station transmits a control signal in response to the beacon signal to instruct the UE to adjust a transmission parameter. (EX1001, 2:38-43).

The specification further describes a feedback architecture in which the UL_Beacon may be combined with a physical layer common control channel ("PLCCH"), and in which a dedicated timeslot groups UL_Beacon signals from multiple UEs in a specific uplink timeslot to obtain separation between UL_Beacon signals and standard uplink physical channels. (EX1001, 2:44-49). The patent also explains that the PLCCH can share a timeslot with other physical channels by exploiting CDMA aspects of the system, and that capacity and scaling can be addressed through fractionation of UL_Beacon and PLCCH use across a multiframe

period. (EX1001, 2:50-57). Relatedly, the patent explains that separation from normal uplink bursts can be achieved by dedicating at least one uplink time slot per frame (or multiframe) to carrying UL_Beacon signals, and that cross-interference is avoided by the separation obtained from the use of separate time slots. (EX1001, 5:26-42).

III. CLAIM CONSTRUCTION

Patent Owner maintains, consistent with the parallel district court litigation, that all challenged claim terms should be given their plain and ordinary meaning under the Phillips standard. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Petitioners likewise state in this IPR that claim terms should be construed “in accordance with the ordinary and customary meaning ... as understood by one of ordinary skill in the art and the prosecution history,” and they contend that no term requires express construction. (Petition, 7).

Although Patent Owner does not contend that Petitioners are procedurally barred from taking positions that differ from those advanced in the district court, Petitioners’ shifting positions materially undermine the credibility and persuasive force of the Petition’s claim-construction and mapping theories. At a minimum, when a petitioner advances inconsistent positions across proceedings, it must explain why the inconsistency is warranted. *Cambridge Mobile Telematics, Inc. v. Sfara, Inc.*, IPR2024-00952, Paper 12 at 8 (P.T.A.B. Dec. 13, 2024) (informative) (“At a

minimum, the Petition should have explained ‘why the inconsistent positions are warranted.’”). Petitioners provide no such explanation here.

In the district court, Petitioner Southwest has asserted that key claim terms of the ‘000 Patent are “indefinite under 35 U.S.C. § 112” because, according to Southwest, those terms are “open to multiple interpretations, making the claim scope uncertain.” (Ex. 2004, 302-303). Yet in this IPR, Petitioners proceed as though those same terms have sufficiently definite, ascertainable “ordinary and customary” meanings that can be cleanly mapped to the asserted prior art. (Petition, 7; Petition, 39-41; Petition, 49-52). That unexplained about-face bears directly on the weight the Board should give Petitioners’ claim-construction-driven mappings and “POSITA would have understood” assertions.

A. “Wherein a number of bits sent over the physical control channel is based on a number of fields of control information to be sent to the UE” (Claims 1 and 13)

In the district court, Southwest contends that the phrase “wherein a number of bits sent over the physical control channel is based on a number of fields of control information to be sent to the UE” is indefinite. Southwest argues that the specification “merely describes” matching PLCCH capacity to the number of bits required in a feedback field, but “does not describe that a number of bits change based on a number of fields,” and therefore, “[w]ithout a defined meaning,” the

phrase is “open to multiple interpretations, making the claim scope uncertain.” (Ex. 2004, 303).

In this IPR, however, Petitioners ascribe an ordinary meaning to that same limitation and purport to map it to Liu as part of their unpatentability theory. (Petition, 49-52). Petitioners do not acknowledge Southwest’s district court position, and they provide no explanation for why a phrase Southwest has asserted is incapable of reasonably certain scope in litigation nevertheless supposedly has a sufficiently definite ordinary meaning to support Petitioners’ Liu mapping here. (Ex. 2004, 303; Petition, 49-52). That unexplained inconsistency undercuts the persuasiveness of Petitioners’ asserted construction and mapping for this limitation, and renders the Petition fundamentally deficient under the Director’s recent rulings in *Revvo Technologies, Inc. v. Cerebrum Sensor Technologies, Inc.*, IPR2025-00632, Paper 20 (Squires November 3, 2025) (precedential) (a petitioner must explain why it takes different claim construction positions in the petition and in district court) and *Tesla, Inc. v. Intellectual Ventures II LLC*, IPR2025-00340, Paper 18 (Squires November 5, 2025) (informative) (a petitioner’s explanation that it could not argue indefiniteness in an IPR is insufficient to show why different claim construction positions are warranted).

B. “Assigned time intervals” and “in a time interval that it is not sending information over the physical uplink shared channel” (Claims 1 and 13)

Southwest’s credibility problem is even more pronounced for the “time interval” limitations that are central to Petitioners’ grounds. In the district court, Southwest asserts indefiniteness, asking: “How is a time interval for data transmitted defined? How is it assigned? When does a time interval in which information is not received over the physical uplink shared channel occur?” Southwest then asserts that the specification “does not use the term ‘time interval,’ nor ... clearly describe” the relevant scenarios, and that “[w]ithout a defined meaning,” the phrases are “open to multiple interpretations, making the claim scope uncertain.” (Ex. 2004, 303).

In this IPR, Petitioners take the opposite position. Petitioners not only proceed under an “ordinary and customary meaning” approach, they adopt an express construction for “time interval” from a different PTAB proceeding and then build their element-by-element mappings on that understanding. (Petition, 7-9; Petition, 39-41). Petitioners again do so without acknowledging or explaining Southwest’s district court assertion that “time interval” terminology is indefinite because it lacks a defined meaning and is open to multiple interpretations. (Ex. 2004, 303; Petition, 7-9; Petition, 39-41).

This inconsistency matters because Petitioners’ unpatentability theories depend on selecting one particular interpretation of “time interval” and then fitting

the prior art to that interpretation. Where Southwest has contemporaneously taken the position in litigation that the very same terms are open to multiple interpretations and uncertain in scope, Petitioners' failure to reconcile these positions undermines the credibility of Petitioners' constructions and the reliability of Petitioners' mappings that turn on them, and renders the Petition fundamentally deficient under the Director's recent rulings in *Revvo Technologies* and *Tesla, Inc.*

C. Petitioners' Unexplained Inconsistency Undermines the Weight of Their Claim-Construction-Dependent Theories

The Petition rests on mapping to limitations that Southwest has asserted in district court are indefinite due to multiple plausible interpretations. (Ex. 2004, 302-303; Petition, 39-41; Petition, 49-52). Petitioners never explain why the Board should credit Petitioners' preferred "ordinary meaning" constructions and specific mappings in this proceeding when Southwest has asserted in litigation that the same claim language is incapable of reasonably certain scope. (Ex. 2004, 302-303; Petition, 7).

Under *Cambridge Mobile*, at a minimum Petitioners should have explained why their inconsistent positions are warranted. *Cambridge Mobile*, IPR2024-00952, Paper 12 at 8. Petitioners' failure to do so diminishes the persuasive force of the Petition's construction positions and related claim-element mappings, and the Board should accordingly afford those Petition assertions no weight because they depend

on the very claim terms Southwest has separately characterized as uncertain and open to multiple interpretations.

IV. REFERENCES RELIED ON IN THE PETITION

A. Declaration of Dr. Daniel Van Der Weide (EX1003)

Petitioners' expert declaration (EX1003) is not prior art, yet Petitioners use it throughout the Petition to supply technical "POSITA would have understood" bridges and other reasoning that must come from record evidence. Where an expert declaration merely restates a petition's conclusory assertions without providing additional substantive explanation, the Board should afford it little weight. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15-17 (P.T.A.B. Aug. 24, 2022) (precedential). The Federal Circuit has likewise affirmed discounting expert testimony that "merely repeated" a petitioner's arguments "nearly verbatim" without meaningful independent analysis. *Facebook, Inc. v. Windy City Innovations, LLC*, 973 F.3d 1321, 1340-41 (Fed. Cir. 2020).

A side-by-side comparison of the Petition and EX1003 confirms substantial overlap across virtually every substantive section. This is not merely a shared high-level background. The Petition's technical narrative is expressly drawn from, and repeatedly keyed to, EX1003 paragraph ranges, such that the Petition often functions as a template for the declaration, rather than using the declaration to provide an independent technical analysis.

The overlap is pervasive, including at least the following:

Technical Background

- **EX1003 Paragraphs: 38–47**
- **Petition Section: VI. Technical Background** (Pages 9–12)
- **Content:** Both documents contain identical descriptions of 3GPP/LTE development, the Physical Layer (OFDM, OFDMA, SC-FDMA), frame structures (including Figures), Channel Structures (PDSCH, PDCCH, etc.), and Reference Signals (DMRS, SRS, CAZAC sequences).

Overview of the ‘000 Patent

- **EX1003 Paragraphs: 48–54**
- **Petition Section: IV.A. Overview** (Pages 3–6)
- **Content:** The description of the ‘000 Patent, including the concepts of TDD vs. FDD, channel reciprocity, open-loop vs. closed-loop power control, and the “Uplink Beacon” (UL_Beacon), is identical. Both cite the same annotated Figure 2 from the patent.

Overview of Prior Art References

- **EX1003 Paragraphs: 56–95**
- **Petition Section: VII. Prior Art** (Pages 13–28)
- **Content:** The summaries of the prior art references are virtually identical, including:
 - **Papasakellariou (EX1005):** EX1003 ¶¶ 56–62 matches Petition § VII.A.
 - **Classon (EX1006):** EX1003 ¶¶ 63–68 matches Petition § VII.B.
 - **Liu (EX1007):** EX1003 ¶¶ 69–74 matches Petition § VII.C.
 - **Motivation to Combine (Pap/Classon/Liu):** EX1003 ¶¶ 75–82 matches Petition § VII.D.
 - **Muharemovic (EX1008):** EX1003 ¶¶ 83–85 matches Petition § VII.E.
 - **Onggosanusi (EX1016):** EX1003 ¶¶ 86–87 matches Petition § VII.F.
 - **Motivation to Combine (Muh/Ong/Classon):** EX1003 ¶¶ 88–95 matches Petition § VII.G.

Detailed Ground 1 Analysis (Invalidity Arguments)

- **EX1003 Paragraphs: 96–158** (and continuing through the end of Ground 1)
- **Petition Section: VIII.A. Ground 1** (Pages 29–58)
- **Content:** The element-by-element analysis of the claims (Claims 1–24) is nearly identical. The Petition often swaps “In my opinion” (from the Declaration) with “Petitioners submit” or simply states the fact, but the technical reasoning, citations, and claim charts are the same.
 - **Independent Claims (1, 7, 13, 19):** EX1003 ¶¶ 96–146 matches Petition § VIII.A.1.
 - **Dependent Claims:** EX1003 ¶¶ 148–158 matches Petition § VIII.A.2.

Under *Xerox* and *Facebook*, that type of rote repetition warrants little evidentiary weight because it does not provide independent expert analysis that can supply a missing evidentiary bridge. This is especially important here because Petitioners invoke the expert declaration to supply critical inferences not disclosed in the asserted references themselves, including sweeping “POSITA would have understood” timing premises. (Petition, 69-70; EX1003, ¶184).

Finally, a threshold credibility issue further supports discounting the expert declaration. The copy of EX1003 submitted with the Petition includes a signature block that is not executed, leaving the signature line blank. (EX1003, p.107). That defect underscores that Petitioners’ “expert testimony” should not be credited to fill gaps in the prior art, particularly where it largely mirrors the Petition’s own advocacy.

B. Papasakellariou (EX1005)

Petitioner relies on U.S. Patent No. 8,417,248 (“Papasakellariou”) (EX1005) as the lead reference in Ground 1. (Petition, 2).

Petitioner’s asserted prior-art date positions for Papasakellariou are set out in the Petition’s “Reference Prior Art Dates Status” table. Petitioner asserts that Papasakellariou has a priority date of August 14, 2006, a filing date of August 14, 2007, and a publication date of February 14, 2008, and that Papasakellariou qualifies as prior art under pre-AIA 35 U.S.C. § 102(e). (Petition, 3).

Petitioner further premises its challenge on the contention that “every prior art reference” in the asserted grounds precedes the ‘000 Patent’s December 27, 2006 priority date and also predates the inventor’s asserted pre-November 29, 2006 conception-and-completion date. (Petition, 3). In that regard, Petitioner’s reliance on Papasakellariou’s asserted August 14, 2006 priority date is central to Petitioner’s “all references predate” narrative, because the other date Petitioner identifies for Papasakellariou is its August 14, 2007 nonprovisional filing date, which is after the priority date identified in the Petition for the ‘000 Patent, i.e., December 27, 2006. (Petition, 2-3).

In the Petition’s Prior Art summary, Petitioner characterizes Papasakellariou as disclosing, among other things, measuring channel conditions for multiple UEs, dividing base-station operating bandwidth into non-overlapping portions, and

instructing a UE to transmit a sounding reference signal in a selected portion during a sounding reference signal transmission interval. (Petition, 13).

C. Muharemovic (EX1008)

Petitioner relies on U.S. Patent Application Publication No. 2008/0045260 (“Muharemovic”) (EX1008) as the lead reference in Ground 2, which challenges claims 1–24 under § 103 based on Muharemovic in view of Onggosanusi and further in view of Classon. (Petition, 2).

Petitioner’s asserted prior-art date positions for Muharemovic are set out in the Petition’s “Reference Prior Art Dates Status” table. Petitioner asserts that Muharemovic has a priority date of August 15, 2006, a filing date of August 15, 2007, and a publication date of February 21, 2008, and that Muharemovic qualifies as prior art under pre-AIA 35 U.S.C. § 102(e). (Petition, 3).

Petitioner then uses those asserted dates to support its overarching contention that “every prior art reference” in the asserted grounds precedes the ‘000 Patent’s December 27, 2006 priority date, and also predates the inventor’s asserted pre-November 29, 2006 conception-and-completion date referenced in the Petition. (Petition, 2). In that regard, Petitioner’s reliance on Muharemovic’s asserted August 15, 2006 priority date is central to Petitioner’s “all references predate” narrative, because the other date Petitioner identifies for Muharemovic is its August 15, 2007

nonprovisional filing date, which is after the priority date identified in the Petition for the ‘000 Patent, i.e., December 27, 2006. (Petition, 2-3).

In describing what Muharemovic allegedly teaches, Petitioner points to Muharemovic’s “sounding reference signal” and “scheduled data” transmissions in a resource map (Figure 3), asserting that the sounding reference signal is transmitted during a “time slot” when no scheduled data transmissions occur, and relies on that depiction for multiple claim limitations in Ground 2. (Petition, 65–66).

For completeness, Muharemovic itself states that it was filed on August 15, 2007, published on February 21, 2008, and claims priority to provisional applications filed on August 15, 2006 and August 17, 2006. (EX1008, front page).

V. PETITIONER HAS NOT MET ITS BURDEN TO ESTABLISH OBVIOUSNESS UNDER 35 U.S.C. §103

Petitioner’s obviousness challenge is deficient for at least two independent, threshold reasons. First, Petitioner has not met its initial burden of production to establish that the key asserted references qualify as prior art as of the dates on which the Petition depends. Petitioner’s grounds rely on treating Papasakellariou and Muharemovic as prior art as of their asserted provisional priority dates in August 2006, yet Petitioner does not place the relevant provisional applications into evidence and does not perform the required written-description showing to confer those earlier effective filing dates, including the additional requirement that the provisional support the specific relied-upon disclosures. Without that foundational

prior-art showing, the Petition lacks the evidentiary predicate necessary to sustain institution.

Second, even assuming *arguendo* that Petitioner could establish the asserted prior-art dates, Petitioner still fails to meet its burden to prove obviousness because its “why combine” and reasonable-expectation-of-success showings are conclusory and hindsight-driven. Petitioner’s motivation narrative reduces to generalized assertions about the 3GPP/LTE ecosystem and the idea that “delegates routinely combined insights,” coupled with boilerplate assurances that the proposed combinations would have been “predictable” and “routine,” without the record-supported, reference-specific reasoning required to justify combining the particular teachings in the specific, claim-driven manner alleged. As set forth below, these two defects independently foreclose Petitioner’s attempt to satisfy its burden under 35 U.S.C. § 103.

A. Petitioner Has Not Met Its Initial Burden of Production to Establish Prior Art Status Under *Dynamic Drinkware*

Petitioner bears the burden of persuasion to prove unpatentability by a preponderance of the evidence, and that burden never shifts. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1379 (Fed. Cir. 2015). Petitioner also has the initial burden of production, meaning the burden of going forward with evidence, to establish that an asserted reference qualifies as prior art under 35 U.S.C. § 102. *Id.*; *Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1576 (Fed. Cir. 1996) (citing

Innovative Scuba Concepts, Inc. v. Feder Indus., Inc., 26 F.3d 1112, 1115 (Fed. Cir. 1994)) (holding that the challenger “bore the burden of persuasion . . . on all issues relating to the status of [the asserted reference] as prior art”). Only if Petitioner satisfies that initial production burden does the burden of production shift to Patent Owner to respond with argument or evidence that the reference is not prior art or does not render the challenged claims unpatentable. *Dynamic Drinkware*, 800 F.3d at 1379 (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008)).

This case presents the same threshold defect identified in *Dynamic Drinkware*. The parties agree that “[t]he ‘000 Patent application (U.S. Patent App. No. 16/682,854) has a priority date of December 27, 2006.” (Petition, 2). Patent Owner also agrees with Petitioners that, “[d]uring prosecution, inventor Paul Howard submitted a declaration under 37 C.F.R. § 1.131 declaring he ‘conceived of and completed the invention’ of the ‘356 Patent ‘[p]rior to November 29, 2006.’” (Petition, 2).

Accordingly, as shown below, Petitioner relies on asserted provisional priority dates for Papasakellariou and Muharemovic, listing “Priority: August 14, 2006” for Papasakellariou and “Priority: August 15, 2006” for Muharemovic in its prior art dates table. (Petition, 3).

Reference	Prior Art Dates	Status
U.S. Patent No. 8,417,248 ("Papasakellariou") (Ex-1005)	Priority: August 14, 2006 Filed: August 14, 2007 Published: February 14, 2008	§ 102(e)
U.S. Patent Application Publication No. 2007/0058595 ("Classon") (Ex-1006)	Priority: March 30, 2005 Filed: March 20, 2006 Published: March 15, 2007	§ 102(e)
U.S. Patent No. 7,817,605 ("Liu") (Ex-1007)	Priority: August 22, 2003 Filed: August 22, 2003 Published: February 24, 2005	§ 102(b) § 102(e)
U.S. Patent Application Publication No. 2008/0045260 ("Muharemovic") (Ex-1008)	Priority: August 15, 2006 Filed: August 15, 2007 Published: February 21, 2008	§ 102(e)
U.S. Patent No. 7,668,564 ("Onggosanusi") (Ex-1016)	Priority: June 20, 2005 Filed: June 20, 2006 Published: December 21, 2006	§ 102(a) § 102(e)

Petition, 3 (annotated)

But Petitioner makes no attempt to carry its burden of going forward with evidence that either asserted reference is actually entitled to those provisional dates. The Petition does not cite the provisional applications, the provisionals are not included as exhibits, and the provisionals are not in evidence. (Petition, iv).

Because the provisionals are not in the record, Petitioner has not performed the showing *Dynamic Drinkware* requires to obtain an earlier effective filing date for prior art purposes, including demonstrating why the written description (and enablement, where necessary) in the provisional supports the claims of the later filed reference. *Dynamic Drinkware*, 800 F.3d at 1379. Nor has Petitioner or its expert attempted to show that the specific disclosures Petitioner relies upon in Papasakellariou or Muharemovic are disclosed in the respective provisionals as

required by *In re Riggs*, 131 F.4th 1377, 1384 (Fed. Cir. 2025) (“the provisional application must also provide written description support for the specific portions of the patent specification identified and relied on in the prior art rejection”).

Accordingly, Petitioner has not met its initial burden of production, meaning its burden of going forward with evidence, to establish prior art status for Papasakellariou or Muharemovic as of the asserted provisional filing dates. *Dynamic Drinkware*, 800 F.3d at 1379. The Petition’s failure of proof with respect to the threshold issue of whether the disclosures in Papasakellariou and Muharemovic qualify as prior art renders the Petition fundamentally deficient. The utter lack of proof that Papasakellariou and Muharemovic are prior art as of their asserted provisional dates establishes that the Petition lacks a reasonable likelihood of success, and that institution should therefore be denied.

B. Petitioners’ “3GPP Standardization” Motivation-to-Combine Theory Is Conclusory, Hindsight-Driven, and Legally Insufficient

To satisfy its burden of proving obviousness, a petitioner cannot rely on “mere conclusory statements,” but must “articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). A “conclusory assertion with no explanation is inadequate to support a finding that there would have been a motivation to combine.” *TQ Delta, LLC v. Cisco Sys.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019). The Federal Circuit likewise has found expert testimony to “succumb[]

to hindsight bias” where it “primarily consisted of conclusory references to [the expert’s] belief that one of ordinary skill in the art could combine these references, not that they would have been motivated to do so.” *InTouch Techs., Inc. v. VGO Commc’ns, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014). Further, “it [is], at all times, [petitioner’s] burden to show that the claims would have been obvious, including that a skilled artisan would have had a reasonable expectation of success in achieving the claimed invention.” *Eli Lilly & Co. v. Teva Pharm. Int’l GmbH*, 8 F.4th 1331, 1348 (Fed. Cir. 2021).

As *KSR* explains, “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art,” and it remains “important to identify 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, 418–19 (2007). Conclusory expert testimony cannot supply that missing reasoning. *I/P Engine, Inc. v. AOL Inc.*, 576 F. App’x 982, 999 (Fed. Cir. 2014). Nor may Petitioners use the challenged claims as a “template” to piece together disparate teachings from the prior art. *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) (citing *In re Gorman*, 933 F.2d 982, 987 (Fed. Cir. 1991)); see also *Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017) (without explanation of how/why references would be combined to arrive at the

claimed invention, the analysis devolves into hindsight). And even where a modification is technically possible, “the mere fact that the prior art may be modified in the manner suggested . . . does not make the modification obvious unless the prior art suggested the desirability of the modification.” *Fritch*, 972 F.2d at 1266 (citing *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984)). Obviousness therefore requires more than identifying separate references that, in hindsight, can be mapped to separate limitations; it requires evidence that a POSITA “would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention.” *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011).

1. Petitioners’ asserted motivation is boilerplate and untethered to the claimed integration

Petitioners’ “why combine” story is essentially the same in both grounds: the references are within the “3GPP/LTE” ecosystem, some inventors were “delegates,” and therefore “the 3GPP standardization process itself provides strong motivation to combine as delegates routinely combined insights from multiple references.” (Petition, 22; Petition, 27–28). Petitioners then conclude—without a reference-specific technical analysis—that the Ground 1 combination would have been “a predictable, routine step,” would have a “reasonable expectation of success,” and would not require “extensive experimentation nor undue burden.” (Petition, 23). Under governing law, that kind of conclusory framing cannot carry Petitioners’

burden to prove motivation to combine (*Magnum Oil Tools*; *TQ Delta*) and cannot satisfy Petitioners’ independent burden to prove a reasonable expectation of success (*Eli Lilly*).

Dr. van der Weide does not cure this deficiency; he repeats it. He asserts that because the references “address improvements within the same 3GPP technology space,” a POSITA would view them as “complementary contributions,” and again states that “the 3GPP standardization process itself provides strong motivation to combine as delegates routinely combined insights.” (EX1003 ¶79; EX1003 ¶92). He likewise characterizes the combination as “predictable” and “routine,” with no “undue burden.” (EX1003 ¶82; EX1003 ¶95). This is precisely the kind of conclusory “could combine” reasoning that *Magnum Oil Tools*, *TQ Delta*, *InTouch*, *I/P Engine*, and *Metalcraft* reject. Petitioners do not identify, with record evidence, a concrete technical reason a POSITA would have implemented *this* specific multi-reference architecture “in the way the claimed new invention does.” *KSR*, 550 U.S. at 418–19.

2. The “3GPP process” narrative is not a substitute for a reference-specific reason to make the claimed modifications

Petitioners’ reliance on “3GPP standardization” is especially telling because Petitioners affirmatively invoke the “3GPP standardization process” as the alleged motivation to combine. (Petition, 22; Petition, 27–28). Yet Dr. van der Weide’s own description of 3GPP confirms that it is a *formal* process of contributions, in which

participants submit “Tdocs” that are presented, discussed, and modified, and only accepted contributions progress after technical consensus. (EX1003 ¶39). That description undermines—rather than supports—Petitioners’ leap that “standardization” *itself* supplies the missing motivation. At most, it shows that multiple proposals existed and were evaluated; it does not establish that a POSITA would have selected and combined the particular teachings Petitioners extract from each reference in the normal course of development to yield the challenged claims. *Unigene*, 655 F.3d at 1360. Petitioners still must point to record evidence that the prior art “suggested the desirability” of the specific modifications and integration they propose, or a rationale why a POSITA would have made the specific modifications required to integrate the specific features recited in the Challenged Claims. *Fritch*, 972 F.2d at 1266. And, independently, Petitioners must establish that a POSITA would have had a reasonable expectation of success in achieving the claimed invention. *Eli Lilly*, 8 F.4th at 1348.

3. Ground 1 illustrates the hindsight “template” problem

For Ground 1, Petitioners’ motivation reduces to field-level commonality and a conclusion. They assert that because Papasakellariou and Classon are “directly applicable” to OFDM cellular systems and “directed to” 3GPP LTE, and because inventors attended 3GPP meetings, the references are “complementary” and thus there is “strong motivation to combine.” (Petition, 21–22). They then simply state

that a POSITA “would thus have been motivated to implement the uplink scheduling methodology of Papasakellariou with the uplink/downlink physical channel structure of Classon” and “Liu’s shared-control “field” decoding, and that doing so would be a “predictable, routine step” with no “undue burden.” (Petition, 22–23; EX1003 ¶¶81–82).

That is not the required “articulated reasoning with rational underpinning” necessary to support a finding of obviousness; rather, it is an outcome-driven assertion that strings together desirable-sounding fragments from three references. *Fritch* cautions that it is impermissible to treat the claims as an “instruction manual” to assemble prior-art teachings, and *TQ Delta* confirms that conclusory assertions—without explanation—are inadequate to prove motivation to combine. Petitioners’ Ground 1 motivation does exactly that: it starts with the conclusion (the challenged claims) and then asserts, at a high level, that standardization participants “routinely combined insights,” without identifying why a POSITA would have made these particular design choices, in this particular way, for a particular technical benefit recognized in the art. (Petition, 22–23). This is hindsight reconstruction, not evidence-based motivation (*Magnum Oil Tools*; *InTouch*; *Metalcraft*), and it does not establish Petitioners’ required motivation to combine (*Eli Lilly*).

4. Ground 2 repeats the same conclusory rationale

Ground 2 is substantively the same: Petitioners again argue that Muharemovic and Onggosanusi are “rooted” in 3GPP efforts, inventors were delegates, the references are “complementary,” and therefore the “3GPP standardization process itself provides strong motivation to combine.” (Petition, 27–28). Dr. van der Weide repeats that formulation. (EX1003 ¶¶91–92).

As *Metalcraft* explains, “[w]ithout any explanation as to how or why the references would be combined to arrive at the claimed invention, we are left with only hindsight bias that KSR warns against.” 848 F.3d at 1367. Petitioners’ reliance on the same “3GPP delegates routinely combined insights” boilerplate is not an explanation of how or why these specific teachings would have been combined as claimed. (Petition, 27–28). And under *TQ Delta* and *Magnum Oil Tools*, Petitioners’ conclusory assertions cannot substitute for the required “articulated reasoning with rational underpinning” supported by evidence.

5. The Petition Fails to Demonstrate That A POSITA Would Have Had a Reasonable Expectation of Success In Combining The Relied On References

It is Petitioners’ burden, at all times, to prove obviousness, including that a skilled artisan would have had a reasonable expectation of success in achieving the claimed invention. *Eli Lilly & Co. v. Teva Pharm. Int’l GmbH*, 8 F.4th 1331, 1348 (Fed. Cir. 2021). Petitioners do not carry that burden here because their expectation-

of-success discussion is conclusory and untethered to the technical realities of the specific integrations they propose.

For Ground 1, Petitioners do not provide a reference-specific analysis showing why a POSITA would have reasonably expected success in integrating Papasakellariou, Classon, and Liu to achieve the particular timing and channel-structure requirements set forth in the challenged claims. Instead, Petitioners assert, in a single conclusory passage, that the combination “would have been a predictable, routine step” and “would have a reasonable expectation of success,” and further that it “would not require extensive experimentation nor undue burden.” (Petition, 23). Dr. van der Weide repeats the same conclusion in materially the same terms. (EX1003 ¶82). Ground 2 suffers from the same defect. Petitioners again assert that combining Muharemovic, Onggosanusi, and Classon “would have been a predictable, routine step” and “would have a reasonable expectation of success,” and again add that it “would not require extensive experimentation nor undue burden.” (Petition, 28). Dr. van der Weide again repeats that conclusion. (EX1003 ¶95).

Those statements standing alone fail to demonstrate a reasonable expectation of success. They do not explain how the asserted combinations would be implemented to satisfy the specific architecture and timing requirements recited in the challenged claims, while preserving the asserted objectives of the underlying references, and they do not identify any concrete technical facts demonstrating that

the proposed integration was, in fact, routine for a POSITA at the relevant time. Under *KSR*, obviousness is not established merely by showing that components were known, and it remains important to identify not only a reason to combine the elements in the way they are claimed, but also that a POSITA would have had a reasonable expectation of success in making the combination. 550 U.S. at 418–19.

Accordingly, because Petitioners’ expectation-of-success showing rests on conclusory assurances of predictability and routineness, rather than a record-supported explanation of why success would have been reasonably expected for the specific combinations claimed, Petitioners have not met their burden under *Eli Lilly*.

6. *Virtek* confirms Petitioners’ “known in the art/same standards space” rationale cannot satisfy motivation to combine or reasonable expectation of success

The Federal Circuit’s recent decision in *Virtek Vision Int’l ULC v. Assembly Guidance Systems, Inc.*, 97 F.4th 882 (Fed. Cir. 2024) is directly on point and reinforces why Petitioners’ showing fails here.

In *Virtek*, the petitioner attempted to supply a missing limitation by substituting one known measurement approach (3D coordinates using two cameras) for another known approach (angular direction using one camera). The Board found a motivation to combine largely because both alternatives were disclosed and “known.” The Federal Circuit reversed, holding that it “does not suffice” for motivation to combine to merely recognize that two alternative arrangements were

known; the petitioner must provide a reason why a skilled artisan would select and substitute one for another in the claimed manner. 97 F.4th at 886–88. The court emphasized that the petition there offered no rationale “other than that the two different [approaches] were ‘known to be used,’” and that this kind of record does not establish motivation to combine. *Id.* at 887–88. The court’s bottom-line point is the same defect present here: “It does not suffice to simply be known. A reason for combining must exist.” *Id.* at 888.

That is exactly the problem with Petitioners’ theory. Petitioners’ proffered motivation is not that the prior art identified a specific design need, technical advantage, or known problem that would prompt a POSITA to integrate the disparate features as the claims require. Instead, Petitioners rely on the same type of “known options in the same ecosystem” rationale rejected in *Virtek*: because the references are in the 3GPP/LTE space and inventors were delegates, a POSITA “would have viewed them as complementary contributions,” and “the 3GPP standardization process itself provides strong motivation to combine.” (Petition, 22; Petition, 27; EX1003, ¶79; EX1003, ¶92). Under *Virtek*, that is not a motivation-to-combine analysis; it is a conclusory assertion that the pieces existed and could be assembled.

Virtek also explains why Petitioners’ “predictable, routine step” language does not bridge the gap. The court recognized that *KSR* permits “obvious to try” reasoning only in circumstances supported by evidence, such as “a design need or

market pressure” and “a finite number of identified, predictable solutions,” pursued with a reasonable expectation of success. 97 F.4th at 888 (citing *KSR*, 550 U.S. at 421). Because the petition in *Virtek* did not present evidence of such circumstances, the Board’s motivation finding collapsed into hindsight. *Id.* Here, Petitioners likewise offer no record-based showing of a design need or market pressure that would prompt the specific cross-reference integration they propose, and no showing that there were only a finite number of predictable integration options for solving a specific identified problem. Instead, Petitioners simply assert the combinations would have been “predictable” and “routine” with a “reasonable expectation of success.” (Petition, 23; Petition, 28; EX1003, ¶82; EX1003, ¶95). *Virtek* confirms that this kind of assertion is inadequate when not anchored to evidence explaining why the specific integration would have been pursued and why success would have been reasonably expected.

Finally, *Virtek* underscores an additional procedural point that matters in IPR practice: a petitioner cannot cure a deficient motivation-to-combine theory by introducing a materially new rationale late in the case. 97 F.4th at 888–89 (citing *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369–70 (Fed. Cir. 2016)). Thus, to the extent Petitioners attempt to bolster their boilerplate “3GPP” motivation in Reply with a new “common sense,” “design choice,” or other after-the-fact rationale not articulated with supporting evidence in the Petition, *Virtek*

confirms that such a pivot cannot supply the missing motivation or reasonable-expectation showing.

7. Petitioners’ “3GPP/LTE Ecosystem” Rationale Is Conclusory and Fails to Establish Motivation to Combine or a Reasonable Expectation of Success

Critically, Petitioners never supply the kind of record-supported, reference-specific explanation that *TQ Delta*, *Magnum Oil Tools*, and *Virtek* require, namely, evidence of why a POSITA would have selected these particular features from these particular references and integrated them in the specific, claim-driven manner asserted. Instead, Petitioners’ “why combine” discussion is essentially that the references are in the same “3GPP/LTE” ecosystem, that the inventors were “delegates,” and therefore that “the 3GPP standardization process itself provides strong motivation to combine as delegates routinely combined insights,” followed by the bottom-line assertion that the combinations would be “predictable” and “routine,” with a “reasonable expectation of success,” and with no “extensive experimentation nor undue burden.

Petitioners do not identify any articulated design need or constraint in the primary references that would have led a skilled artisan to import the specific timing and channel-structure features they extract from the secondary references, and they do not explain why a POSITA would accept the overhead, throughput, and latency tradeoffs implicated by the asserted integration as opposed to using the approaches

already disclosed in the primary references. Instead, the Petition and Dr. van der Weide simply assume that, because these are “complementary contributions” within 3GPP, a POSITA would have combined them. (Petition, 22–23; Petition, 27–29; EX1003 ¶79; EX1003 ¶82; EX1003 ¶92; EX1003 ¶95). Under *TQ Delta* and *Magnum Oil Tools*, that is an inadequate conclusory assertion with no explanation, and under *Virtek* it is precisely the impermissible “it was known in the art” and “same ecosystem” rationale that fails to establish motivation to combine and, on this record, fails to establish a reasonable expectation of success, because Petitioners never provide the missing evidentiary bridge from “delegates routinely combined insights” to “a POSITA would have combined these particular elements in this particular way.”

Instead, Petitioners’ motivation-to-combine case rests on generic “3GPP/LTE” contextualization and conclusory assertions that combining would have been “predictable” and “routine,” rather than record evidence demonstrating that a POSITA would have been motivated to make the specific claimed integration, for reasons recognized in the prior art. This showing is legally insufficient, and the Board should reject Petitioners’ obviousness grounds on this independent basis.

VI. CONCLUSION

For the reasons set forth above, Petitioners have not established a reasonable likelihood that they will prevail with respect to any challenged claim, and institution should be denied.

First, Petitioners' grounds depend on asserted prior-art dates that Petitioners have not carried their burden to establish. Petitioners rely on provisional priority dates for key asserted references, yet do not submit the relevant provisional applications into evidence and do not perform the required analysis demonstrating entitlement to those earlier dates. Without the provisional applications in the record, and without any attempt to show that the claims and relied-upon disclosures of the asserted references are supported by the provisional disclosures, Petitioners have not met their burden of going forward with evidence to establish prior-art status as asserted. Petitioners' failure on this threshold issue independently undermines the Petition's ability to support institution.

Second, Petitioners' evidentiary presentation depends heavily on an expert declaration that largely mirrors the Petition and supplies critical inferential bridgework. Significant portions of the Petitioner's expert declaration are substantively identical to corresponding portions of the Petition, indicating that the declaration functions primarily as a repackaging of Petitioners' advocacy rather than an independent technical analysis. Where Petitioners rely on such testimony to supply missing disclosures or to justify core assumptions through unsupported "POSITA would have understood" assertions, the testimony should be afforded little weight, and Petitioners' case fails to carry the requisite evidentiary showing at institution.

Finally, Petitioners' shifting positions across proceedings underscore the lack of reliable, consistent claim interpretation supporting the Petition. In district court, Petitioner Southwest has asserted that key limitations are indefinite because they are open to multiple interpretations and render claim scope uncertain. In this IPR, Petitioners proceed as though those same limitations have ascertainable ordinary meanings that can be mapped to prior art, without acknowledging or explaining the inconsistency. This unexplained pivot further diminishes the persuasive force of Petitioners' claim-construction-dependent theories.

Accordingly, Patent Owner respectfully requests that the Board deny institution of inter partes review as to all challenged claims.

Respectfully submitted,

Dated: December 23, 2025

By: /Brandon R. Theiss/
Brandon R. Theiss
Registration No. 70,507
Counsel for Patent Owner
Intellectual Ventures II LLC

CERTIFICATE OF COMPLIANCE WITH WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), I certify that this Patent Owner Preliminary Response complies with the type-volume limits of 37 C.F.R. § 42.24(b)(1) because it contains 6,803 words, excluding the parts of this Patent Owner's Preliminary Response that are exempted by 37 C.F.R. § 42.24(a), according to the word processing system used to prepare this Patent Owner's Preliminary Response.

Respectfully submitted,

Dated: December 23, 2025

By: /Brandon R. Theiss/
Brandon R. Theiss
Registration No. 70,507
Counsel for Patent Owner
Intellectual Ventures II LLC

CERTIFICATE OF SERVICE

The undersigned certifies that pursuant to 37 C.F.R. § 42.6(e), a copy of the foregoing **PATENT OWNER'S PRELIMINARY RESPONSE** was served via email (as consented to by counsel) on December 23, 2025 to lead and backup counsel of record for Petitioners as follows:

John B. Campbell
jcampbell@McKoolSmith.com
MCKOOL SMITH, P.C.
303 Colorado Street, Suite 2100
Austin, TX 78701

Casey Shomaker
cshomaker@mckoolsmith.com
McKool Smith, P.C.
300 Crescent Court, Suite 1200
Dallas, TX 75201

Kenneth M. Scott
kscott@mckoolsmith.com
McKool Smith, P.C.
MCKOOL SMITH, P.C.
303 Colorado Street, Suite 2100
Austin, TX 78701

Keith D. Harden
kharden@munckwilson.com
Munck Wilson Mandala, LLP
2000 McKinney Ave., Ste. 1900
Dallas, Texas 75201

S. Wallace Dunwoody
wdunwoody@munckwilson.com
Munck Wilson Mandala, LLP
2000 McKinney Ave., Ste. 1900
Dallas, Texas 75201

Michael C. Wilson
mwilson@munckwilson.com
Munck Wilson Mandala, LLP
2000 McKinney Ave., Ste. 1900
Dallas, Texas 75201

AA_Intellectual_Ventures@mckoolsmith.com

SWA-IV@munckwilson.com

Dated: December 23, 2025

By: /Brandon R. Theiss/
Brandon R. Theiss
Registration No. 70,507
Counsel for Patent Owner
Intellectual Ventures II LLC