

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMERICAN HONDA MOTOR CO., INC.,
Petitioner,

v.

NEO WIRELESS LLC,
Patent Owner.

IPR2023-00797
Patent 10,771,302 B2

Before HYUN J. JUNG, JO-ANNE M. KOKOSKI, and
STEPHEN E. BELISLE, *Administrative Patent Judges*.

BELISLE, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review on Remand
35 U.S.C. § 314

I. INTRODUCTION

American Honda Motor Co., Inc. (“Petitioner” or “Honda”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 23, 24, 26, and 27 (“Challenged Claims”) of U.S. Patent No. 10,771,302 B2 (Ex. 1001, “the ’302 patent”). Petitioner identifies itself and Honda Development & Manufacturing of America, LLC as real parties in interest. Pet. 68. Neo Wireless LLC (“Patent Owner”) identifies itself as a real party in interest (Paper 4, 1), and timely filed a Preliminary Response (Paper 7, “Prelim. Resp.”), which argued, *inter alia*, that the Board should exercise discretion and deny institution because Volkswagen Group of America (“Volkswagen”) filed an earlier petition in IPR2022-01538 (Paper 7, 3–23)

On November 9, 2023, the Board exercised discretion to deny institution of Honda’s Petition as a follow-on of Volkswagen’s petition. Paper 14 (“Decision”). Petitioner requested and was granted Director Review of the Board’s Decision (Papers 16, 18). On March 22, 2024, the Director vacated the Board’s Decision and remanded to the Board to issue a decision on institution that addresses the merits of the Petition, which we do herein. Paper 27.

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314(b) (2018); 37 C.F.R. § 42.4(a) (2022). We may not institute an *inter partes* review “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). The “reasonable likelihood” standard is “a higher standard than mere notice pleading” but “lower than the ‘preponderance’ standard to prevail in a final written decision.” *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039,

Paper 29 at 13 (PTAB Dec. 20, 2019) (precedential). When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim. 37 C.F.R. § 42.108(a).

Applying those standards, and upon consideration of the information presented in the Petition and Preliminary Response, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing with respect to any of challenged claims 23, 24, 26, and 27 of the '302 patent. Accordingly, constrained by the record before us, we deny institution of an *inter partes* review of the '302 patent.

II. BACKGROUND

A. Related Matters

The parties indicate that the '302 patent is (or was) involved in several pending and terminated proceedings. *See* Pet. 68–70; Paper 4, 1–3 (listing a total of twenty proceedings). Such proceedings include, *inter alia*, (1) *Neo Wireless LLC v. American Honda Motor Co., Inc.*, No. 2-22-cv-11403 (E.D. Mich.); (2) *In Re: Neo Wireless, LLC Patent Litigation*, No. 2-22-md-03034 (E.D. Mich.); and (3) *Volkswagen Group of America, Inc. v. Neo Wireless LLC*, IPR2022-01538, Paper 7 (PTAB May 5, 2023), in which the Board denied *inter partes* review on the merits.

B. The '302 Patent

The '302 patent is titled “Channel Probing Signal for a Broadband Communication System,” and issued September 8, 2020, from U.S. Patent Application No. 15/953,950, filed April 16, 2018. Ex. 1001, codes (10), (21), (22), (45), (54). The '302 patent claims priority through a series of

continuation applications to U.S. Provisional Application Nos. 60/540,586, filed January 30, 2004, and 60/540,032, filed January 29, 2004.¹ *Id.* at 1:6–24, codes (60), (63).

The '302 patent explains that “[a] direct Sequence Spread Spectrum (DSSS) system is inherently capable of supporting multi-cell and multi-user access applications through the use of orthogonal spreading codes,” but “a DSSS system using orthogonal spreading codes, may suffer severely from the loss of orthogonal[ity] in a broadband environment due to multi-path propagation effects, which results in low spectral efficiency.” Ex. 1001, 1:28–31, 1:34–38. The '302 patent also explains that a Multi-Carrier (“MC”) “system such as an Orthogonal Frequency Division Multiplexing (OFDM) system is capable of supporting broadband applications with higher spectral efficiency” and “mitigates the adverse effects of multi-path propagation in wireless environments by using cyclic prefixes to extend the signal period as the data is multiplexed on orthogonal sub-carriers.” *Id.* at 1:41–47. The '302 patent states, however, that “MC systems are vulnerable while operating in multi-user and multi-cell environments.” *Id.* at 1:52–54.

In view of the above, the '302 patent describes “[a] broadband wireless communication system where both the Multi-Carrier (MC) and direct Sequence Spread Spectrum (DSSS) signals are intentionally overlaid

¹ The parties dispute the effective filing date(s) of the Challenged Claims. Pet. 2–5; Prelim. Resp. 25–32. As discussed below in Section III.D, and based on the record before us, we find the Challenged Claims have an effective filing date of at least January 30, 2004 (i.e., the filing date of the '302 patent's underlying U.S. Provisional Application No. 60/540,586).

together in both time and frequency domains.” Ex. 1001, 2:39–42. The ’302 patent explains that “[t]he MC signal is used to carry broadband data signal for its high spectral efficiency, while the DSSS signal is used for special purpose processing, such as initial random access, channel probing, and short messaging.” *Id.* at 2:44–48.

The ’302 patent describes an embodiment in which “a DSSS signal and a MC signal [are] fully overlaid or partially overlaid with an MC symbol or slot boundary in the time domain.” Ex. 1001, 7:27–29. Figure 13 of the ’302 patent is reproduced below.

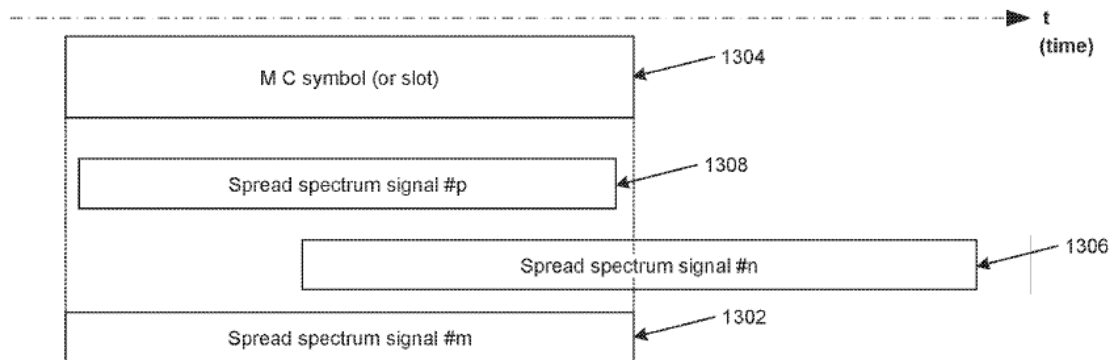


FIG. 13

Figure 13 shows DSSS signal 1302 that fully overlaps with MC symbol 1304 in the time domain, and DSSS signal 1306 that overlaps with MC symbol 1304 only partially. *Id.* at 7:29–35. The ’302 patent further describes an embodiment in which guard periods are added to DSSS signal 1308 to “ensure that a well-designed DSSS sequence (with low [Peak to Average ratio (“PAR”)] in frequency domain) causes little interference with the MC subcarriers even when there is time misalignment in a DSSS signal relative to the OFDM symbol period.” *Id.* at 7:56–60.

The '302 patent also describes using spectrum nulls in a DSSS signal to protect an MC control subchannel. Ex. 1001, 7:64–65. Figure 15 of the '302 patent is reproduced below.

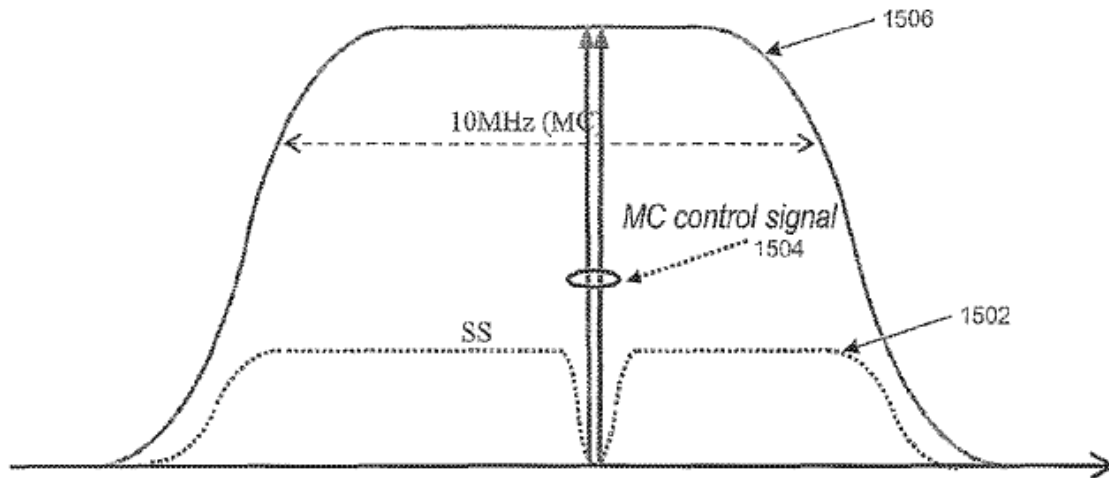


FIG. 15

Figure 15 depicts an available spectrum 1506 and DSSS signal 1502 that has a spectrum null to avoid excess interference with uplink MC control signal 1504. *Id.* at 7:65–8:2. The '302 patent explains that “interference with the MC sub-carriers over the rest of the spectrum will be much lower where the MC subchannels, carrying control information or using higher modulation subcarriers (such as 16 QAM), are placed.” *Id.* at 8:7–11.

The '302 patent also describes an embodiment in which “the DSSS signal is used to assist estimation of channel characteristics.” Ex. 1001, 8:66–67. Specifically, “the base station dictates the mobile station to transmit the channel probing DSSS when it needs an update of the mobile station’s channel characteristics.” *Id.* at 9:39–41. The '302 patent further describes an embodiment in which “the base station polls the mobile station during its silent period and gets an update of the mobile station’s

information such as transmission timing and power from the probing DSSS signal.” *Id.* at 9:41–45. The ’302 patent explains that the channel profile information can be “used by the base station to determine the proper modulation/coding and pilot pattern.” *Id.* at 9:45–48.

C. Illustrative Claim

The ’302 patent includes thirty-six claims, of which claims 23, 24, 26, and 27 are challenged. Independent claim 23, reproduced below, is illustrative of the claimed subject matter.

23. A mobile device in an Orthogonal Frequency Division Multiplexing (OFDM) communication system, the mobile device comprising:

a receiver configured to receive a request for a probing signal from a base station in the system;

a transmitter configured to form and transmit, in response to the received request, the probing signal with a code sequence modulated in the frequency domain, wherein:

the probing signal is configured to overlap, in the time domain, with uplink signals transmitted over an uplink frequency band by other mobile devices in the system; and

the probing signal is configured to occupy a portion of spectrum in the uplink frequency band not designated for transmission of uplink control signals in the system.

Ex. 1001, 12:28–42.

D. Evidence of Record

Petitioner relies on the following published patent application evidence.

Name	Patent Document	Exhibit
Koo	US 2004/0174845 A1, published September 9, 2004	1006

Petitioner also relies on the following non-patent literature evidence.

Name	Non-Patent Literature Title	Author	Exhibit
802.16a-2003 ²	IEEE Std 802.16a-2003 Amendment; Part 16: Air Interface for Fixed Broadband Wireless Access Systems Amendment 2: Medium Access Control Modifications and Additional Physical Layer Specifications for 2-11 GHz	The Institute of Electrical and Electronics Engineers, Inc. ("IEEE")	1004
802.16-2001	IEEE Std 802.16-2001; Part 16: Air Interface for Fixed Broadband Wireless Access Systems	IEEE	1005
Kitroser	IEEE 802.16e Mobility System Perspective (Re: Call for contributions IEEE 80216e-02/01 in Project: IEEE 802.16 Broadband Wireless Access Working Group)	Itzik Kitroser et al. (IEEE)	1007

Pet. 2, 5–7.

Petitioner also relies upon the Declaration of Dr. R. Michael Buehrer (Ex. 1003) and the Declaration of June Ann Munford (Ex. 1012).

Patent Owner relies upon the Declaration of William P. Alberth Jr. (Ex. 2001).

² Petitioner collectively refers to 802.16a-2003 and 802.16-2001 as "802.16a." Pet. 2, 11–12.

E. Asserted Challenges to Patentability

Petitioner challenges the patentability of claims 23, 24, 26, and 27 of the '302 patent on the following bases (Pet. 2).

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
23, 24, 26, 27	103 ³	802.16a-2003, 802.16-2001, Koo
23, 24, 26, 27	103	802.16a-2003, 802.16-2001, Kitroser

III. PATENTABILITY

A. Applicable Law

Petitioner challenges the patentability of claims 23, 24, 26, and 27 of the '302 patent on grounds that the claims would have been obvious under 35 U.S.C. § 103(a) in light of various references, namely 802.16a-2003, 802.16-2001, Koo, and Kitroser. “In an [*inter partes* review], the petitioner has the burden from the onset to show *with particularity* why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)) (emphasis added). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

³ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103 effective on March 16, 2013. Neither party argues that the outcome of this case would differ based on applying the pre-AIA or post-AIA versions of these laws.

1. Section 112 and Benefit of Earlier Filing Date

We discuss benefit of an earlier application filing date and 35 U.S.C. § 112(a) (particularly the written description requirement) in Section III.D.2 below.

2. Obviousness – Generally

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art” to which the subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when of record, objective evidence of obviousness or non-obviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Secondary considerations may include the following: “commercial success, long felt but unsolved needs, failure of others, etc.”⁴ *Id.* The totality of the evidence submitted may show that the challenged claims would not have been obvious to one of ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). When evaluating a combination of teachings, we must also “determine whether there was an apparent reason to combine the known elements in the

⁴ Patent Owner did not present any evidence or arguments directed to secondary considerations in its Preliminary Response.

fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

The Supreme Court has made clear that we apply “an expansive and flexible approach” to the question of obviousness. *Id.* at 415. Whether a patent claiming a combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. To reach this conclusion, however, requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under examination. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention. *Id.* “To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead 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).

3. *Reasonable Expectation of Success*

“An obviousness determination requires finding that [an ordinarily skilled artisan] would have been motivated to combine or modify the teachings in the prior art and *would have had a reasonable expectation of success in doing so.*” *Regents of Univ. of Cal. v. Broad Inst., Inc.*, 903 F.3d 1286, 1291 (Fed. Cir. 2018) (emphasis added); *see also OSI Pharms., LLC v. Apotex Inc.*, 939 F.3d 1375, 1382–85 (Fed. Cir. 2019); *Samsung Elecs. Co.*,

Ltd. v. Elm 3DS Innovations, LLC, 925 F.3d 1373, 1380–83 (Fed. Cir. 2019). “[A] reasonable expectation of success, not absolute predictability’ supports a conclusion of obviousness.” *Yamanouchi Pharm. Co. v. Danbury Pharmacal, Inc.*, 231 F.3d 1339, 1343 (Fed. Cir. 2000); *see Intel Corp. v. Alacritech, Inc.*, 817 F. App’x 1014, 1016–17 (Fed. Cir. 2020). “The reasonable-expectation-of-success analysis must be tied to the scope of the claimed invention.” *Teva Pharms. USA, Inc. v. Corcept Therapeutics, Inc.*, 18 F.4th 1377, 1381 (Fed. Cir. 2021). “Whether the prior art discloses a claim limitation, whether a skilled artisan would have been motivated to modify or combine teachings in the prior art, *and whether she would have had a reasonable expectation of success in doing so are questions of fact.*” *Univ. of Strathclyde v. Clear-Vu Lighting LLC*, 17 F.4th 155, 160 (Fed. Cir. 2021) (emphasis added).

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art, at the time of the invention of the ’302 patent:

would have had at least a Bachelor’s degree in an academic area emphasizing electrical engineering, computer engineering, or a similar discipline, and at least two years of experience in the field working with, teaching, or researching wireless communication networks. Superior education could compensate for a deficiency in work experience, and vice-versa.

Pet. 9 (citing Ex. 1003 ¶ 22) (internal citations omitted).

Patent Owner does not present an alternative definition in its Preliminary Response. *See generally* Prelim. Resp.

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). The level of ordinary skill in the art also may be reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Neither party argues that the outcome of this case would differ based on our adoption of any particular definition of the level of ordinary skill in the art. Considering the subject matter of the ’302 patent, the background technical field, the prior art, and Petitioner’s proposed and unopposed definition of the skilled artisan, we apply the level of skill set forth above, which is consistent with the testimony of Dr. Buehrer (Ex. 1003 ¶ 23), except that we omit the two instances of “at least” to remove the unbounded nature of the definition.

C. Claim Construction

Neither Petitioner nor Patent Owner proposes any claim terms for construction. Pet. 8 (“[N]o formal claim constructions are necessary in this proceeding.”); *see generally* Prelim. Resp. We do not find that the express construction of any term is necessary for this decision. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”); *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (applying *Vivid Techs.* in the context of an *inter partes* review).

D. Alleged Obviousness of Claims 23, 24, 26, and 27 over the Combination of 802.16a-2003, 802.16-2001, and Koo

Petitioner contends claims 23, 24, 26, and 27 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of 802.16a-2003 (Ex. 1004), 802.16-2001 (Ex. 1005), and Koo (Ex. 1006), and refers to this challenge as “Ground 1.” Pet. 2–5, 10–58. Patent Owner opposes. Prelim. Resp. 24–32. For the reasons expressed below, and based on the record before us, we determine Petitioner has not sufficiently shown that Koo is prior art to the Challenged Claims. Thus, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that any of the Challenged Claims is unpatentable as obvious over the combination of 802.16a-2003, 802.16-2001, and Koo.

1. Koo (Ex. 1006) vs. The '302 Patent

Koo’s earliest possible effective filing date is March 5, 2004. Ex. 1006, code (22). The '302 patent claims priority through a series of continuation applications to Patent Application No. PCT/US2005/003518, filed January 27, 2005, now U.S. Patent No. 7,864,725 (Ex. 1001, code (63)), and further to U.S. Provisional Application Nos. 60/540,586, filed January 30, 2004 (“the '586 Provisional”) and 60/540,032, filed January 29, 2004 (“the '032 Provisional”) (*id.* at 1:6–24, codes (60), (63)). Koo’s filing date of March 5, 2004 lays *between* the filing date of the '586 provisional (January 30, 2004) and the filing date of the PCT application (January 27, 2005). Thus, if the Challenged Claims are entitled to benefit of at least the '586 Provisional’s filing date, then Petitioner’s Ground 1 necessarily fails.

2. Section 112 and Benefit of Earlier Filing Date

In order for a patent application to be entitled to the benefit of an earlier filing date based upon an earlier-filed application, the earlier-filed application must have been disclosed “in the manner provided by section 112(a) (other than the requirement to disclose the best mode).” 35 U.S.C. §§ 119(e)(1), 120.

To determine whether any of the Challenged Claims is entitled to the benefit of the filing date of the ’586 Provisional, we determine whether the ’586 Provisional satisfies the following two requirements set forth in 35 U.S.C. § 112(a): “(1) a written description of the subject matter of the claim(s) at issue in the later filed nonprovisional application, and (2) an enabling disclosure to permit one of ordinary skill in the art to make and use the claimed invention in the later filed nonprovisional application without undue experimentation.” *See* MPEP § 211.05.⁵ In this case, Petitioner challenges only the written description requirement. *See* Pet. 2–5.

Under 35 U.S.C. § 112(a), a patent specification shall contain a “written description” of the invention. The purpose of the written description requirement is to “ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor’s contribution to the field of art as described in the patent specification.” *Univ. of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 920 (Fed. Cir. 2004) (quoting *Reiffin v. Microsoft Corp.*, 214 F.3d 1342, 1345 (Fed. Cir. 2000)). This requirement protects the *quid pro quo* between inventors and the

⁵ MANUAL OF PATENT EXAMINING PROCEDURE (“MPEP”) (9th ed. rev. 07.2022, Feb. 2023).

public, whereby the public receives “meaningful disclosure in exchange for being excluded from practicing the invention for a limited period of time.” *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 970 (Fed. Cir. 2002).

To satisfy the written description requirement, the disclosure must reasonably convey to skilled artisans that the inventor possessed the claimed invention as of the claimed priority date. *See Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). “One does that by such descriptive means as words, structures, figures, diagrams, formulas, etc., that fully set forth the claimed invention.” *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997). “The invention is, for purposes of the ‘written description’ inquiry, *whatever is now claimed.*” *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991). Such description need not recite the claimed invention *in haec verba* but must do more than merely disclose that which would render the claimed invention obvious. *Univ. of Rochester*, 358 F.3d at 923; *Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 119 F.3d 1559, 1566–67 (Fed. Cir. 1997); *see also PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306–07 (Fed. Cir. 2008) (explaining that § 112, ¶ 1 “requires that the written description actually or inherently disclose the claim element”).

Benefit under Sections 119 and 120 is a question of law, but whether a claimed invention is supported by an adequate written description under Section 112 is a question of fact. *In re Owens*, 710 F.3d 1362, 1366 (Fed. Cir. 2013).

3. *Petitioner’s Arguments*

Petitioner argues the ’302 patent is not entitled to benefit of the filing date of the ’586 Provisional because this provisional allegedly does not

provide written description support for (i.e., show the inventor’s possession of) the feature of a transmitter configured to form and transmit, in response to a received request, “*the probing signal with a code sequence **modulated in the frequency domain,***” as recited in independent claim 23. Pet. 2–3; Ex. 1001, 12:34–35; *see* Pet. 2–5. Petitioner argues the ’302 patent “does not use the term ‘probing signal,’” and that its disclosure of “the DSSS⁶ signal is **modulated** in either the time domain **or the frequency domain**” does not “appear” in either the ’586 Provisional or the ’032 Provisional. Pet. 2–3; *see id.* at 3 (“[The ’032 Provisional] does not mention ‘probing signal’ or ‘code sequence’ or ‘DSSS’ at all, much less a probing signal or code sequence or DSSS modulated **in the frequency domain.**”), 3–4 (“[The ’586 Provisional] merely discloses that ‘the MC signal is modulated on subcarriers in the frequency domain while the **SS signal is modulated in the time domain,**” and “[t]hus, the [’586 Provisional] lacks the phrase ‘or the frequency domain’ which appears in the ’302 Patent specification.”). Petitioner concludes that the ’586 and ’032 Provisionals do not support the subject limitation in the Challenged Claims. Pet. 4–5.

But despite “written description” being a question of *fact*, and despite having its own technical expert (Dr. Buehrer) at the ready, Petitioner does not direct us *to any evidence* supporting these plain attorney arguments, which we find unpersuasive, particularly in view of Patent Owner’s technical expert’s (Mr. Alberth’s) uncontroverted testimony to the contrary (discussed below). *See In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974) (“Attorney’s argument in a brief cannot take the place of evidence.”); *In re*

⁶ DSSS means “Direct Sequence Spread Spectrum.” Ex. 1001, 1:28.

Owens, 710 F.3d at 1366; Ex. 1003 (Buehrer Declaration). Indeed, rather than having its expert testify why the '586 Provisional allegedly does not explicitly *or inherently* disclose the subject limitation *to the skilled artisan*, Petitioner's counsel simply *told* Dr. Buehrer that Koo is prior art to the Challenged Claims:

Counsel (Fish & Richardson) has informed me that I should consider these materials through the lens of one of ordinary skill in the art related to the '302 patent at the time of the earliest priority date of the '302 patent to which claims 23, 24, 26, and 27 are entitled to support, and I have done so during my review of these materials. I have been informed by Counsel that the '302 patent claims priority to [the '586 and '032 Provisionals], but that claims 23, 24, 26, and 27 are not entitled to these earlier priority dates because the provisional applications do not provide support for, at least, the feature of “the probing signal with a code sequence *modulated* in the *frequency domain*” recited in claim 23. Therefore, I have been informed by Counsel to use **January 27, 2005** (the filing date of the PCT application of the '302 patent) as the “Critical Date” in my analysis below.

Ex. 1003 ¶ 20 (underlining added). Petitioner proffers no evidence as to whether the disclosure of the '586 Provisional—explicitly or inherently—would have reasonably conveyed *to skilled artisans* that the inventor possessed the features of the subject limitation.

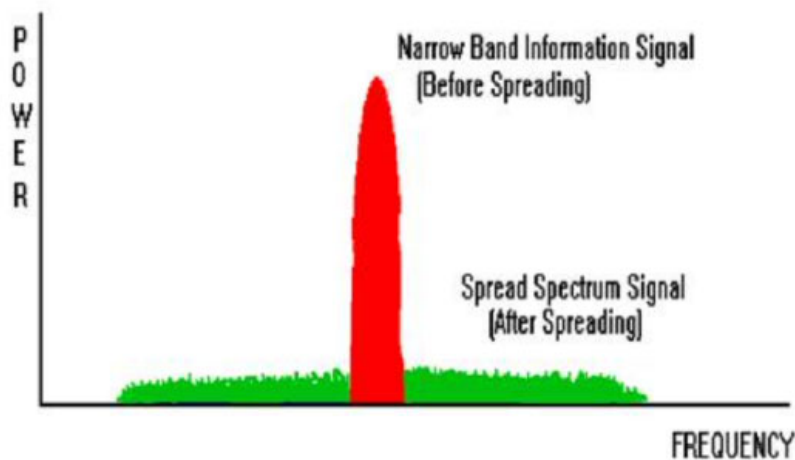
4. Patent Owner's Arguments

Patent Owner submits that “there is no dispute [between the parties] that the ['586 Provisional] disclosed that the ‘probing signal’ can be, though it is not restricted to, a ‘DSSS signal,’ just as the '302 Patent recites” (Prelim. Resp. 27 (citing Ex. 1011 §§ 2, 4.5; Pet. 3)), and that “[t]he only question is whether the disclosed ‘DSSS signal’ is disclosed to be modulated

in the frequency domain” (*id.*). Patent Owner argues “DSSS inherently discloses modulation in the frequency domain” to the skilled artisan, and this is “confirmed both [1] by Petitioner’s expert’s own scholarship publications, and [2] by how Petitioner itself has mapped IEEE 802.16a-2003 to the limitation.” Prelim. Resp. 27; *see* Ex. 2001 ¶ 32 (“[T]he DSSS signal, which is the exemplary spreading method in the embodiments disclosed in the 586 Provisional Application inherently discloses modulation in the frequency domain, as would be understood by [the skilled artisan].”).

Mr. Alberth testifies as to why the spreading technology employed in DSSS necessarily discloses modulation in the frequency domain as follows:

CDMA (Code Division Multiple Access) is a method of allowing multiple users to access the bandwidth, and is based on spreading technology. Each user is assigned a code (sometimes generated based on a pseudo-random number). The user “spreads” the information signal based on its assigned code to cover a wider frequency bandwidth but with a lower power density. This is shown schematically below, where the red signal is the information signal before spreading, and the green signal is the information signal after spreading:



The receiver of the spread signal is also in possession of the CDMA code that was assigned to the user, and can extract

the intended data by applying the reverse of the spreading process. Because each user's spreading code is unique (a part of a pseudo-random generated signal), all users can send their spread signals in the same channel.

Ex. 2001 ¶¶ 32–34 (cited at Prelim. Resp. 28–29).

Mr. Alberth testifies that “a book [(Ex. 2017)] published by Dr. Buehrer [(Petitioner's expert)] also similarly defines spread spectrum” and confirms his above explanation of why the spreading technology employed in DSSS necessarily discloses modulation in the frequency domain. Ex. 2001 ¶ 35 (quoting Ex. 2017, 23 (“Spread spectrum can be defined as any *modulation* technique that uses a *bandwidth* that is well beyond what is necessary for the data rate being transmitted and *uses a pseudo-random signal to obtain the increased bandwidth.*”) (emphases added)). Mr. Alberth further explains how this book of Dr. Buehrer supports his inherency testimony:

As Dr. Buehrer's book also notes, DSSS is a common spreading method where the spreading of the data signal over the bandwidth is achieved by directly multiplying the data signal with a spreading sequence. Thus, as is clear, DSSS inherently discloses modulation in the frequency domain as it spreads a data signal in the frequency domain across the available frequency bandwidth by multiplying it with a spreading sequence. *See* Ex. 2017 [Buehrer-Book] 35 (“In DS/SS, the bandwidth is increased by directly multiplying the data signal by a higher-rate pseudo-random spreading sequence.”); 24 (“DS/SS accomplishes bandwidth spreading through the use of a high rate symbol sequence (termed a *chip sequence*) that directly multiplies the information symbol stream.”).

Ex. 2001 ¶ 36.

Patent Owner argues, “[i]n fact, it is readily confirmed that DSSS inherently discloses modulation in the frequency domain because Petitioner

argues that IEEE 802.16a-203 discloses this limitation merely because it discloses conventional spreading methodology.” Prelim. Resp. 30; Ex. 2001 ¶ 37 (“How Dr. Buehrer has mapped IEEE 802.16a-2003 also supports my opinion that DSSS inherently discloses modulation in the frequency domain.”). Mr. Alberth testifies:

Dr. Buehrer relies on the conventional spreading technology in IEEE 802.16a-2003 to argue that it discloses a code sequence “modulated in the frequency domain.” Specifically, the IEEE 802.16a-2003 explains that each subchannel is 53 subcarriers. Ex. 1004 [802.16a-2003] 198 (§ 8.5.6.2, Table 116cb). “[I]f the BS [Base Station] has defined the ranging channel to be the default two subchannels,” (Ex. 1004 [IEEE 802.16a-2003] 203), then the spreading code would be 106 bits of the pseudo-random code so that the data signal can be spread across the 106 subcarriers of the two ranging subchannels. *Id.*

This is similar to the spreading techniques described in the ’586 Provisional. For example, the ’586 Provisional’s figure 6 . . . shows the DSSS signal spread across the entire available frequency spectrum at lower powers[.] . . . As another example, the ’58[6] Provisional explains that the modulation of the DSSS signal is modified such that it only occupies the “center portion” of the available frequency spectrum. Ex. 1011 [’586-Provisional] 12–13 (§ 4.3.3); Ex. 1001 [’302 Patent] 8:2–7. This is also schematically shown in the Patent’s (and the ’586 Provisional’s) Fig. 16.

Ex. 2001 ¶¶ 37–39 (Figures omitted).

We find Patent Owner’s arguments persuasive, and the above testimony of its technical expert, Mr. Alberth, even more so. Based on the foregoing and the record before us, we find Petitioner fails to sufficiently show that the ’586 Provisional lacks written description support for the feature of a transmitter configured to form and transmit, in response to a

received request, “the probing signal with a code sequence modulated in the frequency domain,” as recited in independent claim 23. Although not its burden, we find Patent Owner sufficiently evidences that the disclosure of the ’586 Provisional would have reasonably conveyed *to skilled artisans* that the inventor possessed the features of the subject limitation.

5. Conclusion

For the reasons expressed above, and based on the record before us, we determine Petitioner has not sufficiently shown that Koo is prior art to the Challenged Claims. Accordingly, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that any of the Challenged Claims is unpatentable as obvious over the combination of 802.16a-2003, 802.16-2001, and Koo.

E. Alleged Obviousness of Claims 23, 24, 26, and 27 over the Combination of 802.16a-2003, 802.16-2001, and Kitroser

Petitioner contends claims 23, 24, 26, and 27 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of 802.16a-2003 (Ex. 1004), 802.16-2001 (Ex. 1005), and Kitroser (Ex. 1007), and refers to this challenge as “Ground 2.” Pet. 58–66. Patent Owner opposes. Prelim. Resp. 32–46. For the reasons expressed below, and based on the record before us, we determine Petitioner has not sufficiently shown that an ordinarily skilled artisan would have had a rational reason *at the time of the inventions recited in the Challenged Claims* to have combined the teachings of 802.16a-2003, 802.16-2001, and Kitroser to achieve such inventions. Even if a sufficient reason were identified in the Petition, we determine Petitioner has not sufficiently shown that an ordinarily skilled artisan *at the time of the inventions recited in the Challenged Claims* would have had a

reasonable expectation of success in modifying the standard defined in 802.16a-2003 and 802.16-2001 in view of Kitroser to achieve the subject inventions. Thus, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that any of the Challenged Claims is unpatentable as obvious over the combination of 802.16a-2003, 802.16-2001, and Kitroser. We turn first to brief overviews of these three references.

1. Overview of 802.16-2001 (Ex. 1005)

802.16-2001 is an IEEE⁷ standard for air interfaces for *fixed* broadband wireless access systems. Ex. 1005, 1.⁸ This standard is part of a family of standards for local and metropolitan area networks. *Id.* at 5. Generally, this standard “specifies the air interface, including the medium access control layer (MAC) and physical layer (PHY), of *fixed* point-to-multipoint broadband wireless access (BWA) systems providing multiple services,” where “[t]he MAC is structured to support multiple PHY specifications, each suited to a particular operational environment.” *Id.* at 2, 28 (emphasis added). This standard includes a particular physical layer specification applicable to systems operating between 10 and 66 GHz. *Id.* For context, this standard spans over 320 pages, 133 figures, and 144 tables. *See id.* at 11–27.

⁷ The Institute of Electrical and Electronics Engineers, Inc. *See* Ex. 1005.

⁸ Our references to pages in Ex. 1005 are to the exhibit page numbering added by Petitioner, not to the standard’s page numbering.

2. *Overview of 802.16a-2003 (Ex. 1004)*

802.16a-2003 also is an IEEE standard and part of the family of standards for local and metropolitan area networks, and *amends* 802.16-2001 (discussed above) to provide certain medium access control modifications and additional physical layer specifications applicable to systems operating between 2 to 11 GHz. Ex. 1004, 1, 3, 5.⁹ For context again, this standard spans over 288 pages, 102 figures, and 191 tables. *See id.* at 11–25.

3. *Overview of Kitroser (Ex. 1007)*

Kitroser is a document submitted to IEEE in response to “Call for contributions IEEE 80216e-02/01,” and according to the document, “presents some notes on reference system deployment scenario and *impact of the mobile environment on the current 802.16a*, and answers some of the points presented in the call for contributions IEEE 80216e-02_01.” Ex. 1007, 1 (emphasis added).¹⁰ Under the heading of “[i]mpact of the mobile environment on the current 802.16a,” the authors of this document stated, for “[r]anging,” “[n]o changes are required in the PHY layer ranging mechanism,” and for “[c]hannel [c]oding,” “[n]o changes are required in the PHY layer coding.” *Id.* at 4. This document provides no explanation, support, or other commentary for those two “[n]o changes” statements. *Id.*

The authors of this document also described it as follows: “It is offered as a basis for discussion and is not binding on the contributing

⁹ Our references to pages in Ex. 1004 are to the exhibit page numbering added by Petitioner, not to the standard’s page numbering.

¹⁰ Our references to pages in Ex. 1007 are to the exhibit page numbering added by Petitioner, not to the document’s page numbering.

individual(s) or organization(s). *The material in this document is subject to change in form and content after further study.* The contributor(s) reserve(s) the right to add, *amend* or *withdraw* material contained herein.” Ex. 1007, 1 (emphases added).

We further discuss below the disclosures of 802.16a-2003, 802.16-2001, and Kitroser in connection with the parties’ arguments.

4. *Analysis of Independent Claim 23*

a. *Petitioner’s Arguments*

Petitioner argues “802.16a discloses all features of the Challenged Claims except for a device that is ‘mobile,’” and that the skilled artisan “would have understood that the relevant teachings of 802.16a (e.g., as relating to the ‘ranging process’) are directly applicable to a ‘mobile environment’ as taught by Kitroser.” Pet. 58 (citing Ex. 1003 ¶ 115); *see id.* at 10–11, 59–62. Petitioner argues “Kitroser clearly discloses that the PHY layer ranging mechanism of the existing IEEE 802.16a standard (for fixed wireless devices) would remain unchanged in a mobile environment.” Pet. 59 (citing Ex. 1003 ¶ 119); *see id.* (“[The skilled artisan] would have known . . . that the periodic CDMA ranging process described in 802.16a could also be used in a ‘mobile environment,’ as taught by Kitroser.” (citing Ex. 1003 ¶ 120)).

The thrust of Petitioner’s argument here is

(1) 802.16a discloses all of the features of independent claim 23, but does so for *fixed* (stationary) broadband wireless access systems, not in a *mobile* systems environment;

(2) Kitroser stated (without any explanation or cited support), for at least a “ranging” feature in 802.16a, that a mobile systems environment allegedly would not have required changes to that feature; and therefore,

(3) it would have been obvious to the skilled artisan at the relevant time to take the particular combination of features recited in claim 23 that Petitioner found in a *fixed* broadband wireless access system and provide all of them in a *mobile* systems environment, and

(4) presumably for the skilled artisan to have done so at the relevant time with a reasonable expectation of success (as discussed below, Petitioner does not argue or sufficiently evidence that the skilled artisan at the relevant time would have reasonably expected success in providing claim 23’s features as a whole in a mobile systems environment). *See* Pet. 58–64.

Before turning to Patent Owner’s response to this argument, generally, we find Petitioner’s argument here is belied by IEEE’s formation of a Study Group to study and report on the *feasibility* of implementing 802.16a in a *mobile* systems environment. *See* Ex. 2007 (IEEE 802.16 Mobile Wireless MAN Study Group: Call for Contributions), 1 (“I remind everyone that we are talking about modifying the current 802.16a air interface(s), not creating a new standard from scratch. Before even thinking about a PAR [(Project Authorization Request¹¹)], *we have to determine if this is technically feasible and, if so, at what level.*” (emphases added)), 2 (“*In addition to the technical issues*, there are some other aspects of this effort that we need to keep in mind as we progress towards a possible PAR. The one that comes most readily to mind is: What significant *advantages or*

¹¹ *See* Prelim. Resp. 39; Ex. 2001 ¶ 45.

disadvantages does a mobile enhanced 802.16a air interface provide over current or planned 3G mobile networks?” (emphases added)). Indeed, if it were as “obvious” as briefly portrayed by Petitioner to combine 802.16a with *Kitroser*, where *Kitroser* essentially states nothing more than “[n]o changes are required” to implement 802.16a in a mobile systems environment, then IEEE would not have needed to invoke the time of many experts in the field (or at least skilled artisans) over many months to consider the feasibility of implementing 802.16a in a mobile systems environment. We now turn to Patent Owner’s response.

b. Patent Owner’s Arguments and Analysis

Patent Owner argues “Petitioner fails to show either a motivation [to combine the asserted references] or a reasonable expectation of success.” Prelim. Resp. 32; *see id.* at 32 (“Petitioner does not even allege, let alone prove, why [the skilled artisan] would have combined IEEE 802.16a-2003 with *Kitroser* to support mobile users.” (emphasis added)), 32–33 (“[Petitioner’s] cherry-picked, unsupported and inadmissible statement¹² [from *Kitroser* concerning “ranging”], in light of the substantial contradictory and uncertain other evidence and submissions, ‘fail[s] to demonstrate enough certainty [...] to give a skilled artisan a reasonable expectation of success’ to implement IEEE 802.16(e) [sic: 802.16a] with mobile users.”), 33–46.

¹² For purposes of this Decision, we do not consider whether Petitioner’s cited statements from *Kitroser* are admissible. *See, e.g.*, Prelim. Resp. 45–46 (Patent Owner arguing “hearsay” with no exception shown to apply). Instead, for completeness, we assume admissibility of such statements and consider their effect on the skilled artisan.

(1) Reason to Combine 802.16a with Kitroser

Petitioner’s Ground 2 relies on a combination of the 802.16a standard with Kitroser, where 802.16a is utilized *in a mobile device* based on alleged teachings of Kitroser. *See* Pet. 58–64. Patent Owner argues “Petitioner does not devote ***even a single conclusory sentence*** to why [the skilled artisan] would have combined the IEEE 802.16a-2003 standard with Kitroser to use it on a mobile device.” Prelim. Resp. 34.

The burden of proof here lies with Petitioner, not Patent Owner, and we do not ourselves create and adopt unpatentability arguments on behalf of Petitioner as to any *rational* reason that the skilled artisan would have combined the 802.16a standard with Kitroser to implement that standard on a mobile device (as opposed to a fixed device). *See Wasica Fin. GmbH v. Cont’l Auto. Sys., Inc.*, 853 F.3d 1272, 1286 (Fed. Cir. 2017) (“It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify with particularity the evidence that supports the grounds for the challenge to each claim.” (quoting *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016))); *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (“[W]e find no support for the PTO’s position that the Board is free to adopt arguments on behalf of petitioners that could have been, but were not, raised by the petitioner during an IPR.”); *DeSilva v. DiLeonardi*, 181 F.3d 865, 866–67 (7th Cir. 1999) (“A brief must make all arguments accessible to the judges, rather than ask them to play archeologist with the record.”).

We agree with Patent Owner that Petitioner does not present especially clearly in the Petition a reason for why the skilled artisan would

have combined the 802.16a standard *with Kitroser* to implement that standard on a mobile device (i.e., in a mobile systems environment). As we noted above, Kitroser essentially states nothing more than “[n]o changes are required” to implement 802.16a in a mobile systems environment.

Ex. 1007, 4. Petitioner might identify this conclusory “no changes” comment in Kitroser and that Kitroser was responding to an IEEE Call for Contributions (Ex. 2007) concerning the “[i]mpact of the mobile environment on the current 802.16a” as its “reason” for why the skilled artisan allegedly would have implemented the 802.16a standard on a mobile device to achieve the invention of claim 23. *See* Pet. 58–64; Exs. 1007, 2007.

But in doing so, Petitioner ignores *the context* in which *the skilled artisan* would have read Kitroser: where IEEE, the governing body issuing the Call for Contributions, itself explicitly questioned “*if [implementing 802.16a in a mobile systems environment] is technically feasible and, if so, at what level*” (Ex. 2007, 1 (emphasis added)), and where, as noted above, Kitroser provides no explanation, support, or other commentary for its “no changes” statements, and admits such statements are “*subject to change in form and content after further study*” and subject to amendment and *withdrawal* entirely (Ex. 1007, 1–4 (emphasis added)). Based on the foregoing, although Petitioner may have identified a “reason” that the skilled artisan allegedly would have combined 802.16a with Kitroser, we are not persuaded that it is a *rational* reason, i.e., a reason sufficiently shown to have a rational underpinning at the time of the invention of the Challenged Claims. *See KSR*, 550 U.S. at 418 (To support the legal conclusion of obviousness, “there must be some articulated reasoning with some rational

underpinning” for combining elements in the manner claimed. (quoting *In re Kahn*, 441 F.3d at 988)).

Patent Owner’s expert, Mr. Alberth, testifies that “[i]t was well-known in the field and to [the skilled artisan] that the IEEE 802.16-2003 standard [was] *directed exclusively at stationary systems* and *did not support mobile users.*” Ex. 2001 ¶ 40 (emphases added) (cited at Prelim. Resp. 35). Mr. Alberth then testifies at length that, at the time of the invention of the Challenged Claims, motivation to add mobility to 802.16a was not self-evident, at least in part because the 802.16a standard was specifically designed in integral reliance on aspects of stationary systems that would not necessarily hold true in mobile systems—hence IEEE’s Call for Contributions and its questioning of technical feasibility (discussed above). *See id.* ¶¶ 41–44 (cited at Prelim. Resp. 35–37). For example, Mr. Alberth testifies that “the high frequencies used by the IEEE 802.16 standard that at least initially forced stationary systems were integral to the operation of the standard.” Ex. 2001 ¶ 41. Mr. Alberth further testifies:

The feasibility of IEEE 802.16 to operate as the last mile connection between a building and the larger metropolitan network in lieu of using cable networks was possible in part because the frequency range of 802.16 was very high frequencies of 10-66 GHz (later expanded to include 2-11 GHz as well). This allowed the system to use unlicensed frequency bands, and also allowed for the very high data rates that were necessary for its intended function of connecting a business or a building to the metropolitan network. However, the high frequencies would also mean that the signal could not tolerate much, if any, non-line-of-sight propagation. In other words, at least initially, there had to be a direct line of sight between the base station and the receiving station. A mobile user that could move anywhere would present a challenge.

Additionally, directional receive antennas could be of substantial use in fixed broadband networks that use very high frequencies. While directional antennas could be installed in stationary systems, they were challenging in mobile stations, especially around the time of the Patent's invention. These reasons are why at least in its early stages, antennas operating based on the IEEE 802.16 standard were stationary and installed on building rooftops in order to receive a direct signal with minimal multipath propagation. [Citation omitted.]

The desirability of adding mobility to IEEE 802.16 was also not self-evident additionally because of the existence of other standards such as the cellular system (2G, 3G) that already allowed mobile users. This was recognized even in the initial Call for Contributions issued by the 802.16 working group to explore the feasibility and desirability of adding mobility to the standard.

Ex. 2001 ¶¶ 42–44. We find Mr. Alberth's above testimony persuasive, and that it further supports our determination that although Petitioner may have identified a "reason" that the skilled artisan allegedly would have combined 802.16a with *Kitroser*, it is not a reason sufficiently shown by Petitioner to have a *rational underpinning* at the time of the invention of the Challenged Claims.

For the reasons expressed above, and based on the record before us, we conclude that Petitioner has not sufficiently evidenced a *rational* reason to combine 802.16a with *Kitroser* to achieve the recited invention of claim 23. Thus, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that independent claim 23 is unpatentable as obvious over the combination of 802.16a and *Kitroser*.

(2) *Reasonable Expectation of Success*

We begin our analysis of whether Petitioner has sufficiently evidenced a reasonable expectation of success in combining the 802.16a standard with Kitroser to achieve the invention of independent claim 23 by emphasizing three guiding legal principles. First, *the Petition* must identify “with particularity ... the evidence that supports the grounds for the challenge to each claim.” 35 U.S.C. § 312(a)(3); *see Wasica Finance*, 853 F.3d at 1286–87. Second, the burden of proving a reasonable expectation of success *is on Petitioner*. *Eli Lilly & Co. v. Teva Pharms. Int’l GmbH*, 8 F.4th 1331, 1348–49 (Fed. Cir. 2021) (“[I]t was, 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.”). Third, “‘a reasonable expectation of success, not absolute predictability’ supports a conclusion of obviousness.” *Yamanouchi Pharm.*, 231 F.3d at 1343.

As noted above, Petitioner argues “802.16a discloses all features of the Challenged Claims except for a device that is ‘mobile,’” and that the skilled artisan “would have understood that the relevant teachings of 802.16a (e.g., as relating to the ‘ranging process’) are directly applicable to a ‘mobile environment’ as taught by Kitroser.” Pet. 58 (citing Ex. 1003 ¶ 115); *see id.* at 10–11, 59–62. But Petitioner does *not* argue, let alone with particularity, that the skilled artisan *at the relevant time* would have reasonably expected success in providing claim 23’s features *as a whole* in a mobile systems environment. *See id.* Although Petitioner contends certain aspects of the 802.16a standard are “directly applicable” to a mobile systems environment (Pet. 58, 60), Petitioner then leaps silently over the requirement to evidence

a reasonable expectation of success even in applying such aspects of the standard in the mobile systems environment. To the extent that Petitioner implicitly proffers the conclusory “no changes” comment in Kitroser and that Kitroser was responding to an IEEE Call for Contributions (Ex. 2007) concerning the “[i]mpact of the mobile environment on the current 802.16a” as evidence of why the skilled artisan allegedly would have had a reasonable expectation of success in implementing the 802.16a standard on a mobile device to achieve the invention of claim 23 (*see* Pet. 58–64; Exs. 1007, 2007), we find this argument unpersuasive, for the reasons discussed below (and those discussed above in Section III.E.4.b.1 concerning the lack of any rational reason to combine 802.16a with Kitroser). *See Samsung Elecs. Co. v. Elm 3DS Innovations, LLC*, 925 F.3d 1373, 1380–81 (Fed. Cir. 2019) (upholding Board’s determination of nonobviousness where Petitioner failed to sufficiently show reasonable expectation of success).

Patent Owner argues Petitioner “fails to show a reasonable expectation of success in implementing IEEE 802.16[a], or its ranging process, in a mobile device, either in view of Kitroser or otherwise,” and “when all of the evidence [of record] is considered in its entirety, Petitioner has failed to show ‘sufficient certainty’ to [have] give[n] [the skilled artisan] a reasonable expectation of success.” Prelim. Resp. 37–38; *see id.* at 38–46. In support of these arguments, Patent Owner proffers substantial, persuasive testimony from its expert, Mr. Alberth. *See* Prelim. Resp. 38–41 (citing, *inter alia*, Ex. 2001 ¶¶ 45–47. Mr. Alberth testifies:

In addition to motivation, even the feasibility of adding mobility to IEEE 802.16a-2003 was subject of much research and analysis by experts in the field. In August 2002, the IEEE 802.16 working group issued a Call for Contributions to

determine both the feasibility and desirability of adding mobility to the IEEE 802.16 standard. Ex. 2007 [Kiernan] 1. The working group had to “address enhancements to the IEEE 802.16a PHY/MAC to support mobile operation, including cell-to-cell and sector-to-sector handoff capability as well as other protocol and MIB support.” Ex. 2007 [Kiernan] 1. The first task of the working group was to determine if adding mobility to IEEE 802.16 was even feasible.

Ex. 2001 ¶ 45. Mr. Alberth explains that IEEE’s Call for Contributions “lists more than a dozen bullet points of ‘technical issues’ that needed to be addressed to add mobility to IEEE 802.16, including specifically on ‘ranging.’” *Id.* ¶ 46. Mr. Alberth also testifies that “it was not until at least 2005 that the IEEE 802.16 family of standards could support mobile users, with many of the details being worked out even later than 2005.” *Id.* ¶¶ 47–48. We again find Mr. Alberth’s above testimony persuasive, and that it further supports our determination that Petitioner has not sufficiently evidenced (if at all) that the skilled artisan at the relevant time would have had a reasonable expectation of success in combining the 802.16a standard with Kitroser to achieve the recited invention of claim 23.

Patent Owner argues “Petitioner’s Kitroser reference provides no support whatsoever for its naked assertion regarding the ranging channel,” and submits that, “[i]n fact, Kitroser also co-authored a second, later submission, this time proposing changes to the ranging mechanism of IEEE 802.16 for mobile users.” Prelim. Resp. 42–43 (citing Ex. 2023, 1, 3). Patent Owner argues Petitioner “makes no effort to show,” for example: (1) “Whether Kitroser’s statement is in fact true, and whether [the skilled artisan] would in fact have had a reasonable expectation of success in implementing IEEE 802.16a-2003’s ranging process on a mobile device

without making any changes to the PHY layer”; and (2) “Why, even if Kitroser’s statement is credited as true, PHY layer was the only relevant aspect of IEEE 802.16a-2003 to implement its ranging mechanism with a reasonable expectation of success.” *Id.* at 41–42. Patent Owner’s points here are well-taken and persuasive. The Petition lacks any meaningful analysis of whether the skilled artisan at the relevant time would have reasonably expected success in providing claim 23’s features *as a whole* in a mobile systems environment.

Patent Owner concludes, as do we, “when Petitioner’s evidence is considered in the context of the overall state of the art, it fails to establish ‘sufficient certainty’ for [the skilled artisan] to have had a reasonable expectation of success in implementing IEEE 802.16a-2003 with mobile users.” Prelim. Resp. 44–45 (citing *Eli Lilly*, 8 F.4th at 1349 (agreeing with Board’s finding that Lilly’s evidence “failed to demonstrate *enough* certainty . . . to give a skilled artisan a reasonable expectation of success”)).

For the reasons expressed above, and based on the record before us, we conclude that Petitioner has not sufficiently evidenced that the skilled artisan at the relevant time would have had a reasonable expectation of success in combining 802.16a with Kitroser to achieve the recited invention of claim 23. *See Juniper Networks, Inc. v. Correct Transmission, LLC*, No. 2023-1046, 2024 WL 3517862, at *3–*5 (Fed. Cir. July 24, 2024) (affirming the Board’s decision finding no reasonable expectation of success where Petitioner’s evidence was conclusory and not credible and Patent Owner had proffered persuasive, contradictory evidence). Thus, we determine that Petitioner has not established a reasonable likelihood that

it would prevail in showing that independent claim 23 is unpatentable as obvious over the combination of 802.16a and Kitroser.

5. *Dependent Claims 24, 26, and 27*

Claims 24, 26, and 27 depend, directly or indirectly, from independent claim 23. Ex. 1001, 12:43–54. Based on the record before us, we determine that Petitioner’s analysis for claims 24, 26, and 27 does not remedy the deficiencies identified above with respect to independent claim 23. *See* Pet. 64–66. Thus, for the same reasons discussed in connection with the challenge to claim 23, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that any of claims 24, 26, and 27 is unpatentable as obvious over the combination of 802.16a and Kitroser.

IV. CONCLUSION

Petitioner has not demonstrated a reasonable likelihood of prevailing with respect to any of claims 23, 24, 26, and 27 of the ’302 patent under any of its proffered challenges (i.e., Grounds 1 and 2).

V. ORDER

For the reasons given, it is hereby
ORDERED that the Petition is *denied*, and an *inter partes* review of U.S. Patent No. 10,771,302 B2 is not instituted.

IPR2023-00797
Patent 10,771,302 B2

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