

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TP-LINK CORPORATION LIMITED,
Petitioner,

v.

NETGEAR, INC.,
Patent Owner.

IPR2023-01393
Patent 7,936,714 B1

Before NATHAN A. ENGELS, SHEILA F. McSHANE, and
JASON M. REPKO, *Administrative Patent Judges*.

ENGELS, *Administrative Patent Judge*.

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

I. INTRODUCTION

TP-Link Corporation Limited (“Petitioner”) filed a Petition (Paper 2 (“Pet.”)), seeking *inter partes* review of claims 1–32 (the “challenged claims”) of U.S. Patent No. 7,936,714 B1 (Ex. 1001 (“the ’714 patent”)). See Pet. 1. Netgear Inc. (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). Patent Owner also filed statutory disclaimers with the USPTO disclaiming claims 25–30 (Ex. 2003) and claims 31 and 32 (Ex. 2004). See Prelim. Resp. 41 (acknowledging the disclaimer of claims 25–30).

Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that 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); see 37 C.F.R. § 42.108. Upon consideration of the Petition and Preliminary Response we conclude that the information presented does not show a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of at least one challenged claim of the ’714 patent.

A. Related Matters

The parties indicate that the ’714 patent is the subject of an investigation in the International Trade Commission, Inv. No. 337-TA-1361, filed April 3, 2023 (“ITC Investigation”). Pet 78; Paper 4, 1. The parties also indicate that the ’714 patent is subject of Civil Action No. 2:23-cv-2540 in the Central District of California (“District Court Case”), filed April 4, 2023. Pet 78; Paper 4, 1.

B. Real Parties in Interest

Petitioner identifies TP-Link Corporation Limited f/k/a TP-Link International Ltd., TP-Link Technologies Co., Ltd., TP-Link USA. Corp. and TP-Link Institute USA Corp. d/b/a TP-Link Research America Corp. as the real parties-in-interest in this proceeding. Pet. 78. Patent Owner identifies itself as the real party-in-interest. Paper 4, 1.

C. The '714 Patent (Ex. 1001)

The '714 patent, titled “Spectrum Allocation System and Method for Multi-Band Wireless RF Data Communications,” relates to “systems and methods for providing wireless data transmission spectrum allocation by utilizing separate bands for upstream and downstream wireless data communication.” Ex. 1001, code (54), 3:30–33. Among other techniques, the '714 patent states that these systems typically “utilize one frequency band of operation, generally, transmitting and receiving on separate frequencies within the same basic band employing frequency division duplexing (FDD).” *Id.* at 1:30–35.

The '714 patent states that “[t]ypically, in the prior art, FDD frequency separation is less than one percent of frequency” and “prior art FDD transmission frequencies at around one GHz would traditionally be separated by less than ten MHz.” *Id.* at 4:31–36. According to the '714 patent “[t]he present invention allows spectrum, which does not have sufficient bandwidth to provide one percent frequency separation between upstream and downstream frequencies, as typically required to use FDD, to be used for broadband data transmission.” *Id.* at 4:37–41. According to the '714 patent, “[b]y utilizing separate bands, particularly bands separated by an octave or more, the present invention increases the efficiency and

capacity of a wireless data communication system by allowing use of the full bandwidth available, in each band, to an operator.” *Id.* at 4:18-22.

D. Disclaimed Claims

With two separate disclaimers, Patent Owner has disclaimed claims 25-30 (Ex. 2003) and claims 31 and 32 (Ex. 2004) of the ’714 patent. *See* Prelim. Resp. 41. The record reflects that the Disclaimer of claims 25–30 was filed and received by the USPTO on December 8, 2023 (Ex. 2003, 1–6), and the Disclaimer of claims 31 and 31 was filed and received by the USPTO on January 31, 2024 (Ex. 2004, 1–6). The Disclaimers were signed by a registered patent attorney representing Patent Owner. Ex. 2003, 5; Ex. 2004, 5. Page five of Exhibit 2003 identifies Patent Owner as having a “100 percent” ownership in the ’714 patent, although Exhibit 2004 does not address ownership. Both Exhibits include an Electronic Acknowledgement Receipt and an Electronic Payment Receipt indicating payments of the fees required for disclaimer. Ex. 2003, 1–4; Ex. 2004, 1–4.

Accordingly, Patent Owner has met the requirements for effective disclaimers of claims 25–30 and of claims 31 and 32 of the ’714 patent under 35 U.S.C. § 253 and 37 C.F.R. § 1.321(a).

E. Challenged Claims

Petitioner challenges claims 1–24 of the ’714 patent. Pet. 1–77. Of the challenged claims, claims 1 and 13 are independent. Independent claim 1 is illustrative of the challenged claims and is reproduced below with bracketed labels reflecting those used in the parties’ briefing.

1. [Preamble] A method for increasing capacity of a wireless data communication system, said method comprising the steps of:

[1.1] receiving, at a subscriber station, data on a first frequency in a frequency band expected to experience low interference;

[1.2] transmitting, at said subscriber station, data on a second frequency in a frequency band expected to experience high interference,

[1.3] wherein said low interference frequency band and said high interference frequency are separated by at least one octave; and

[1.4] wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time.

Ex. 1001, 9:60–10:5.

F. The Alleged Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 6):

Claim(s) Challenged¹	35 U.S.C. §	Reference(s)/Basis
1–5, 11–17, 23, 24,	103(a) ²	Morikawa ³
1–5, 13–17	103(a)	Serizawa ⁴
6–10, 18–22	103(a)	Serizawa, Razavi, ⁵ Ferry ⁶

¹ As noted above, claims 25–31 have been disclaimed; we therefore do not consider them among the challenged claims.

² The '714 patent issued from an application filed before the Leahy-Smith America Invents Act (“AIA”) revisions to 35 U.S.C. § 103 became effective. Therefore, we apply the pre-AIA version of § 103; however, our analysis would be the same under the AIA version of the statute.

³ U.S. Patent Publication No. 2002/0045459 A1, published April 18, 2002 (Ex. 1005) (“Morikawa”).

⁴ U.S. Patent No. 6,049,721, issued April 11, 2000 (Ex. 1006, “Serizawa”).

⁵ BEHZAD RAZAVI, RF MICROELECTRONICS (1998) (Ex. 1015, “Razavi”).

⁶ U.S. Patent Publication No. 2003/018997 A1, published October 9, 2003 (Ex. 1021) (“Ferry”).

Petitioner also cites the Declaration of Zhi Ding, Ph.D. (Ex. 1002) in support its arguments, and Patent Owner cites the Declaration of Zygmunt J. Haas, Ph.D. (Ex. 2001) in support of its arguments.

II. ANALYSIS

A. *Legal Standards*

In an *inter partes* review, the petitioner must show with particularity why each challenged claim is unpatentable. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016); 35 U.S.C. § 312(a)(3); 37 C.F.R. § 42.104(b). As part of the petitioner’s burden, the petition must state how a challenged claim is to be construed and how each element of the construed claim is found in prior art patents or printed publications. 37 C.F.R. §§ 42.104(b)(3)–(4). The burden of persuasion never shifts to the patent owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A claim is unpatentable for obviousness if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103; *see also 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 ordinary skill in the art; and (4)

when in evidence, objective evidence of nonobviousness.⁷ *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art (“POSITA”) “would have had a [b]achelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and three years of experience in the design and analysis of wireless communication systems or equivalent work experience” and that “[a]dditional education might compensate for less experience, and vice-versa.” Pet. 10 (citing Ex. 1002 ¶¶ 53–56). Patent Owner asserts that “a person of ordinary skill in the art would be a person with a bachelor’s degree in a technical field such as electrical engineering, computer engineering, computer science, or physics, and/or 2–3 years of relevant practical experience in wireless communication, data communication, or wireless networking systems.” Prelim. Resp. 9 (citing Ex. 2001 ¶ 25).

On the current record, we do not discern a meaningful difference between the parties’ proposals, and we apply Petitioner’s proposed level of ordinary skill for the purposes of this Decision.

C. Claim Construction

We apply the same claim construction standard used in district court actions under 35 U.S.C. § 282(b), namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). See 37 C.F.R. § 42.100(b) (2021). In applying that standard, claim terms generally are given their ordinary and customary meaning as would have been understood by a person

⁷ The parties have not directed our attention to any objective evidence of obviousness or non-obviousness.

of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner provides a table of “the parties’ disputed constructions in the parallel ITC litigation” but asserts that “the Board does not need to construe any claim term for purposes of resolving the issues presented in this Petition.” Pet. 11–12.

Patent Owner asserts that “no terms need to be construed because Petitioner failed to show that any Grounds have a reasonable likelihood of prevailing under any reasonable construction, including their plain meaning.” Prelim. Resp. 10.

On this record, we do not explicitly construe any aspects of the challenged claims. *See, e.g., Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Dispositive Limitations

In relevant part, independent claims 1 and 13 recite “wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time” (limitations [1.4] and [13.4]). Petitioner presents the same evidence and arguments for each of these limitations. Pet. 24–26

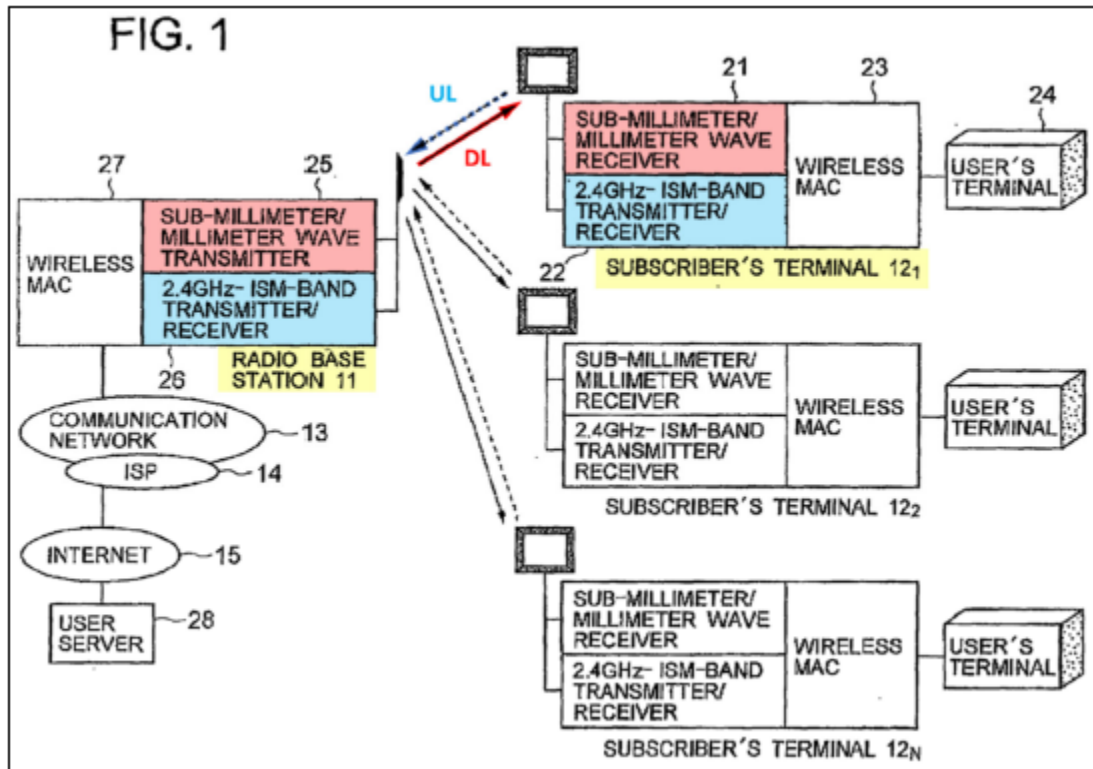
(addressing [1.4]), 36 (addressing [13.4] by referring to the Petition’s analysis of [1.4]).

For the reasons explained below, we determine Petitioner has not carried its burden to demonstrate a reasonable likelihood that it will succeed in its challenge to any of the challenged claims.

1. *Petitioner’s Assertions of Obviousness Based on Morikawa*

Petitioner contends Morikawa teaches limitation [1.4] by Morikawa’s disclosures of multiple subscribers’ terminals that use separate uplink and downlink frequency bands to transmit and receive data. Pet. 24. According to Petitioner, “[t]his multiple access technique, called frequency division duplexing or FDD, allows two-way communication whereby the transmission and reception of data occur at the same time.” Pet. 24–25 (citing Ex. 1001, 1:65–67; Ex. 1002 ¶¶ 37, 85; Ex. 1015, 103).

Petitioner also presents the annotated version of Morikawa’s Figure 1 copied below to argue Morikawa satisfies limitation [1.4].



According to Petition, the annotated version of Morikawa's Figure 1 "shows that each subscriber's unit includes 'a receiver unit 21 [(red)] for receiving data of sub-millimeter wave or a millimeter wave' that is separate from 'a 2.4-GHz-ISM-band transmitter unit 22 [(blue)] for transmitting data.'"

Pet. 25 (quoting Ex. 1005 ¶¶ 27, 30). Petitioner further states "[a]s explained by Dr. Ding, a POSITA would have understood and found obvious that the separate receiver and transmitter units at each subscriber's terminal allow for concurrent, two-way, uplink and downlink transmissions over separate frequency bands." Pet. 26 (citing Ex. 1002 ¶¶ 37, 87).

Petitioner further states that "[s]uch two-way communication is illustrated by the arrows (annotated UL and DL) in [the annotated version of] Morikawa Figure 1." Pet. 25.

Critically, though, Petitioner does not adequately show that Morikawa actually teaches FDD or receiving and transmitting data at the same time.

We agree with Petitioner that Morikawa discloses separate receiver and transmitter units at each subscriber's terminal, but Petitioner does not adequately explain how or why the fact that Morikawa has separate receiver and transmitter units would serve to teach that there is data transmission and reception at the same time.

Dr. Ding's Declaration offers little support. First, Dr. Ding's Declaration largely mirrors the Petition and lacks sufficient additional explanation. *See Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, 15 (PTAB Dec. 21, 2022) (precedential) (determining that declaration testimony is entitled to little weight when the testimony merely repeats conclusory statements from the petition); 37 C.F.R. § 42.65(a) ("Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight."). In many instances, conclusory statements in the Petition cite to the same conclusory statements in the Ding Declaration. In one of the few statements in Dr. Ding's testimony that goes beyond the language of the Petition, Dr. Ding states "[i]t would not make sense to view Morikawa as teaching one-way transmission at a time, because that would not support the most basic two-way communication" (Ex. 1002 ¶ 87), but Dr. Ding does not explain why that statement is true or cite evidence to support that opinion. To the contrary, both the Petition and the Ding Declaration cite evidence of another reference that supports two-way communication but only uses one band at a time: "the Mangal⁸ prior art distinguished during prosecution of the '714 patent, which teaches two-way communication over one band at a time, whereby 'the

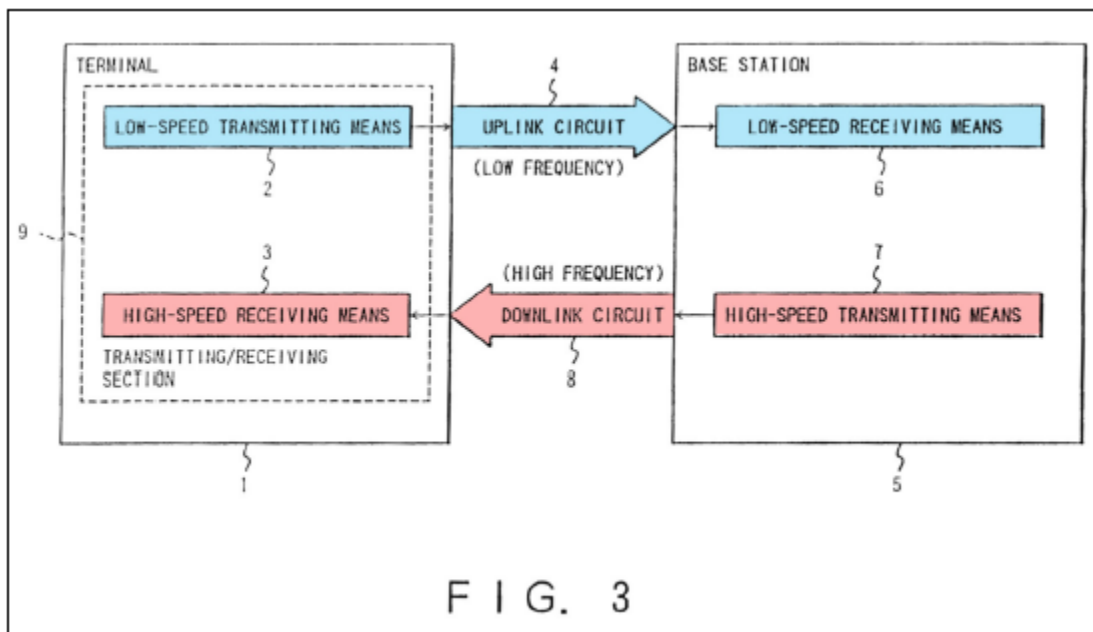
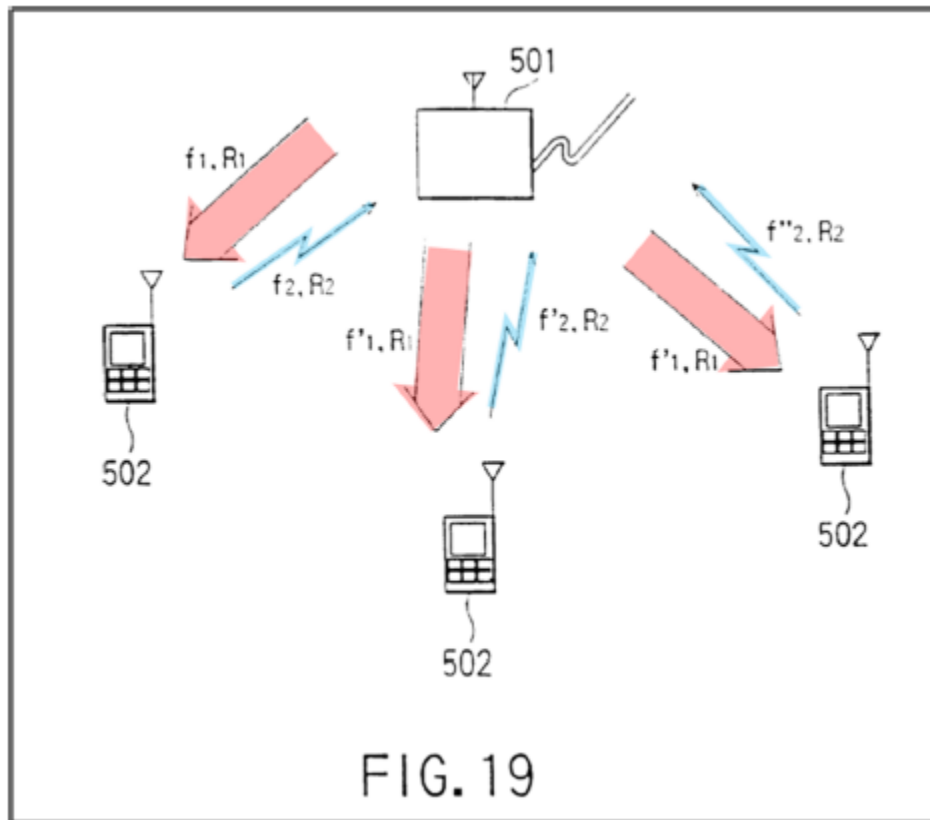
⁸ US 6,801,519 B1; filed Apr. 11, 2000. Ex. 1018.

exchange of data *both* upstream and downstream . . . occurs **in only the selected band at any given time** in *Mangal*.” Pet. 41–42 (citing Ex. 1004, 372) (footnote added); Ex. 1002 ¶ 87 (citing same); *see* Ex. 2001 ¶ 60.

Indeed, the evidence of record demonstrates that there are many different methods discussed in the prior art for transmitting and receiving data, but in total, in view of the Petition’s evidence and arguments directed to the demonstration of Morikawa’s teaching of limitation [1.4], we determine the record lacks adequate evidence and explanation to carry Petitioner’s burden to establish a reasonable likelihood that it would prevail in its challenge to claim 1 as unpatentable in view of Morikawa. Further, because Petitioner relies on the same arguments and evidence of each independent claim, we determine for the same reasons that Petitioner has not carried its burden for independent claim 13 nor any of dependent claims 2–5, 11, 12, 14–17, 23, and 24.

2. Petitioner’s Assertions of Obviousness Based on Serizawa

Petitioner contends Serizawa satisfies limitation [1.4] by disclosing “frequency multiplexing . . . used on both the uplink and the downlink.” Pet. 46 (quoting Ex. 1006, 19:66–20:3). According to Petitioner, “[f]requency multiplexing, also known as frequency division multiple access, is a technique that allows simultaneous transmission and reception over different frequencies.” Pet. 46 (citing Ex. 1002 ¶¶ 37, 142; Ex. 1015, 105). Further, Petitioner contends the annotated versions of Serizawa’s Figures 3 and 19, copied below, “show[] two-way uplink and downlink communications taking place at the same time.” Pet. 47 (citing Ex. 1006, 9:43–10:22, Fig. 19; Ex. 1002 ¶ 143).



According to Petitioner, the annotated version of Serizawa's Figure 19 illustrates that a "user radio terminal 502 (subscriber station) transmits data to a base station 501 over the uplink frequency f_2 (blue arrow) while it

receives data from the base station over the different downlink frequency f_i (red arrow) at the same time.” Pet. 46 (citing Ex. 1002 ¶ 142). And Petitioner contends the annotated version of Serizawa’s Figure 3 shows “uplink communication (blue) involves ‘low-speed’ transmission of a ‘narrowband signal’ over a ‘low frequency’ band (the 2.4 GHz ISM band), whereas downlink communication (red) involves a different ‘high-speed’ transmission of a ‘wideband signal’ over a separate ‘high frequency’ band (the 60 GHz millimeter wave band).” Pet. 47–48 (citing Ex. 1006, 9:43–10:22; Ex. 1002 ¶ 143). Petitioner further cites Dr. Ding as explaining that “a POSITA would have understood the separate receiver and transmitter units at each terminal allow for concurrent uplink and downlink transmissions over different frequency bands.” Pet. 48 (citing Ex. 1002 ¶¶ 37, 144).

Patent Owner argues, and we agree, that Petitioner has not adequately shown that Serizawa teaches receiving and transmitting at the same time. Even if Petitioner is correct that separate receiver and transmitter units might “allow” for concurrent uplink and downlink transmission, it does not necessarily follow that the cited portions of Serizawa actually disclose, teach, or even reasonably suggest concurrent uplink and downlink transmissions. *See* Ex. 2001 ¶ 60 (stating that Mangal employed separate radios for sequential transmissions). None of the cited portions of Serizawa describe concurrent uplink and downlink transmissions, and the cited portions of Serizawa do not disclose, teach, or suggest FDD. *See* Ex. 2001 ¶¶ 50, 78, 79. In contrast, for a different embodiment not cited in the Petition, Serizawa specifically describes using FDD: “The sixth embodiment is applied to the case in which frequency placement problems exist when the

bandwidths of the uplink and the downlink differ greatly. Specifically, in the case in which this is to be implemented using FDMA/FDD (frequency division multiple access/frequency division duplex)” Ex. 1006, 14:8–11; *cf.* Ex. 1006, 14:1–5 (“[T]he narrowband link itself can also be a narrowband bi-directional transmission means which operates independently. For example, it is possible to use the TDMA/TDD (time division multiple access/time division duplex) form of transmission.”), 23:33–36 (“Because transmission on the frequency f2 is don[e] by time-division multiple access/time-division multiplexing (TDMA/TDD), transmission is done on the same frequency.”). Further confusing the issue, in one instance Petitioner characterizes “frequency multiplexing” as “frequency division multiple access” (Pet. 46 (citing Ex. 1002 ¶¶ 37, 142; Ex. 1015, 105), while in another instance, Petitioner states “[f]requency multiplexing . . . is also known as frequency division duplexing” (Pet. 48 (citing Ex. 1002 ¶¶ 145; Ex. 1015, 103, 105), but neither instance cites *Serizawa*’s teachings of FDMA or FDD. Instead, Petitioner cites the Ding Declaration, which merely mirrors the Petition, and Razavi, which does not address Serizawa and separately describes FDMA and FDD. Pet. 46, 48; *see* Pet. 24 (describing Morikawa’s “multiple access technique, called . . . FDD”; citing Ex. 1002 ¶¶ 37, 85; Ex. 1015, 103); *see also* Ex. 2001 ¶¶ 78 (stating that a POSITA would understand Serizawa’s frequency multiplexing to mean FDMA), 79 (stating FDMA and FDD are not the same thing and FDMA does not disclose the timing of transmissions).

Further, Petitioner does not adequately explain why the arrows of Serizawa’s Figures 3 and 19 evidence uplink and downlink transmissions occurring at the same time. Serizawa uses equivalent arrows in many of its

figures, including those depicting embodiments in which Serizawa describes time-division multiplexing methods. *E.g.*, Ex. 1006, 14:1–5, 20:2, 23:32–36, Figs. 4–11, 12, 15–17, 21, 23–31. Again, the Ding Declaration mirrors the Petition without adequate additional explanation regarding Figures 3 and 19. *See* Ex. 1002 ¶¶ 142–144; *cf.* Ex. 2001 ¶¶ 60, 80 (disagreeing with Petitioner’s arguments that Serizawa’s arrows and separate transmitters and receivers in Figures 3 and 19 evidence simultaneous transmission and reception).

In sum, in view of the Petition’s evidence and arguments directed to limitation [1.4], we determine the record lacks adequate evidence and explanation to carry Petitioner’s burden to establish a reasonable likelihood that it would prevail in its challenge to claim 1 as unpatentable in view of Serizawa. Further, because Petitioner relies on the same arguments and evidence of each independent claim, we determine for the same reasons that Petitioner has not carried its burden for independent claims 13, nor any of dependent claims 2–10, 11, 12, and 14–22.

III. CONCLUSION

Based on the current record, we determine Petitioner has not shown a reasonable likelihood of prevailing with respect to at least one claim of the ’714 patent. Accordingly, we do not institute *inter partes* review.

IV. ORDER

Accordingly, it is:

ORDERED that the Petition is denied and an *inter partes* review is not instituted.

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