

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

MOJO MOBILITY INC.,
Patent Owner.

IPR2023-01101
Patent 11,342,777 B2

Before WILLIAM V. SAINDON, MICHAEL J. FITZPATRICK, and
DAVID COTTA, *Administrative Patent Judges*.

SAINDON, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background and Summary

Samsung Electronics Co., Ltd. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–3, 5–11, 13, 14, and 24 of U.S. Patent No. 11,342,777 B2 (Ex. 1001, “the ’777 patent”). Mojo Mobility Inc. (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”).

We have authority to enter this decision denying institution of *inter partes* review (“Decision”) under 35 U.S.C. § 314(b) and 37 C.F.R. § 42.4(a). The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted unless “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” For the reasons provided below, we determine Petitioner has not satisfied the threshold requirement set forth in 35 U.S.C. § 314(a). Because Petitioner has not demonstrated a reasonable likelihood that at least one claim of the ’777 patent is unpatentable, we do not institute an *inter partes* review. 37 C.F.R. § 42.108(a).

B. Real Parties in Interest

Petitioner identifies itself (Samsung Electronics Co., Ltd.) and Samsung Electronics America, Inc. as real parties in interest. Pet. 1.

Patent Owner identifies itself (Mojo Mobility Inc.) as the real party in interest. Paper 5, 2 (Patent Owner’s Mandatory Notices).

C. Related Matters

Petitioner identifies *Mojo Mobility Inc. v. Samsung Electronics Co., Ltd.*, No. 1-22-cv-00398 (E.D. Tex.) as a matter in which the '777 patent is involved, and also states that U.S Patent Nos. 7,948,208, 9,577,440, 11,292,349, 11,316,371, 11,201,500, and 11,462,942 have been asserted against Petitioner. Pet. 1. The parties indicate that Petitioner filed a petition for *inter partes* review (IPR2023-01102) challenging some other claims of the '777 patent. Pet. 1; Paper 5, 2.

Patent Owner also identifies *Mojo Mobility Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.*, No. 1:22-cv-00433 - JRJ (E.D. Tex) as a related matter. Paper 5, 2.

D. Prior Art and Asserted Grounds

Petitioner's grounds rely on the following prior art references:

Name	Reference	Exhibit No.
Azancot	US 8,090,550 B2, iss. Jan. 3, 2012	1006
Sogabe	US 8,369,905 B2, iss. Feb. 5, 2013	1005
Walley	US 8,390,249 B2, iss. Mar. 5, 2013	1007
Muratov	US 9,294,153 B2, iss. Mar. 22 2016	1009
Baarman	US 2010/0007307 A1, pub. Jan. 14, 2010	1008

Petitioner asserts that the challenged claims would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–3, 5, 6, 9–11, 13, 14, 24	103	Sogabe, Azancot
6	103	Sogabe, Azancot, Walley
7	103	Sogabe, Azancot, Baarman
8	103	Sogabe, Azancot, Muratov

E. Technical Background and Overview of the '777 patent

The '777 patent is directed to a system for wirelessly charging a battery by using a protocol comprising unidirectional messaging and a protocol comprising bidirectional messaging. Ex. 1001, code (57), 1:46–52, 2:41–52. The system includes a base for wirelessly charging devices and a receiver having a battery capable of receiving electricity wirelessly from the base. *Id.* at 2:42–45. The system allows detecting and operating under a plurality of power protocols and a plurality of communicating protocols that would otherwise be incompatible from different device manufacturers. *Id.* at 2:46–52, 5:2–22, 21:15–30, 57:15–20, 58:41–43.

The system comprises a charger (transmitter part) and a receiver. *Id.* at 9:14–16, Fig. 1. The charger generates a repetitive power signal pattern via a coil drive circuit and a coil (antenna) for transmission of power. *Id.* at 9:16–21. The charger also includes a communication and regulation/control system that detects the receiver and can modify the amount of applied power signal to the coil. *Id.* at 9:21–29. The receiver also includes a coil (antenna) to receive power and is connected either to a device that needs power or to a battery that needs charging. *Id.* at 9:39–40, 9:54–56, 10:20–26.

Communication between the charger and receiver can be through the coils and protocols. *Id.* at 10:62–11:3. A microcontroller unit (MCU) in the charger is responsible for understanding a communication signal and making adjustments to the charger's coil drive circuitry to achieve the desired output voltage, current, or power from the receiver output. *Id.* at 12:58–64, 13:53–58. The MCU communicates in multiple formats to allow the charger to change driver voltage amplitude, frequency, or duty cycle, thereby providing

appropriate regulated output depending on a received message. *Id.* at 21:51–63.

Several architectures of the charger circuit are possible for charging or communicating with a receiver. *Id.* at 56:43–46, Fig. 39. The direction of the communication or control can be in the same direction, opposite direction, or bidirectional. *Id.* at 56:46–50. The system can be designed to operate in one or more communication or power protocols to provide different voltages or power levels. *Id.* at 57:15–20. The surface of the charger may be divided into sections or regions such that “each region may provide positioning freedom,” and where multiple protocols, voltages, or power levels are supported in each charger sections. *Id.* at 57:22–54, 58:36–43. Further, architectures for “full positioning freedom” are achieved in which a charger can broadcast power to a number of receivers placed anywhere on its surface. *Id.* at 65:10–14, Fig. 46. The receiver and charger establish some form of communication and control protocol to control and regulate output power, voltage, or current from each receiver. *Id.* at 65:22–26. As one example, the charger can charge multiple receivers that may operate in different protocols and have different voltage or power requirements. *Id.* at 65:28–31. As another example, different sub-units or different coils in the charger charge receivers with different protocols, voltages, or power levels placed anywhere on a charger. *Id.* at 65:31–34. Each sub-unit or coil may be multi-protocol and support different voltages or powers. *Id.* at 65:36–37.

F. Challenged Claims

Claims 1–3, 5–11, 13, 14, and 24 are challenged. Claims 1 and 24 are independent. Claim 1 is reproduced below.

1. A base system for inductive charging of an electronic device comprising an inductive charging receiver and a battery electrically coupled to the inductive charging receiver, the base system comprising:

- an inductive charging coil;

- a coil drive circuit electrically coupled to the inductive charging coil, wherein the coil drive circuit provides power to the inductive charging coil by switching a voltage input to the inductive charging coil at an operating frequency;

- a current detection circuit electrically coupled to the inductive charging coil; and

- a microcontroller, wherein the microcontroller is configured for:

- operating in a first mode of operation using a first protocol, wherein the first protocol is an inductive charging communication-and-control protocol that comprises uni-directional messaging, wherein the first mode of operation comprises:

- receiving, using the current detection circuit, a first communication from the inductive charging receiver of the electronic device, wherein the first communication is based on the first protocol; and

- regulating power delivered to the battery of the electronic device in response to the received first communication, and

- operating in a second mode of operation using a second protocol, wherein the second protocol is an inductive charging communication-and-control protocol that defines bi-directional messaging, wherein the second mode of operation comprises:

- receiving, using the current detection circuit, a second communication from the inductive charging receiver of the electronic device, wherein

the second communication is based on the second protocol;

transmitting, by modulating the operating frequency with the coil drive circuit, a frequency-modulated third communication to the inductive charging receiver of the electronic device, wherein the frequency-modulated third communication is based on the second protocol; and

regulating power delivered to the battery of the electronic device in response to the received second communication;

wherein the first mode of operation is associated with a first power level and the second mode of operation is associated with a second power level, and

wherein the first power level and the second power level are different.

Ex. 1001, 70:17–67.¹

II. ANALYSIS

A. Burdens of Proof

“In an IPR, 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”)); *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes*

¹ A Certificate of Correction dated May 24, 2022 corrects a typographical error by deleting the word “and” appearing between the word “wherein” and the word “the” at col. 71, line 66 for claim 1 (second to last line of claim 1).

review). At the institution phase of an *inter partes* review, Petitioner's burden is to show 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).

B. Level of Ordinary Skill in the Art

Petitioner asserts a person of ordinary skill in the art ("POSA" or "POSITA") would have had "at least a master's degree in electrical engineering, or a similar discipline, and two or more years of experience with wireless charging systems, including, for example, inductive power transfer systems" and that "[m]ore education can supplement practical experience and vice versa." Pet. 4 (citing Ex. 1002 ¶¶ 21–22).

Patent Owner does not challenge Petitioner's proposed level of skill. Prelim. Resp. 11. We adopt Petitioner's definition for purposes of this Decision.

C. Claim Construction

Under 37 C.F.R. § 42.100(b), we apply the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). That is, "the words of a claim 'are generally given their ordinary and customary meaning' . . . that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Id.* at 1312–13. "[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Id.* at 1313. "In determining the meaning of the [] 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). Extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *Phillips*, 415 F.3d at 1317 (citations omitted).

Two key limitations in independent claims 1 and 24 of the ’777 patent involve two different modes of operation that recite two different types of messaging between the charging device and the receiving device. Specifically, the first mode requires *unidirectional* messaging, whereas the second mode requires *bidirectional* messaging. Neither party provides an explicit definition of the terms “unidirectional” or “bidirectional” (or any other claim term). *See* Pet. 5; Prelim. Resp. 10. That said, both parties provide arguments that shed light as to how they are interpreting these terms.

1. The Parties’ Contentions

Petitioner makes several arguments that unidirectional messaging is, essentially, just a subset of bidirectional messaging. First, Petitioner asserts that sending information from one device to another, by itself, is unidirectional messaging. *See* Pet. 25 (arguing that the prior art reference’s messaging is unidirectional because “it includes sending information from the receiving device to the transmission device”). Put another way, in this interpretation, each leg of bidirectional messaging can be considered unidirectional messaging. Second, Petitioner asserts that a bidirectional messaging scheme could be considered unidirectional where one device merely provides responsive signaling (e.g., acknowledgments). *Id.* at 25–26 (arguing that “neither of the communication condition and start frame information necessitates responsive signaling, such that the first mode comprises uni-directional messaging”). Third, Petitioner asserts that the

claim merely states that the protocol “comprises” unidirectional messaging, and that bidirectional messaging “clearly includes” unidirectional messaging. *Id.* at 26–27. Relatedly, Petitioner notes that claim 5 of the ’777 patent states that the first mode “is a subset of the second mode.” Ex. 1001, 71:11–12 (cited at Pet. 33).

Patent Owner disagrees with Petitioner, but other than making such a statement, does not provide evidence in support of that position. Prelim. Resp. 44–45.

2. *Review of the Claims*

We begin our analysis with the language of claim 1. The claim requires a microcontroller configured for “operating in a first mode of operation using a first protocol,” wherein that protocol “is an inductive charging communication-and-control protocol that comprises uni-directional messaging.” In this mode, the claim requires a first communication sent from the receiver (the charged device) to the base system (the charger). Ex. 1001, 70:37–40 (“receiving . . . a first communication”). The claim also requires the microcontroller to be configured for “operating in a second mode of operation using a second protocol,” wherein that protocol “is an inductive charging communication-and-control protocol that defines bi-directional messaging.” *Id.* at 70:44–48. In this mode, the claim requires a second communication sent from the receiver to the base system, and also a third communication sent from the base system to the receiver. *Id.* at 70:49–59 (“receiving . . . a second communication” and “transmitting [a] third communication”). We also note that claim 5, which depends from claim 1, specifies that “the first mode of operation is a subset of the second mode of operation.” *Id.* at 71:11–12. Independent claim 24 is similar, but states that

the second protocol “*comprises* bi-directional messaging” (emphasis added), instead of claim 1’s recitation of “*defines* bi-directional messaging” (emphasis added). *Compare id.* at 70:47 with *id.* at 74:1.

The fact that the two modes of operation specified in claims 1 and 24 are otherwise effectively identical but for the unidirectional and bidirectional aspects suggests that the claims use these terms to *distinguish* the two modes. In other words, it tends to indicate that the words “uni-directional” and “bi-directional” in claim 1 are intended to refer to distinct messaging protocols (rather than “uni-directional” being merely half of “bi-directional”). *See Hockerson-Halberstadt, Inc. v. Converse Inc.*, 183 F.3d 1369, 1374 (Fed. Cir. 1999) (“Proper claim construction . . . demands interpretation of the entire claim in context, not a single element in isolation.”).

Likewise, the first mode recites “receiving . . . a first communication,” whereas the second mode recites both “receiving” and “transmitting” communications. Although not dispositive (given the “comprising” language of the claims), this language is consistent with an understanding that unidirectional modes only have a receipt of information (from the perspective of the charger), whereas bidirectional modes have two-way messaging between the charger and receiver.

Reviewing the other claims, we observe that claim 5 states that the first mode is a *subset* of the second mode, but we note that it does not specifically say anything about unidirectional *messaging* being a subset of bidirectional *messaging*. Instead, it speaks to one *mode* being a subset of the other, but claim 1 recites that each mode uses a different protocol (first or second), and that each protocol uses a different type of messaging

(unidirectional or bidirectional). Ex. 1001, 70:31–59. Thus, claim 5’s reference to the first mode being a subset of the second mode could be a reference to the protocols being a subset of each other, rather than the messaging schemes. *See id.* at 5:35–37 (“reference to ‘a protocol’ includes a combination of protocols as well as a single protocol”); 56:55–60 (“existing protocols . . . , or a combination of the above [protocols] can be used”). As to claim 1’s use of “defines bi-directional messaging” and claim 24’s use of “comprises bi-directional messaging,” it is not clear that there is any meaningful distinction here. Even if there is a distinction, Petitioner treats claims 1 and 24 as if they recite the same limitations, and we do not understand Petitioner to be arguing for different outcomes or constructions for claims 1 and 24. Pet. 33–36; *id.* at 35 (“*Sogabe* also discloses that communication during the normal power transmission ‘comprises’ and ‘defines’ ‘bi-directional messaging.’”). Our analysis of independent claim 24 is otherwise similar to that of claim 1.

3. *Review of the Specification*

We turn now to the specification, which also tends to indicate that unidirectional messaging and bidirectional messaging were intended to be mutually exclusive forms of messaging. For example, the specification states:

a uni-directional communication (from the receiver to the charger) is described. However, this communication can also be bi-directional, and data can be transferred from the charger to the receiver.

Ex. 1001, 14:52–55. We do not read into this passage an intention that “unidirectional communication” *can also be called* “bidirectional communication.” *Cf.* Pet. 27. Instead, we read this passage as stating that

bidirectional communication *can also be used*, i.e., that they are alternatives that can be used to achieve similar functionality (here, however, it should be noted that the specification indicates that using bidirectional messaging in particular allows for data transfer). Interpreting them as alternatives is consistent with a later passage in the specification, stating, “[t]he communication in any of these methods can also be bidirectional *rather than* unidirectional.” Ex. 1001, 15:13–15 (emphasis added). By being described as alternatives in this manner, the specification is holding them out as mutually exclusive—one chooses unidirectional or bidirectional messaging. We do not find any example from the specification where unidirectional messaging is a subset of bidirectional messaging.

4. *Review of the Extrinsic Evidence*

We next review the limited extrinsic evidence. We have reviewed the testimony of Petitioner’s expert and find that it does not provide a factual basis for Petitioner’s assertion that unidirectional messaging is just one leg of bidirectional messaging. *See, e.g.*, Pet. 25 (citing Ex. 1002 ¶¶ 120–121). In particular, the expert’s testimony largely just repeats the assertions of the Petition, without providing sufficient additional analysis or evidence useful to determine how a person of ordinary skill in the art would construe those terms. *See* Ex. 1002 ¶¶ 120–125; *see also* 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.”); *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (PTAB 2022) (precedential) (holding a declaration is entitled to little weight when it contains an exact restatement of the petition’s unsupported, conclusory assertions without any additional supporting evidence or reasoning). Instead, Petitioner’s expert in

the cited paragraphs appears to largely assume that the prior art reference Sogabe discloses unidirectional messaging, giving the expert's opinion little probative value. *Upjohn Co. v. Mova Pharm. Corp.*, 225 F.3d 1306, 1311 (Fed. Cir. 2000) (“Lack of factual support for expert opinion to factual determinations, however, may render the testimony of little probative value in a validity determination.”) (quoting *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985)); *Carella v. Starlight Archery & Pro Line Co.*, 804 F.2d 135, 138 (Fed. Cir. 1986) (“Although in some circumstances unsupported oral testimony can be sufficient . . . it must be regarded with suspicion and subjected to close scrutiny.”).

We have also reviewed the prior art itself that Petitioner relies upon in its grounds, but find little guidance as to how a person of ordinary skill in the art would understand the terms “uni-directional” and “bi-directional” in the context of the claimed invention. Walley discusses how “[c]urrently commercially available wireless power products include a transmit unit, a receive unit, and a *bidirectional control channel*.” Ex. 1007, 1:34–36 (emphasis added). Walley goes on to provide some examples of this bidirectional control channel, citing standard wireless communication protocols such as Bluetooth and IEEE 802.11 (a.k.a. Wi-Fi). *Id.* at 4:18–55; *see also* Ex. 1001, 10:62–11:3 (“communication between the charger and receiver can be provided through Bluetooth, Wi-Fi, . . . etc.”). These are both widely known two-way communication protocols for communication between wireless devices. In other words, Walley provides an example in the field of endeavor where “bidirectional” describes communication where both devices transmit messages. Walley does not provide support for the

notion that unidirectional messaging is understood to encompass a subset of bidirectional messaging.

5. *Conclusion on Claim Construction*

Reviewing the arguments and evidence before us, we determine that the terms “uni-directional” and “bi-directional,” as used in independent claims 1 and 24, should be construed such that those terms are mutually exclusive types of messaging, i.e., that unidirectional messaging is not just merely one side of bidirectional messaging. We recognize that our construction here is based on a limited record; one where the parties have offered little briefing. Therefore, we construe this term only with an eye toward resolving, for purposes of institution, the specific issue of whether the prior art reference Sogabe’s first mode of operation uses unidirectional or bidirectional messaging. *See 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. Asserted Obviousness in View of Sogabe and Azancot (Claims 1–3, 5, 6, 9–11, 13, 14, and 24)

Independent claim 1 is directed to a base system for inductive charging of an electronic device. The base system operates in two modes. The first mode involves a unidirectional messaging scheme involved in the regulation of power delivered to the battery of a device. The second mode is similar but uses bidirectional messaging. Petitioner’s proposed combination uses the multi-mode inductive charging system of Sogabe and the unidirectional messaging scheme in the inductive charging system of

Azancot. Pet. 27–30. We first review the relevant teachings of the prior art before turning to Petitioner’s ground.

1. Sogabe (Ex. 1005)

Sogabe describes a power transmission device (i.e., a charger), a power receiving device (e.g., a phone), and the way they interact. *See* Ex. 1005, code (57). Sogabe criticizes the prior art charging devices for being designed to work only with one receiving device (e.g., a given charger only works for a given phone). *See, e.g., id.* at 1:33–35. To address this problem, Sogabe describes a system wherein the power transmission and power receiving devices communicate in a setup phase, prior to a charging phase, to establish how to transmit power, thereby allowing one charger to charge many different types of devices. *Id.* at 1:66–2:9, 10:40–44, 10:50–54, 11:14–16.

To achieve this, Sogabe describes the system operating in two modes. *See, e.g., id.* at 12:16–20 (“communication is performed by a first communication method before the start of normal power transmission while communication is performed by a second communication method after the start of normal power transmission.”). The first mode is a setup mode. *See generally id.* at Fig. 11. The devices communicate to establish various charging parameters, such as the charging standard to be used and information about the physical configuration of the devices. *Id.* at 12:47–55, 14:56–58. In this first mode, the power receiving device first transmits a negotiation frame, which includes some of the aforementioned charging parameters. *Id.* at 24:57–65, Fig. 11 step S24. The power transmitting device receives this information, performs some verification check, and then transmits back its negotiation frame. *Id.* at 24:66–25:35, Fig. 11 steps S4–

S7. The power receiving device reviews the negotiation frame, performs some verification check, and then transmits a setup frame containing further charging parameters. *Id.* at 25:36–55, Fig. 11 steps S26–28. The power transmitting device receives the setup frame, performs some verification check, and then transmits its setup frame. *Id.* at 25:56–63, Fig. 11 steps S8–S10. The power receiving device receives the setup frame, performs some verification check, and then transmits a start frame to perform charging according to the parameters determined during this first setup mode. *Id.* at 25:64–26:2, Fig. 11 steps S29–S31. Accordingly, Sogabe describes a first mode for setting up a charging session where messages are exchanged between two devices.

The second mode is a charging mode. *See generally id.* at Fig. 12, 26:18–25. The devices can communicate during this mode to stop or pause power transmission, or to perform other predefined functions, such as data communication. *See, e.g., id.* at 16:67–17:16; *see also* Fig. 6 (command phase). Sogabe also notes that the power transmission levels in the two modes are different in order to better facilitate the steps performed in that mode (i.e., focus on clear communication in the first mode, focus on high-power delivery in the second mode). *See, e.g., id.* at 11:56–12:13.

2. *Azancot (Ex. 1006)*

Azancot describes a method for monitoring and controlling inductive power transfer. Ex. 1006, code (57). Azancot recognizes the energy efficiency benefits of sending status information from the charging device to the charger (such as voltage, current, temperature, etc.). *Id.* at 2:29–35. For example, using the received information, the system can detect high levels of power loss and automatically shut itself off to prevent excess heating. *Id.*

Contrasting prior art devices, Azancot states that it uses the power transmission signals themselves to communicate, rather than using a separate communication channel. *Id.* at 9:58–10:3. Relevant to Petitioner’s ground, Azancot’s system uses unidirectional communication from the charging device to the charger. Pet. 27–28 (citing Ex. 1006, 8:60–65, 9:58–63, 10:11–11.14, Figs. 2a–2d); Prelim. Resp. 45 (acquiescing to Petitioner’s assertion that Azancot uses unidirectional communication).

3. *The Parties’ Positions*

Independent claim 1 requires the first mode to be unidirectional and the second mode to be bidirectional. As we explained above in our claim construction section, we do not construe unidirectional messaging to be a subset of bidirectional messaging. The setup mode in Sogabe involves communications transmitted by the transmitter to the receiver and by the receiver to the transmitter. *See, e.g.*, Ex. 1005, Fig. 11 steps S7, S10, S26, S29. Thus, we find on this record that Sogabe’s setup mode uses bidirectional messaging. Accordingly, those aspects of Petitioner’s ground that rely on Sogabe’s setup mode to teach the unidirectional messaging limitations fail *ab initio*. *See* Pet. 23–27.

Next, we analyze those aspects of Petitioner’s ground that take the two-mode system of Sogabe and modify the setup (first) mode to be unidirectional, as taught in Azancot. Pet. 28–30. Petitioner asserts that making the first mode unidirectional would create increased responsiveness by preventing a lengthy and complex power negotiation process. *Id.* at 28. Petitioner also asserts that it would extend the interoperability and compatibility of Sogabe to include unidirectional systems, such as those discussed in Azancot. *Id.* at 28–29. Lastly, Petitioner asserts that using

unidirectional communication in the first mode of operation of Sogabe would provide reduced communication complexity. *Id.* at 29.

Patent Owner offers many arguments why a person of ordinary skill in the art would not have combined the references in the manner proposed by Petitioner. Prelim. Resp. 47–52. One argument, for example, notes that the first mode in Sogabe is not a charging mode, but rather a setup mode. *Id.* at 50. Patent Owner’s argument calls into question Petitioner’s position that a person of ordinary skill in the art would replace the communications protocol used in a *setup* mode (Sogabe’s first mode) based on the teachings of a communication protocol used in a *charging* mode (Azancot’s unidirectional charge-state communications).

4. *Our Analysis for Claims 1 and 24*

Having reviewed the arguments and evidence before us, we determine that a dispositive issue is whether Petitioner has shown a reason to combine the references in the manner proposed. Accordingly, our analysis focuses only on Petitioner’s reasons to combine.

Petitioner’s first reason, regarding preventing a lengthy and complex power negotiation process, lacks rational underpinnings. Petitioner does not provide sufficient evidence that negotiation speeds were a problem that needed to be overcome in the art. Petitioner’s citations to Sogabe and Azancot here merely describe some of the information that is communicated. Pet. 28 (citing Ex. 1005, Fig. 6; Ex. 1006, 10:20–37, 3:4–22, 7:21–37). They are not directed to the topic of negotiation length. Petitioner’s citation to its expert testimony merely directs us to the same citations identified in the Petition without further explanation. *Id.* (citing Ex. 1002 ¶ 130); *Xerox Corp.*, IPR2022-00624, Paper 9 at 15–17. The evidence of record suggests

to us that communication speeds were relatively high. Ex. 1001, 9:19–21 (describing the power signal operating “typically in the 100 kHz to several MHz range”). Even if we were to credit Petitioner’s unsupported assumption that unidirectional messaging is some degree faster than bidirectional messaging, that alone does not necessarily support a conclusion that a person of ordinary skill in the art would have had a reason to combine the references in the manner proposed. In other words, Petitioner has failed to establish that information communication speeds in the power negotiation process was a known problem in the art. *See Leo Pharm. Prods., Ltd., v. Rea*, 726 F.3d 1346, 1354 (Fed. Cir. 2013) (“Only after recognizing the existence of the problem would an artisan *then* turn to the prior art and attempt to develop a [solution].”). Moreover, even if speed were a known problem in the art, Petitioner’s proposed combination inexplicably involves modifying only half of the communications to be the allegedly faster type of messaging, which looks more like hindsight than addressing a problem in the art. *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1575 (Fed. Cir. 1986) (obviousness requires a showing “that it would have been obvious to produce the claimed invention at the time it was made without the benefit of hindsight”).

Petitioner’s second reason, regarding interoperability and compatibility, also falls short. As Patent Owner pointed out, Petitioner is not proposing to add a unidirectional *charging mode*, but rather proposing to add a unidirectional *setup mode*, leaving the charging mode bidirectional. Specifically, Petitioner proposes that Sogabe’s system would be modified to use unidirectional communication in the setup phase and bidirectional communication in the charging phase, both during the course of charging a

single device. Thus, even with the proposed modification, a power receiving device that charges using unidirectional messaging (such as Azancot) would not be able to work in Petitioner's proposed system, because it would not be able to operate during Sogabe's bidirectional charging phase. Accordingly, Petitioner's second rationale fails because it does not actually achieve interoperability with unidirectional messaging systems.

Petitioner's third reason, regarding the reduction of complexity, fails for a similar reason. The proposed combination only serves to make a portion of the communications between the devices unidirectional, while the remainder stays bidirectional. To the extent this is not instead *increasing* complexity by using two methods where there was only one before, Petitioner fails to explain cogently why a person of ordinary skill in the art would have considered it obvious to use different communication protocols during different phases of charging a single device. Neither Sogabe nor Azancot describes the use of multiple communication protocols required to charge a given device.²

In sum, because Petitioner has not articulated a reason with rational underpinning to modify the Sogabe charging system's bidirectional setup phase communications with the unidirectional charging phase communications of Azancot, we determine that Petitioner's ground with respect to independent claim 1 does not demonstrate a reasonable likelihood of success. Independent claim 24 is similar to independent claim 1. Pet. 6

² Petitioner similarly asserts that bidirectional communication is not required in Sogabe, so that it would have been obvious to a person of ordinary skill in the art to use unidirectional communication "in order to simplify the setup process." Pet. 27. Our analysis here on the assertion of "reducing complexity" also addresses this assertion of "simplif[ication]."

(addressing independent claims 1 and 24 simultaneously); *id.* at 6, n.7 (“Claim 24 substantively tracts claim 1.”). Petitioner’s ground with respect to independent claim 24, and of claims 2, 3, 5, 6, 9–11, 13, 14, and 24, which depend from claims 1 or 24, fails for the same reason.

E. Remaining Grounds

The other claims and grounds addressed in the Petition are deficient for the same reasons. Petitioner’s grounds addressing claims 6, 7, and 8 are each predicated on the combination of Sogabe and Azancot described above. Pet. 60–71. Petitioner’s grounds with respect to these claims fail for the same reasons Petitioner’s ground for claim 1 fails.

III. CONCLUSION

For the reasons given above, we find that Petitioner has not established a reasonable likelihood of success in showing that any challenged claim is obvious in view of the grounds presented in the Petition. Accordingly, we do institute *inter partes* review. 35 U.S.C. § 314(a).

IV. ORDER

In consideration of the foregoing, it is hereby ordered that the Petition is *denied*, and no trial is instituted.

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FOR PETITIONER:

Joseph Palys
Kevin Stewart
Naveen Modi
PAUL HASTINGS LLP
josephpalys@paulhastings.com
kevinstewart@paulhastings.com
naveenmodi@paulhastings.com

FOR PATENT OWNER:

Steve Pollinger
Ryan McBeth
George Fishback
MCKOOL SMITH, P.C.
spollinger@mckoolsmith.com
rmcbeth@mckoolsmith.com
gfishback@mckoolsmith.com