

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

K/S HIMPP,
Petitioner,

v.

BRAGI GMBH,
Patent Owner.

IPR2023-01150
Patent 9,843,853 B2

Before LARRY J. HUME, STACEY G. WHITE, and
MICHELLE N. WORMMEESTER, *Administrative Patent Judges*.

HUME, *Administrative Patent Judge*.

JUDGMENT

Final Written Decision

Determining All Challenged Claims Unpatentable
Denying Patent Owner's Revised Motion to Amend
35 U.S.C. § 318(a)

I. INTRODUCTION

K/S HIMPP (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review (“IPR”) of claims 1–21 (“the challenged claims”) of U.S. Patent No. 9,843,853 B2 (Ex. 1001, “the ’853 patent”). Bragi GmbH (“Patent Owner”) timely filed a Preliminary Response. Paper 7. Pursuant to 35 U.S.C. § 314, on January 22, 2024, we instituted trial as to claims 1–21 of U.S. Patent No. 9,843,853 B2 (Ex. 1001, “the ’853 patent”).¹ Paper 8 (“Institution Decision” or “Dec.”).

Following institution, Patent Owner filed a Contingent Motion to Amend on April 12, 2024. Paper 12 (“Motion” or “Mot.”). In its Motion, Patent Owner proposed to amend the ’853 patent to replace claims 1–21 with substitute claims 22–42. Mot. 1–2. Petitioner filed an Opposition to Patent Owner’s Motion on July 19, 2024. Paper 23.

In the Motion, Patent Owner requested that we provide preliminary guidance concerning the proposed substitute claims in accordance with the Board’s Pilot Program concerning motion to amend practice and procedures. Mot. 1; *see also* Notice Regarding a New Pilot Program Concerning Motion to Amend Practice and Procedures in Trial Proceedings under the America Invents Act before the Patent Trial and Appeal Board, 84 Fed. Reg. 9,497 (Mar. 15, 2019) (providing a patent owner with the option to receive preliminary guidance from the Board on its motion to amend).

We provided Preliminary Guidance on Patent Owner’s Motion to Amend on August 24, 2024, in which we determined that Petitioner had shown a reasonable likelihood that proposed substitute claims 22–42 were unpatentable. Paper 24.

¹ The ’853 patent issued from U.S. Application Serial No. 15/245,031 (the ’031 application”) filed August 23, 2016, claiming benefit under 35 U.S.C. § 119(e) to Provisional application No. 62/ 211,767, filed on Aug. 29, 2015. Ex. 1001, codes (21), (22), (60).

Thereafter, Patent Owner filed a Revised Contingent Motion to Amend on August 30, 2024, providing revised substitute claims 22–42 to be considered if we were to ultimately determine that the original challenged claims 1–21 were unpatentable, and replacing the initial Motion to Amend. Paper 25 (“rMTA”). Petitioner filed an Opposition to Patent Owner’s rMTA on October 3, 2024. Paper 31 (“Opp. to rMTA”). Patent Owner filed a Corrected Patent Owner’s Reply to Petitioner’s Opposition to Revised Motion to Amend on October 30, 2024. Paper 37 (“Corrected Patent Owner’s Reply” or “Corr. PO Reply”). Petitioner then filed a Sur-Reply to the Corrected Patent Owner’s Reply on November 12, 2024. Paper 38 (“Pet. Sur-Reply”).

We have duly considered Patent Owner’s Revised Motion to Amend and Petitioner’s Opposition, and all other related replies and oppositions in connection with the rMTA.

We held an oral hearing in this case on November 20, 2024, and a transcript of the hearing has been made of record. Paper 43 (“Transcript” or “Tr.”). In the oral hearing, Patent Owner waived all arguments directed to Petitioner’s original challenges to claims 1–21.

[JUDGE HUME:] For the Patent Owner, because [you] did not file a Patent Owner response to the [Decision to Institute], but instead filed an initial MTA, a motion to amend, and then a revised motion to amend without presenting arguments against Petitioner’s grounds, and in light of your demonstratives today, we are assuming that all arguments against the Petitioner’s original grounds have been waived. Is that a correct understanding, Patent Owner?

MR. JARRETT: Your Honor, yes. We are proceeding based on the revised motion to amend.

JUDGE HUME: Okay. Thank you. That clarifies the issues for trial [and] our ultimate decision and may assist Petitioner in how they proceed.

Tr. 7:7–16 (line numbering omitted).

Thus, Patent Owner has waived all arguments against Petitioner's original challenges to claims 1–21 in the Petition.

We have jurisdiction under 35 U.S.C. § 6(b) (2018). Under the applicable evidentiary standard, Petitioner has the burden to prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d) (2022). “Preponderance of the evidence means the greater weight of evidence, evidence which is more convincing than the evidence which is offered in opposition to it.” *United States v. C.H. Robinson Co.*, 760 F.3d 1376, 1383 (Fed. Cir. 2014) (internal quotations omitted).

For the reasons discussed below, we determine Petitioner has established by a preponderance of the evidence that originally challenged claims 1–21 of the '853 patent are unpatentable, and we further determine that proposed substitute claims 22–42 in the Revised Motion to Amend are also unpatentable, such that we deny Patent Owner's Revised Motion to Amend. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

II. BACKGROUND

A. *Related Matters*

At the time of the Petition's filing, the parties indicated that there were no related proceedings involving the '853 patent. Pet. 4; Paper 5, 2. However, we note that Petitioner has filed petitions for *inter partes* review of related U.S. Patent Nos. 10,117,014 B2 (IPR2023-01204) and 10,397,688 B2 (IPR2023-01205). U.S. Patent No. 10,117,014 B2 is a continuation of the presently challenged '853 patent and is the parent of U.S. Patent No. 10,397,688 B2. *Inter partes* reviews have been instituted in both IPR2023-01204 (IPR2023-01204, Paper 8) and IPR2023-01205

(IPR2023-01205, Paper 8). The final written decisions in these proceedings are pending.

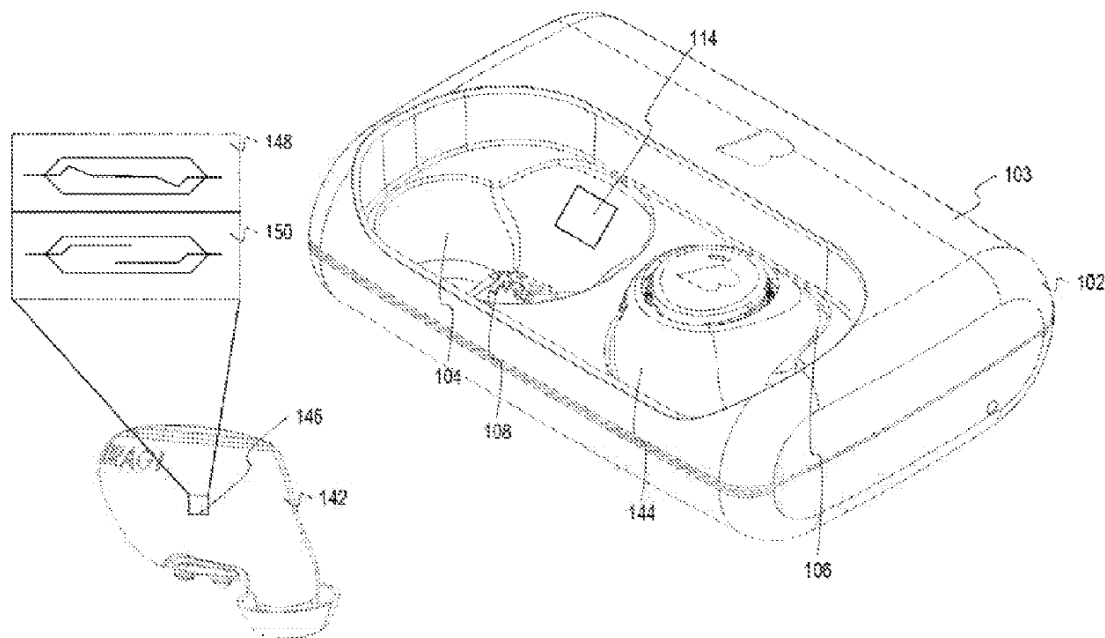
B. The '853 Patent (Exhibit 1001)

The '853 patent is titled “Power Control for Battery Powered Personal Area Network Device System and Method.” Ex. 1001, code (54). The '853 patent issued December 12, 2017 from U.S. Patent Application No. 15/245,031, filed August 23, 2016, which claims the benefit of the filing date of Provisional Application No. 62/211,767, filed on August 29, 2015. *Id.* at codes (21), (22), (45), (60).

The '853 patent describes a system and method for managing wireless earpieces in which the circuitry of the wireless earpieces is powered using a high-power mode when a magnetic field is not applied to one or more of the wireless earpieces, and is powered using a low power mode when a magnetic field is applied to one or more of the wireless earpieces. *See* Ex. 1001, at code (57).

“During the low power mode, the wireless earpieces [] may synchronize data with the memory [] of the smart[] case []” and “may perform maintenance of a real-time clock and maintain other essential onboard software programs.” *Id.* at 8:4–9. In a “lowest power mode,” “minimal required functions may be performed” such as “software updates, data synchronization, clock updates, etc.).” *Id.* at 8:12–16.

Figure 1 of the '853 patent is reproduced below as a further aid in understanding the claimed invention.



'853 Patent – Fig. 1

Figure 1 of the '853 patent “is a pictorial representation of a smart case and wireless earpieces in accordance with an illustrative embodiment.” Ex. 1001, 2:19–21. Figure 1 depicts “a smart case 102 and wireless earpieces 142, 144” in which the smart case is “an open or enclosed case for securing, charging, and managing the wireless earpieces 142, 144” in receptacles (104, 106) configured to receive the wireless earpieces. *Id.* at 2:63–3:1, 3:49–54. The smart case has a logic engine that controls its operation and functionality and may include hardware, software, firmware, or any combination thereof, such as circuitry, chips, programs, scripts, instructions, and processors. *Id.* at 6:45–56. “[T]he smart case 102 may be utilized to store, charge, and synchronize data for the wireless earpieces 142, 144.” *Id.* at 3:21–24.

The '853 patent explains that the smart case also encloses a battery that “may be utilized to charge the wireless earpieces 142, 144 through direct contact or

wirelessly,” and is used “as a custom charger for ensuring the proper power management and functionality of the wireless earpieces 142, 144.” Ex. 1001, 3:25–31. According to the ’853 patent, the smart case properly maintains power levels to “ensure[] that the duty cycle[s] of the wireless earpieces 142, 144 are maximized.” *Id.* at 3:37–39. “For example, the smart case 102 may keep the wireless earpieces 142, 144 fully charged during a time period of inactivity, such as before being purchased (e.g., on a shelf or as part of inventory) or once purchased.” *Id.* at 3:39–43.

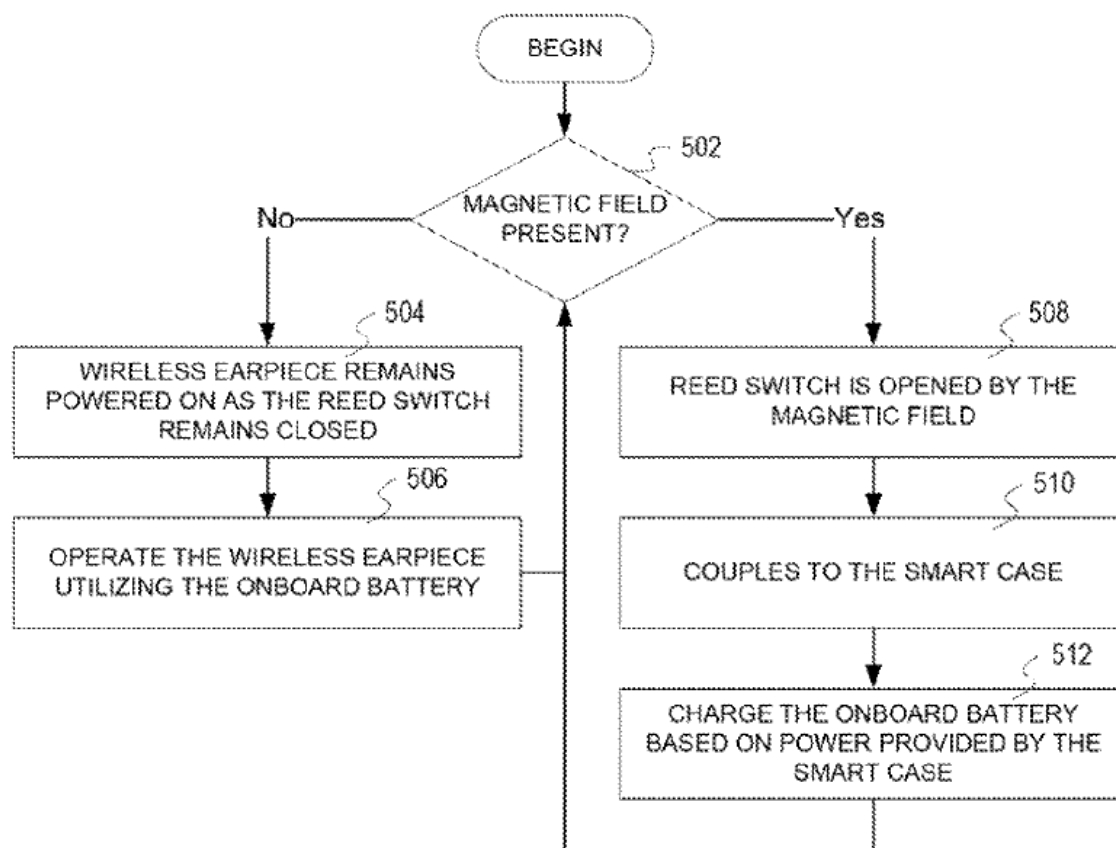
The smart case includes hardware interfaces (108, 110) that are located within the receptacles and are used for electrically connecting the wireless earpieces to the smart case via contact points, busses, wires, magnets, or other physical connectors. Ex. 1001, 4:5–33. In a magnet-implemented embodiment,

interfaces 108, 110 may each include a magnet [(114)] that activates the corresponding reed switch (i.e., reed switch 146 described below) to power off or initiate a low power mode (e.g., lower power state or mode) for one or both of the wireless earpieces 142, 144 when one or more of the wireless earpieces 142, 144 are placed within the receptacles 104, 106.

Id. at 4:27–33. The reed switch may be positioned anywhere on or within the wireless earpiece, and the magnet may be positioned anywhere within the smart case that allows the magnet to interact with the reed switch when the earpiece is seated in its receptacle. *Id.* at 5:48–56. “The reed switch 146 may operate in a closed mode 148 when no magnetic field is present or in an open mode 150 when a magnetic field is present” such that “the reed switch 146 may be in the closed mode 148 when outside the smart case 102 and in the open mode 150 when in the smart case 102.” *Id.* at 5:31–38; *see also id.* at 7:63–8:4. “[P]roximity to the magnet 114 and reed switch 146 may engage the reed switch 146 to the open mode 150” and charge the earpiece, and “[r]emoval of the wireless earpiece 142

disengages the reed switch 146 resulting in the wireless earpiece 142 functioning under its own power.” *Id.* at 5:42–47.

Figure 5 of the ’853 patent is reproduced below as a further aid in describing control of the wireless earpieces using magnets in the smart case.



’853 Patent – Fig. 5

Figure 5 of the ’853 patent “is a flowchart of a process for utilizing wireless earpieces with a smart case in accordance with an illustrative embodiment.” Ex. 1001, 2:28–30. The process shown in Figure 5 begins when the wireless earpiece determines whether a magnetic field is present (502) based on the interaction of a magnet or magnetic field with a reed switch in the wireless earpiece. *Id.* at 8:32–40. “If the magnetic field is not present, the wireless earpiece remains powered on as the reed switch remains closed (step 504)” and “the

onboard battery of the wireless earpiece powers and operates the wireless earpiece to ensure full functionality” (506). *Id.* at 8:41–45, 8:52–56.

If the magnetic field is present, “the reed switch is opened by the magnetic field (step 508) . . . automatically based on its nature and configuration when the magnetic field is present” and the wireless earpiece couples to the smart case (510). Ex. 1001, 8:63–65, 9:15–27. When the reed switch is opened, “the wireless earpiece may move to a low power mode in order to preserve battery life,” or “may alternatively enter a reduced power mode, sleep, or other mode.” *Id.* at 8:65–9:5. “The wireless earpiece may also send a command or communication to the second wireless earpiece to change power mode or otherwise act in response to the reed switch being opened.” *Id.* at 9:5–8. While the wireless earpiece and the smart case are coupled, the smart case provides power to the wireless earpiece to charge its onboard battery (512), and the wireless earpiece may download or synchronize data with the smart case. *Id.* at 9:41–47, 9:60–62. “[T]he wireless earpiece may determine whether a charge is required for the wireless earpiece. . . . If a[] charge is not required, the wireless earpiece does not receive power from the smart case.” *Id.* at 9:41–47.

C. The Challenged Claims

Of the challenged claims, claims 1, 10, and 21 are independent, and for purposes of this Decision, claims 1, 10, and 21 are illustrative of the challenged claims and are reproduced below (with formatting added for clarity and with bracketed alphanumeric identification added by Petitioner for ease of reference):

Claim 1 recites:²

[1Preamble] A method for managing wireless earpieces, comprising:

[1A] powering circuitry of the wireless earpieces utilizing a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces; and

[1B] altering the power sent to the circuitry of the wireless earpieces to a low power mode in response to detecting a magnetic field is applied to one or more of the wireless earpieces.

Ex. 1001, 10:55–63; *see* Pet. (Specific Grounds of Unpatentability), 23–29.

Claim 10 recites:

[10Preamble] A wireless earpiece, comprising:

[10A] circuitry operating the wireless earpiece;

[10B] a battery powering the circuitry of the wireless earpiece; and

[10C] a reed switch connecting the battery to the circuitry, wherein the reed switch connects the circuitry to the battery when a magnetic field is not detected, and wherein the reed switch disconnects the circuitry from the battery when a magnetic field is detected.

Ex. 1001, 11:23–32 (Petitioner’s labeling added within brackets for ease of reference); *see* Pet. (Specific Grounds of Unpatentability), 18–22.

Claim 21 recites:

[21Preamble] A system comprising:

[21A] a first wireless earpiece, comprising:

[21B] circuitry operating the first wireless earpiece;

² Patent Owner filed a Request for a Certificate of Correction on February 14, 2018 to correct a typographical error by replacing the word “poser” with the word “power” in line 3 of claim 1. The Office issued a Certificate of Correction correcting the typographical error on March 13, 2018.

[21C] a battery powering the circuitry of the first wireless earpiece; and

[21D] a switch connecting the battery to the circuitry, wherein the switch connects the circuitry to the battery when a magnetic field is not detected, and wherein the switch disconnects the circuitry from the battery when a magnetic field is detected;

[21E] a smart case for charging the first wireless earpiece and a second wireless earpiece, the smart case comprising:

[21F] a smart case housing;

[21G] a first receptacle for receiving the first wireless earpiece disposed within the smart case housing;

[21H] a second receptacle for receiving the second wireless earpiece disposed within the smart case housing;

[21I] a first interface associated with the first receptacle for electrically connecting the smart case to the first earpiece;

[21J] a second interface associated with the second receptacle for electrically connecting the smart case to the second earpiece;

[21K] an intelligent control disposed within the smart case housing and operatively connected to the first interface and the second interface.

Ex. 1001, 12:26–51 (Petitioner’s labeling added within brackets for ease of reference); *see* Pet. (Specific Grounds of Unpatentability), 35–42.

D. Originally Asserted Challenges to Patentability

Petitioner challenged claims 1 through 21 of the ’853 patent on the following seven grounds as shown in Table II.D, below. *See* Pet. 6–7, 17–92.

Petitioner supports its challenge with a declaration from Sayfe Kiaei, Ph.D.

Ex. 1002, “Kiaei Declaration” or “Kiaei Decl.” We instituted *inter partes* review.

Dec. 78.

Table II.D

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1	10, 14	102(a)	Brown ³
2	1–3, 5	102(a)	Hain ⁴
3	10, 21	102(a)	Steinbrecher ⁵
4	1–7, 9	103	Shaffer ⁶ and Hain
5	4, 6–8	103	Shaffer, Hain, and Sørensen ⁷
6	10–12, 14, 16–21	103	Shaffer and Steinbrecher
7	11–13, 15, 17–21	103	Shaffer, Steinbrecher, and Sørensen

Pet. 6–7.

Petitioner asserts Shaffer and Sørensen qualify as prior art under 35 U.S.C. §§ 102(a)(1) and (2), and Brown, Hain, and Steinbrecher qualify as prior art under 35 U.S.C. § 102(a)(1). Pet. 5–6, 15; *see* 35 U.S.C. § 102(a) (2012).

E. Legal Standards for Inter Partes Review

“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.

³ GB 1254017, filed Mar. 25, 1969, published Nov. 17, 1971. Ex. 1007, “Brown.”

⁴ DE 10 2007 039 455 A1, filed Aug. 21, 2007, published Feb. 26, 2009. Ex. 1004, “Hain.”

⁵ EP 1 727 395 B1, filed Feb. 8, 2006, published Aug. 20, 2008. Ex. 1006, “Steinbrecher.”

⁶ US 2015/0245126 A1, filed Oct. 9, 2014, published Aug. 27, 2015. Ex. 1003, “Shaffer.”

⁷ US 8,265,315 B2, filed Oct. 12, 2009, issued Sep. 11, 2012. Ex. 1005, “Sørensen.”

§ 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”). This 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).

F. Level of Ordinary Skill in the Art

Factors pertinent to determining the level of ordinary skill in the art include (1) the educational level of the inventor; (2) the type of problems encountered in the art; (3) prior-art solutions to those problems; (4) the rapidity with which innovations are made; (5) the sophistication of the technology; and (6) the educational level of workers active in the field. *Envtl. Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696–97 (Fed. Cir. 1983). Not all factors may exist in every case, and one or more of these or other factors may predominate in a particular case. *Id.* These factors are not exhaustive, but merely a guide to determining the level of ordinary skill in the art. *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007). Moreover, the prior art itself may reflect an appropriate skill level. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Supported by the declaration testimony of Dr. Kiaei, Petitioner asserts the level of ordinary skill in the art corresponds to a person having “a bachelor’s degree in Electrical Engineering, or equivalent experience, and one to two years of experience in the field of wireless electronic devices and battery systems, particularly wireless earpieces such as wireless headphones and hearing aids.” Pet. 17 (citing Ex. 1002 ¶ 25).

For the purposes of the Institution Decision, we preliminarily adopted Petitioner’s definition. Based on the current record, lacking any contrary definition provided by Patent Owner, and for purposes of this Judgement, we here again

adopt Petitioner’s position as to the level of ordinary skill in the art at the time of the claimed invention, as articulated above. Based upon the full record, we are satisfied that Petitioner’s proposed definition generally comports with the level of skill necessary to understand and implement the teachings of the ’853 patent and the asserted prior art. This definition also is supported by the declaration testimony of Dr. Kiaei. *See* Ex. 1002 ¶ 25.

III. ANALYSIS OF CHALLENGED CLAIMS 1–21

Because Patent Owner’s Revised Motion to Amend is contingent on a conclusion of unpatentability of the challenged patent claims, we first address Petitioner’s original challenge of claims 1–21 of the ’853 patent, and then we address Patent Owner’s proposed substitute claims 22–42 in the Revised Motion to Amend.⁸

A. Claim Construction

In an *inter partes* review, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b). In applying such standard, claim terms are generally given their ordinary and customary meaning, as would be understood by a person 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

⁸ We reiterate that Patent Owner has waived all arguments directed to Petitioner’s challenges to claims 1–21 under original Grounds 1–7. *See* Tr. 7:7–16; *see also* Dec. 77 (“Any arguments not raised by Patent Owner in a timely filed response may be deemed waived.”).

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).

Prior to institution, “Petitioner submits that no terms need to be construed to resolve the issues raised in th[e] Petition because the prior art discloses all limitations under any plausible construction.” Pet. 13. Patent Owner waived all arguments in connection with the original claims 1–21 of the ’853 patent.
Tr. 7:7–16

We do not find it necessary to address the construction of any other claim terms or phrases for rendering our Judgement. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe 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))).

*B. Ground 1: Anticipation of Claims 10 and 14 by Brown Under § 102(a)*⁹

Under Ground 1, Petitioner contends the subject matter of challenged claims 10 and 14 is anticipated by Brown. Pet. 17–22. Patent Owner waived all arguments directed to this Ground. Tr. 7:7–16 (line numbering omitted).

For the reasons explained below, we determine that Petitioner has met their burden by providing an adequate showing that the subject matter of claims 10 and 14 is anticipated by Brown.

⁹ See Pet. 5–6 (stating that Brown is prior art under 35 U.S.C. § 102(a)(1)).

1. *Legal Standards for Anticipation*

“A single prior art reference that discloses, either expressly or inherently, each limitation of a claim invalidates that claim by anticipation.” *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1375–76 (Fed. Cir. 2005). To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008); *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001).

Furthermore, a “reference must describe the claimed invention with sufficient precision and detail to establish that the subject matter existed in the prior art.” *Verve, LLC v. Crane Cams, Inc.*, 311 F.3d 1116, 1120 (Fed. Cir. 2002). The reference does not need to use the same terminology. *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (noting that a reference anticipates if a person of skill in the art “would at once envisage the claimed arrangement or combination” (internal quotation marks and citation omitted)). But, an ambiguous reference will not anticipate a claim. *Wasica Fin. GmbH v. Cont’l Auto. Sys., Inc.*, 853 F.3d 1272, 1284 (Fed. Cir. 2017). The dispositive question for anticipation is whether one skilled in the art would reasonably understand or infer from the reference that every claim element is disclosed. *Eli Lilly & Co. v. L.A. Biomed. Research Inst. at Harbor-UCLA Med. Ctr.*, 849 F.3d 1073, 1074–75 (Fed. Cir. 2017).

We analyze the anticipation challenge according to these principles.

2. *Summary of Asserted Prior Art Reference Brown (Ex. 1007)*

Brown is Patent No. GB 1254017 titled “Improvements in Hearing Aids,” filed on March 25, 1969, and published on November 17, 1971. Ex. 1007,

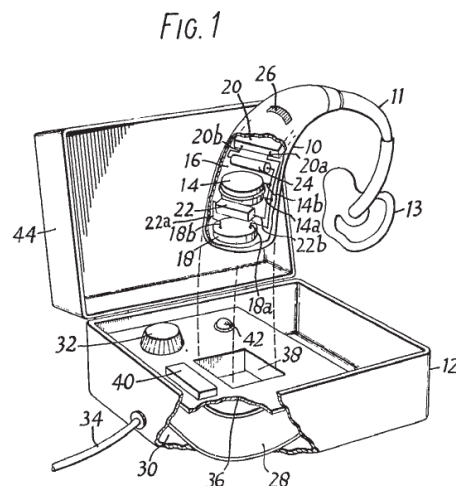
codes (11), (22), (45), (54). Brown describes “miniature hearing aids such as are worn in the ear, on the ear, or otherwise supported at ear level.” *Id.* at 1:9–11.

Generally, Brown is directed to

a hearing aid comprising an amplifier, a primary or secondary cell for energising the amplifier, and a switch controlling the flow of current from the cell to the amplifier, the switch being a reed delay switch enclosed within the casing of the hearing aid and disposed for being rendered open circuit by a magnet outside the casing.

Id. at 1:19–27. Brown explains that the “magnetic reed relay switch can be used as a means of doing away with the troublesome, conventional mechanical switch, by mounting a permanent magnet movably on the aid to act as a manually operable control for a reed relay switch.” *Id.* at 1:28–33. Brown’s hearing aid is recharged when the user places the aid in its receptacle. *Id.* at 1:65–66. “The reed relay switch can be arranged automatically to disconnect the amplifying circuits from the cell when the aid is removed from the head and placed in its receptacle,” such that the switch is “opened by a permanent magnet or coil fixed in the receptacle in a suitable position, when the aid is placed in the receptacle.” *Id.* at 1:36–43; *see also id.* at 1:66–68.

Brown’s Figure 1 is reproduced below.



Brown's Figure 1 is "a partially broken away perspective view of a hearing aid and its case." Ex. 1007, 1:84–85. "In Fig. 1 there is shown a miniature hearing aid 10, and a receptacle or case 12 for storing the hearing aid 10 when the aid is not in use. The case 12 contains charging apparatus . . . and can be closed by a hinged lid 44. . . . The hearing aid 10 has a sound tube 11 and earmould 13 and is shown partly cut away to disclose some of its internal parts." *Id.* at 1:88–96. The case also contains a well 38 in which the hearing aid may be seated. *Id.* at 2:34–39.

The hearing aid contains an accumulator cell 14 with two terminals, 14a and 14b. Accumulator cell terminal 14a and a "supply terminal 20a of an amplifier 20 for the aid" are connected to one end of a coil 18a. *Id.* at 2:1–6. The other end of the coil 18b is connected to a terminal 22a of a rectifier 22. *Id.* at 2:6–11. A second terminal of the rectifier 22b is connected to accumulator cell terminal 14b and to "one contact of a magnetically actuated reed relay switch 24." *Id.* "The other contact of the switch 24 is connected to the other supply terminal 20b of the amplifier 20. The switch 24 includes a permanent magnet (not shown) which, in use, biases the contacts closed to connect the accumulator 14 to the amplifier 20." *Id.* at 2:11–17.

Brown explains that "[t]he case 12 includes a second coil 28 housed in a chamber 30 in the box." *Id.* at 2:22–23. A cover 36 covers the chamber 30 and has a magnet fixed to it. *Id.* at 2:34–36, 2:42–48. When the hearing aid is placed in its well 38, the magnet 40 "effectively neutralises the magnetic field provided by the magnet in the reed relay switch 24 and the switch contacts open to disconnect the accumulator 14 from the amplifier 20" (i.e., the hearing aid is turned off). *Id.* at 2:42–48. When the contacts of the reed relay switch 24 are open and the hearing aid is in the case 12, "[t]he alternating voltage induced in the coil 18 by the magnetic field due to the current flowing in the coil 28 is rectified by the rectifier

22 and applied to recharge the accumulator 14” (i.e., the hearing aid is recharged). *Id.* at 2:62–66. “[W]hen the hearing aid is removed from the case 12 the switch 24 closes to connect the accumulator 14 to the amplifier 20 and the aid operates in the normal manner” (i.e., the hearing aid is turned on). *Id.* at 2:49–52.

To summarize, Brown describes a hearing aid with a charging case in which the hearing aid is turned on and off by a reed relay switch that is operated using a magnet fixed to the case. *Id.* at 2:125–3:21.

3. *Analysis of Independent Claim 10*¹⁰

a. *[10Preamble]: “A wireless earpiece, comprising:”*

Petitioner contends Brown discloses the preamble. Pet. 18. According to Petitioner, hearing aid 10 in Brown (Ex. 1007, Fig. 1) discloses a wireless earpiece, i.e., “[i]n Fig. 1 there is shown a miniature hearing aid 10 and a receptacle or case [12] for storing the hearing aid 10 when the aid is not in use.” Pet. 18 (quoting Ex. 1002 (Kiaei Decl.), ¶ 40).¹¹ See § III.B.2, *supra*.

Patent Owner does not respond. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. See *Dynamic Drinkware*, 800 F.3d at 1378.

On the record before us, and lacking evidence to the contrary, we are persuaded that the recited “wireless earpiece” in claim 10 reads on Brown’s hearing aid 10, particularly in light of earmould 13 as illustrated in Figure 1 of

¹⁰ Bracketing and parenthetical numbering of claim limitations in claim 10 are that adopted by Petitioner. See Pet. 18–22.

¹¹ We note Petitioner refers to “receptacle or case” 12 as “receptacle or case 10.” Pet. 18. We view this as harmless error and, as supported by Brown, we interpret the “receptacle or case” as properly having the label “12.” “The case 12 contains charging apparatus to be described hereinafter.” Ex. 1007, 1:91–92.

Brown. Ex. 1007, Fig. 1 (element 13). Petitioner’s assertions and explanations are consistent with and supported by the evidence cited by Petitioner. Pet. 18. Accordingly, on the full record, Petitioner has shown that Brown discloses claim 10’s preamble.¹²

b. [10A]: “circuitry operating the wireless earpiece;”

Next, addressing the limitations recited in the body of the claim, Petitioner contends Brown discloses limitation [10A]. Pet. 18–19. Specifically, according to Petitioner, amplifier 20 of Brown discloses this limitation. Pet. 18.

Patent Owner does not respond. Nonetheless, we remind the parties that the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

We find Petitioner’s un rebutted assertions and explanations (Pet. 18–19) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [10A], i.e., “circuitry operating the wireless earpiece.” Accordingly, on the record before us, and lacking evidence or argument to the contrary, we are persuaded that the recited “circuitry” in limitation [10A] reads on Brown’s amplifier 20. *See* Ex. 1007, Fig. 2, 2:1–21.

On this record, for purposes of this Decision, Petitioner has shown sufficiently that Brown discloses limitation [10A].

¹² We need not determine whether the preamble is limiting because we are persuaded that it is disclosed.

- c. [10B]: “a battery powering the circuitry of the wireless earpiece;”*

Petitioner contends Brown discloses limitation [10B]. Pet. 19–20. According to Petitioner, accumulator cell 14 of Brown meets this limitation. Pet. 19.

Patent Owner does not respond. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

We find Petitioner’s un rebutted assertions and explanations (Pet. 19–20) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [10B], i.e., “a battery powering the circuitry of the wireless earpiece.” Ex-1007, Fig. 1, 2:1-21, 2:49-52.

Accordingly, we find Petitioner has shown sufficiently that Brown discloses limitation [10B].

- d. [10C]: “a reed switch connecting the battery to the circuitry”*

Petitioner contends Brown discloses limitation [10C]. Pet. 20–22. According to Petitioner, Brown’s reed relay switch 24 discloses this limitation. Pet. 20.

Patent Owner does not respond. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Petitioner’s un rebutted assertions and explanations (Pet. 20–22) are consistent with and supported by the evidence cited by Petitioner. Ex. 1007, Fig. 1; 1:19-43, 2:1-21. On this record, for purposes of this Decision, Petitioner has shown sufficiently that Brown discloses limitation [10C], i.e., “a reed switch

connecting the battery to the circuitry, wherein the reed switch connects the circuitry to the battery when a magnetic field is not detected, and wherein the reed switch disconnects the circuitry from the battery when a magnetic field is detected.”

e. Conclusion for Anticipation of Claim 10 by Brown

For the reasons provided above, Petitioner has sufficiently shown that Brown anticipates independent claim 10.

Accordingly, we are persuaded that Petitioner has shown by a preponderance of the evidence that the subject matter of claim 10 is anticipated by Brown.

4. Analysis of Dependent Claim 14

Claim 14 depends directly from claim 10. Ex. 1001, 11:43–45. Hence, claim 14 incorporates all of claim 10’s limitations. *See* 35 U.S.C. § 112 ¶ 4.

Petitioner contends the subject matter of dependent claim 14 is anticipated by Brown. *See* Pet. 22. Petitioner provides analysis addressing claim 14’s limitations and identifies evidence supporting its position. *Id.* (citing Ex-1007, 1:19-43, 2:42-48, 2:56-62; Ex-1002, ¶ 44).

Patent Owner does not respond. We find Petitioner’s analysis of dependent claim 14 is sufficient to demonstrate, by a preponderance of the evidence, that Brown anticipates claim 14 under Ground 1.

5. Ground 1: Summary

In light of the above analysis, we determine that Petitioner’s evidence and arguments are sufficient to demonstrate, by a preponderance of the evidence, anticipation of claims 10 and 14 by Brown under Ground 1.

*C. Ground 2: Anticipation of Claims 1–3 and 5
by Hain Under § 103(a)*¹³

Petitioner contends the subject matter of challenged claims 1–3 and 5 is anticipated by Hain. Pet. 22–30. As noted above, Patent Owner has waived all arguments regarding the sufficiency of Petitioner’s challenge. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. For the reasons explained below, we determine that Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–3 and 5 are anticipated by Hain.

1. Summary of Asserted Prior Art Reference Hain (Ex. 1004)

Hain is a certified English translation of German Patent Application No. DE 102007039455 A1, titled “Hearing aid system with magnetic field sensors,” filed on August 21, 2007, and published on February 26, 2009. Ex. 1004, codes (10), (22), (43), (54); *see also* Ex. 1009 (copy of original reference in German).

¹³ *See* Pet. 5–6 (stating that Hain is prior art under 35 U.S.C. § 102(a)(1)).

Figure 1 of Hain is reproduced below.

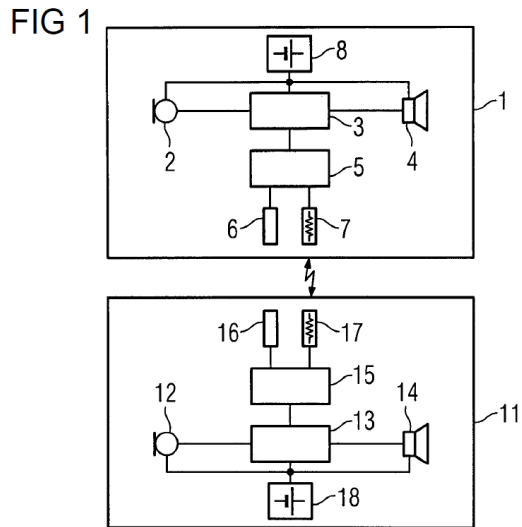


Figure 1 is a diagram of a hearing aid system. Ex. 1004 ¶ 16. Figure 1 shows a hearing aid system having a first hearing aid 1 and a second hearing aid 11 that can each be worn on the head of a user. *Id.* ¶ 18. Hain explains that “the hearing aids (1, 11) have sensor devices (6, 16) . . . which are used in order to detect whether the relevant hearing aid (1, 11) is in a magnetic field that exceeds a specific field strength.” Ex. 1004, code (57). The sensor devices are reed contacts or other magnetic field sensors, such as Hall sensors. *Id.* ¶ 10. “If the reed contacts 6 or 16 are in the immediate vicinity of a magnetic field whose field strength exceeds a certain threshold value, the reed contacts 6 or 16 close.” *Id.* ¶ 18. “[T]he status of reed contacts 6 and 16 can be queried by the signal transmission and control units 5 and 15, respectively.” *Id.*

Hain’s hearing aid system includes “an automatic detection of the hearing situation ‘telephoning’ and an automatic switching off of the hearing aids (1, 11) when they are removed from the head.” *Id.* at code(57). According to Hain, “[t]he setting of the parameters of the individual hearing programs as well as the settings for the individual compensation of the hearing loss of a user takes place by means of the signal transmission and control units 5 or 15, to which the transmitting and

receiving coils 7 or 17 are connected for wireless data transmission, in conjunction with an external programming unit (not shown).” *Id.* ¶ 18.

Figure 2 of Hain is reproduced below.

FIG 2

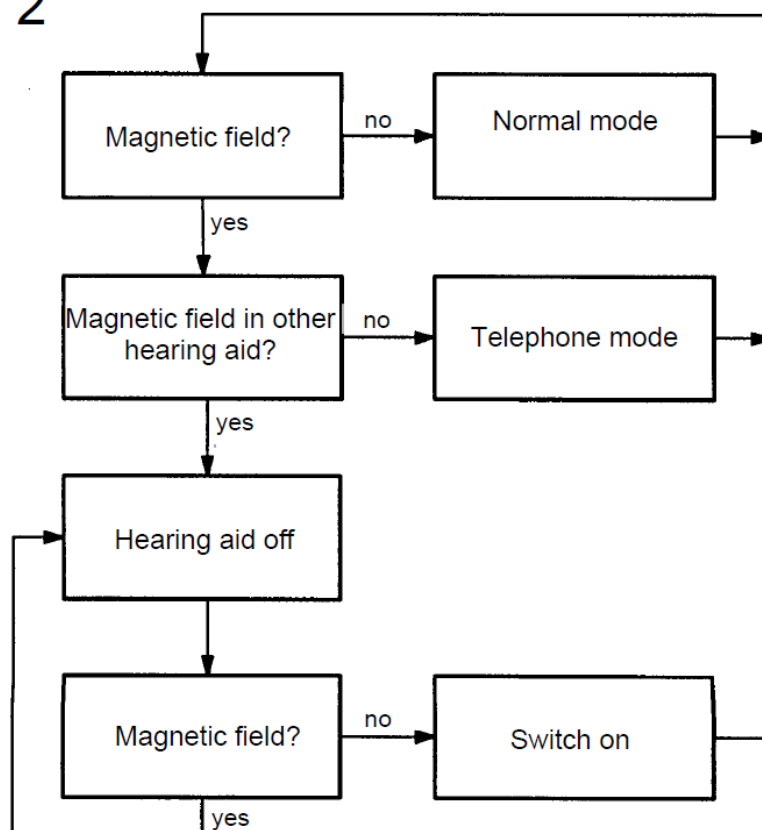


Figure 2 of Hain is a flow chart depicting a method “for automatically detecting the hearing situation ‘telephoning’ and for automatically switching off two hearing aids of a hearing aid system.” Ex. 1004 ¶ 21. Figure 2 shows that the “telephoning” operating mode can be set when one of the hearing aids detects “a telephone receiver emitting a magnetic field.” *Id.* ¶ 4. “If only one of the two hearing aids [] detects a magnetic field, it can be deduced that the hearing situation is ‘telephoning.’” *Id.* at code(57). In such an example, “only the hearing aid that supplies the ear to which the telephone receiver is held is automatically switched to

telephoning mode. The hearing aid that supplies the other ear, on the other hand, is not automatically switched to telephoning mode immediately.” *Id.* ¶ 10.

Figure 2 also shows that the hearing aids may be automatically switched off immediately after use when they are placed in the storage box, or automatically switched on when they are removed from the storage box. Ex. 1004 ¶¶ 11, 22. “[F]or example, there is a permanent magnet in a storage box for the hearing aid in question, a corresponding sensor device can also determine here that the hearing aid is located in the storage box, so that the hearing aid is switched off automatically.” *Id.* ¶ 11. “[I]f both hearing aids detect a relatively strong magnetic field in their immediate vicinity, then this is an indication that the hearing aids are located in the storage box and can be switched off.” *Id.* ¶ 13. When the hearing aids are on, they remain in “normal operation” for as long as no magnetic field is detected. *Id.* ¶ 21.

The hearing aids can distinguish between telephoning and storage in the box by a wireless signal transmission between the two hearing aids. Ex. 1004 ¶ 13. “At least one of the hearing aids transmits to the other hearing aid the information as to whether an external magnetic field is detected. It therefore provides the information about the presence of an external magnetic field from both hearing aids.” *Id.*

To summarize, Hain describes a hearing aid system with a storage box in which the hearing aids are automatically turned on or off based on whether the hearing aids are in the storage box because the storage box contains at least one magnet which emits a magnetic field that opens or closes a reed sensor switch in each hearing aid.

2. *Analysis of Independent Claim 1*

a. *[1Preamble]: “A method for managing wireless earpieces, comprising:”*

Petitioner contends Hain discloses the preamble. Pet. 23–24. According to Petitioner, Figure 1 of Hain shows a system that includes a pair of wireless earpieces in the form of hearing aids 1 and 11 (Pet. 23, (citing Ex. 1004, Fig. 1; ¶¶ 1, 13, 18; claims 1, 7)), and “Hain’s system carries out a method to manage hearing aids 1 and 11, e.g., by detecting whether the hearing aids are placed in the magnetic storage case and powering down the hearing aid circuitry when the hearing aids are in the case.” Pet. 24 (citing Ex. 1004, ¶¶ 11, 18, 19, 21, 22; claims 1, 5–7, and 9).

Patent Owner does not respond. Petitioner’s unrebutted assertions and explanations are consistent with and supported by the evidence cited by Petitioner. On this record, and by a preponderance of the evidence, Petitioner has shown that Hain discloses claim 1’s preamble.

b. *[1A]: “powering circuitry of the wireless earpieces utilizing a high power mode”*

Next, addressing the limitations recited in the body of the claim, Petitioner contends Hain discloses limitation [1A]. Pet. 24–27. According to Petitioner, Hain’s microphones 2 and 12, signal processing units 3 and 13, receivers 4 and 14, and signal transmission and control units 5 and 15 all are powered using a high-power mode in which the hearing aids are fully powered and functional. Pet. 24–26 (citing Ex. 1004, Fig. 1, ¶¶ 1, 8; Ex. 1002, ¶¶ 47–48).

On this record, we find Petitioner’s unrebutted assertions and explanations (Pet. 24–27) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [1A], i.e., “powering circuitry of the wireless earpieces

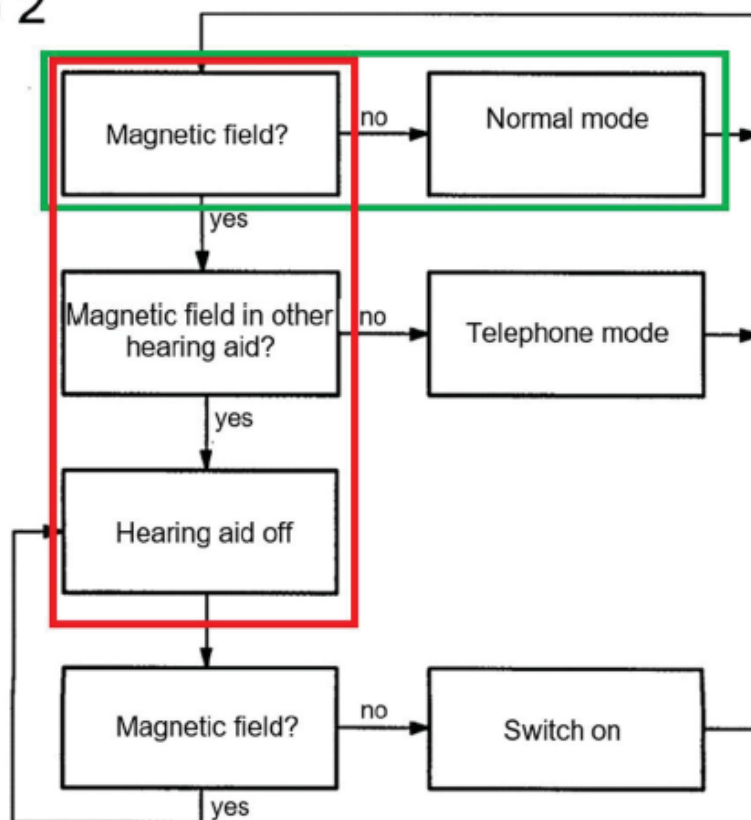
utilizing a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces.” On this record, and by a preponderance of the evidence, Petitioner has shown that Hain discloses limitation [1A].

- c. [1B]: “*altering the power sent to the circuitry of the wireless earpieces to a low power mode in response to detecting a magnetic field is applied to one or more of the wireless earpieces*”

Petitioner contends Hain discloses limitation [1B]. Pet. 27–29. According to Petitioner, “Hain discloses altering the power sent to the circuitry of the wireless earpieces (e.g., hearing aids 1 and 11) to a low power mode (e.g., residual power state) in response to detecting a magnetic field is applied to one or more of the wireless earpieces.” Pet. 27 (citing Ex. 1002, ¶ 51).

Figure 2 of Hain, as annotated by Petitioner, is reproduced below:

FIG 2



“Fig. 2 [is] a flow chart for carrying out a method according to the invention.”

Ex. 1004 ¶ 17.

Fig. 2 shows a flow chart for automatically detecting the hearing situation “telephoning” and for automatically switching off two hearing aids of a hearing aid system according to the invention. In this case, a hearing aid of a relevant hearing aid system monitors permanently or cyclically for the presence of an external magnetic field. For as long as no magnetic field is detected, the hearing aid is in “normal operation.”

Ex. 1004, ¶ 21.

If it is detected that both hearing aids are in a magnetic field at the same time, this is an indication that the hearing aids are located in a storage box equipped with at least one permanent magnet. The hearing aids are then switched to a switch-off mode in which the hearing aids are largely switched off and only a residual power supply for the sensor device is maintained. As soon as there is no longer an external magnetic field, the hearing aid in question detects that it has been removed from the storage box. It will then turn itself on immediately.

Ex. 1004, ¶ 22. Petitioner’s annotation of Figure 2 in **red** indicates the logic flow when a magnetic field is applied to both earpieces, resulting in a low-power mode, and the annotation in **green** indicates the earpiece is in a high-power or normal mode when a magnetic field is not applied to the earpieces. Pet. 26.

With regard to limitation [1B], Hain discloses:

However, if a magnetic field is detected simultaneously by both hearing aids 1 and 11, it can be concluded that both hearing aids are located in a storage box equipped with at least one corresponding magnet. As soon as this situation is detected, the two hearing aids 1 and 11 switch off automatically. Advantageously, a residual power supply is maintained even in the switched-off state, by which the status of the reed contacts 6 and 16 can continue to be queried. As a result, the hearing aids 1 and 11 detect when they are being removed from the storage box. In this way, the hearing aids 1 and 11 can also be automatically switched on again. This eliminates the need for manually operated on-and-off switches.

Ex. 1004, ¶ 19.

On this record, we find Petitioner’s explanations (Pet. 27–29) are consistent with and supported by a preponderance of the evidence cited by Petitioner with respect to limitation [1B], i.e., “altering the power sent to the circuitry of the wireless earpieces to a low power mode in response to detecting a magnetic field is applied to one or more of the wireless earpieces” such that Hain discloses limitation [1B].

d. Conclusion for Anticipation of Claim 1 by Hain

For the reasons provided above, Petitioner has shown, by a preponderance of the evidence, that Hain anticipates independent claim 1.

3. Analysis of Dependent Claims 2, 3, and 5

Claims 2, 3, and 5 depend directly from claim 1. Ex. 1001, 10:64–11:4, 11:8–9. Hence, claims 2, 3, and 5 incorporate all of claim 1’s limitations. See 35 U.S.C. § 112 ¶ 4.

Petitioner also contends the subject matter of dependent claims 2, 3, and 5 is anticipated by Hain. See Pet. 29–30. Petitioner provides analysis addressing each claim limitation and identifying evidence allegedly supporting its position, and we determine that Petitioner’s analysis of the dependent claims demonstrates unpatentability by a preponderance of the evidence. Pet. 29–30 (citing Ex. 1004, Fig. 1, ¶¶ 8, 18–22, Claims 1, 6, 7; Ex. 1002, ¶¶ 54–57).

Patent Owner does not respond. As noted above, Patent Owner has waived all arguments regarding the sufficiency of Petitioner’s challenge. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. See *Dynamic Drinkware*, 800 F.3d at 1378. Petitioner’s un rebutted assertions and explanations are consistent with and supported by the evidence cited above by Petitioner. On

this record, and by a preponderance of the evidence, Petitioner has shown that Hain anticipates claims 2, 3, and 5 under Ground 2.

4. *Ground 2: Summary*

In light of the above analysis, we determine that Petitioner's evidence and arguments are sufficient to demonstrate, by a preponderance of the evidence, that Hain anticipates claims 1–3 and 5 under Ground 2.

D. *Ground 3: Anticipation of Claims 10 and 21 by Steinbrecher Under § 102(a)*¹⁴

Petitioner contends the subject matter of challenged claims 10 and 21 is anticipated by Steinbrecher. Pet. 30–42. We have considered Petitioner's arguments and the evidence presented, and we address them in the context of claims 10 and 21. As noted above, Patent Owner has waived all arguments regarding the sufficiency of Petitioner's challenge. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. For the reasons explained below, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 10 and 21 are anticipated by Steinbrecher.

1. *Summary of Asserted Prior Art Reference Steinbrecher (Ex. 1006)*

Steinbrecher is a certified English translation of European Patent Application Publication No. EP 1727395 B1 titled “Method and apparatus for charging hearing aids inductively,” filed on February 8, 2006, and published on August 20, 2008. Ex. 1006, codes (11), (12), (22), (45), (54); *see also* Ex. 1011

¹⁴ *See* Pet. 5–6 (stating that Steinbrecher is prior art under 35 U.S.C. § 102(a)(1)).

(copy of original reference in German). Steinbrecher describes “a procedure and a device for the contactless loading of an accumulator battery in a hearing aid which, during the charge process, is located in a charging shell.” Ex. 1006 ¶ 1. The state of the hearing aid’s battery is constantly monitored as long as the hearing aid remains in the charging shell and is “maintained at the nominal value of the charge level by a trickle charge.” *Id.* ¶ 25.

Figure 1 of Steinbrecher is reproduced below.

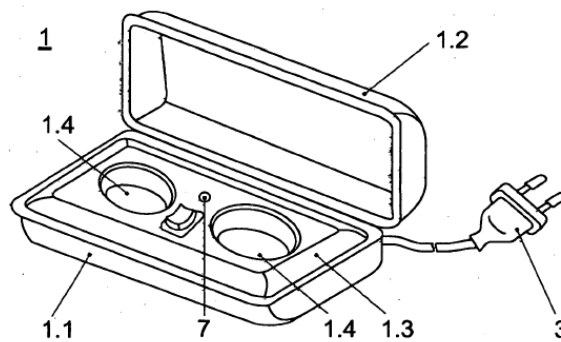


Fig. 1

Figure 1 of Steinbrecher depicts “a perspective view of a charging shell.” Ex. 1006 ¶ 23. The charging shell shown in Figure 1 includes a housing bottom part 1.1, a lid 1.2, and an intermediate floor 1.3 with receiving recesses 1.4 for hearing aids. *Id.* ¶ 24. The charging shell includes a first circuit arrangement between the housing bottom part 1.1 and the intermediate floor 1.3 that connects to mains plug 3. *Id.*

Steinbrecher's Figure 2 is reproduced below.

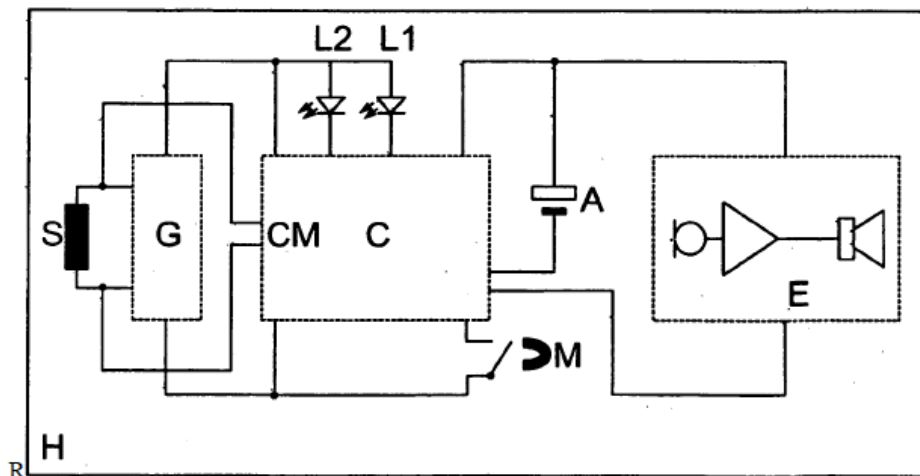


Fig. 2

Steinbrecher's Figure 2 depicts the circuit arrangement of a hearing aid. Ex. 1006 ¶¶ 23, 25. Hearing aid H circuit arrangement shown in Figure 2 contains secondary coil S, rectifier G, electronics E, battery A, charge controller C, reed contact microswitch M, and light-emitting diodes (LEDs) L1 and L2. *Id.* ¶ 25. Steinbrecher explains that “[t]he hearing aid H is supplied with energy via the energy receiving device in the form of the secondary coil S and rectified with the rectifier G. . . . After the hearing aid H has been inserted into the charging shell, the charge controller C is activated.” *Id.* According to Steinbrecher, “charge controller C has a control output with which the charge process can be started and ended.” *Id.* Charge controller C detects the current state of charge of battery A, determines the amount of charge required to complete the charging, and feeds the amount of charge required to complete the charging into battery A. *Id.*

“In a preferred embodiment, the hearing aid's electronics are switched off using the charge controller, in particular during the charge process and as soon as the hearing aid is located in the charging shell. This ensures that energy is not consumed unnecessarily and feedback whistling does not occur.” Ex. 1006 ¶ 18.

The input of the charging controller C is controlled with the reed contact microswitch M by disconnecting the electrical connection between the battery and the hearing aid's electronics. *Id.* ¶¶ 18–19, 25. The microswitch is actuated by a built-in permanent magnet when the hearing aid is placed in the charging case. *Id.* ¶ 25.

To summarize, Steinbrecher describes a hearing aid system with a charging shell in which the hearing aids are turned off using a reed contact microswitch when they are placed in the charging case.

2. *Analysis of Independent Claim 10*¹⁵

a. *[10Preamble]: “A wireless earpiece, comprising:”*

Petitioner contends Steinbrecher discloses the preamble. Pet. 31–32. According to Petitioner, hearing aid H discloses a wireless earpiece. *Id.* (citing Ex. 1006, Fig. 2, ¶ 25).

Patent Owner has waived all arguments directed to Petitioner's challenges. *See* Tr. 7:7–16; *see also* Dec. 77 (“Any arguments not raised by Patent Owner in a timely filed response may be deemed waived.”). Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Petitioner's un rebutted assertions and explanations are consistent with and supported by the evidence cited by Petitioner. On this record, Petitioner has shown sufficiently that Steinbrecher discloses the claim's preamble.

¹⁵ Bracketing and parenthetical numbering of claim limitations in claim 10 are that adopted by Petitioner. *See* Pet. 31–35.

b. [10A]: “circuitry operating the wireless earpiece;”

Next, addressing the limitations recited in the body of the claim, Petitioner contends Steinbrecher discloses limitation [10A]. Pet. 32. According to Petitioner, Hearing Aid H’s Electronics E in Figure 2 discloses circuitry operating the wireless earpiece. Pet. 32 (citing Ex. 1006, Fig. 2, ¶ 25).

On this record, we find Petitioner’s unrebutted assertions and explanations (Pet. 32) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [10A], i.e., “circuitry operating the wireless earpiece.” On this record, for purposes of this Decision, Petitioner has shown sufficiently that Steinbrecher discloses limitation [10A].

c. [10B]: “a battery powering the circuitry of the wireless earpiece;”

Petitioner contends Steinbrecher discloses limitation [10B]. Pet. 33. According to Petitioner, Battery A in Figure 2 of Steinbrecher powers electronics E. Pet. 33 (citing Ex. 1006, Fig. 2, ¶¶ 18, 19, 25).

On this record, we find Petitioner’s unrebutted assertions and explanations (*id.*) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [10B], i.e., “a battery powering the circuitry of the wireless earpiece.” On this record, for purposes of this Decision, Petitioner has shown sufficiently that Steinbrecher discloses limitation [10B].

d. [10C]: “a reed switch connecting the battery to the circuitry . . .”

Petitioner contends Steinbrecher discloses limitation [10C]. Pet. 33–35 (citing Ex. 1006, Fig. 2, ¶¶ 18–20, 25). According to Petitioner, Steinbrecher discloses Microswitch M, preferably a reed switch, coupled to Charge Controller C, wherein Microswitch M connects Battery A to Electronics E under various magnetic field conditions comporting with the claim recitations. *Id.*

Petitioner's un rebutted assertions and explanations (*id.*) are consistent with and supported by the evidence cited by Petitioner. On this record, Petitioner has shown sufficiently that Steinbrecher discloses limitation [10C], i.e., "a reed switch connecting the battery to the circuitry, wherein the reed switch connects the circuitry to the battery when a magnetic field is not detected, and wherein the reed switch disconnects the circuitry from the battery when a magnetic field is detected."

On this record, for purposes of this Decision, Petitioner has shown sufficiently that Steinbrecher discloses limitation [10C].

e. Conclusion for Anticipation of Claim 10 by Steinbrecher

For the reasons provided above, Petitioner has shown by a preponderance of the evidence that Steinbrecher anticipates independent claim 10.

3. *Analysis of Independent Claim 21*¹⁶

a. [21Preamble]: "A system comprising:"

Petitioner contends Steinbrecher discloses the preamble. Pet. 35–36 (citing Ex. 1006, Figs. 1, 2, ¶¶ 24–25). According to Petitioner, Steinbrecher discloses a wireless earpiece system that includes a wireless earpiece, i.e., Hearing Aid H and a corresponding storage case, Charging Shell 1. *Id.*

As noted above, Patent Owner has waived all arguments regarding the sufficiency of Petitioner's challenge. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

¹⁶ Bracketing and parenthetical numbering of claim limitations in claim 21 are that adopted by Petitioner. *See* Pet. 35–42.

Petitioner's un rebutted assertions and explanations are consistent with and supported by the evidence cited by Petitioner, cited above. On this record, Petitioner has shown that Steinbrecher discloses the claim's preamble.

b. [21A]: "a first wireless earpiece, comprising:"

Next, addressing the limitations recited in the body of the claim, Petitioner contends Steinbrecher discloses limitation [21A]. Pet. 36 (citing Ex. 1002, ¶ 67). According to Petitioner, Steinbrecher discloses a wireless earpiece system that includes a wireless earpiece, i.e., Hearing Aid H and a corresponding storage case, i.e., Charging Shell 1. Pet. 36 (referring to discussion above of Element [10Preamble] for claim 10, and Element [21Preamble]).

Accordingly, on this record, we find Petitioner's un rebutted assertions and explanations (Pet. 36) are consistent with and supported by a preponderance of the evidence cited by Petitioner with respect to limitation [21A], i.e., "a first wireless earpiece." On this record, for purposes of this Judgement, Petitioner has shown that Steinbrecher discloses limitation [21A].

c. [21B]: "circuitry operating the first wireless earpiece;"

Petitioner contends Steinbrecher discloses limitation [21B]. Pet. 36 (citing Ex. 1002, ¶ 68). According to Petitioner, the analysis for Element [10A] of claim 10 also pertains to limitation [21B] in claim 21. *Id.*

Accordingly, on this record, we find Petitioner's un rebutted assertions and explanations (Pet. 36) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [21B], i.e., "circuitry operating the first wireless earpiece." On this record, for purposes of this Decision, Petitioner has shown sufficiently that Steinbrecher discloses limitation [21B].

- d. [21C]: “a battery powering the circuitry of the first wireless earpiece”*

Petitioner contends Steinbrecher discloses limitation [21C]. Pet. 36. According to Petitioner, the analysis for Element [10B] (battery) of claim 10 also pertains to limitation [21C] of claim 21. *Id.* (citing Ex. 1002, ¶ 69).

Petitioner’s un rebutted assertions and explanations (Pet. 36) are consistent with and supported by the evidence cited by Petitioner. On this record, Petitioner has shown sufficiently that Steinbrecher discloses limitation [21C], i.e., “a battery powering the circuitry of the first wireless earpiece.” On this record, for purposes of this Decision, Petitioner has shown sufficiently that Steinbrecher discloses limitation [21C].

- e. [21D]: “a switch connecting the battery to the circuitry . . .”*

Petitioner contends Steinbrecher discloses limitation [21D]. Pet. 37 (citing Ex. 1002, ¶ 70). According to Petitioner, the analyses for Elements [10B] (battery) and [10C] (magnetic reed switch) of claim 10 also pertain to limitation [21D] of claim 21 because Steinbrecher discloses Microswitch M, implemented as a reed switch. *Id.*

Accordingly, on this record, we find Petitioner’s un rebutted assertions and explanations (Pet. 37) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [21D], i.e., “a switch connecting the battery to the circuitry, wherein the switch connects the circuitry to the battery when a magnetic field is not detected, and wherein the switch disconnects the circuitry from the battery when a magnetic field is detected.” On this record, for purposes of this Decision, Petitioner has shown sufficiently that Steinbrecher discloses limitation [21D].

f. [21E]: “a smart case for charging the first wireless earpiece and a second wireless earpiece, the smart case comprising:”

Petitioner contends Steinbrecher discloses limitation [21E]. Pet. 37–38. According to Petitioner, Steinbrecher discloses a storage case, i.e., Charging Shell 1, which may be considered as a “smart case” because “it includes various intelligent controls such as a signal processing device that receives and displays information associated with battery A.” Pet. 37 (citing Ex. 1006, Fig. 1, ¶¶ 7, 8, 24, 25). With reference to Figure 1, Petitioner also asserts that “Shaffer^[17] further discloses that charging shell 1 (i.e., smart case) includes a pair of recesses 1.4 for charging the first wireless . . . and a second wireless earpiece.” Pet. 38 (citing Ex. 1006, Fig. 1, ¶¶ 24).

Based on our review of the full record, we find Petitioner’s assertions and explanations (Pet. 37–38) are consistent with and supported by a preponderance of the evidence cited by Petitioner.

g. [21F]: “a smart case housing;”

Petitioner contends Steinbrecher discloses limitation [21F]. Pet. 39. According to Petitioner, Figure 1 of Steinbrecher discloses a smart case including a smart case housing in the form of Charging Shell 1 with bottom housing 1.1. *Id.* (citing Ex. 1006, Fig. 1, ¶ 24).

Accordingly, on this record, we find Petitioner’s un rebutted assertions and explanations (Pet. 39) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [21F], i.e., “a smart case housing.” On this

¹⁷ Petitioner’s citations to Ex. 1006 and element 1.4 of Fig. 1 indicate that the reference to Shaffer is a typographical error, and Petitioner is discussing Steinbrecher, not Shaffer.

record, for purposes of this Decision, Petitioner has shown sufficiently that Steinbrecher discloses limitation [21F].

- h. [21G]: “a first receptacle for receiving the first wireless earpiece disposed within the smart case housing” and [21H]: “second receptacle for receiving the second wireless earpiece disposed within the smart case housing”*

Petitioner contends Steinbrecher discloses limitations [21G] and [21H]. Pet. 39 (citing to Ex. 1006, Fig. 1, ¶ 24; Ex. 1002, ¶ 74). According to Petitioner, with reference to annotated Figure 1 of Steinbrecher (*see id.*), Charging Shell 1 “includes a first receptacle (red box) and a second receptacle (green box) for receiving the left and right earpieces, respectively, where both receptacles are disposed within the smart case housing.” *Id.*

Accordingly, on this record, we find Petitioner’s unrebutted assertions and explanations (Pet. 39) are consistent with and supported by the evidence cited by Petitioner with respect to limitations [21G] and [21H]. On this record, for purposes of this Decision, Petitioner has shown sufficiently that Steinbrecher discloses limitation [21G] and [21H].

- i. [21I]: “a first interface associated with the first receptacle for electrically connecting the smart case to the first earpiece;” and [21J]: “a second interface associated with the second receptacle for electrically connecting the smart case to the second earpiece;”*

Petitioner contends Steinbrecher discloses limitations [21I] and [21J]. Pet. 40–41 (citing Ex. 1006, Fig. 1, ¶¶ 7, 9). According to Petitioner, with reference to annotated Figure 1 of Steinbrecher (*see id.*), “Steinbrecher’s smart case (e.g., charging shell 1) includes first and second interfaces (e.g., energy

transmission devices) associated with the first and second receptacles (e.g., recesses 1.4, shown in red and green boxes) for electrically connecting the smart case to the left and right earpieces, respectively.” *Id.*

Accordingly, on this record, we find Petitioner’s un rebutted assertions and explanations (Pet. 40–41) are consistent with and supported by the evidence cited by Petitioner with respect to limitations [21I] and [21J]. On this record, for purposes of this Decision, Petitioner has shown sufficiently that Steinbrecher discloses limitation [21I] and [21J].

j. [21K]: “an intelligent control disposed within the smart case housing and operatively connected to the first interface and the second interface.”

Petitioner contends Steinbrecher discloses limitation [21K]. Pet. 41–42. According to Petitioner, with reference to the explanation above of how limitation [21E] is disclosed by Steinbrecher, Petitioner argues “Steinbrecher’s charging shell 1 is a smart case that includes intelligent controls (e.g., a signal processing device) disposed within the smart case housing.” Pet. 41 (citing Ex. 1006, ¶ 7). “Steinbrecher further discloses that the intelligent control (e.g., signal processing device) is operatively coupled to the first and second interfaces (e.g., energy transmission devices), as data (e.g., charge state information) reaches the signal processing device from the hearing device via a signal path that includes the energy transmission devices.” *Id.* (citing Ex. 1006, ¶¶ 8, 9, 24, 25).

Accordingly, on this record, we find Petitioner’s un rebutted assertions and explanations (Pet. 41–42) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [21K], i.e., “an intelligent control disposed within the smart case housing and operatively connected to the first interface and

the second interface.” On this record, for purposes of this Decision, Petitioner has shown sufficiently that Steinbrecher discloses limitation [21K].

k. Conclusion for Anticipation of Claim 21 by Steinbrecher

For the reasons provided above, Petitioner has sufficiently shown that Steinbrecher anticipates independent claim 21. Accordingly, we are persuaded that Petitioner has shown by a preponderance of the evidence that claim 21 is anticipated by Steinbrecher.

4. Ground 3: Summary

In light of the above analysis, we determine that, by a preponderance of the evidence, Petitioner’s arguments are sufficient to demonstrate that claims 10 and 21, under Ground 3, are anticipated by Steinbrecher.

E. Ground 4: Obviousness of Claims 1–7 and 9 Under § 103 over Shaffer¹⁸ and Hain

1. Legal Standards for Obviousness

The legal 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. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). One seeking to establish obviousness based on more than one reference also must articulate sufficient reasoning with rational underpinnings to combine teachings. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

¹⁸ See Pet. 5–6 (stating that Shaffer is prior art under 35 U.S.C. § 102(a)(1) and (2)).

We analyze the obviousness challenges according to these principles.

2. *Summary of Asserted Prior Art Reference Shaffer (Ex. 1003)*

The Hain reference has been discussed above.

Shaffer is a U.S. patent application publication titled “Earbud Charging Case for Mobile Device,” filed on October 9, 2014, and published on August 27, 2015. Ex. 1003, codes (12), (22), (43), (54). Shaffer describes “[a] case for a mobile electronic device [that] includes a portion configured to receive power via induction charging, an aperture configured to receive an earbud, and circuitry configured to simultaneously charge the earbud and the mobile electronic device.” *Id.* at Abstr.

Figure 3A of Shaffer is reproduced below.

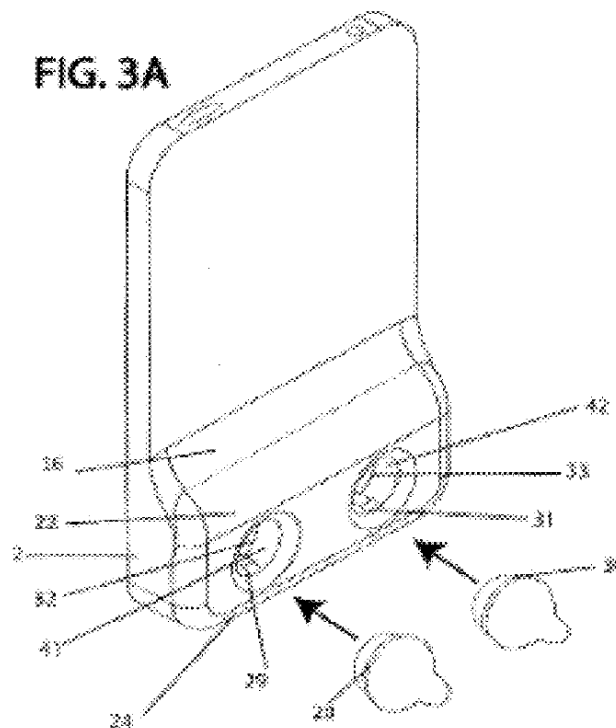


Figure 3A of Shaffer depicts a rear view of a mobile device case with an earbud dock and the mobile device removed from the case with earbuds entering the case. Ex. 1003 ¶¶ 14, 18. Figure 3A includes a mobile device case and earbuds that have

magnetized earbud aperture rings (28, 30). *Id.* ¶ 42. “Examples of earbuds include in-ear headphones, hearing aids and the like.” *Id.* ¶ 32. The mobile device case has a solid rear connection (22) with a lower portion (24), middle portion (22), and upper portion (16). *Id.* ¶ 41. The solid rear connection provides housing for the earbuds in earbud receiving apertures (32, 33) that contain earbud electrical contacts (29, 31) and aperture magnetic contact strips (41, 42). *Id.* ¶¶ 40–42. Shaffer explains that the earbud electrical contacts provide electrical charge to the earbuds, but the aperture magnetic contact strips “may also serve as electrical contacts, delivering charge directly to the earbud magnetic contact strips from the plug without the need for additional prongs or leaders” in some embodiments. *Id.* ¶ 40, 42.

Shaffer’s Figure 10 is reproduced below.

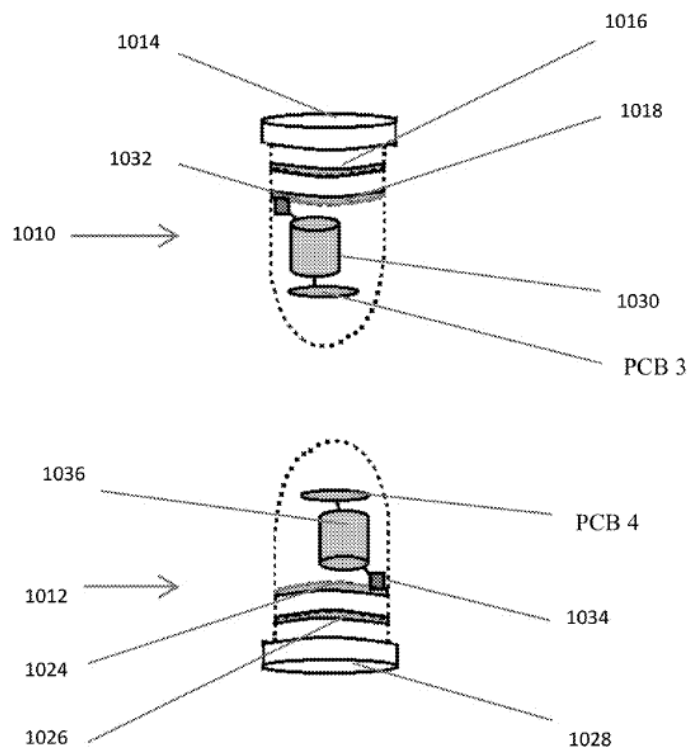


Fig. 10

Shaffer's Figure 10 depicts "various features of an embodiment of a set of earbuds." Ex. 1003 ¶ 29. "FIG. 10 illustrates an embodiment in which the earbuds are equipped with features that enable them to automatically trigger on and off." *Id.* ¶ 62. The "earbuds 1010 and 1012 include earbud rechargeable batteries 1030 and 1036 and earbud electrical contacts 1032 and 1034. The earbuds are outfitted with magnetic rings 1016 and 1026 that allow a connection with magnetized earbud aperture rings to ensure the earbuds remain securely retained within earbud apertures." *Id.* "Wireless earbuds typically include internal components, such as a transmitter/receiver (e.g. Bluetooth®, or near field communication equipped) that communicates wirelessly with a mobile smart phone or other device" and "may be connected to printed circuit boards PCB 3 and PCB 4 within the earbuds and may contain encoded firm ware or other programming instructions to automatically trigger on when the earbuds are removed from the earbud apertures, and turn off upon return to the apertures." *Id.* ¶¶ 62–63. Shaffer explains that

[e]ach earbud may include one or more contact sensors, such as pressure sensors or magnetic sensors that detect when the earbud is in (or out of) the aperture and which send a corresponding signal to the earbud PCBs. Firmware embedded within the earbud PCBs could cause a circuit that includes the rechargeable earbud batteries 930 and 934 to switch on or off, or return them to a low-energy consumption idle mode.

Id. ¶ 63.

To summarize, Shaffer describes "a mobile device case that serves as an electrical charger and storage dock for rechargeable wireless audio earbuds." *Id.* ¶ 2.

3. *Analysis of Independent Claim 1*

Under Ground 4, Petitioner contends claims 1–7 and 9 are unpatentable under § 103 as obvious over Shaffer and Hain. *See* Pet. 42–64.

As explained below, Petitioner establishes, by a preponderance of the evidence, that the combined disclosures in Shaffer and Hain teach or suggest the subject matter in claims 1–7 and 9 under Ground 4.

- a. *[1 Preamble]: “A method for managing wireless earpieces, comprising:”*

Petitioner contends Shaffer teaches the preamble. Pet. 42–44. According to Petitioner, “Shaffer’s system carries out a method to manage earbuds 1010 and 1012, e.g., by detecting whether the earbuds are placed in the magnetic storage case and automatically powering down the earbud circuitry when the earbuds are in the case.” Pet. 44 (citing Ex. 103, Fig. 10, ¶¶ 11, 62–63).

Petitioner’s assertions and explanations are consistent with and supported by a preponderance of the evidence cited by Petitioner. On this record, Petitioner has shown sufficiently that Shaffer teaches the claim’s preamble.¹⁹

- b. *[1A]: “powering circuitry of the wireless earpieces utilizing a high power mode” [1B]: “altering the power sent to the circuitry of the wireless earpieces to a low power mode”*

Next, addressing the limitations recited in the body of the claim, Petitioner contends Shaffer and Hain teach limitations [1A] and [1B]. Pet. 45–53. According to Petitioner, with reference to limitation [1A], “Shaffer’s earbuds 1010 and 1012 include circuitry (e.g., PCB 3 and PCB 4) that, under normal operation, is powered using a high-power mode (e.g., the earbuds are fully functional and powered by rechargeable batteries 1030 and 1036).” *Id.* at 45. In addition,

¹⁹ We need not determine whether the preamble is limiting because Petitioner has sufficiently shown that Shaffer discloses this aspect of the claim. *See Vivid Techs.*, 200 F.3d at 803.

“Shaffer discloses that the PCB circuitry is powered on (i.e., using the high-power mode) in response to a magnetic sensor detecting that the earbud is out of its storage case.” *Id.* at 46 (citing Ex. 1003, ¶¶ 62–63).

Adopting the analysis provided for elements [1A] and [1B] with respect to claim 1, Ground 2 (*see* §§ III.C.2.b and c, *supra*), Petitioner relies upon Hain for teaching “a magnetic sensor (e.g., reed contacts 6 and 16) that determines that an earbud is out of its storage case by *detecting that a magnetic field is not applied to the earpieces.*” *Id.* at 47.

Specifically, with respect to limitation [1B], Petitioner contends “Shaffer discloses altering the power sent to the circuitry of the wireless earpieces (e.g., earbuds 1010 and 1012) to a low-power mode (e.g., ‘low energy consumption idle mode’) in response to a magnetic sensor detecting that the earpieces are in their storage case.” Pet. 50 (citing Ex. 1003, ¶ 63).

Based on our review of the full record, we find Petitioner’s assertions and explanations (Pet. 45–53) are consistent with and supported by a preponderance of the evidence cited by Petitioner with respect to limitation [1A], i.e., “powering circuitry of the wireless earpieces utilizing a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces,” and limitation [1B], i.e., “altering the power sent to the circuitry of the wireless earpieces to a low power mode in response to detecting a magnetic field is applied to one or more of the wireless earpieces.” Thus, Petitioner has shown by a preponderance of the evidence that the combination of Shaffer and Hain teach or suggest limitations [1A] and [1B].

c. Reasons for Combining the Teachings of Shaffer and Hain

Petitioner identifies reasons that would have prompted an ordinarily skilled artisan to combine Shaffer's teachings with Hain's teachings in the way Petitioner proposes. *See* Pet. 47–49 (citing Ex. 1002 ¶¶ 85–89). Based on our review of the full record, we find Petitioner's rationale to be reasonable and sufficiently supported.

d. Conclusion for Ground 4: Obviousness of Claim 1 in view of Shaffer and Hain

As discussed above, Petitioner's analysis addresses how the combined disclosures in Shaffer and Hain teach claim 1's subject matter. Additionally, Petitioner provides a reason with rational underpinning as to why an ordinarily skilled artisan would have been motivated to combine Shaffer's teachings with Hain's teachings in the way Petitioner proposes and would have had a reasonable expectation of success. Hence, Petitioner demonstrates, by a preponderance of the evidence that claim 1 would have been obvious over the combination of Shaffer and Hain.

4. Analysis of Dependent Claims 2–7 and 9

Claims 2–7 and 9 depend directly from claim 1. Ex. 1001, 10:64–11:17, 11:21–22.

For claims 2–7 and 9, Petitioner provides an analysis supported by Dr. Kiaei's testimony about how the combined disclosures in Shaffer and Hain teach the claimed subject matter. *See* Pet. 53–64; Ex. 1002 ¶¶ 95–108.

Based on the current record, we find that Petitioner establishes by a preponderance of the evidence that the combined disclosures in Shaffer and Hain

teach or suggest the subject matter in claims 2–7 and 9. *See* Pet. 53–64; Ex. 1002 ¶¶ 95–98. Hence, Petitioner demonstrates by a preponderance of the evidence that claims 2–7 and 9 would have been obvious over the combination of Shaffer and Hain.

5. *Ground 4: Conclusion*

In light of the above analysis, we determine that Petitioner’s evidence and arguments are sufficient to demonstrate, by a preponderance of the evidence, that claims 1–7 and 9 under Ground 4 would have been obvious over the combination of Shaffer and Hain.

*F. Ground 5: Obviousness of Claims 4 and 6–8 Under § 103 over Shaffer, Hain, and Sørensen*²⁰

Petitioner contends claims 4 and 6–8 are unpatentable under § 103 as obvious over the combination of Shaffer, Hain, and Sørensen. *See* Pet. 64–69. Claims 4 and 6–8 depend directly from claim 1. Ex. 1001, 11:5–7, 11:10–20.

The legal standards for obviousness have been discussed above, as have the Shaffer and Hain references.

1. *Summary of Asserted Prior Art Reference Sørensen (Ex. 1005)*

Sørensen is a U.S. patent titled “Listening System Comprising a Charging Station with a Data Memory,” filed on October 12, 2009, and issued on September 11, 2012. Ex. 1005, codes (12), (22), (45), (54). Sørensen describes “[a] listening system, e.g. a hearing aid system, including a charging station and one or more

²⁰ *See* Pet. 5–6 (stating that Sørensen is prior art under 35 U.S.C. § 102(a)(1) and (2)).

listening devices, e.g. hearing instruments.” *Id.* at Abstr. Sørensen’s hearing aid system includes:

a) a hearing instrument including a rechargeable battery for energizing the hearing instrument, and a volatile data memory, wherein basic data for the configuration of the hearing instrument are stored during normal operation, b) a charging station adapted for allowing a hearing instrument to be mounted and the battery to be recharged without removing the battery from the hearing instrument, and c) a connection allowing communication between the charging station and the hearing instrument, to allow the basic data for the configuration of the hearing instrument to be transferred from the data memory of the charging station to the data memory of the hearing instrument, when the hearing instrument is mounted in the charging station.

Id.

Sørensen explains that the hearing instrument may include “an input transducer for picking up an input sound in the environment and converting it to an electric input signal and an output transducer for converting an electric output signal to an output sound adapted for being presented to a user wearing the hearing instrument.” Ex. 1005, 2:36–41. The hearing instrument may also include “a signal processor electrically connected to the input and output transducers and adapted to perform signal processing on the electric input signal using at least some of the basic data for the configuration of the hearing instrument read from the volatile memory of the hearing instrument” so that the hearing instrument can be adapted to the user’s hearing impairment. *Id.* at 2:42–51.

The hearing aid system may be adapted to monitor the battery voltage of the hearing instrument using a monitoring unit that is located in the hearing instrument or the charging station. *Id.* at 2:52–59. “In an embodiment, the hearing aid system is adapted to provide that data transfer between the charging station and the hearing instrument is initiated automatically, when the hearing instrument is mounted in the charging station (e.g. electrically connected to the charging

station).” *Id.* at 3:48–52. The connection between the hearing instrument and the charging station may be wired or wireless, such that data transfer and charging can be accomplished using a wired connection via galvanic contact, or using a wireless connection via induction. *Id.* at 3:59–4:23.

Sørensen’s Figure 1 is reproduced below.

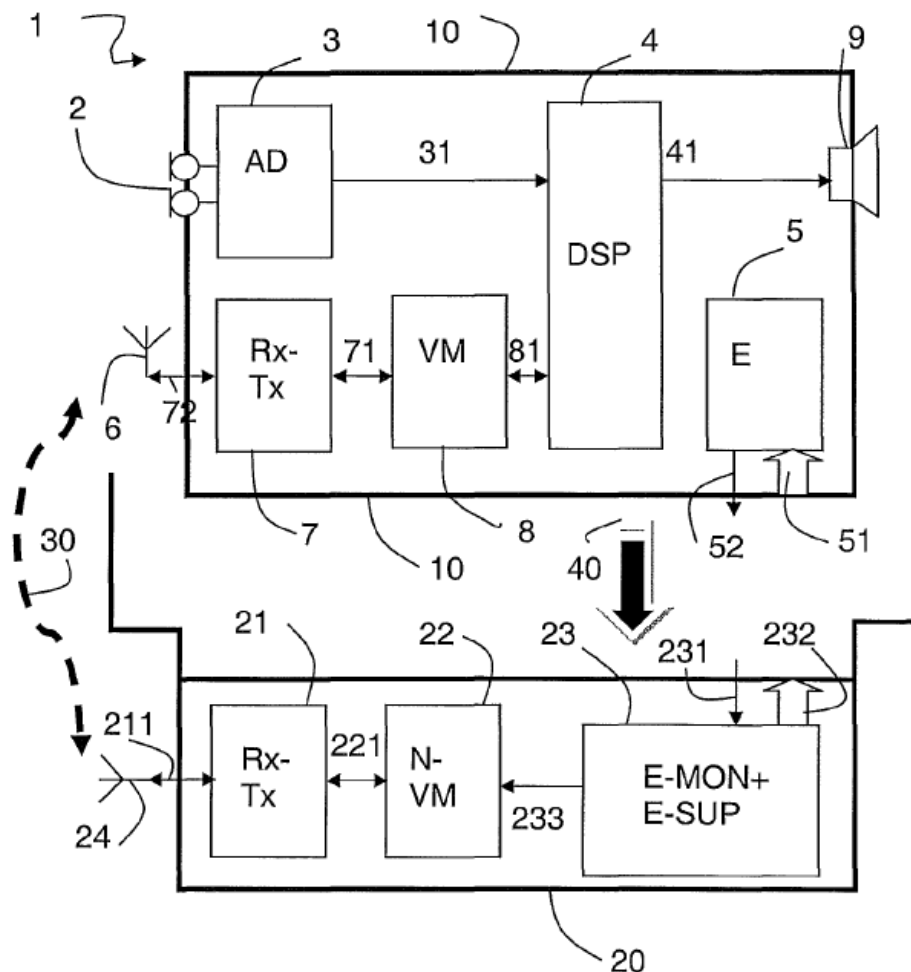


Fig. 1

Sørensen’s Figure 1 depicts “a hearing aid system comprising a hearing instrument and a charging station for recharging a rechargeable battery of the hearing instrument.” Ex. 1005, 6:1–3. The hearing aid system in Figure 1 includes a hearing instrument 10 and its functional blocks, and a charging station 20 for

recharging a rechargeable battery of the hearing instrument and its functional blocks. *Id.* at 6:26–37. The hearing instrument includes rechargeable batteries 5, a microphone unit 2, an AD-converter 3, a signal processor 4, a speaker 9, a volatile data memory 8, transceivers 6 and 7, and connections 51 and 52. *Id.*; *see also id.* at 6:64–7:20. The charging station includes a data memory 22, transceivers 21 and 24, and a source of electric energy 23. *Id.* at 7:26–54. When the hearing instrument is mounted 40 to the charging station, the devices are wirelessly connected 30 and two-way wireless communication and charging can occur. *Id.* at 6:37–57. “The wireless signal 30 can e.g. be an inductive signal (based on two electric coils that are coupled inductively with each other) or an electromagnetic RF-signal, e.g. based on a communications standard, e.g. BlueTooth or be an optical signal (e.g. comprising or constituted by infrared light).” *Id.* at 8:16–20.

To summarize, Sørensen describes “a system comprising a hearing instrument comprising a rechargeable energy source and a charging station for recharging the rechargeable energy source” and “a memory for storing the basic data of the hearing instrument (i.e. the data that are necessary for the hearing instrument to work properly, such as identification data, configuration data, program data, etc.).” *Id.* at 1:50–56.

2. *Analysis of Dependent Claims 4 and 6–8*

For Ground 5, supported by Dr. Kiaei’s testimony, Petitioner sets forth specific unrebutted findings and legal conclusions regarding how each of dependent claims 4 and 6–8 read on the combined disclosures of Shaffer, Hain, and Sørensen. Pet. 64–69 (citing Ex. 1005, Fig. 1, 6:26–47); *see also* Ex. 1002, ¶¶ 110–118. We have already addressed Hain’s disclosure of limitations [1A] and [1B] in claim 1 above, in connection with Ground 2, claim 1. *See* §§ III.C.2.b, c.

As for motivation to combine, Petitioner states “[a] POSITA would have been motivated to modify Shaffer’s storage case to use the functionality of Sorensen’s intelligent controls 21, 22, and 23.” Pet. 66.

We find that Petitioner has demonstrated by a preponderance of the evidence that the combined disclosures in Shaffer and Hain teach or suggest the subject matter in claims 4 and 6–8 under Ground 5.

G. Ground 6: Obviousness of Claims 10–12, 14, and 16–21 Under § 103 over Shaffer and Steinbrecher

Petitioner contends claims 10–12, 14, and 16–21 are unpatentable under § 103 as obvious over Shaffer and Steinbrecher. *See* Pet. 69–91. Patent Owner has waived all arguments against Petitioner’s original challenges to claims 1–21. Tr. 7:7–16. As explained below, Petitioner establishes sufficiently, by a preponderance of the evidence, that the combined disclosures in Shaffer and Steinbrecher teach or suggest the subject matter in claims 10–12, 14, and 16–21.

For Ground 6, supported by Dr. Kiaei’s testimony, Petitioner sets forth specific detailed and un rebutted findings and legal conclusions regarding how each limitation of claims 10–12, 14, and 16–21 reads on the combined disclosures of Shaffer, and Steinbrecher, and why a person of ordinary skill in the art would have had reason to combine the references in the manner suggested. Pet. 69–91; *see also* Ex. 1002 ¶¶ 119–150.

Petitioner’s analysis addresses how the combined disclosures in Shaffer and Steinbrecher variously teach the subject matter of claims 10–12, 14, and 16–21. Additionally, Petitioner provides a reason²¹ with rational underpinning as to why

²¹ Petitioner provides four reasons as to why a person with skill in the art would combine the references in the manner suggested including, for example, “Steinbrecher expressly discloses benefits of implementing the magnetic sensor by

an ordinarily skilled artisan would have been motivated to combine Shaffer's teachings with Steinbrecher's teachings in the way Petitioner proposes and would have had a reasonable expectation of success. Pet. 73–76. Therefore, Petitioner has, by a preponderance of the evidence, established that that claims 10–12, 14, and 16–21 would have been obvious over the combination of Shaffer and Steinbrecher.

H. Ground 7: Obviousness of Claims 11–13, 15, and 17–21 Under § 103 over Shaffer, Steinbrecher, and Sørensen

Petitioner contends claims 11–13, 15, and 17–21 are unpatentable under § 103 as obvious over Shaffer, Steinbrecher, and Sørensen. *See* Pet. 91–92. Claims 11–13, 15, and 17–20 depend directly or indirectly from claim 10. Ex. 1001, 11:32–41, 11:45–47, 12:1–25. Claim 21 is independent. Ex. 1001, 12:26–51.

For claims 11–13, 15, and 17–21 under Ground 7, supported by Dr. Kiaei's testimony, Petitioner sets forth specific detailed and unrebutted findings and legal conclusions regarding how each limitation of claims 11–13, 15, and 17–21 reads on the combined disclosures of Shaffer, Steinbrecher, and Sørensen, and why a person of ordinary skill in the art would combine the references in the manner suggested. Pet. 91–92; *see also* Ex. 1002 ¶¶ 151–155.

As explained above, Petitioner establishes, by a preponderance of the evidence, that the combined disclosures in Shaffer, Steinbrecher, and Sørensen

using a charge controller connected to a reed switch” (Pet. 75), and “a POSITA would have had a reasonable expectation of success in applying Steinbrecher's teachings to Shaffer's system because Shaffer teaches magnetic sensors and Steinbrecher provides further details of known implementations of such sensors, for the same or similar application.” *Id.*

teach or suggest the subject matter in claims 11–13, 15, and 17–21 under Ground 7.

Petitioner’s analysis addresses how the combined disclosures in Shaffer, Steinbrecher, and Sørensen variously teach the subject matter of claims 11–13, 15, and 17–21. Additionally, Petitioner provides a reason with rational underpinning as to why an ordinarily skilled artisan would have been motivated to combine Shaffer’s teachings with Steinbrecher’s teachings in the way Petitioner proposes and would have had a reasonable expectation of success. Pet. 92 (citing Ex. 1002 ¶¶ 154–155).²² Hence, Petitioner demonstrates, by a preponderance of the evidence, that claims 11–13, 15, and 17–21 would have been obvious over the combination of Shaffer, Steinbrecher, and Sørensen.

IV. REVISED MOTION TO AMEND

Patent Owner’s Revised Motion to Amend is contingent on a determination of unpatentability of challenged claims 1–21. rMTA 1. Having determined that Petitioner has shown by a preponderance of the evidence that original claims 1–21 of the ’853 patent are unpatentable, we proceed to address Patent Owner’s Revised Motion to Amend.

Patent Owner proposes substitute claims 22–42 to replace challenged claims 1–21, respectively. rMTA 1. A listing of proposed substitute claims 22–42 is provided by Patent Owner in Appendix A of its Revised Motion to Amend. *Id.* at APPX A-1. For the reasons explained below, we determine that Patent Owner has shown that proposed substitute claims 21–23 meet the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121. However, we

²² As for motivation to combine, Petitioner argues, “[a] POSITA would have been motivated to modify Shaffer in view of Steinbrecher and Sorensen as described in [the Petition at] Sections IX.F.1(d)(iii) and IX.G.1; Ex. 1002-Kiaei-Decl., ¶155.”

also determine that Petitioner has shown by a preponderance of the evidence that proposed substitute claims 22–42 are unpatentable. Accordingly, we deny Patent Owner’s Revised Motion to Amend.

A. Applicable Law

In an *inter partes* review, amended claims are not added to a patent as of right, but rather must be proposed as a part of a motion to amend claims (“MTA”). 35 U.S.C. § 316(d). Ordinarily, the petitioner “bears the burden of persuasion to show, by a preponderance of the evidence, that any proposed substitute claims are unpatentable.” 37 C.F.R. § 42.121(d)(2); *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15, 3–4 (PTAB Feb. 25, 2019) (precedential).

Before considering the patentability of the substitute claims, however, we first must determine whether the motion to amend claims meets the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121. *Lectrosonics*, Paper 15, 4. In that regard, Patent Owner bears the burden of persuasion to show that: (1) the amendment proposes a reasonable number of substitute claims; (2) the amendment responds to a ground of unpatentability involved in the trial; (3) the amendment does not seek to enlarge the scope of the claims of the patent or introduce new subject matter; and (4) the original disclosure sets forth written description support for each proposed claim. *Id.*; 35 U.S.C. § 316(d); 37 C.F.R. § 42.121(d)(1).

B. Additional Testimonial Evidence

With respect to the Revised Motion to Amend, Patent Owner supports patentability of the proposed substitute claims with multiple declarations from Dr. Darrin Young, Ph.D, i.e., “Second Declaration of Dr. Darrin Young, Ph.D. in Support of Revised Contingent Motion to Amend” (Ex. 2005, “Young Second

Decl.”), and “Third Declaration of Dr. Darrin Young, Ph.D. for Patent Owner’s Reply In Support of Revised Contingent Motion To Amend” (Ex. 2007, “Young Third Decl.”) filed October 30, 2024.

Petitioner relies upon additional testimony from Dr. Kiaei in response to Patent Owner’s Motion to Amend (Ex. 1017, “Second Declaration of Sayfe Kiaei, Ph.D.”), and also in response to Patent Owner’s Revised Motion to Amend. Ex. 1021, “Third Declaration of Sayfe Kiaei, Ph.D.” or “Kiaei Third Decl.”

C. Proposed Substitute Claims

We start by identifying correspondence between the original and substitute claims, and provide a listing of Patent Owner’s proposed substitute claims.

1. Correspondence Between Substitute and Original Claims

Table IV.C.1, below, provides correspondence between the proposed substitute claims and the original claims, with asterisks (“*”) indicating substitute claims that include substantive amendments, i.e., not just a change in dependency.

Table IV.C.1				
Original Claim	Substitute Claim		Original Claim	Substitute Claim
1	*22		12	33
2	23		13	34
3	24		14	35
4	25		15	36
5	26		16	37
6	*27		17	38
7	*28		18	39
8	*29		19	40
9	30		20	41
10	*31		21	*42
11	*32			

2. *Substitute Claim Listing*

Substitute claims 22 through 42 are proposed to replace original claims 1 through 21, and are reproduced below with underlining to indicate added text, and strikethrough to indicate deleted text, for each respective proposed claim. *See* rMTA, APPX. A1–A7 (coloring of added/deleted text omitted).

Claim 22. [Proposed substitute for claim 1] A method for managing wireless earpieces, comprising:

powering circuitry of the wireless earpieces utilizing a high ~~power~~ power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces;

wherein a portion of the wireless earpieces fits within the ear canal opening and the wireless earpieces are configured to read user biometrics, and

altering the power sent to the circuitry of the wireless earpieces to a low power mode in response to detecting a magnetic field is applied to one or more of the wireless earpieces.

Claim 23. [Proposed substitute for claim 2] The method of claim ~~1~~22, further comprising:

operating the wireless earpieces utilizing an onboard battery in response to detecting the magnetic field is not applied to one or more of the wireless earpieces.

Claim 24. [Proposed substitute for claim 3] The method of claim ~~1~~22, further comprising:

charging an onboard battery of the wireless earpieces in response to detecting a magnetic field is applied to the wireless earpieces.

Claim 25. [Proposed substitute for claim 4] The method of claim ~~1~~22, wherein the magnetic field is applied by a magnet of a smart case configured to receive the wireless earpieces.

Claim 26. [Proposed substitute for claim 5] The method of claim 422, wherein the magnetic field is detected by a reed switch of the wireless earpieces.

Claim 27. [Proposed substitute for claim 6] The method of claim 422, further comprising:

coupling the wireless earpieces to interfaces of a smart case, wherein the smart case comprises a rechargeable battery configured to charge the wireless earpieces and applies a magnetic field to one or more of the wireless earpieces.

Claim 28. [Proposed substitute for claim 7] The method of claim 422, wherein the magnetic field is detected by a reed switch integrated in magnetic contacts that interface with a smart case, the smart case comprising a rechargeable battery configured to charge the wireless earpieces, for securing the wireless earpieces.

Claim 29. [Proposed substitute for claim 8] The method of claim 422, further comprising:

synchronizing data between the wireless earpieces and a smart case, the smart case comprising a rechargeable battery configured to charge the wireless earpieces, in response to detecting the magnetic field.

Claim 30. [Proposed substitute for claim 9] The method of claim 422, wherein the low power mode is a power saver mode.

Claim 31. [Proposed substitute for claim 10] A wireless earpiece, comprising:

circuitry operating the wireless earpiece, wherein a portion of the wireless earpiece fits within the ear canal opening and the wireless earpiece is configured to read user biometrics, and

a battery powering the circuitry of the wireless earpiece; and a reed switch connecting the battery to the circuitry, wherein:

the reed switch connects the circuitry to the battery when a magnetic field is not detected; ~~and wherein~~ the reed switch disconnects the circuitry from the battery when a magnetic field is detected.

Claim 32. [Proposed substitute for claim 11] The wireless earpiece of claim ~~4031~~, ~~wherein the magnetic field is applied by a smart case;~~

wherein the smart case is configured to receive the wireless earpiece,

and powers the wireless earpiece when received in the smart case.²³

Claim 33. [Proposed substitute for claim 12] The wireless earpiece of claim ~~4031~~, further comprising:

magnetic contacts in connection with the circuitry and the battery that interface with a smart case to charge the battery.

Claim 34. [Proposed substitute for claim 13] The wireless earpiece of claim ~~4033~~, wherein the wireless earpiece synchronizes data with the smart case.

Claim 35. [Proposed substitute for claim 14] The wireless earpiece of claim ~~4031~~, wherein the wireless earpiece alters a power level of the wireless earpiece in response to the reed switch detecting the magnetic field.

Claim 36. [Proposed substitute for claim 15] The wireless earpiece of claim ~~4031~~, wherein the wireless earpiece updates software of the wireless earpiece in response to detecting the magnetic field.

Claim 37. [Proposed substitute for claim 16] The wireless earpiece of claim ~~4031~~, wherein the circuitry includes logic that alters

²³ As pointed out by Petitioner (Pet. Opp. 25, n.3 (“Petitioner notes that PO’s listing of amendments fails to show that ‘and wherein the smart case’ in original claim 11 has been deleted and replaced with ‘and.’”)), we agree that Patent Owner’s proposed substitute claim 32, intended to replace original claim 11, is not properly quoted and annotated with all proposed modifications to the limitations. Claim 11 recites: “11. The wireless earpiece of claim 10, wherein the magnetic field is applied by a smart case configured to receive the wireless earpiece, and wherein the smart case powers the wireless earpiece when received in the smart case.” Ex. 1001, 11:33–36. This omission does not alter our analysis in this Judgement.

a power state of the wireless earpiece in response to detecting the magnetic field and a startup process in response to not detecting the magnetic field after having detected the magnetic field.

Claim 38. [Proposed substitute for claim 17] A system comprising the wireless earpiece of claim ~~40~~31, wherein the wireless earpiece is a left earpiece and a smart case for charging the left earpiece, the smart case comprising:

- a smart case housing;

- a first receptacle for receiving the left earpiece disposed within the smart case housing;

- a second receptacle for receiving a right earpiece disposed within the smart case housing;

- a first interface associated with the first receptacle for electrically connecting the smart case to the left earpiece;

- a second interface associated with the second receptacle for electrically connecting the smart case to the right earpiece;

- an intelligent control disposed within the smart case housing and operatively connected to the first interface and the second interface.

Claim 39. [Proposed substitute for claim 18] The system of claim ~~47~~38 wherein the smart case further comprises a display.

Claim 40. [Proposed substitute for claim 19] The system of claim ~~48~~39 wherein the display is moveably connected to the smart case to transition from a first position to a second position.

Claim 41. [Proposed substitute for claim 20] The system of claim ~~49~~40 wherein the smart case further comprises at least one manual input for receiving user input to provide additional functionality.

Claim 42. [Proposed substitute for claim 21] A system comprising:

- a first wireless earpiece, comprising:

- circuitry operating the first wireless earpiece;

wherein a portion of the wireless earpiece fits within the ear canal opening and the wireless earpiece is configured to read user biometrics, and

a battery powering the circuitry of the first wireless earpiece;
and

a switch connecting the battery to the circuitry, wherein the switch connects the circuitry to the battery when a magnetic field is not detected, and wherein the switch disconnects the circuitry from the battery when a magnetic field is detected; a smart case for charging the first wireless earpiece and a second wireless earpiece, the smart case comprising:

a smart case housing;

a first receptacle for receiving the first wireless earpiece disposed within the smart case housing;

a second receptacle for receiving the second wireless earpiece disposed within the smart case housing;

a first interface associated with the first receptacle for electrically connecting the smart case to the first wireless earpiece;

a second interface associated with the second receptacle for electrically connecting the smart case to the second wireless earpiece;

an intelligent control disposed within the smart case housing and operatively connected to the first interface and the second interface.

rMTA, APPX. A1–A7 (coloring of added/deleted text omitted).

D. Statutory and Regulatory Requirements

As discussed above, Patent Owner must show that: (1) its amendment proposes a reasonable number of substitute claims; (2) its amendment responds to a ground of unpatentability involved in the trial; (3) its amendment does not seek to enlarge the scope of the claims of the patent or introduce new subject matter; and (4) the original disclosure sets forth written description support for each

proposed claim. *See Lectrosonics*, Paper 15, 4; 35 U.S.C. § 316(d); 37 C.F.R. § 42.121(d)(1). We address each factor in turn.

1. Reasonable Number of Substitute Claims

Patent Owner proposes no more than one substitute claim for each challenged claim. *See* rMTA 2. Petitioner does not contend that Patent Owner offers an unreasonable number of substitute claims. *See generally* Pet. rMTA Opp. We determine that Patent Owner proposes a reasonable number of substitute claims. *See* 35 U.S.C. § 316(d)(1)(B).

2. Responds to a Ground of Unpatentability

“A motion to amend may be denied where . . . [t]he amendment does not respond to a ground of unpatentability involved in the trial.” 37 C.F.R. § 42.121(a)(2)(i). The Petition asserts that claims 1–21 are unpatentable over prior art. As shown above, through the Revised Motion to Amend, Patent Owner has sought to change the *substantive* features (i.e., more than a change in dependency) of challenged independent claims 1, 10, and 21, and dependent claims 6–8, and 11, as exemplified by proposed substitute independent claims 22, 31, 42, and dependent claims 27–29 and 11, respectively. Patent Owner argues the amendments overcome the grounds asserted against the original claims. *See* rMTA 2–3.

[T]his Motion proposes adding certain limitations (discussed in detail below in Section VII) to those claims to distinguish them from Brown (Ex. 1007) (regarding claims 10 and 14 in Ground 1 of the Petition); Hain (Ex. 1004) (regarding claims 1-3 and 5 in Ground 2); Steinbrecher (Ex. 1006) (regarding claims 10 and 21 in Ground 3); Shaffer (Ex. 1003) and Hain (regarding claims 1-7 and 9 in Ground 4); Shaffer, Hain, and Sorensen (Ex. 1005) (regarding claims 4 and 6-8 in Ground 5); Shaffer and Steinbrecher (regarding claims 10-12, 14

and 16-21 in Ground 6); and Shaffer, Steinbrecher and Sorensen (regarding claims 11-13, 15 and 17-21 in Ground 7).
rMTA 3.

Petitioner contends “PO’s substitute claims include amendments that do not respond to any ground of unpatentability involved in this IPR, and thus PO’s RMTA should be denied.” Pet. Sur-Reply 10. We disagree, and determine that the proposed amendments are responsive to the grounds of unpatentability involved in this trial.

We disagree with Petitioner on this point because the proposed substitute claims attempt to distinguish over the prior art relied upon in original challenges 1 through 7, i.e., as stated by Patent Owner, “[s]ubstitute Claims 22–42 respond to the grounds asserted in the Petition and Petitioner’s Opposition by including the limitation ‘the wireless earpieces are configured to read user biometrics.’” PO Corr. Reply 11 (quoting Ex. 2007 ¶93).

3. *Scope of Amended Claims*

An amendment may not enlarge the scope of the claims of the patent. 35 U.S.C. § 316(d)(3); 37 C.F.R. §§ 42.121(b)(1), 42.121(b)(2). Patent Owner asserts “the proposed substitute claims retain all of their original features and only add narrowing elements. The proposed amendments rewrite each of claims 1–21, limiting the method and/or system by clarifying that a portion of the claimed wireless earpiece(s) fits within the user’s ear canal opening, and the wireless earpieces are configured to read user biometrics.” rMTA 4. Furthermore, “[t]hese additions are made for the purpose of further distinguishing the claims over the prior art raised in the Petition and Petitioner’s Opposition and therefore narrow the claim scope.” *Id.*

We generally agree with Patent Owner on this point for all proposed substitute claims *except* for claim 32, intended to replace original claim 11. See Table IV.B.1, *supra*. As pointed out by Petitioner, “the limitation ‘the magnetic field is applied by a smart case’ has been deleted in substitute claim 32, without being added elsewhere in claim 32 or in independent claim 31, from which claim 32 depends.” Pet. Opp. 25. Petitioner continues, “[i]nstead, this limitation has been replaced with ‘the smart case is’ Because substitute claim 32 no longer requires that the magnetic field be applied by a smart case, either directly or indirectly, the claim scope of original claim 11 has been improperly broadened. *Id.* (quoting rMTA at APPX A-3).

Patent Owner does not directly address Petitioner’s specific contentions with respect to claims 31 or 32, but instead generally asserts that “PO’s Substitute Claims comply with . . . [requirements to not enlarge the scope of the claims of the challenged patent or introduce new subject matter].” PO Corr. Reply 12.

Accordingly, on this record, we determine that each of proposed substitute claims 22–31 and 33–42 includes narrowing limitations and does not violate the statutory and regulatory prohibition on enlarging the scope of patent claims. However, we determine that proposed substitute claim 32 does violate the statutory and regulatory prohibition on enlarged patent scope.

4. *New Matter and Written Description*

An amendment may not introduce new matter. 35 U.S.C. § 316(d)(3); 37 C.F.R. §§ 42.121(b)(1), 42.121(b)(2). New subject matter is any addition to the claims that lacks sufficient support in the subject patent’s original disclosure. See *TurboCare Div. of Demag Delaval Turbomach. Corp. v. Gen. Elec. Co.*, 264 F.3d 1111, 1118 (Fed. Cir. 2001) (“When [an] applicant adds a claim . . . , the new claim[] must find support in the original specification.”). Also, Patent Owner is

required to show written description support in “the original disclosure of the patent for each claim that is . . . amended,” and in “an earlier-filed disclosure for each claim for which benefit of the filing date of the earlier filed disclosure is sought.” 37 C.F.R. § 42.121(b).

With respect to support regarding added limitations common to each substitute claim, Patent Owner asserts “[t]he ’031 Application discloses a wireless earpiece(s), wherein a portion of the wireless earpiece(s) fit within the ear canal opening and the wireless earpiece(s) is configured to read user biometrics and wherein the smart case comprises a rechargeable battery configured to charge the wireless earpieces.” rMTA at 5 (citing numerous portions of Ex. 1008).

Petitioner does not contend that any proposed substitute claim introduces new matter. *See generally* Pet. Opp., Pet. Sur-Reply. In light of Patent Owner’s showing described above, we determine that each proposed substitute claim is supported by the ’031 application and does not introduce new matter.

5. *Summary*

Accordingly, other than enlarging the scope of substitute claim 32, as discussed above, we determine that Patent Owner has shown that proposed substitute claims 22–42 meet the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121.

E. Petitioner’s Revised Challenges to Substitute Claims 22–42

In light of Patent Owner’s proposed substitute claims, Petitioner asserts that proposed substitute claims 22–42 would have been obvious over the previously relied-upon Brown, Hain, Steinbrecher, Shaffer, and Sørensen references in

various combinations with the newly-cited Aumer reference, Exhibit 1022.²⁴ Pet. Opp. 1–19. Petitioner further asserts the proposed substitute claims lack enablement and are indefinite. *Id.* at 19–24

Patent Owner disputes certain aspects of Petitioner’s analysis regarding Aumer in connection with these proposed substitute claims. PO Corr. Reply 1–7. Patent Owner also disputes Petitioner’s assertion that the proposed substitute claims lack enablement and are indefinite. *Id.* at 8–11. For the reasons explained below, we determine that Petitioner has demonstrated by a preponderance of the evidence that proposed substitute claims 22–42 would have been obvious over the previously relied upon references in various combinations with Aumer in Revised Grounds 1 through 7, and Petitioner also has demonstrated by a preponderance of the evidence that proposed substitute claims 22–42 are unpatentable under 35 U.S.C. § 112 as being indefinite and lacking enablement in Revised Grounds 8 and 9.

Petitioner challenges proposed substitute claims 22 through 42 on the following nine revised grounds or challenges as shown in Table IV.E, below. *See* Pet. Opp. 5–24.

1. Revised Grounds of Unpatentability

Table IV.E.1

Revised Ground	Substitute Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1	31, 35	103	Brown and Aumer
2	22–24, 26	103	Hain and Aumer
3	31, 42	103	Steinbrecher and Aumer

²⁴ US 2016/0094899, filed Aug.18, 2015, published Mar. 31, 2016. Ex. 1022, “Aumer”.

Revised Ground	Substitute Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
4	1–7, 9	103	Shaffer, Hain, and Aumer
5	25, 27–29	103	Shaffer, Hain, Sørensen, and Aumer
6	31–33, 35, 37–42	103	Shaffer, Steinbrecher, and Aumer
7	32–34, 36, 38–42	103	Shaffer, Steinbrecher, Sørensen, and Aumer
8	22–42	112(a)	Enablement
9	22–42	112(b)	Indefiniteness

See Pet. Opp. 5–24.

2. Summary of Issues Presented by rMTA

To summarize the issues presented in the Revised Motion to Amend, we note that Patent Owner added limitations to each of original independent claims 1, 10, and 21, to create proposed substitute independent claims 22, 31, and 42. These proposed claims each now require that “a portion of the wireless earpieces fits within the ear canal opening and the wireless earpieces are configured to read user biometrics.” We determine that this is the dispositive limitation for all of the revised prior art challenges.

Petitioner argues that it would have been obvious to modify the various teachings of the originally-cited prior art as relied upon in original Grounds 1 through 7 (*see* § III, *supra*) by combining those previously-cited references with the newly-cited Aumer reference to teach the added limitation, as reflected in Table IV.E, *supra*. See Pet. Opp.

Patent Owner responds with their primary argument that “[n]one of the prior art references asserted in the Petition Grounds—Brown, Hain, Steinbrecher, S[ø]rensen, or Shaffer—discloses a wireless earpiece(s) ‘configured to read user

biometrics.’ These references do not mention biometrics or suggest including biometrics with their teachings, let alone the solution provided by the Substitute Claims.” PO Corr. Reply 1. Patent Owner further argues that Petitioner has not provided proper motivation to combine Aumer with the previously-cited references and because Aumer is allegedly not analogous art to the claims of the ’853 patent. *Id.* at 1–6.

In addition, Petitioner alleges that the nature of the amendments submitted in the proposed substitute claims render claims 22–42 unpatentable as lacking enablement and for indefiniteness under 35 U.S.C. § 112. *See* Pet. Opp. §§ III and V. Patent Owner presents arguments against Petitioner’s challenges under 35 U.S.C. § 112. *See* PO Corr. Reply, §§ III and V.

We address the prior art, enablement, and indefiniteness issues in detail, below.

3. *Analysis of Revised Grounds 1–7 (Prior Art)*

a. *Summary of Asserted Prior Art Reference Aumer (Ex. 1022)*

According to Petitioner, “Aumer is prior art to the ’853 patent under 35 U.S.C. § 102(a)(2), at a minimum, as of its Aug. 18, 2015 filing date, which predates the ’853 patent’s earliest possible priority date of Aug. 29, 2015.” Pet. Opp. 2.

Aumer “relates generally to monitoring devices and methods, more particularly, to monitoring devices and methods for measuring physiological information” (Aumer, ¶ 2), in which “a wearable biometric monitoring device is configured to assess the biometric signal quality of one or more sensors associated with the biometric monitoring device, determine how the user should adjust the device to improve the biometric fit, and instruct the user to wear the device a

certain way.” *Id.* ¶ 6. “[T]he biometric monitoring device is integrated within an earbud, an audio headset, a wrist strap, a wrist watch, an ankle bracelet, or an armband. In some embodiments, the biometric monitoring device comprises a band configured to at least partially encircle a portion of the body of a subject, and wherein the portion of the body comprises a limb, a nose, an earlobe, and/or a digit.” *Id.* ¶ 18.

Aumer discloses:

The ear is an ideal location for wearable health and environmental monitors. The ear is a relatively immobile platform that does not obstruct a person's movement or vision. Monitoring devices located at an ear have, for example, access to the inner-ear canal and tympanic membrane (for measuring core body temperature), muscle tissue (for monitoring muscle tension), the pinna, earlobe, and elsewhere (for monitoring blood gas levels), the region behind the ear (for measuring skin temperature and galvanic skin response), and the internal carotid artery (for measuring cardiopulmonary functioning), etc. A particularly distinct pulsatile blood flow waveform can be discerned optically, via PPG, between the anti-tragus and concha region of the ear. The ear is also at or near the point of exposure to: environmental breathable toxicants of interest (volatile organic compounds, pollution, etc.); noise pollution experienced by the ear; and lighting conditions for the eye. Furthermore, as the ear canal is naturally designed for transmitting acoustical energy, the ear provides a good location for monitoring internal sounds, such as heartbeat, breathing rate, and mouth motion.

Aumer ¶ 64.

Aumer discloses monitoring earpiece 20 that includes sound port 26 configured to fit within the user's ear canal opening. *Id.* ¶ 69 (“The sensor modules 24, 34 for the illustrated monitoring devices 20, 30 of FIGS. 2A–2B and 3A–3B are configured to detect and/or measure physiological information from the subject. In some embodiments, the sensor modules 24, 34 may be configured to

detect and/or measure one or more environmental conditions in a vicinity of the subject wearing the monitoring device 20, 30.”); *see also* Kiaei Third Decl. 9.

Figures 2A and 2B, reproduced below, “illustrate a biometric monitoring device that can be positioned within an ear of a subject, according to some embodiments of the present invention.” Aumer ¶ 23.

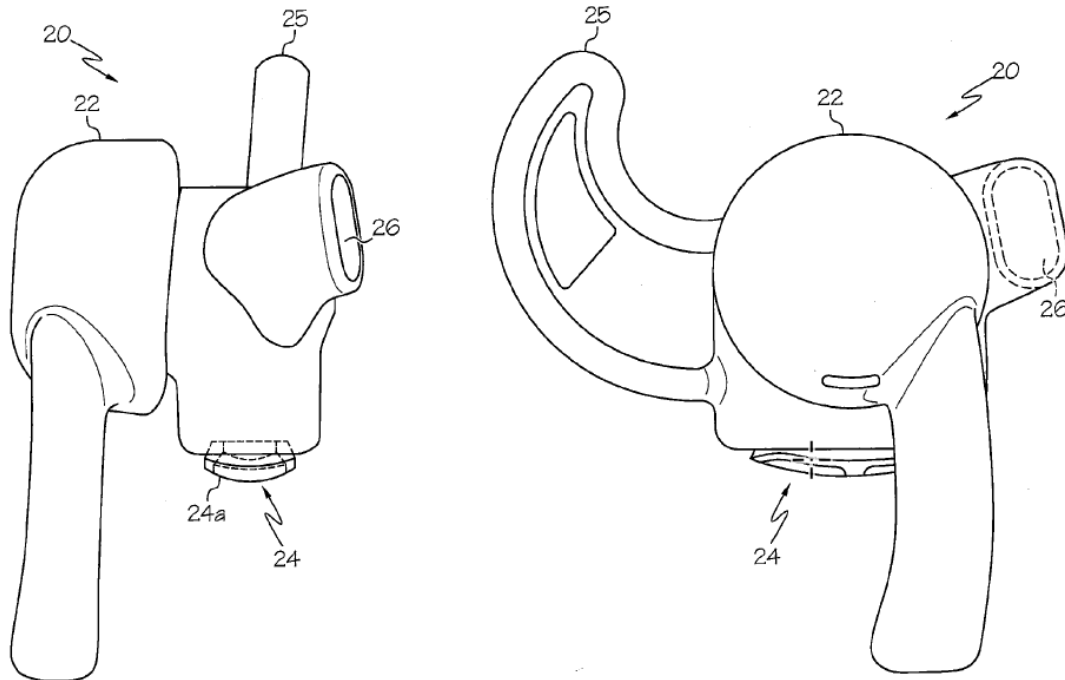


FIG. 2A

FIG. 2B

Figures 2A and 2B of Aumer illustrate monitoring apparatus 20 configured to be secured to an ear of a user such that it may function as a monitoring device, and includes earpiece body or housing 22, sensor module 24, a stabilizer 25, and sound port 26. When in use, i.e., positioned within the ear of a user, region 24a of sensor module 24 is arranged to contact a selected area of the ear. Sensor region 24a may be form-fitted to engage a portion of the ear between the antitragus and acoustic meatus, and the stabilizer is configured to engage the anti-helix. *Id.* ¶ 66. In addition, monitoring devices in Aumer can have sensor modules with one or more regions configured to engage various portions of the ear, and various types of devices may be worn at or near the ear. *Id.*

According to Dr. Young, “Aumer relates generally to monitoring devices and methods for measuring physiological information” (Third Young Decl. ¶51 (citing Aumer ¶2)), and “Aumer generally discloses a method for improving signal quality in exercise wearables using biometrics. . . . The user is instructed to start a quality test which triggers the wearable to determine the signal quality to a remote device. . . . Signal quality information is then communicated to the user so the user can adjust the wearable if needed.” *Id.* ¶52 (citing Aumer ¶¶7–8).

Such improvement in signal quality is brought about by “determin[ing] how the user should adjust the device to improve the biometric fit, and instruct the user to wear the biometric monitoring device a certain way.” Aumer, Abstr.

An example of a sensor used in Aumer is a so-called Photoplethysmography (PPG) sensor (Aumer ¶19), that operates “based upon shining light into the human body and measuring how the scattered light intensity changes with each pulse of blood flow. The scattered light intensity will change in time with respect to changes in blood flow or blood opacity associated with heart beats, breaths, blood oxygen level (SpO₂), and the like.” *Id.* at ¶3.

Thus, Aumer teaches wireless earpieces that fit within the ear canal opening and which are configured to read user biometrics using a sensor.

b. Revised Ground 1: Obviousness of claims 31, 35 over Brown and Aumer

To prevail in its challenges to the patentability of the claims, a petitioner must establish facts supporting its challenges by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). A claim is unpatentable under 35 U.S.C. § 103(a) 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. *KSR*, 550 U.S. at 406. A reference qualifies as prior art for an obviousness determination under § 103 only when it is analogous to the claimed invention. *In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011); *Innovation Toys, LLC v. MGA Entm't, Inc.*, 637 F.3d 1314, 1321 (Fed. Cir. 2011); *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004); *In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992).

Under Revised Ground 1, Petitioner contends the subject matter of challenged claims 31 and 35 would have been obvious over the combination of Brown and Aumer. Pet. Opp. 5–9. Patent Owner argues that Petitioner's showing is insufficient. PO Corr. Reply 1–6.

For the reasons explained below, having considered Patent Owner's arguments and the evidence of record, we determine that Petitioner has demonstrated, by a preponderance of the evidence, that the subject matter of proposed substitute claims 31 and 35 would have been obvious over the combination of Brown and Aumer.

i. Proposed Substitute Claims 31 and 35

Proposed substitute claim 31, corresponding to original claim 10, recites:

31. A wireless earpiece, comprising:

circuitry operating the wireless earpiece, wherein a portion of the wireless earpiece fits within the ear canal opening and the wireless earpiece is configured to read user biometrics, and

a battery powering the circuitry of the wireless earpiece; and a reed switch connecting the battery to the circuitry, wherein:

the reed switch connects the circuitry to the battery when a magnetic field is not detected; ~~and wherein~~

the reed switch disconnects the circuitry from the battery when a magnetic field is detected.

rMTA APPX A-3 (underlining indicating added subject matter; strikethrough indicating deleted subject matter).

Although the burden of persuasion and production regarding the patentability of the substitute claims is not borne by Patent Owner (*see Aqua Products, Inc. v. Matal*, 872 F.3d 1290, 1296 (Fed. Cir. 2017)), Patent Owner argues, with respect to original Ground 1 (anticipation by Brown), that “Brown does not disclose a wireless earpiece(s) “configured to read user biometrics,” as recited (rMTA 7), because “Brown does not state the claimed hearing aids are configured to read user biometrics. In fact, Brown does not mention biometrics at all.” *Id.* at 7–8 (citing Ex. 2003, ¶¶ 21, 24–25).

In response to Patent Owner’s Revised Motion to Amend, Petitioner presents Revised Ground 1, i.e., arguing that proposed substitute claims 31 and 35 are obvious over the combination of Brown and Aumer. *See* Pet. Opp. 5–9. In particular, Petitioner asserts that a person of ordinary skill in the art “would have found it obvious to include in a hearing aid, as taught by Brown, one or more sensors, a processor, and a communication component to read (*e.g.*, detect and/or measure) user biometrics (*e.g.*, body temperature, blood gas levels, and/or cardiopulmonary functioning), as taught by Aumer.” *Id.* at 6. After considering the amended claim as a whole, in light of the parties’ arguments and evidence, we find Petitioner’s arguments and evidence to be persuasive and agree with Petitioner’s assertion that one of ordinary skill in the art would have understood the disclosures of Aumer and Brown to teach or at least suggest all of the limitations of proposed claims 31 and 35. Patent Owner’s arguments are discussed below but as will be discussed, we do not find these arguments persuasive and as such they do not disturb Petitioner’s showing of unpatentability by a preponderance of the evidence.

Patent Owner argues that the combination of Brown and Aumer does not render proposed substitute claims 31 and 35 obvious because, *inter alia*, Aumer is allegedly not analogous art to the '853 patent (PO Corr. Reply 2–4), and because, purportedly, Petitioner has not established proper motivation to combine Aumer with Brown. *See Id.* at 5–6.

a) Aumer is Analogous Art

We use “[t]wo separate tests [to] define the scope of analogous art: ‘(1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.’” *Airbus S.A.S. v. Firepass Corp.*, 941 F.3d 1374, 1379 (Fed. Cir. 2019) (quoting *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004)).

The “field of endeavor” test asks if the structure and function of the prior art is such that it would be considered by a person of ordinary skill in the art, because of the similarity to the structure and function of the claimed invention as disclosed in the application. *Bigio*, 381 F.3d at 1325–27. It is necessary to apply “common sense” in “deciding in which fields a person of ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor.” *Id.* at 1326 (citations and quotation marks omitted).

As to the “reasonably pertinent” test:

A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor’s endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor’s attention in considering his problem. Thus, the purposes of both the invention and the prior art are important in determining whether the reference is reasonably pertinent to the problem the invention attempts to solve. If a reference

disclosure has the same purpose as the claimed invention, the reference relates to the same problem, and that fact supports use of that reference in an obviousness rejection. An inventor may well have been motivated to consider the reference when making his invention. If it is directed to a different purpose, the inventor would accordingly have had less motivation or occasion to consider it.

Clay, 966 F.2d at 659.

To be considered reasonably pertinent, prior art must “logically commend” itself to an inventor’s attention in considering the problem addressed by the challenged patent. *Innovation Toys, LLC*, 637 F.3d at 1321; *In re Icon Health and Fitness, Inc.*, 496 F.3d 1374, 1379–80 (Fed. Cir. 2007) (quoting *Clay*, 966 F.2d at 659). In other words, “familiar items may have obvious uses beyond their primary purposes.” *KSR*, 550 U.S. at 420. Importantly, however, the pertinence of prior art as a source of solution to the inventor’s problem *cannot* be considered using hindsight, but must instead be recognizable with the foresight of a person of ordinary skill. *In re Oetiker*, 977 F.2d 1443, 1447 (Fed. Cir. 1992). “[A] prior art reference need not ‘be reasonably pertinent to each and every problem with which an inventor is involved; reasonable pertinence to a single such problem suffices.’” *Ex Parte Nguyen*, No. 2020-005994, 2022 WL 292612, at *3 (PTAB Jan. 28, 2022) (quoting *Ex parte Gaechter*, 65 USPQ2d 1690, 1692 (BPAI 2002)).

We analyze the revised grounds of unpatentability in accordance with the above-stated principles.

Patent Owner contends that Aumer is not analogous art to the ’853 patent. PO Corr. Reply 2–5. In particular, Patent Owner states that “[t]he ’853 Patent ‘relates to wireless electronics and battery systems. More specifically, but not exclusively, the present invention relates to wireless earpieces that manage and extend battery life’. . . . Aumer, on the other hand, defines its ‘field of the invention’ as ‘monitoring devices and methods for measuring physiological

information.’ This is not the same field as the ’853 Patent.” PO Corr. Reply at 4 (citing Ex. 1001, Ex. 2007 ¶¶ 63–64).

Patent Owner further alleges “Aumer is also not “‘reasonably pertinent to the particular problem with which the inventor is involved’ . . . [because] Aumer is concerned with ‘improving signal quality in wearable biometric devices.’ Whereas the ’853 Patent is concerned with ‘managing and extending battery life.’” PO Corr. Reply at 4.

The ’853 patent explains, in a section titled “Field of the Disclosure,” that “[t]he present invention relates to wireless electronics and battery systems. More specifically, *but not exclusively*, the present invention relates to wireless earpieces that manage and extend battery life.” Ex. 1001 1:14–17 (emphasis added). The abstract of the patent similarly begins: “A system and method for managing wireless earpieces [in which c]ircuitry of the wireless earpieces are powered utilizing a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces. *Id.* at code (57). The detailed description describes “wireless earpieces for managing and preserving battery life. . . . [that] may interact with a smart case to perform various actions. . . . [including] preserv[ing] the battery life of the wireless earpieces by interacting with the wireless earpieces while in a low power mode or state.” *Id.* at 2:35-41.

As to the first prong of the *Bigio* test, Petitioner argues that “*Brown and Aumer* are from the same field of endeavor.” Pet. Opp. 6 (emphasis added). In rebuttal, Patent Owner argues, “[t]he field of endeavor is relevant to determining whether prior art is analogous to *the claimed invention, not other references.*” PO Corr. Reply 3 (emphasis added) (citing *Sanofi-Aventis Deutschland GmbH v. Mylan Pharm. Inc.*, 66 F.4th 1373, 1377 (Fed. Cir. 2023)). In response, Petitioner points out that “Aumer, like the ’853 patent, discloses wearable biometric

monitoring devices and in particular wireless earpieces, it shares the '853 patent's general field of endeavor—wireless electronics, including wireless earpieces.” Pet. Sur-Reply at 3. As the *Netflix* court held, “[w]e have affirmed findings of analogous art where the references shared a general field of endeavor.” *Netflix, Inc. v. DivX, LLC*, 80 F.4th 1352, 1359 (Fed. Cir. 2023) (citing *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1001-02 (Fed. Cir. 2016) (“affirming Board's finding of analogous art where the patent-in-dispute and prior art were both ‘in the field of interface design’”). Here, Petitioner argues that the field of endeavor of the '853 patent is “wireless electronics, including wireless earpieces.” Pet. Sur-Reply at 3. Patent Owner argues that “our position is that even if it's just addressing wireless ear pieces, [Aumeris] still too broad. Because . . . the '853 patent is directed to adjusting power levels within a wireless earpiece and preserving battery life. Even with the biometric limitation that's been added, still the overall direction of the patent and the claims are still directed towards preservation of battery life, and the Aumer reference is not in any way directed to that. It's limited . . . to biometric readings.” Tr. 35:1–8 (line numbering omitted).

Consistent with the holding in *Netflix* and the '853 patent's stated field of invention quoted above, and guided by *KSR*, we agree with Petitioner that the '853 patent's general field of endeavor is wireless electronics, including wireless earpieces. We are also of the view that Aumer operates in this same general field of endeavor because, as pointed out by Petitioner, “Aumer, like the '853 patent, discloses wearable biometric monitoring devices and in particular wireless earpieces.” Pet. Sur-Reply 3; *see* Aumer Figs. 2A–2B; *see also* Tr. 15:1–16:10.

We are persuaded by Petitioner that Aumer and the claimed invention are both in the same general field of endeavor with respect to *Bigio* prong 1, i.e., wireless devices including wireless earpieces, because Patent Owner asks that we

take what we view as an unreasonably narrow view of the field of endeavor, rather than a more general one, as guided by *Netflix*.

Even assuming our reviewing court were to determine that the '853 patent and Aumer are not from the same field of endeavor, we are persuaded by Petitioner that Aumer is reasonably pertinent to the particular problem with which the inventor of the '853 patent is involved under prong 2 of the *Bigio* test.

A prior art reference is reasonably pertinent only if “a person of ordinary skill would reasonably have consulted those references and applied their teachings in seeking a solution to the problem that the inventor was attempting to solve.” *In re GPAC Inc.*, 57 F.3d 1573, 1578 (Fed. Cir. 1995). “In order to determine whether a reference is ‘reasonably pertinent,’ . . . a reasonable factfinder should consider record evidence cited by the parties to demonstrate the knowledge and perspective of a person of ordinary skill in the art at the time of the invention.” *Airbus S.A.S.*, 941 F.3d at 1383.

Patent Owner argues, “Aumer is concerned with ‘improving signal quality in wearable biometric devices.’ Whereas the '853 Patent is concerned with ‘managing and extending battery life.’” PO Corr. Reply 4 (citing Aumer code (54) (Title), and Ex. 1001 at 14–17).

Petitioner counters, “the only point of novelty that PO identifies is the requirement that the wireless earpieces are configured to read user biometrics. Likewise, Aumer is directed to solving the problem of how to implement a wearable biometric monitoring device, such as a wireless earpiece.” Pet. Sur-Reply at 4. Petitioner further argues, “[i]f a POSITA is faced with the problem of how to configure a wireless earpiece to read user biometrics, then a POSITA would consider a reference, such as Aumer, that is directed to improving signal quality in a wearable biometric monitoring device, such as a wireless earpiece. *Id.*

(citing *Netflix*, 80 F.4th at 1361–62). Additionally, “[e]ven if the inventors were involved in using biometric readings to manage wireless earpiece battery life, a [person of ordinary skill in the art] POSITA would still reasonably consider references directed to how to configure wireless earpieces to read user biometrics, like Aumer, to ensure the earpieces manage battery life based on accurate biometric readings.” *Id.* at 5. We find this argument to be persuasive because we note that none of substitute claims 22–42 recite any limitations directed to managing battery life or adjusting power based upon biometric readings.²⁵

After inquiry at trial,²⁶ we are still unable to identify any evidence of record, including the ’853 patent disclosure, to substantiate that the added limitation relating to reading user biometrics is related to managing battery life or adjusting power.

As mentioned above, Petitioner does argue, however, that the problem solved by the claims of the ’853 patent is adjusting power levels within a wireless earpiece and preserving battery life. *See* Tr. 35:1–8.

²⁵ From the testimonial evidence, it does not appear that the parties’ respective experts directly address the “reasonably pertinent” prong of the *Bigio* test. *See generally* Ex. 1021, Ex. 2007.

²⁶ *See* Tr. 38:15–22 (line numbering omitted).

MR. JARRETT: Although the claim limitation itself does not expressly state that it’s related, that the use of biometrics, the reading of biometrics is directly related or used in the adjustment of the power mode, reading the claim in light of the specification, we – Patent Owner’s position is it’s still – that is still the relevant problem is the battery life preservation and the biometric reading fits within that, although not expressly claimed as such, but reading the claims in light of the specification, that’s our position that the biometrics, the reading of biometrics is in that context of the claims. We note the teachings in the ’853 patent disclosure, but are mindful, however, that limitations are not to be read into the claims from the Specification. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

[T]aking it back to the purpose of, for the problem that the '853 is directed to with then the addition of the biometric reading limitation, it still would be our position that it would be in the context of the overall claim of regarding power control, not express in the limitation itself but still in that context of the claim. And that's not necessarily, in my view, not necessarily a matter of necessarily the claim construction, but more of an issue of looking at the field of endeavor and the pertinent problem analysis and more from the context of the motivation to combine rather than specifically importing a limitation from the specification, if that makes sense.

Tr. 43:26–44:8 (line numbering omitted).

Along these lines, Petitioner relies upon Aumer as disclosing use of biometric sensors in wireless earpieces, and further offers the Rass²⁷ reference as an indication of the level of ordinary skill in the wireless earpiece art. *See* Tr. 49:21–50:12. Petitioner states that Rass is offered “for what a person of ordinary skill in the art would know. It provides a motivation to take the teachings from Aumer and to combine them with the teachings of the primary prior art references from the petition.” Tr. 50:2–5.

Specifically, Petitioner identifies Rass as disclosing that a person of ordinary skill in the art would know that a biometric sensor, such as a temperature sensor, inserted into or near a human's ear canal can be used to detect a temperature and thereby provide power management for a hearing aid. “A POSITA would have found it obvious to include in a hearing aid, as taught by Brown, one or more sensors, a processor, and a communication component to read (*e.g.*, detect and/or measure) user biometrics (*e.g.*, body temperature, blood gas levels, and/or cardiopulmonary functioning), as taught by Aumer.” Pet. Opp. 6. This is borne out by the explicit teachings of Rass.

²⁷ US 7,522,739 B2, filed May, 10, 2005, issued Apr. 21, 2009. Ex. 1028, “Rass.”

It is intended that the switching on and off of a hearing aid (I) should be made more user-friendly. To this end the hearing aid (I) is fitted with a temperature sensor (TS) to detect the body heat of the hearing aid wearer and therefore that the hearing aid is inserted in the auditory canal. The hearing aid is then switched on and off again based on the temperature signal.”

Rass, Abstr.

We determine that the temperature sensor of Aumer, inserted as an earpiece into a user’s auditory canal to measure body heat, although not specifically referred to as a “biometric sensor” in Aumer, is nonetheless encompassed by the term “wireless earpieces configured to read user biometrics,” as that dispositive limitation in proposed substitute claim 31 is described in the ’853 patent. Specifically, “biometric readings, such as heart beat or temperature may be utilized by the wireless earpieces 142, 144 and smart case 102 to alter the power mode or status of the wireless earpieces 142, 144, as well as the smart case 102 (e.g., may be placed in a low power mode). Ex. 1001, 5:14–20. “The data may include biometric information . . . logged by sensors. . . [and may] include medical information, such as . . . temperature.” *Id.* at 9:62–10:6.

So, even if we were to adopt Patent Owner’s characterization of the problem solved by the ’853 patent, i.e., managing and extending battery life (*see* PO Corr. Reply at 4), the combination of Brown and Aumer can be viewed as addressing this problem by using the temperature sensor of Aumer to control the power to a wireless earpiece, even though the claim at issue is completely silent on any power control management functions performed by the claimed “read[ing of] user biometrics,” as recited in substitute claim 31.

Patent Owner also argues briefly that “[c]omparing Brown with Aumer yields the same result” because “Brown is directed to hearing aids, specifically

‘provid[ing] a reliable switch of suitably small dimensions for switching the [hearing] aid on and off.’” PO Corr. Reply at 4 (citing Ex. 1007 at 1:9–16).

To the extent that Patent Owner intends that the “same result” referred to by Patent Owner is that Brown is not reasonably pertinent to the alleged problem solved by Aumer, and is relevant to the claimed invention, we disagree because the temperature switch of Aumer, located in the auditory canal, would appear to teach providing a switch “of suitably small dimensions for switching the [hearing] aid on and off,” as quoted above.

Accordingly, we are persuaded by Petitioner that Aumer is analogous art to the claimed invention.

b) Motivation to combine

Petitioner asserts multiple reasons as to why a person with ordinary skill in the art would have been motivated to combine the teachings of Aumer with Brown. Pet. Opp. 6–9.

Predictable Result

In addition to the issue of analogous art analyzed above, Petitioner asserts, with respect to combining the teachings of Brown with Aumer, that “implementing a hearing aid, as taught by Brown, to include one or more sensors, a processor, and a communication component to read user biometrics, as taught by Aumer, would have yielded expected, predictable results.” Pet. Opp. 6–7.

In *KSR*, the Supreme Court stated “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR*, 550 U.S. at 416.

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a

predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. . . . [A] court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

Id. at 417.

Petitioner contends that a person with skill in the art would have combined the elements taught by Brown and Aumer, i.e., hearing aid 10 in Brown, and earpiece 20 with one or more sensors, processor, and communication capability as taught by Aumer, “using known and routine electronic device design and manufacturing techniques to modify Brown’s hearing aid 10 to include one or more sensors (*e.g.*, in or around earmould 13) and a processor and a communication component (*e.g.*, in cavity 16) to read user biometrics. This modification would have been readily predictable and recognized by a POSITA and would have been well within the knowledge and skillset of a POSITA.” Pet. Opp. 7 (citing Third Kiaei Decl. ¶ 17).

Patent Owner argues, “because Aumer is not in the same field of endeavor as Brown (or the ’853 Patent), a POSITA would not have been motivated to combine these references.” PO Corr. Reply at 5. However, in contradiction to this overarching statement, Patent Owner affirmatively states that “[t]echniques to read biometrics that would be implemented in an earpiece, such as heartbeat or temperature, were known in the art and within the skill level of a POSITA to implement as of the priority date.” PO Corr. Reply at 10 (citing Ex. 2007 ¶ 60).²⁸

²⁸ Although Patent Owner and Dr. Young made this admission in the context of enablement of the proposed substitute claims, we determine that this also equally applies to the motivational issues before us in connection with obviousness over the various base references in combination with Aumer.

Thus, we agree with Petitioner and determine that combining Brown's hearing aid with Aumer's temperature switch for improved switching would yield predictable results.

Increased Consumer Interest

As an additional reason for combining Brown with Aumer, Petitioner asserts that, at the time of the filing of Aumer, consumers were demonstrating increased interest in personal health and sensor miniaturization. Pet. Opp. 7–8 (citing to Ex. 1025 ¶ 2, Ex. 1026 ¶ 3 as evidence of such interest). Petitioner emphasizes that Aumer identifies the ear as being an ideal location for wearable health and environment monitors, and allows for monitoring of various user biometrics including “core body temperature.” Pet. Opp. 8 (citing Aumer ¶ 64). Petitioner argues that, in view of such consumer interests in health monitoring and miniaturization, “a POSITA would have been motivated to implement Brown's hearing aid to include one or more sensors, a processor, and a communication component, as taught by Aumer, to read and provide user biometrics to consumers, allowing them to monitor their personal health.” Pet. Opp. 8 (citing Third Kiaei Decl. ¶ 18).

Patent Owner disputes Petitioner's argument because, allegedly, any such consumer interests in personal health and sensor miniaturization advances are irrelevant, as a person with skill in the art “concerned with the problems described in Brown would not have been motivated to add the ability to read user biometric signals to the hearing aid Brown discloses” because this “would not have helped develop a more reliable switch for turning Brown's hearing aid on or off.” PO Corr. Reply 5 (citing Third Young Decl. ¶ 67).

Whether it would have been obvious for a person of ordinary skill in the art to combine two or more references is a flexible inquiry. A factfinder “need not

seek out precise teachings directed to the specific subject matter of the challenged claim” and “can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418. Moreover, evidentiary support from the text of the teaching reference is not necessary because the motivation can come, for instance, from general knowledge within the art, as evidenced by Exhibits 1025 and 1026. Furthermore, the Supreme Court has stated that, “if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *KSR*, 550 U.S. at 417. Patent Owner has admitted that incorporating biometric sensors into wireless earpieces are within the skill level of an ordinary artisan. “Techniques to read biometrics that would be implemented in an earpiece, such as heartbeat or temperature, were known in the art and within the skill level of a POSITA to implement as of the priority date.” PO Corr. Reply at 10 (citing Ex. 2007 ¶ 60).

We are persuaded by Petitioner’s additional motivational argument because, as opined by Dr. Kiaei, “in view of the consumer interests, advances in sensors, and Aumer’s teachings, a POSITA would have been motivated to implement Brown’s hearing aid to include one or more sensors, a processor, and a communication component, as taught by Aumer, to read and provide user biometrics to consumers, allowing them to monitor their personal health.”²⁹ Third Kiaei Decl. ¶ 18.

²⁹ We further note that Brown and the invention claimed in the ’853 patent both rely upon magnetic switching. *Compare* Ex. 1007, 1:19–27 to proposed claim 31, *supra*. In Brown, magnetic switching is used “to provide a reliable switch of suitably small dimensions for switching the aid on and off.” Ex. 1007, 1:14–16.

Use of Biometrics for Power Management was Known

As asserted by Petitioner and as discussed above, the Rass reference (Ex. 1028) provides an indication of the knowledge of one of ordinary skill in the art before the priority date of the '853 patent, i.e., that “a sensor in a wireless earpiece could allow the earpiece to automatically switch on or off depending on user biometrics.” Pet. Opp. 8; *see also* Rass at 2:63–3:4.

Patent Owner takes issue with Petitioner’s assertion because “Petitioner does not establish this was well-known” because Petitioner only points to a single reference, i.e., the Rass reference, in support. PO Corr. Reply 5. Patent Owner argues that Rass is not explicitly relied upon in the revised obviousness grounds, but “[i]nstead, Petitioner cites Rass as an example of shifting power modes in a hearing aid and attempts to use Rass to bridge the gap between Aumer’s and Brown’s fields of invention. This underscores that a POSITA would not have been motivated to combine Brown and Aumer.” *Id.* at 5–6.

We determine that, for the limited purposed intended by Petitioner, i.e., to demonstrate the level of skill in the art before the priority date of the '853 patent, Rass proves, by a preponderance of the evidence that it was well-known to exercise power management for a wireless earpiece by use of a sensor, i.e., a biometric sensor.

Reasonable Expectation of Success

Petitioner finally argues that a person with skill in the art would have had a reasonable expectation of success in incorporating the teachings of Aumer with respect to a biometric sensor into Brown’s hearing aid. Pet. Opp. at 9.

Petitioner responds, there is no “reasonable expectation of success in combining Brown and Aumer because, as explained, there was no motivation to combine these references.” PO Corr. Reply at 6. As explained above, we

determine that Petitioner has established, by a preponderance of the evidence, that there is proper motivation to combine Aumer with the teachings of Brown.

c) Conclusion for Obviousness of Claim 31 over Brown and Aumer

For the reasons provided above, Petitioner has sufficiently shown that Brown in combination with Aumer renders independent claim 31 obvious. We have considered Patent Owner's arguments that Petitioner's arguments are insufficient with respect to the proffered motivation to combine these references, and we do not agree for the reasons addressed above.

Accordingly, we are persuaded that Petitioner has shown, by a preponderance of the evidence that the subject matter of claim 31 is obvious over the combination of Brown and Aumer.

ii. Dependent Claim 35 (Replacing Claim 14)

Claim 35 depends directly from claim 31. rMTA APPX A-4. Hence, claim 35 incorporates all limitations of claim 31. *See* 35 U.S.C. § 112 ¶ 4.

Proposed substitute claim 35 recites:

Claim 35. [Proposed substitute for claim 14] The wireless earpiece of claim ~~14~~31, wherein the wireless earpiece alters a power level of the wireless earpiece in response to the reed switch detecting the magnetic field.

rMTA APPX A-4 (colored text omitted).

Thus, claim 35 only changes claim dependency, such that Petitioner continues to rely upon the showing that Brown, in original Ground 1, teaches the substantive limitation of claim 14. "PO's sole argument as to why the proposed substitute claims are patentable is that a new limitation—"wireless earpieces [] configured to read user biometrics"—is allegedly missing from the prior art." Pet.

Opp. at 1. As discussed above, Aumer is relied upon by Petitioner to teach the limitation added to independent claim 31, from which claim 35 depends, and also argues, *supra*, that there is proper motivation to combine Brown and Aumer.

Patent Owner argues “[because] there was no motivation to combine these references [(Brown and Aumer)] . . . Brown in view of Aumer does not render obvious Substitute Claims 31 and 35.” PO Corr. Reply at 6 (citing Third Young Decl. ¶ 71).

Accordingly, in light of our above determinations regarding original claim 14 as anticipated by Brown, substitute claim 31 as unpatentable over the teachings of Brown and Aumer, and because we determine that Petitioner has established proper motivation to combine Brown and Aumer, we find Petitioner’s analysis of dependent claim 35 sufficient to demonstrate, by a preponderance of the evidence, that claim 35 would have been obvious over Brown and Aumer under Revised Ground 1.

iii. Revised Ground 1: Summary

In light of the above analysis, we determine that Petitioner’s evidence and arguments are sufficient to demonstrate, by a preponderance of the evidence, that claims 31 and 35 would have been obvious under Revised Ground 1 over Brown and Aumer.

a) Revised Ground 2: Obviousness of claims 22–24, 26 over Hain and Aumer

Proposed substitute claim 22 is provided below (strikethrough indicating deleted material; underlining indicating added limitations):

Claim 22. [Proposed substitute for claim 1] A method for managing wireless earpieces, comprising:

powering circuitry of the wireless earpieces utilizing a high ~~poser~~^[30] power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces;

wherein a portion of the wireless earpieces fits within the ear canal opening and the wireless earpieces are configured to read user biometrics, and

altering the power sent to the circuitry of the wireless earpieces to a low power mode in response to detecting a magnetic field is applied to one or more of the wireless earpieces.

rMTA APPX A-1.

After filing the Revised Motion to Amend, Patent Owner initially argues, “Hain does not disclose a wireless earpiece(s) ‘configured to read user biometrics.’ Hain does not state the claimed hearing aids are configured to read user biometrics. Hain does not mention biometrics at all.” *Id.* at 8.

Petitioner asserts, in Revised Ground 2, that Hain in combination with Aumer, discussed above in Revised Ground 1 (*see* § IV.E.1.a, *supra*), “renders obvious ‘the wireless earpieces are configured to read user biometrics,’ as recited by proposed substitute claim 22. A POSITA would have found it obvious to include, in each of Hain’s hearing aids, one or more sensors, a processor, and a communication component to read user biometrics, as taught by Aumer.” Pet. Opp. at 9–10. Petitioner sets forth essentially the same motivational arguments in connection with modifying Hain with the teachings of Aumer, as with Revised Ground 1 when combining Brown with Aumer. *Compare* Pet. Opp. 10–12, *with* Pet. Opp. 6–9; *see also* § IV.E.1.b.i.b), *supra*.

³⁰ Patent Owner filed a Request for a Certificate of Correction on February 14, 2018, to correct a typographical error by replacing the word “poser” with the word “power” in line 3 of claim 1. The Office issued a Certificate of Correction correcting the typographical error on March 13, 2018.

In response, Patent Owner argues, “[a] POSITA would not have been motivated to combine Hain and Aumer for the same reasons a POSITA would not have combined Brown and Aumer.” PO Corr. Reply at 6 (citing Ex. 2007 ¶¶ 72–78). As analyzed above in connection with Revised Ground 1, we reiterate that both Aumer and the ’853 patent may be viewed in Revised Ground 2 as sharing the same general field of endeavor, i.e., wireless earpieces.

In addition, based upon Petitioner’s various arguments concerning motivation to combine Hain with Aumer (*see* Pet. Opp. at 10–12), we determine that the reasons submitted are sufficiently similar to those presented in connection with the combination of Brown and Aumer (*Id.* at 6–9), and are persuasive for the same reasons as we outlined above. *See* § IV.E.3.b.i.b).

Accordingly, because we determine that Petitioner has established proper motivation to combine Hain and Aumer and that the combination teaches or suggests all limitations of claim 22, we find Petitioner’s analysis of claims 22–24 and 26 is sufficient, in light of the analysis of original Ground 1, to demonstrate, by a preponderance of the evidence, that claims 22–24 and 26 would have been obvious over Hain and Aumer under Revised Ground 2.

b) Revised Ground 3: Obviousness of claims 31, 42 over Steinbrecher and Aumer

As discussed above regarding Revised Ground 1, proposed substitute claim 31, replacing claim 10, adds the limitation, “wherein a portion of the wireless earpiece fits within the ear canal opening and the wireless earpiece is configured to read user biometrics.” rMTA APPX A–3. Petitioner asserts “[a] POSITA would have found it obvious to include in a hearing aid, as taught by Steinbrecher, one or more sensors, a processor, and a communication component to read user biometrics, as taught by Aumer.” Pet. Opp. at 12. Petitioner provides

a variety of reasons that a person with skill in the art would have been motivated to combine Steinbrecher and Aumer; reasons that parallel those presented in connection with the combination of Brown and Aumer in Revised Ground 1.

Patent Owner responds, “[a] POSITA would not have combined Steinbrecher and Aumer for the same reasons why a POSITA would not have combined Brown or Hain and Aumer.” PO Corr. Reply 6–7 (citing Ex. 2007 ¶¶ 79–85).³¹ Patent Owner objects to Petitioner’s characterization of the field of invention as “similar wearable electronic device,” because such a characterization is allegedly too broad. *Id.* at 7 (citing Pet. Opp. at 13).

Petitioner clarifies their position on the field of endeavor analysis by stating, “[b]ecause Aumer, like the ’853 patent, discloses wearable biometric monitoring devices and in particular wireless earpieces, it shares the ’853 patent’s general field of endeavor—wireless electronics, including wireless earpieces.” Pet. Sur-Reply at 3. We are persuaded by Petitioner’s arguments, and reiterate that both Aumer and the ’853 patent may be viewed in Revised Ground 3 as sharing the same general field of endeavor, i.e., wireless earpieces.

In addition, based upon Petitioner’s various arguments concerning motivation to combine Steinbrecher with Aumer (*see* Pet. Opp. at 13–15), we determine that the reasons submitted are sufficiently similar to those presented in connection with the combination of Brown and Aumer (*Id.* at 6–9), and are persuasive for the same reasons as we outlined, above. *See* § IV.E.1.b.i.b).

³¹ We note that neither Patent Owner or their expert, Dr. Young, explicitly assert that Aumer is nonanalogous art in connection with Revised Ground 3. However, apparently with respect to all Revised Grounds, Petitioner argues “PO argues that a reference about ‘wearable biometric monitoring devices’ (Ex-1022-Aumer, Title) is not analogous art, when contemplating a claim directed to an earpiece that reads user biometrics. Aumer is analogous art under the field-of-endeavor test and/or the reasonable-pertinence test.” Pet. Sur-Reply 2.

Accordingly, because we determine that Petitioner has established proper motivation to combine Steinbrecher and Aumer and that the combination teaches or suggests all limitations of claim 31, we find Petitioner’s analysis of claims 31 and 42 is sufficient, in light of the analysis of original Ground 1, to demonstrate, by a preponderance of the evidence, that claims 31 and 42 are obvious over the combination of Steinbrecher and Aumer under Revised Ground 3.

- c) *Revised Ground 4: Obviousness of claims 22–28, 30 over Shaffer, Hain; and Aumer; Revised Ground 5: Obviousness of claims 25–28, 27–29 over Shaffer, Hain; Sørensen, and Aumer; Revised Ground 6: Obviousness of claims 31–33, 35, 37–42 over Shaffer, Steinbrecher, and Aumer; Revised Ground 7: Obviousness of claims 32–34, 36, 38–42 over Shaffer Steinbrecher, Sørensen, and Aumer*

Patent Owner initially addresses original Grounds 4 and 5 together, and also addresses original Grounds 6 and 7 together, and states, “[g]rounds 4–5 rely on a combination of references, which include Shaffer, Hain, and Sørensen, (rMTA at 9), and “[g]rounds 6–7 rely on a combination of references, including some combination of Shaffer, Steinbrecher and Sorensen.” *Id.* However, “none of these references discloses a wireless earpiece(s) ‘configured to read user biometrics,’ as claimed by the proposed substitute claim 22 (the substitute for original claim 1)” (*id.*), and “none of these references disclose a wireless earpiece(s) ‘configured to read user biometrics,’ as required by proposed substitute claims 31 and 42 (the independent claims challenged by Grounds 6–7).” *Id.* at 9–10.

As in the Revised Grounds addressed above, the unpatentability of the claims in Revised Grounds 4 through 7 depend on the extent to which Petitioner

has shown, by a preponderance of the evidence, proper motivation to combine Aumer with the base references in original Grounds 4 through 7. *See* Pet. Opp. 16–19; Pet. Sur-Reply at 2–6.

With respect to Revised Ground 4, Petitioner contends “[a] POSITA would have found it obvious to include, in each of Shaffer’s earbuds, one or more sensors, a processor, and a communication component to read user biometrics, as taught by Aumer, before the ’853 patent’s priority date.” Pet. Opp. 16. Petitioner provides various rationales for combining Shaffer with Aumer, and these same rationales apply to Revised Grounds 5 through 7, and parallel arguments presented with respect to Revised Grounds 1 through 3. *Id.* at 16–19.

Patent Owner responds that Petitioner’s Revised Grounds are deficient “because a POSITA would not have been motivated to combine Aumer with Shaffer for the same reasons a POSITA would not have combined Brown, Hain, or Steinbrecher with Aumer.” PO Corr. Reply at 7 (citing Ex. 2007 ¶¶ 86–92). In addition, Patent Owner asserts that the field defined by Petitioner, “similar wearable electronic device,” is overly broad. *Id.* We note Shaffer discloses earbuds (*see* Ex. 1003, ¶ 10, Fig. 10), i.e., wireless earpieces, and Petitioner supplements their argument by asserting Aumer “shares the ’853 patent’s general field of endeavor—wireless electronics, including wireless earpieces.” Pet. Sur-Reply at 3.

Petitioner points out that Patent Owner admits that wireless earpieces configured to read user biometric, as claimed, were known in the art before the ’853 patent, i.e., “[t]echniques to read biometrics that would be implemented in an earpiece, such as heartbeat or temperature, were known in the art and within the skill level of a POSITA to implement as of the priority date.” Pet. Sur-Reply at 2 (emphasis omitted) (quoting PO Corr. Reply at 10).

For Revised Grounds 4–7, all relying upon Shaffer in combination with the other identified references from original Grounds 4–7, we find Petitioner’s arguments presented above, by a preponderance of the evidence, provide sufficient support for combining Shaffer and Aumer such that Aumer is properly combinable with Shaffer in the context of Revised Grounds 4–7.

Accordingly, responsive to Patent Owner’s specific limitations added in the Revised Motion to Amend as discussed above in proposed independent claims 22, 31, and 42, and in consideration of Petitioner’s arguments concerning the dependent claims in original Grounds 4 through 7, we determine that Petitioner has established proper motivation to combine Shaffer and Aumer, and that the combination teaches or suggests all limitations of claims 22–28 and 30 in Revised Ground 4; claims 25–28 and 27–29 in Revised Ground 5; claims 31–33, 35, and 37–42 in Revised Ground 6; and claims 32–34, 36, and 38–42 in Revised Ground 7.

3. *Analysis of Revised Grounds 8 and 9 under 35 U.S.C. § 112*

a. *Revised Ground 8 under 35 U.S.C. § 112(a) —
Enablement of Claims 22–42*

Petitioner argues the ’853 patent does not enable a person of ordinary skill in the art to make and use the invention claimed by the proposed substitute claims under 35 U.S.C. § 112(a). In particular, the ’853 patent disclosure does not enable the added limitation “wireless earpiece[s] [] configured to read user biometrics” as recited in various singular and plural forms in substitute claims 22–42. Pet. Opp. at 19.

As pointed out by Petitioner, the substitute claims “simply require wireless earpieces to be ‘configured to read user biometrics,’ with no further limitations

restricting how the reading of user biometrics is accomplished, and thus covers the entire class of all user biometrics.” *Id.* at 19–20.

In *Amgen*, the Supreme Court guides, “the specification must enable the full scope of the invention as defined by its claims. The more one claims, the more one must enable.” *Amgen Inc. v. Sanofi*, 598 U.S. 594, 610 (2023). In particular, *Amgen* further holds, “[i]f a patent claims an entire class of processes, machines, manufactures, or compositions of matter, the patent’s specification must enable a person skilled in the art to make and use the entire class.” *Id.*

Patent Owner responds by arguing that, even given a broad patent disclosure, it is not required to exemplify every embodiment, because “it may suffice to give an example (or a few examples) if the specification also discloses ‘some general quality . . . running through’ the class that gives it a ‘peculiar fitness for the particular purpose.’” PO Corr. Reply at 8 (quoting *Amgen*, 598 U.S. at 611). According to Patent Owner’s expert, Dr. Young, the term “user biometrics” as used in the ’853 patent means “biological, physiological, or chemical characteristics of the user.” *See* Ex. 1027, 15:18–16:1.

Patent Owner cites to the ’031 application leading to the ’853 patent as providing support for the added term “user biometrics.” rMTA at 5. “In one embodiment, the wireless earpieces 142, 144 include a set of left and right ear pieces configured to fit into a user’s ears. The wireless earpieces 142, 144 may be configured to . . . read user biometrics and actions (e.g., heart rate, motion, sleeping, etc.).” Ex. 1008, 4:19–22. The ’853 patent discloses “[i]n another embodiment, biometric readings, such as heart beat or temperature may be utilized by the wireless earpieces 142, 144 and smart case 102 to alter the power mode or status of the wireless earpieces 142, 144, as well as the smart case 102 (e.g., may be placed in a low power mode). Ex. 1001, 5:16–19. “The data may include

biometric information (e.g., pulse rate, oxygenation, distance travelled, calories burned, etc.) exercise information, commands received, and other data logged by sensors (e.g., heart rate monitor, pulse oximeter, accelerometers, gyroscopes, etc.) of the wireless earpiece or otherwise determined.” *Id.* at 9:62–67.

Patent Owner’s expert, Dr. Young, states that “user biometrics” also includes retinal scans. Ex. 1027 at 16:24–17:3 (“for example, I [came across] technology where something is scanning an individual’s retinal eye . . . that will be considered a biometrics”). According to Dr. Kiaei, the specification of the ’853 patent does not disclose how to make a wireless earpiece configured to read DNA sequencing, retinal scans, vein patterns, or facial features. Third Kiaei Decl. ¶ 51

Petitioner argues, as a consequence, the ’853 patent fails to enable how to make wireless earpieces capable of reading the entire class of user biometrics, such as DNA sequencing, retinal scans, vein patterns, or facial features. Pet. Sur-Reply at 7 (citing Third Kiaei Decl. ¶ 51).

Patent Owner attempts to limit the scope of “user biometrics” to exclude particular types of biometrics based upon the recitation of a wireless earpiece configured to fit within the ear and for performing associated functions. PO Corr. Reply at 9.

Any analysis of whether a particular claim finds support in an application’s disclosure requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims so as to enable one skilled in the pertinent art to make and use the claimed invention. The statute (35 U.S.C. § 112) has been interpreted to require that the claimed invention be enabled so that any person skilled in the art can make and use the invention without undue experimentation. *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988).

In our analysis below, we conclude that the '853 patent disclosure does not enable those skilled in the art to make and use the full scope of the claimed invention without undue experimentation because we are unable to identify a “general quality . . . running through the class [of biometric information].” *Amgen*, 598 U.S. at 611 (internal quotations omitted).

Factors to be considered in determining whether a disclosure would require undue experimentation . . . include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

Wands, 858 F.2d at 737.

Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations. *Id.* In reviewing for lack of enablement, the *Wands* court elected to consider “all of the factors.” *Id.* at 740. However, it is not necessary to review all the *Wands* factors to find a disclosure enabling. Rather, the *Wands* factors “are illustrative, not mandatory” and what is relevant to an enablement determination depends upon the facts of the particular case. *See Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1213 (Fed. Cir. 1991). *See also Enzo Biochem, Inc. v. Calgene, Inc.*, 188 F.3d 1362, 1371 (Fed. Cir. 1999) and *Warner-Lambert Company v. Teva Pharmaceuticals USA, Inc.*, 418 F.3d 1326, 1337 (Fed. Cir. 2005).

We now look to pertinent *Wands* factors in this case. As to *Wands* factor (8), “the breadth of the claims,” contrary to Patent Owner’s argument (PO Corr. Reply at 9), the breadth of the functional recitation of “wireless earpieces configured to

read user biometrics” appears to be unbounded as it would allow limitless types of biometric information, as there is no structural requirement recited and, as Patent Owner’s expert opined, the phrase “user biometrics” encompasses any “biological, physiological, or chemical characteristics” of a user. Ex. 1027 at 15:2–14; *see also* Third Kiaei Decl. ¶¶ 50–51.

Not only do the claims provide no limit on the type of user biometrics, the claims only require that a portion of the wireless earpiece fit within the ear canal, and that the wireless earpieces are configured to read user biometrics. *See* rMTA APPX A-1. A plain reading of the claims shows that it is not required that biometric information be read while the wireless earpiece is worn in the ear canal. *See* Pet. Sur-Reply at 8; *see also* TR 19:2–9 (“For example, the user could be holding the earpieces and looking into it for a retinal scan or face recognition.”). Moreover, we are persuaded by Petitioner’s arguments that the “substitute claims merely recite that ‘a portion of the wireless earpiece fits within the ear canal,’ meaning they allow for a portion of the earpiece to be outside of the ear canal, and thus, the earpiece could be structurally configured to house a wide variety of technology for reading a broad range of user biometrics. *See* Tr. 21:14–18 (“[T]hese earpieces are not simply just for . . . playing something in your ear, and that they could be more complicated devices or part of the more complicated system. And therefore, you could imagine a wide variety of user biometrics may be appropriate for wireless earpiece.”). Furthermore, nowhere do the substitute claims recite any use of, such as earpiece functions that depend on, any measured user biometrics.” Pet. Sur-Reply at 9. Thus, one of ordinary skill in the art would have to engage in extensive experimentation to understand the full breadth of biometrics that may be used in the earpiece and how those biometrics would be implemented in the earpiece.

With respect to *Wands* factor (5), “the state of the prior art” associated with “biometrics” represents ongoing efforts for which measurement techniques have been constantly evolving, e.g., DNA sequencing, retinal scans, vein pattern recognition, and facial recognition. *See* Pet. Opp. at 21–22. Thus, one of ordinary skill in the art would have to engage in experimentation to understand these evolving techniques and how they could apply to the subject earpiece.

With respect to *Wands* factor (6), “the relative skill of those in the art,” this factor is, at best, neutral. We note that, “[i]t is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement.’ Although the knowledge of one skilled in the art is indeed relevant, the novel aspect of an invention must be enabled in the patent.” *Auto. Techs. Int’l, Inc. v. BMW of North Am., Inc.*, 501 F.3d 1274, 1283 (Fed. Cir. 2007) (citation omitted). The court explained, “when there is no disclosure of any specific starting material or of any of the conditions under which a process can be carried out, undue experimentation is required.” *Id.* at 1284.

However, we find this factor to be potentially neutral to the extent that a subset of biometric information obtained from particular sensors, e.g., a temperature sensor, might be more easily implemented than more esoteric types of biometric information, such as DNA. Dr. Young supports Patent Owner here by opining that “a POSITA would understand how to implement the techniques disclosed in the specification within a wireless earpiece system.” Third Young Decl. ¶ 60.v.

Concerning *Wands* factor (7), “the predictability or unpredictability of the art,” we agree with Petitioner’s characterization that “[r]eading of user biometrics involves the ability to measure a particular human biological, physiological, or

chemical characteristic.” Pet. Opp. at 22. Even if some types of biometrics such as heart rate and temperature may be well-known and have well understood measurement techniques, other types of biometrics may be less well-known and potentially more challenging to implement, e.g., DNA sequencing, retinal scans, vein patterns, or facial features, because these biological, physiological, or chemical characteristics of the user are more unpredictable. *Id.*; *see also* Third Kiaei Decl. ¶ 53.

As to *Wands* factor (2), “the amount of direction or guidance presented” by the ’853 patent, we find that the disclosure is minimal, if not non-existent, for the full scope of the claim for certain types of biometric information. For example, we find no direction or guidance presented in the discussion in the disclosure as to how to measure biometrics like DNA sequencing, retinal scans, vein patterns, or facial features.

Thus, while we find that the disclosure relied upon by Patent Owner may be sufficient for written description purposes, we find no enabling disclosure of how a person with skill in the art would go about achieving the aims and purposes of Patent Owner’s proposed substitute claims for the full scope of biometric information.

We find before us an extremely broad claim limitation directed to a relatively complex invention for which Patent Owner has not provided sufficient working examples. Based on our review of *Wands* factors (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, and (8) the breadth of the claims, we determine that the weight of which is heavily weighted towards undue experimentation. We conclude that the ’853 patent disclosure does not enable those skilled in the art to make and use the full scope of the claimed invention without undue experimentation.

*b. Revised Ground 9 under 35 U.S.C. § 112(b) —
Indefiniteness of Claims 22–42*

Petitioner asserts that various limitations in the proposed substitute claims are indefinite by lack of antecedent basis. Pet. Opp. at 23–24.

i. Legal Standards for Indefiniteness

“[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Insts., Inc.*, 134 S. Ct. 2120, 2124 (2014). However, despite the absence of explicit antecedent basis, “[i]f the scope of a claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite.” *Bose Corp. v. JBL, Inc.*, 274 F.3d 1354, 1359 (Fed. Cir. 2001).

ii. Substitute Claims 22–42: “the ear canal opening”

Petitioner asserts that all claims recite “the ear canal opening,” and that this term lacks antecedent basis. Pet. Opp. 24. Patent Owner argues, “the disputed claim term does not require an antecedent basis,” because, “[a] POSITA would be able to reasonably ascertain that the scope of the claim term ‘the ear canal opening’ is the ear canal opening of the user.” PO Corr. Reply at 11.

We disagree with Petitioner because it is implicit that an ear canal has an opening, even in light of there being no prior recitation of “ear canal.” *Bose*, 274 F.3d at 1359.

iii. Substitute Claim 32: “the smart case”

Petitioner asserts substitute claim 32 recites “the smart case,” and that this term lacks antecedent basis. Pet. Opp. 24. Patent Owner argues, “[t]he claim term

‘the smart case’ contains implicit antecedent basis. . . . Therefore, the claim term ‘the smart case’ does not render Substitute Claim 32 indefinite.” PO Corr. Reply at 12 (citing Third Young Decl. ¶ 96). “But a POSITA would understand that the claim term ‘the smart case’ has an implicit antecedent basis within the proposed substitute claims.” Third Young Decl. ¶ 96. We disagree with Patent Owner and Dr. Young because a person with skill in the art would not have any point of reference as to how “the smart case” recitation came to be or what it represents if proposed claim 32 were ultimately to issue.

Patent Owner does not explain why one would implicitly understand this term to have an antecedent basis nor do we ascertain one from either claim 32 or the claim from which it depends. As such, we agree with Petitioner’s assertion that claim 32 lacks sufficient antecedent basis.

iv. Substitute Claim 42: “the wireless earpiece”

Proposed substitute claim 42 recites, *inter alia*, “a first wireless earpiece,” and “the wireless earpiece is configured to read user biometrics.” rMTA APPX A-5–A-6. Petitioner contends “[i]t is unclear which ‘wireless earpiece’ is being referenced by ‘the wireless earpiece.’” Pet. Opp. at 24.

Patent Owner argues, “the claim term ‘the wireless earpiece’ does have antecedent basis. . . . [because i]n the line immediately preceding the claim term ‘the wireless earpiece,’ the claim term ‘the first wireless earpiece’ is [recited]. A POSITA would understand that ‘the wireless earpiece’ refers to ‘the first wireless earpiece.’” PO Corr. Reply 12. We agree with Patent Owner because, in this situation, the intent of the claim recitation is reasonably ascertainable by those skilled in the art. *Bose*, 274 F.3d at 1359.

c. Summary

For the reasons stated above, we determine that claim 32 is indefinite under 35 U.S.C. § 112(b).

V. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–21 of the ’853 patent are unpatentable.³² In addition, we determine that Petitioner has demonstrated by a preponderance of the evidence that proposed substitute claims 22–42 are unpatentable. In addition, proposed substitute claim 32 violates the statutory and regulatory prohibition on enlarged patent scope. Our determinations are summarized below.

³² Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

Claims	35 U.S.C. §	References/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
10, 14	102(a)	Brown	10, 14	
1–3, 5	102(a)	Hain	1–3, 5	
10, 21	102(a)	Steinbrecher	10, 21	
1–7, 9	103	Shaffer, Hain	1–7, 9	
4, 6–8	103	Shaffer, Hain, Sørensen	4, 6–8	
10–12, 14, 16–21	103	Shaffer, Steinbrecher	10–12, 14, 16–21	
11–13, 15, 17–21	103	Shaffer, Steinbrecher, Sørensen	11–13, 15, 17–21	
Overall Outcome			1–21	

Motion to Amend Outcome	Claims
Original Claims Cancelled by Amendment	
Substitute Claims Proposed in the Amendment	22–42
Substitute Claims: Motion to Amend Granted	
Substitute Claims: Motion to Amend Denied	22–42
Substitute Claims: Not Reached	

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 1–21 of the ’853 patent are unpatentable;

FURTHER ORDERED that Petitioner has shown by a preponderance of the evidence that proposed substitute claims 22–42 are unpatentable and Patent Owner’s request to issue substitute claims 22–42 is *denied*; and

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FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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