

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

K/S HIMPP,
Petitioner,

v.

BRAGI GMBH,
Patent Owner.

IPR2023-01204
Patent 10,117,014 B2

Before LARRY J. HUME, STACEY G. WHITE, and GARTH D. BAER,
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 3, “Pet.”) requesting *inter partes* review (“IPR”) of claims 1–13 (“the challenged claims”) of U.S. Patent No. 10,117,014 B2¹ (Ex. 1001, “the ’014 patent”). Bragi GmbH (“Patent Owner”) timely filed a Preliminary Response. Paper 7. Pursuant to 35 U.S.C. § 314, on March 19, 2024, we instituted trial as to claims 1–13 of U.S. Patent No. 10,117,014 B2. Paper 8 (“Institution Decision” or “Dec.”).

Following institution, Patent Owner filed a Corrected Contingent Motion to Amend on June 11, 2024. Paper 14 (“Motion” or “Mot.”).² In its Motion, Patent Owner proposed to amend the ’014 patent to replace claims 1–13 with substitute claims 14–26. Mot. 1–2. Petitioner filed an Opposition to Patent Owner’s Motion on September 10, 2024.³ Paper 22.

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

¹ The ’014 patent issued from U.S. Application Serial No. 15/837,386 (the ’386 application”) filed December 11, 2017, which is a continuation of U.S. Application Serial No. 15/245,031 (the ’031 application”) (which became U.S. Patent No. 9,843,853) 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), (63).

² Patent Owner did not file a Patent Owner Response.

³ Petitioner filed a Reply on the same date in connection with the original grounds. Paper. 21.

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 October 1, 2024, in which we determined that Petitioner had shown a reasonable likelihood that proposed substitute claims 14–26 were unpatentable. Paper 23 ("PG").

Thereafter, Patent Owner filed a Revised Contingent Motion to Amend on October 22, 2024, providing revised substitute claims 14–26 to be considered if we were to ultimately determine that the original challenged claims 1–13 were unpatentable, and replacing the initial Motion to Amend. Paper 25 ("RMTA"). Petitioner filed an Opposition to Patent Owner's RMTA on December 6, 2024. Paper 29 ("Opp. RMTA"). Patent Owner filed a Patent Owner's Reply to Petitioner's Opposition to the Revised Motion to Amend on December 27, 2024. Paper 33 ("Reply RMTA"). Petitioner then filed a Sur-Reply to Patent Owner's Reply on January 17, 2025. Paper 35 ("Sur-Reply").

We held an oral hearing in this case on January 24, 2025, and a transcript of the hearing has been made of record. Paper 39 ("Transcript" or "Tr."). In the oral hearing, Patent Owner waived all arguments directed to Petitioner's original challenges to claims 1–13.

JUDGE HUME: Okay. We're into Patent Owner's rebuttal. First of all, based on the demonstratives, it appears you're -- and correct me if I'm wrong, you're waiving arguments against the original claims? Is that correct?

[PATENT OWNER'S COUNSEL,] MR. JARRETT: Yes, Your Honor. We're proceeding on the revised motion to amend.

[JUDGE HUME]: For both IPR[s], correct?

MR. JARRETT: Correct. Yes, Your Honor.

Tr. 35:9–16 (line numbering omitted). Thus, Patent Owner has waived all arguments against Petitioner’s original challenges to claims 1–13 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.” *U.S. 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 1–13 of the ’014 patent are unpatentable, and we further determine that proposed substitute claims 14–26 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

Petitioner states that the ’014 patent is a continuation of U.S. Patent No. 9,843,853 (the “’853 patent”) and is the parent of U.S. Patent No. 10,397,688 (the “’688 patent”). Pet. 4. Petitioner notes that the ’853 patent is at issue in *K/S HIMPP v. BRAGI GmbH*, IPR2023-01150, and the ’688 patent is at issue in *K/S HIMPP v. BRAGI GmbH*, IPR2023-01205 (initiated the same day as the present proceeding). *Id.*

B. The '014 Patent (Exhibit 1001)

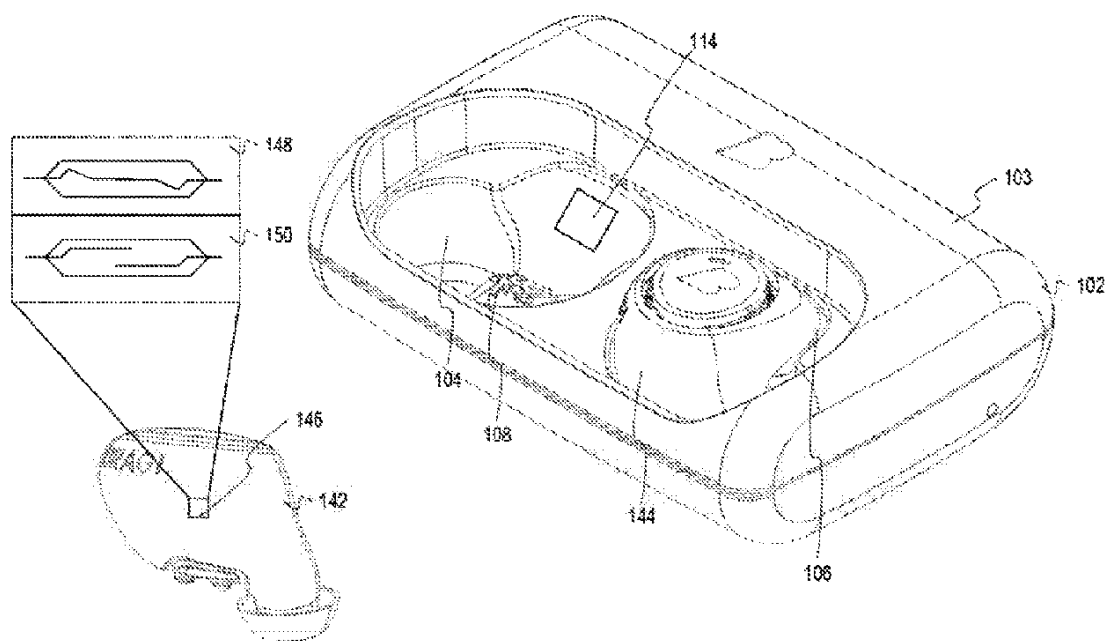
The '014 patent is titled “Power Control for Battery Powered Personal Area Network Device System and Method.” Ex. 1001, code (54). The '014 patent issued October 30, 2018 from U.S. Patent Application No. 15/837,386, filed December 11, 2017, which claims the benefit under 35 U.S.C. § 120 of parent application U.S. Patent Application No. 15/245,031⁴ which, in turn, claims benefit of U.S. Provisional Application No. 62/211,767, filed on August 29, 2015. *Id.* at codes (21), (22), (45), (60).

The '014 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, 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 8:6–11. In a “lowest power mode,” “minimal required functions may be performed” such as “software updates, data synchronization, clock updates, etc.” *Id.* at 8:16–18.

Figure 1 of the '014 patent is reproduced below as a further aid in understanding the claimed invention.

⁴ As noted *supra*, U.S. Patent Application No. 15/245,031 issued as U.S. Patent No. 9,843,853 B2, which is the subject of related IPR2023-01150 (for which a final written decision issued on January 21, 2025 (Paper 44 therein)).



'014 Patent – Fig. 1

Figure 1 of the '014 patent “is a pictorial representation of a smart case and wireless earpieces in accordance with an illustrative embodiment.” Ex. 1001, 2:22–24. 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 2:66–3:4, 3:52–57. The smart case has a logic engine that controls its operation and functionality and may include hardware, software, firm ware, or any combination thereof, such as circuitry, chips, programs, scripts, instructions, and processors. *Id.* at 6:47–58. “[T]he smart case 102 may be utilized to store, charge, and synchronize data for the wireless earpieces 142, 144.” *Id.* at 3:24–27.

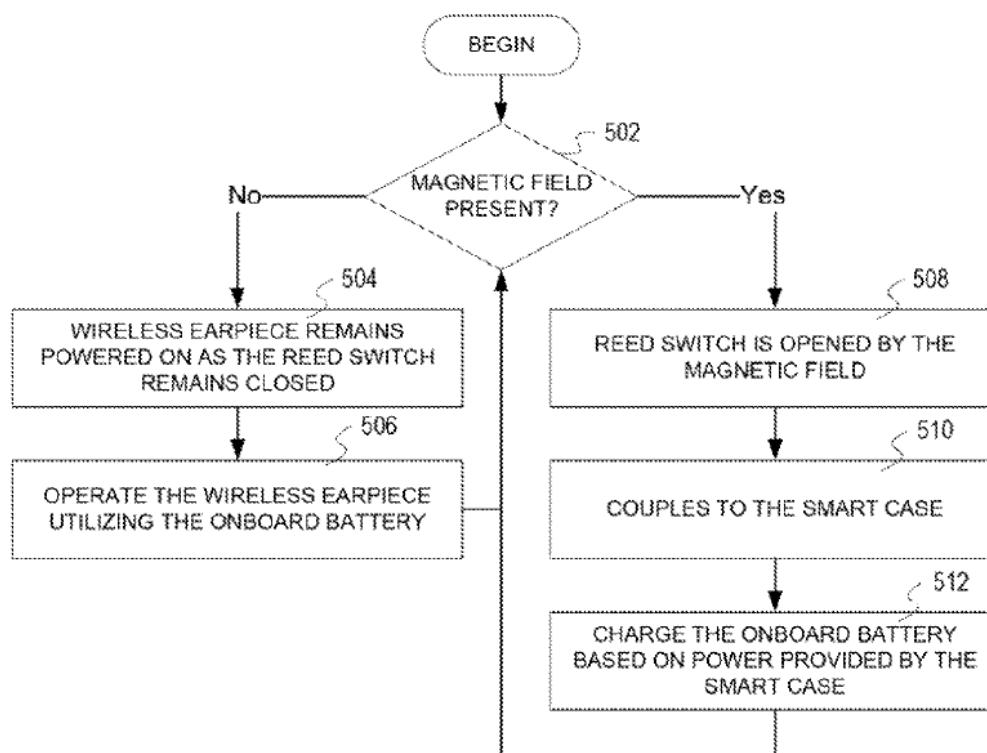
The '014 patent explains that the smart case also encloses a battery that “may be utilized to charge the wireless earpieces 142, 144 through direct contact or wirelessly,” and is used “as a custom charger for ensuring the proper power management and functionality of the wireless earpieces 142, 144.” Ex. 1001,

3:28–34. According to the ’014 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 3:40–42. “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 3:42–46.

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, 4:8–36. 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 4:30–36. 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 5:51–59. “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 5:34–40; *see also id.* at 7:66–8:6. “[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 5:44–49.

Figure 5 of the '014 patent is reproduced below as a further aid in describing control of the wireless earpieces using magnets in the smart case.



'014 Patent – Fig. 5

Figure 5 of the '014 patent “is a flowchart of a process for utilizing wireless earpieces with a smart case in accordance with an illustrative embodiment.” Ex. 1001, 2:31–33. 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 8:34–42. “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 8:43–47, 8:55–58.

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, 8:65–9:1, 9:17–29. 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 9:2–9:7. “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 9:7–10. 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 9:43–49, 9:62–64. “[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 9:45–49.

C. The Challenged Claims

Of the challenged claims, claims 1 and 10 are independent, and for purposes of this Decision, claims 1 and 10 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:

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

[1A] powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece; and

[1B] altering the power sent to the circuitry of the wireless earpiece to a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces.

Ex. 1001, 10:55–63 (Petitioner’s labeling added within brackets for ease of reference); *see* Pet. 17–25 (Specific Grounds of Unpatentability).

Claim 10 recites:

[10Preamble] A system comprising:

[10A] a left earpiece and a right earpiece each of the left earpiece and the right earpiece comprising

[10B] circuitry operating the earpiece,

[10C] a battery powering the circuitry operating the earpiece, and

[10D] 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;

[10E] a smart case housing for charging the left earpiece and the right earpiece;

[10F] a first receptacle for receiving the left earpiece disposed within the smart case housing;

[10G] a second receptacle for receiving a right earpiece disposed within the smart case housing;

[10H] a first interface associated with the first receptacle for electrically connecting the smart case to the left earpiece;

[10I] a second interface associated with the second receptacle for electrically connecting the smart case to the right earpiece;

[10J] an intelligent control disposed within the smart case housing and operatively connected to the first interface and the second interface.

Ex. 1001, 11:23–12:19 (Petitioner’s labeling added within brackets for ease of reference); *see* Pet. 26–38 (Specific Grounds of Unpatentability).

D. Asserted Challenges to Patentability

Petitioner challenged claims 1 through 13 of the '014 patent on the following six grounds as shown in Table II.D, below. *See* Pet. 6, 17–85. Petitioner supports its challenge with a declaration from Sayfe Kiaei, Ph.D. Ex. 1002. We instituted *inter partes* review. Dec. 54.

Table II.D

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

Pet. 6.

⁵ We apply the AIA version of 35 U.S.C. §§ 102, 103 because it the challenged claims have an effective filing date after March 16, 2013, the effective date of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011). *See* Ex. 1001, codes (22), (60).

⁶ DE 10 2007 039 455 A1, filed Aug. 21, 2007, published Feb. 26, 2009. Ex. 1004, “Hain”.

⁷ EP 1 727 395 B1, filed Feb. 8, 2006, published Aug. 20, 2008. Ex. 1006, “Steinbrecher”.

⁸ US 2015/0245126 A1, filed Oct. 9, 2014, published Aug. 27, 2015. Ex. 1003, “Shaffer”.

⁹ US 8,265,315 B2, filed Oct. 12, 2009, issued Sep. 11, 2012. Ex. 1005, “Sørensen”.

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

Patent Owner does not challenge Petitioner’s description of the level of ordinary skill in the art, and in its Revised Motion to Amend, Patent Owner “adopt[ed] Petitioner’s description of the level of skill of a POSITA.” RMTA 6. In addition, Patent Owner’s expert, Dr. Young provides a substantially identical definition of a person of ordinary skill in the art as compared to the definition asserted by Petitioner. Ex. 2005 ¶ 44.

We adopt Petitioner’s position as to the level of ordinary skill in the art at the time of the claimed invention. Based upon the full record, we are satisfied that Petitioner’s proposed definition comports with the level of skill necessary to understand and implement the teachings of the ’014 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 1–13

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 1–13 of the ’014 patent, and then we address Patent Owner’s proposed substitute claims 14–26 in the Revised Motion to Amend. Patent Owner has waived all arguments directed to Petitioner’s challenges to claims 1–13 under original Grounds 1–6. *See* Tr. 35:9–16; *see also* Dec. 54 (“Any arguments not raised by Patent Owner in a timely filed response may be deemed waived.”).

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 prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

“Petitioner submits that no terms need to be construed to resolve the issues raised in this Petition because the prior art discloses all limitations under any plausible construction.” Pet. 13–14. Patent Owner waived all arguments in connection with the original claims 1–13 of the ’014 patent. Tr. 35:9–16.

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

B. Ground 1: Anticipation of Claims 1–3 and 5 by Hain under § 102(a)

Under Ground 1, Petitioner contends the subject matter of challenged claims 1–3 and 5 is anticipated by Hain. Pet. 17–26. Patent Owner waived all arguments directed to this Ground. Tr. 35:9–16.

For the reasons explained below, we determine that Petitioner has met their burden by providing an adequate showing that the subject matter of claims 1–3 and 5 is anticipated by Hain.

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 Hain (Ex. 1004)*

Hain is a certified English translation of German Patent Application No. DE 10 2007 039 455 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).

Figure 1 of Hain is reproduced below.

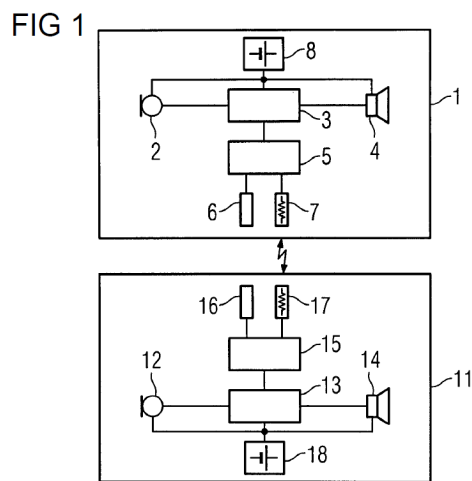


Figure 1 is a diagram of a hearing aid system. Ex. 1004 ¶ 16. Figure 1 shows a hearing aid system having a first hearing aid 1 and a second hearing aid 11 that can each be worn on the head of a user. *Id.* ¶ 18. Hain explains that “the hearing aids (1, 11) have sensor devices (6, 16) . . . which are 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.

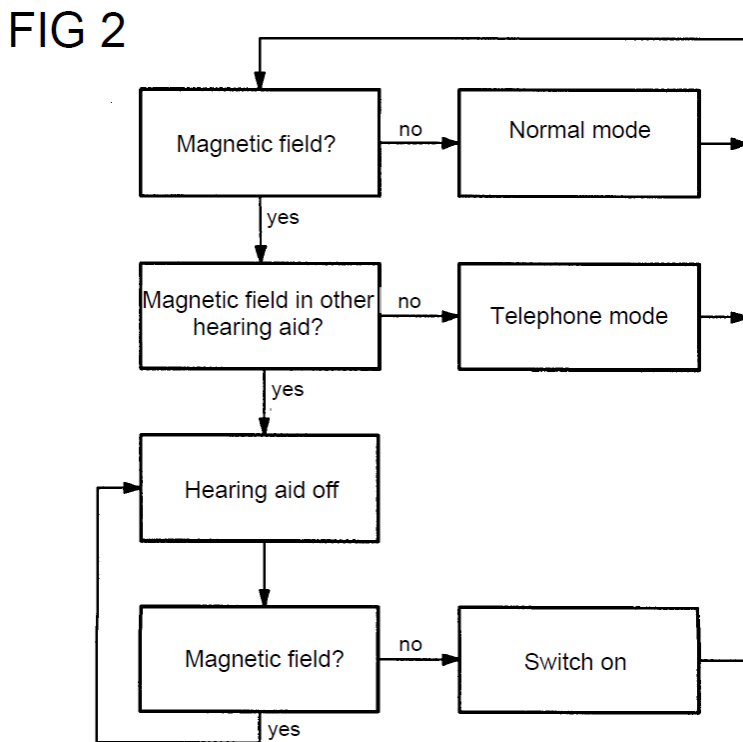


Figure 2 of Hain is a flow chart depicting a method "for automatically detecting the hearing situation 'telephoning' and for automatically switching off two hearing aids of a hearing aid system." Ex. 1004 ¶ 21. Figure 2 shows that the "telephoning" operating mode can be set when one of the hearing aids 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. “For 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.

3. *Analysis of Independent Claim 1*¹⁰

As noted above, Patent Owner chose not to file a patent owner response and waived all arguments against Petitioner's challenges to the original claims. Tr. 35:9–16. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. Below, we examine Petitioner's assertions for each of the grounds and each of the challenged claims to determine if they are sufficient to meet the burden required by 35 U.S.C. 316(e).

[1Preamble]: "A method for managing a wireless earpiece, comprising:"

Petitioner contends Hain discloses the preamble. Pet. 18–19. 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. 18 (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 the hearing aid circuitry using a residual power mode when the hearing aids are in the case and a normal mode when the hearing aids are out of the case." Pet. 19 (citing Ex. 1004 ¶¶ 11, 18, 19, 21, 22, claims 1, 5–7, 9).

Petitioner's un rebutted assertions and explanations are consistent with and supported by the evidence cited by Petitioner. On this record, and by a

¹⁰ Bracketing and parenthetical numbering of claim limitations in claim 1 are that adopted by Petitioner. *See* Pet. 18–25.

preponderance of the evidence, Petitioner has shown that Hain discloses claim 1's preamble.

[1A]: “powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece; and”

Next, addressing the limitations recited in the body of the claim, Petitioner contends Hain discloses limitation [1A]. Pet. 19–22. 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 low-power mode with reduced functionality, such as monitoring sensors and battery charging, when the hearing aids are placed into a storage box or in response to detecting a magnetic field is applied to the earpieces. *Id.* at 20–22 (citing Ex. 1004, Figs. 1, 2, ¶¶ 11, 19, 20, 22).

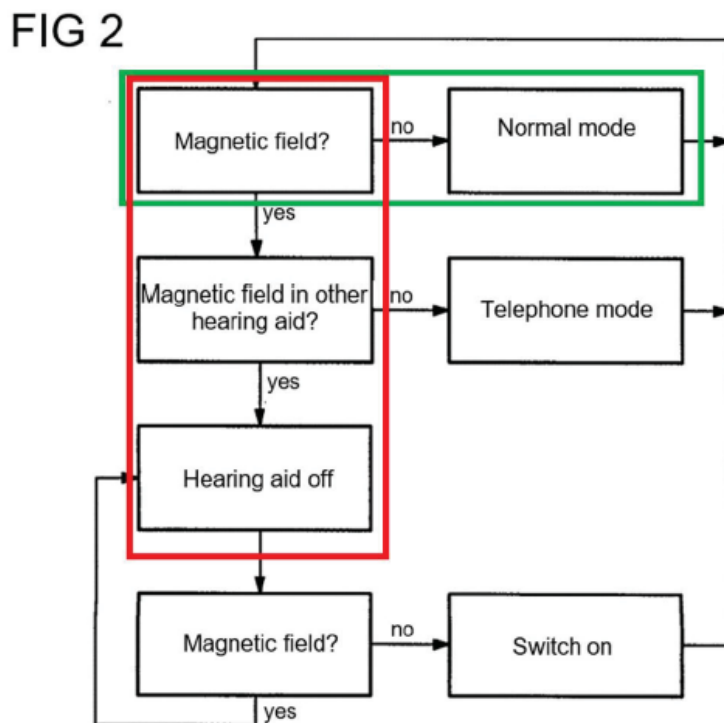
On this record, we find Petitioner's un rebutted assertions and explanations (Pet. 19–22) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [1A], i.e., “powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece.” On this record, and by a preponderance of the evidence, Petitioner has shown that Hain discloses limitation [1A].

[1B]: “altering the power sent to the circuitry of the wireless earpiece to a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces.”

Petitioner contends Hain discloses limitation [1B]. Pet. 22–25. 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 high power mode (e.g., ‘normal’ mode) in response to detecting a magnetic field is not applied to one or more of the

wireless earpieces.” *Id.* at 22–23 (citing Ex. 1002 ¶46; citing Ex. 1004 ¶¶ 1, 8, 10, 18, 20, Figs. 1, 2).

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



Pet. 24. “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. 21–22, 24–25.

Thus, Hain describes a system in which when one earpiece does not detect a magnetic field the earpiece is in high power mode. *Id.*; *see also id.* at 25 (“For as long as no magnetic field is detected, ***the hearing aid*** is in ‘normal operation.’”) (emphasis added). In addition, if both earpieces do not detect a magnetic field, then both earpieces will be in high power mode. *See* Ex. 1004, Fig. 2; *see also* Pet. 23 (“under normal operation, the circuitry in ***hearing aids 1 and 11*** is powered using a high-power mode”) (emphasis added).

On this record, we find Petitioner’s explanations (Pet. 22–25) 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 earpiece to a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces” such that Hain discloses limitation [1B].

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.

4. *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. 25–26. 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. 25–26 (citing Ex. 1004 ¶¶ 8, 18–22, Figs 1, 2; Ex. 1002 ¶¶ 50–53).

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 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, that Hain anticipates claims 1–3 and 5 under Ground 1.

C. *Ground 2: Anticipation of Claims 10 and 11 by Steinbrecher under § 102(a)*

Under Ground 2, Petitioner contends the subject matter of challenged claims 10 and 11 is anticipated by Steinbrecher. Pet. 26–39. We have considered Petitioner’s arguments and the evidence presented, and we address them in the context of claims 10 and 11.

For the reasons explained below, we determine that Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claims 10 and 11 is 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 1 727 395 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 (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.

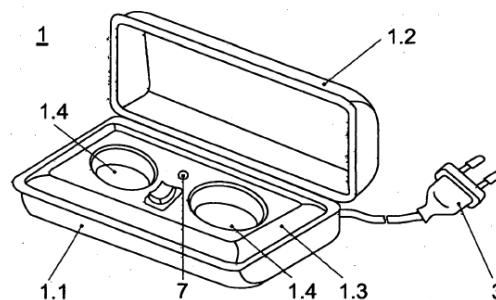


Fig. 1

Figure 1 of Steinbrecher depicts “a perspective view of a charging shell.” Ex. 1006 ¶ 23. The charging shell shown in Figure 1 includes housing bottom part 1.1, lid 1.2, and intermediate floor 1.3 with receiving recesses 1.4 for hearing aids.

Steinbrecher's Figure 2 is reproduced below.

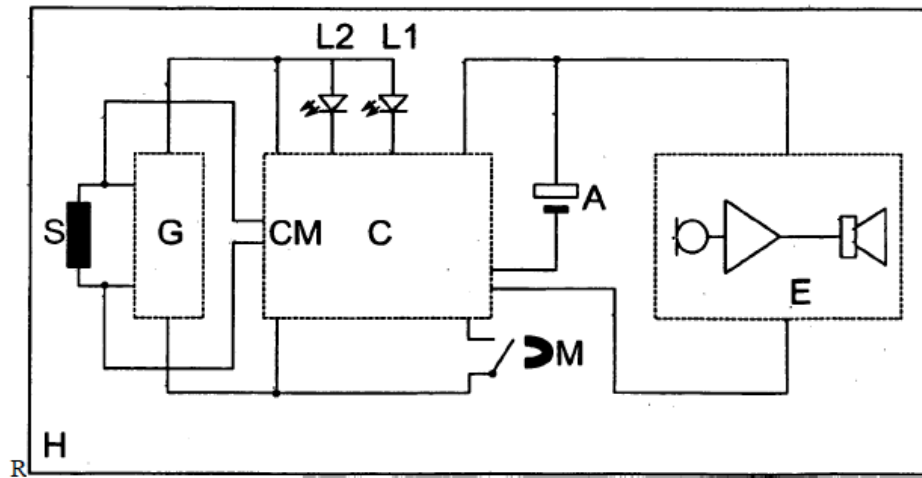


Fig. 2

¶¶ 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, “[t]he 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*¹¹

[10Preamble]: “A system comprising:”

Petitioner contends Steinbrecher discloses the preamble. Pet. 27. According to Petitioner, hearing aids H and charging shell 1 disclose a wireless earpiece system. *Id.* (citing Ex. 1006, Figs. 1, 2, ¶¶ 24–25).

Petitioner’s un rebutted 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 Steinbrecher discloses claim 10’s preamble.

[10A]: “a left earpiece and a right earpiece each of the left earpiece and the right earpiece comprising”

Next, addressing the limitations recited in the body of the claim, Petitioner contends Steinbrecher discloses limitation [10A]. Pet. 28. According to Petitioner,

¹¹ Bracketing and parenthetical numbering of claim limitations in claim 1 are that adopted by Petitioner. *See* Pet. 18–25.

hearing aids H in Figure 2 that are stored in respective recesses of charging shell 1 in Figure 1 disclose a left earpiece and a right earpiece. *Id.* (citing Ex. 1006, Figs. 1, 2, ¶ 24).

We find Petitioner’s unrebutted assertions and explanations (Pet. 28) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [10A], i.e., “a left earpiece and a right earpiece each of the left earpiece and the right earpiece comprising.” On this record, and by a preponderance of the evidence, Petitioner has shown that Steinbrecher discloses limitation [10A].

[10B]: “circuitry operating the earpiece,”

Petitioner contends Steinbrecher discloses limitation [10B]. Pet. 28–29. According to Petitioner, electronics E in Figure 2 of Steinbrecher are the circuitry operating the earpiece. *Id.* (citing Ex. 1006, Fig. 2, ¶¶ 18, 19, 25).

We find Petitioner’s unrebutted assertions and explanations (Pet. 28–29) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [10B], i.e., “circuitry operating the earpiece.” On this record, and by a preponderance of the evidence, Petitioner has shown that Steinbrecher discloses limitation [10B].

[10C]: “a battery powering the circuitry operating the earpiece, and”

Petitioner contends Steinbrecher discloses limitation [10C]. Pet. 29–30. According to Petitioner, Battery A in Figure 2 of Steinbrecher powers electronics E. *Id.* (citing Ex. 1006, Fig. 2, ¶¶ 18, 19, 25).

We find Petitioner’s unrebutted assertions and explanations (Pet. 29–30) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [10C], i.e., “a battery powering the circuitry operating the earpiece.” On

this record, and by a preponderance of the evidence, Petitioner has shown that Steinbrecher discloses limitation [10C].

[10D]: “a reed switch connecting the battery to the circuitry”

Petitioner contends Steinbrecher discloses limitation [10D]. Pet. 30–32. 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.* (citing Ex. 1006, Fig. 2, ¶¶ 18–20, 25).

We find Petitioner’s unrebutted assertions and explanations (Pet. 30–32) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [10D], 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, and by a preponderance of the evidence, Petitioner has shown that Steinbrecher discloses limitation [10D].

[10E]: “a smart case housing for charging the left earpiece and the right earpiece;”

Petitioner contends Steinbrecher discloses limitation [10E]. Pet. 33–35. 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.” *Id.* at 33 (citing Ex. 1006, Fig. 1, ¶¶ 7, 8, 24, 25). With reference to Figure 1, Petitioner also asserts that “Shaffer^[12] further

¹² Petitioner’s citations to Ex. 1006 and element 1.4 of Fig. 1 suggest that the reference to Shaffer is a typographical error, and Petitioner is instead discussing Steinbrecher, and not Shaffer.

discloses that charging shell 1 (i.e., smart case) has a smart case housing 1.1 that includes a pair of recesses 1.4 for charging the left earpiece (red box) and a right earpiece (green box).” *Id.* at 34 (citing Ex.1006, Fig. 1, ¶ 24).

We find Petitioner’s unrebutted assertions and explanations (Pet. 33–35) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [10E], i.e., “a smart case housing for charging the left earpiece and the right earpiece.” On this record, and by a preponderance of the evidence, Petitioner has shown that Steinbrecher discloses limitation [10E].

[10F]: “a first receptacle for receiving the left earpiece disposed within the smart case housing;”

[10G]: “a second receptacle for receiving a right earpiece disposed within the smart case housing;”

Petitioner contends Steinbrecher discloses limitations [10F] and [10G]. Pet. 35–36 (citing Ex. 1006 ¶ 24, Fig. 1). According to Petitioner, with reference to annotated Figure 1 of Steinbrecher (*see* Pet. 35), 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.*

We find Petitioner’s unrebutted assertions and explanations (Pet. 35–36) are consistent with and supported by the evidence cited by Petitioner with respect to limitations [10F] and [10G]. On this record, and by a preponderance of the evidence, Petitioner has shown that Steinbrecher discloses limitations [10F] and [10G].

[10H]: “a first interface associated with the first receptacle for electrically connecting the smart case to the left earpiece;”
[10I]: “a second interface associated with the second receptacle for electrically connecting the smart case to the right earpiece;”

Petitioner contends Steinbrecher discloses limitations [10H] and [10I]. Pet. 36–37 (citing Ex. 1006 ¶¶ 7, 9, Fig. 1). According to Petitioner, with reference to annotated Figure 1 of Steinbrecher (*see* Pet. 36), “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.*

We find Petitioner’s un rebutted assertions and explanations (Pet. 36–37) are consistent with and supported by the evidence cited by Petitioner with respect to limitations [10H] and [10I]. On this record, and by a preponderance of the evidence, Petitioner has shown that Steinbrecher discloses limitations [10H] and [10I].

[10J]: “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 [10J]. Pet. 37–38. According to Petitioner, with reference to the explanation above of how limitation [10J] 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.” *Id.* at 37 (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.* at 38 (citing Ex. 1006 ¶¶ 8, 9, 24, 25).

We find Petitioner’s un rebutted assertions and explanations (Pet. 37–38) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [10J], 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, and by a preponderance of the evidence, Petitioner has shown that Steinbrecher discloses limitation [10J].

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 Dependent Claim 11*

Claim 11 depends directly from claim 10. Ex. 1001, 12:20–21. Hence, claim 11 incorporates all of claim 10’s limitations. *See* 35 U.S.C. § 112 ¶ 4.

Petitioner also contends the subject matter of dependent claim 11 is anticipated by Steinbrecher. *See* Pet. 38–39. Petitioner provides analysis addressing the claim limitation in claim 11 and identifying evidence allegedly supporting its position, and we determine that Petitioner’s analysis of the dependent claim demonstrates unpatentability by a preponderance of the evidence. Pet. 38–39 (citing Ex. 1006 ¶¶ 8, 14, 15, 24, 26, Figs. 1, 3, 4).

We find Petitioner’s un rebutted assertions and explanations to be 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 Steinbrecher anticipates claim 11 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 Steinbrecher anticipates claims 10 and 11 under Ground 2.

D. *Ground 3: Obviousness of Claims 1–7 and 9 Under § 103 over Shaffer 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).

We analyze the obviousness challenges according to these principles.

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

Shaffer is U.S. patent application publication number US 2025/0245126A1 titled “Earbud Charging Case for Mobile Device,” filed on October 9, 2014, and published on August 27, 2015. Ex. 1003, codes (10), (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 code (57).

Figure 3A of Shaffer is reproduced below.

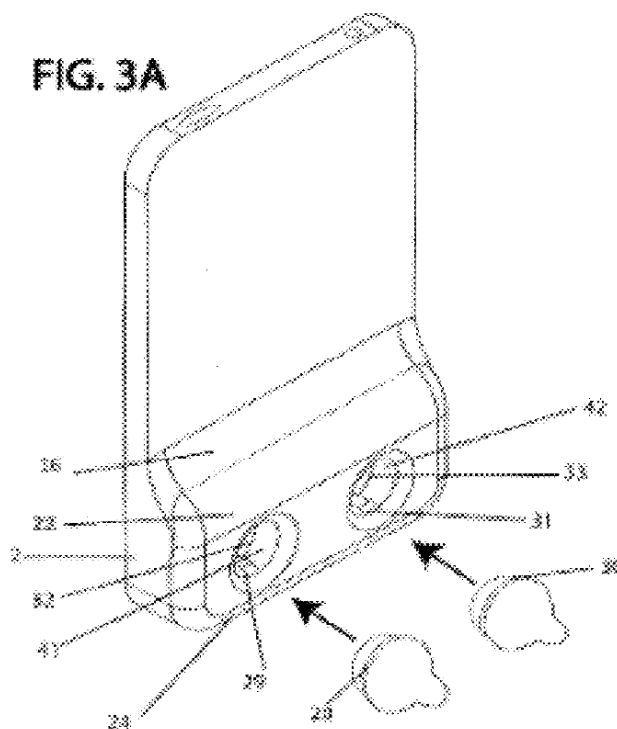


Figure 3A of Shaffer depicts a rear view of a mobile device case with an earbud dock and the mobile device removed from the case with earbuds entering the case. Ex. 1003 ¶¶ 14, 18. Figure 3A includes a mobile device case and earbuds that have magnetized earbud aperture rings (28, 30). *Id.* ¶ 42. “Examples of earbuds include in-ear headphones, hearing aids and the like.” *Id.* ¶ 32. The mobile device case has solid rear connection (22) with lower portion (24), middle portion (22), and upper portion (16). *Id.* ¶ 41. The solid rear projection 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.

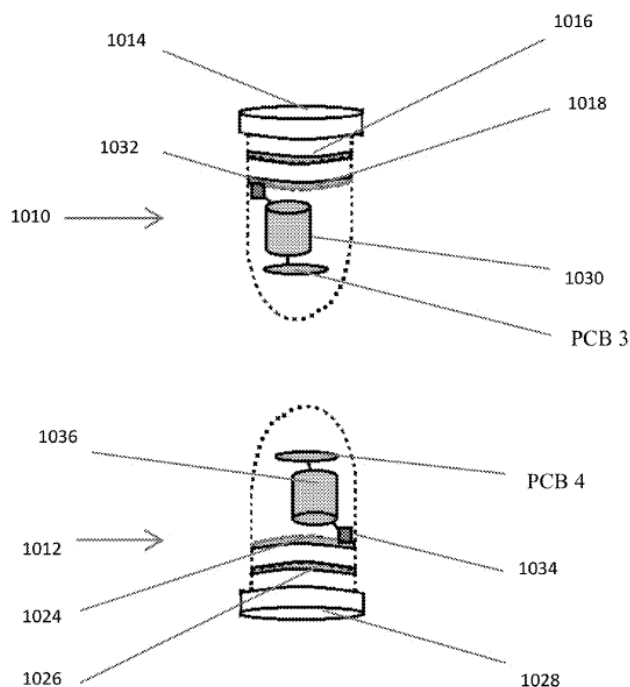


Fig. 10

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.

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

¶ 2.

1. Analysis of Independent Claim 1

Under Ground 3, Petitioner contends claims 1–7 and 9 are unpatentable under § 103 as obvious over Shaffer and Hain. *See* Pet. 39–61.

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 3.

[1Preamble]: “A method for managing a wireless earpiece, comprising:”

Petitioner contends Shaffer teaches the preamble. Pet. 39–42. 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 a magnetic storage case 11 and powering the earbud circuitry using a low energy consumption idle mode when the earbuds are in the case and a high power mode when the earbuds are out of the case. *Id.* (citing Ex. 1003 ¶¶ 11, 32, 34, 62–63, Figs. 3A, 10).

We find Petitioner’s un rebutted assertions and explanations to be consistent with and supported by the evidence cited by Petitioner. On this record, and by a

preponderance of the evidence, Petitioner has shown that Shaffer teaches claim 1's preamble.

[1A]: “powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece; and”

Next, addressing the limitations recited in the body of the claim, Petitioner contends, with respect to limitation [1A] and relying on its showing for Ground 1, that Hain discloses a magnetic sensor (reed contacts 6 and 16) that determines that an earbud is in its storage case by detecting that a magnetic field is applied to the earpieces. *See* Pet. 46. With respect to limitation [1A], Petitioner also contends Shaffer discloses powering the wireless earpieces (earbuds 1010 and 1012) using 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, and discloses that the PCB circuitry of the earbuds is powered using the low-energy consumption idle mode (i.e., low power mode) in response to a magnetic sensor detecting that earbuds 1010 and 1012 are placed into their storage case. Pet. 42–46 (citing Ex. 1003 ¶¶ 11, 40, 62, 63, Fig. 10).

Thus, Petitioner submits that Shaffer in view of Hain teaches limitation [1A] because Shaffer discloses that the power sent to the circuitry of earbuds 1010 and 1012 is responsive to a magnetic sensor that detects when the earbuds are in or out of their storage case, but leaves the implementation of a specific magnetic sensor to a POSITA. Hain further discloses an implementation of well-known magnetic sensors (e.g., using reed contacts 6 and 16) that operates by detecting whether a magnetic field is applied to the earpieces, and an ordinarily skilled artisan would have been motivated to utilize the specific sensors of Hain to implement Shaffer. Pet. 46–49 (citing Ex. 1002 ¶ 76).

We find Petitioner’s un rebutted assertions and explanations (Pet. 42–49) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [1A], i.e., “powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece.” On this record, and by a preponderance of the evidence, Petitioner has shown that the combination of Shaffer and Hain teaches limitation [1A].

[1B]: “altering the power sent to the circuitry of the wireless earpiece to a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces.”

Petitioner contends, with respect to limitation [1B] and relying on its showing for Ground 1, that Hain discloses 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. *See* Pet. 51. With respect to limitation [1B], Petitioner also contends Shaffer discloses altering the power sent to the circuitry of the wireless earpieces (e.g., earbuds 1010 and 1012) to a high power mode (e.g., “on” state) in response to a magnetic sensor detecting that the earpieces are out of their storage case, and discloses that the earbuds’ 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. Pet. 49–50 (citing Ex. 1003 ¶¶ 11, 62, 63, Fig. 10). Thus, Petitioner submits that Shaffer in view of Hain teaches limitation [1B] as an ordinarily skilled artisan would have been motivated to modify Shaffer in view of Hain as described for limitation [1A]. Pet. 49–51 (citing Ex. 1002 ¶¶ 81–84).

We find Petitioner’s un rebutted assertions and explanations (Pet. 49–51) are consistent with and supported by the evidence cited by Petitioner with respect to limitation [1B], i.e., “altering the power sent to the circuitry of the wireless

earpiece to 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 the combination of Shaffer and Hain teaches limitation [1B].

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. 46–49 (citing Ex. 1002 ¶¶ 76–80). Based on our review of the full record, we find Petitioner’s rationale to be reasonable and sufficiently supported.

Conclusion for Ground 3: 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 reasons 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.

2. 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. Hence, claims 2–7 and 9 incorporate all of claim 1’s limitations. *See* 35 U.S.C. § 112 ¶ 4.

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. 51–61; Ex. 1002 ¶¶ 85–98.

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. 51–61; Ex. 1002 ¶¶ 85–98. 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.

3. *Ground 3: 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 1–7 and 9 under Ground 3 would have been obvious over the combination of Shaffer and Hain.

E. Ground 4: Obviousness of Claims 4 and 6–8 Under § 103 over Shaffer, Hain, and Sørensen

Petitioner contends claims 4 and 6–8 are unpatentable under § 103 as obvious over the combination of Shaffer, Hain, and Sørensen. *See* Pet. 61–66. Claims 4 and 6–8 depend directly from claim 1. Ex. 1001, 11:5–7, 11:10–21.

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 listening devices, e.g. hearing instruments.” *Id.* at code (57).

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.

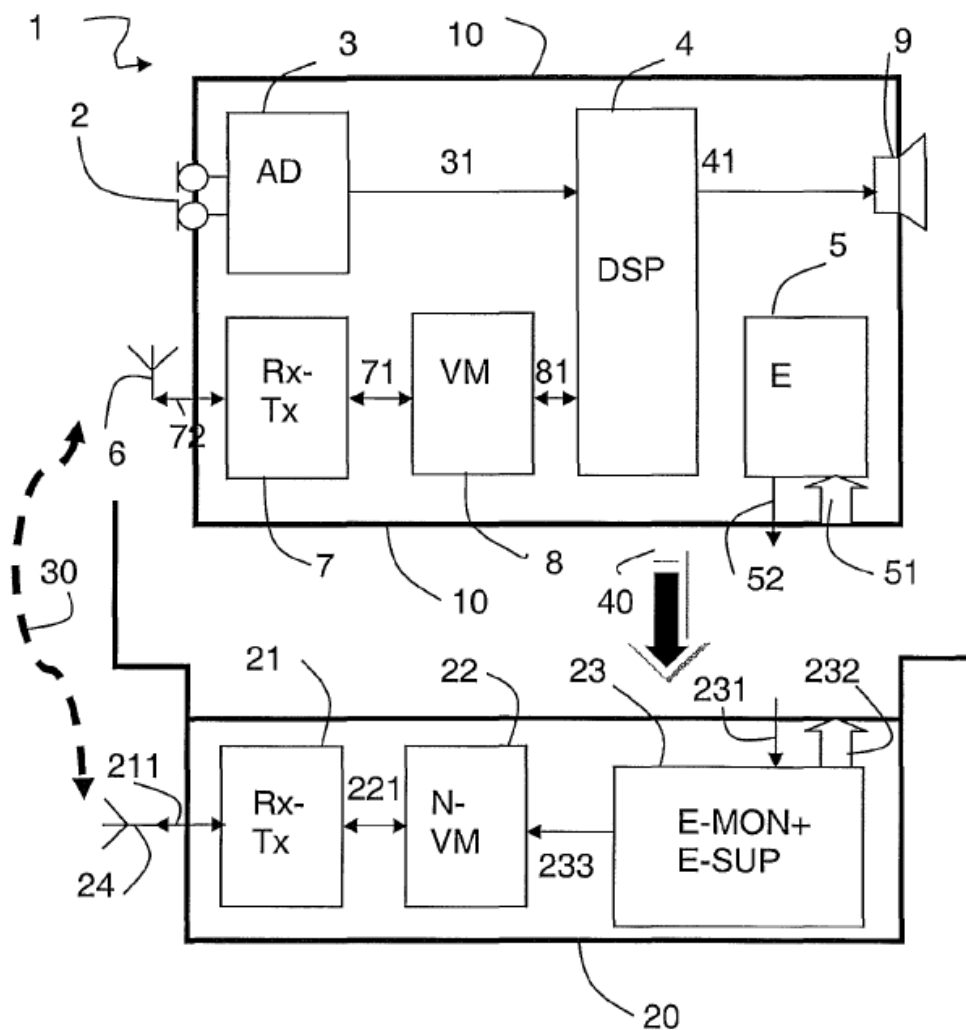


Fig. 1

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 20 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*

Claims 4 and 6–8 depend directly from claim 1. Ex. 1001, 11:5–7, 11:10–21. Hence, claims 4 and 6–7 incorporate all of claim 1’s limitations. *See* 35 U.S.C. § 112 ¶ 4.

For Ground 4, supported by Dr. Kiaei’s testimony, Petitioner sets forth specific un rebutted 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. 61–66 (citing Ex. 1005, 3:22–33, 3:36–42, 4:43–62, 6:26–47, 6:51–62, 7:26–60, 8:10–15, Fig. 1; Ex. 1002, ¶¶ 100–108). We have already addressed Hain’s disclosure of limitations [1A] and [1B] in claim 1 above, in connection with Ground 1, claim 1. As for motivation to combine, Petitioner states “[a] POSITA would have been motivated to modify Shaffer’s storage case to use the above-described functionality of Sørensen’s intelligent controls 21, 22, and 23,” and “would have been motivated to modify the teachings of Shaffer in view of Sørensen as described above for Claims 4, 6, and 7, e.g., by modifying Shaffer’s storage case to use the data synchronization functionality of Sørensen’s intelligent controls 21, 22, and 23.” Pet. 63–64, 66.

We determine that Petitioner’s un rebutted evidence and arguments are sufficient to demonstrate, by a preponderance of the evidence, that claims 4 and 6–8 under Ground 4 would have been obvious over the combination of Shaffer, Hain, and Sørensen.

F. Ground 5: Obviousness of Claims 10–13 Under § 103 over Shaffer and Steinbrecher

1. Analysis of Independent Claim 10

Under Ground 5, supported by Dr. Kiaei’s testimony, Petitioner sets forth specific un rebutted findings and legal conclusions regarding how claim 10 reads on the combined disclosures of Shaffer and Steinbrecher. See Pet. 66–81 (citing Ex. 1002 ¶¶ 109–129).

In particular, Petitioner contends, with respect to limitation [10D] and relying on its showing for Ground 2, that Steinbrecher discloses an implementation of a magnetic sensor that uses a reed switch (microswitch M implemented as a reed contact) to connect the battery to the circuitry, and discloses that the magnetic

sensor with the reed switch connects (or disconnects) the circuitry from the battery by detecting that a magnetic field is not (or is) applied to the earpieces. Pet. 71. Petitioner also contends, with respect to the preamble and limitations [10A]–[10J] that Shaffer teaches: “a left earpiece and a right earpiece (e.g., a pair of wireless earbuds 1010 and 1012, one of which corresponds to a left earpiece and the other a right earpiece)”; “circuitry (e.g., PCB 3 and PCB 4) operating each of the earpieces (e.g., earbuds 1010 and 1012)”; “a battery (e.g., batteries 1030 and 1036) powering the circuitry (e.g., PCB 3 and PCB 4) of each of the earpieces (e.g., earbuds 1010 and 1012)”; “a smart case housing for charging the left earpiece and the right earpiece (e.g., earbuds 1010 and 1012). . . . the smart case housing . . . used for charging the earbuds 1010 and 1012 (i.e., left and right earpieces)”; “a first receptacle (aperture 32 . . .) and a second receptacle (aperture 33 . . .) for receiving the left and right earpieces, respectively” with “[b]oth receptacles . . . disposed within the smart case housing”; “first and second interfaces [(in smart case 11)] (e.g., electrical contacts 29 and 31) associated with the first and second receptacles (e.g., apertures 32 and 33) for electrically connecting the smart case to the left and right earpieces, respectively”; the “storage case . . . include[ing] one or more intelligent controls (e.g., PCBs 1004, 1005, and 1006) disposed within the smart case housing”; and “that the power sent to the circuitry of earbuds 1010 and 1012 is responsive to a magnetic sensor that detects when the earbuds are in or out of their storage case.” Pet. 66–81 (citing Ex. 1003 ¶¶ 6, 34, 36, 40–41, 48, 60, 61–63, Figs. 3A, 4, 10).

On this record, we find Petitioner’s un rebutted assertions and explanations (Pet. 66–81) are consistent with and supported by the evidence cited by Petitioner. Petitioner further identifies reasons that would have prompted an ordinarily skilled artisan to utilize the specific sensors of Steinbrecher (such as magnetic sensors

using a reed switch actuated by a permanent magnet) to implement Shaffer's earbuds, including that Steinbrecher expressly discloses benefits of employing the magnetic sensor by using a charge controller connected to a reed switch. *See* Pet. 72–75 (citing Ex. 1002 ¶¶ 118–122). Based on our review of the full record, we find Petitioner's rationale to be reasonable and sufficiently supported.

On this record, we find Petitioner's un rebutted assertions and explanations (Pet. 66–81) are consistent with and supported by the evidence cited by Petitioner with respect to the limitations of claim 10. On this record, Petitioner demonstrates, by a preponderance of the evidence that claim 10 would have been obvious over the combination of Shaffer and Steinbrecher.

2. Analysis of Dependent Claims 11–13

Claims 11–13 depend directly or indirectly from claim 10. Ex. 1001, 12:20–27. Hence, claims 11–13 incorporate all of claim 10's limitations. *See* 35 U.S.C. § 112 ¶ 4.

For claims 11–13, Petitioner provides an analysis supported by Dr. Kiaei's testimony about how the combined disclosures in Shaffer and Steinbrecher teach the claimed subject matter. *See* Pet. 81–84; Ex. 1002 ¶¶ 130–135.

We find that Petitioner establishes by a preponderance of the evidence that the combined disclosures in Shaffer and Steinbrecher teach or suggest the subject matter in claims 11–13. *See* Pet. 81–84; Ex. 1002 ¶¶ 130–135. Hence, Petitioner demonstrates by a preponderance of the evidence that claims 11–13 would have been obvious over the combination of Shaffer and Steinbrecher.

3. Ground 5: 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 10–13 under Ground 5 would have been obvious over the combination of Shaffer and Steinbrecher.

G. Ground 6: Obviousness of Claims 10–13 Under § 103 over Shaffer, Steinbrecher, and Sørensen

Petitioner contends claims 10–13 are unpatentable under § 103 as obvious over Shaffer, Steinbrecher, and Sørensen. *See* Pet. 85. As explained below, Petitioner establishes sufficiently, by a preponderance of the evidence, that the combined disclosures in Shaffer, Steinbrecher, and Sørensen teach or suggest the subject matter in claims 10–13.

For Ground 6, Petitioner relies on the showing for claims 4, 6, and 7 under Ground 4, and on Dr. Kiaei’s testimony, to show that Shaffer in combination with Steinbrecher and Sørensen disclose the limitations in claims 10–13, including the “smart case” limitations. *See* Pet. 85 (citing Ex. 1002 ¶ 136).

On this record, we find Petitioner’s unrebutted assertions and explanations (Pet. 85) are consistent with and supported by the evidence cited by Petitioner, and we determine that Petitioner’s evidence and arguments are sufficient to demonstrate, by a preponderance of the evidence, that claims 10–13 under Ground 6 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 1–13. RMTA 1. Having determined that Petitioner has shown by a preponderance of the evidence that original claims 1–13 of the '014 patent are unpatentable, we proceed to address Patent Owner's Revised Motion to Amend.

Patent Owner proposes substitute claims 14–26 to replace challenged claims 1–13, respectively. RMTA 1. A listing of proposed substitute claims 14–26 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 14–26 meet the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121. However, we also determine that Petitioner has shown by a preponderance of the evidence that proposed substitute claims 14–26 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, 4–8. 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 and does not introduce new matter. *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 Darrin Young, Ph.D. *See* Ex. 2005 filed October 22, 2024, Ex. 2006 filed December 27, 2024.

Petitioner relies upon additional testimony from Dr. Kiaei in response to Patent Owner’s Motion to Amend. *See* Ex. 1026 filed December 6, 2024.

C. Proposed Substitute Claims

We start by identifying correspondence between the original and substitute claims, and reproduce substitute claims that are illustrative of the subject matter of the proposed amendments.

1. Correspondence Between Substitute and Original Claims

The table 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.

<i>Correspondence Between Substitute and Original Claims</i>				
Original Claim	Substitute Claim		Original Claim	Substitute Claim
1	*14		8	21
2	15		9	*22

<i>Correspondence Between Substitute and Original Claims</i>				
Original Claim	Substitute Claim		Original Claim	Substitute Claim
3	16		10	*23
4	*17		11	24
5	18		12	25
6	*19		13	26
7	*20			

2. *Illustrative Proposed Substitute Claims*

In its Revised Motion to Amend, Patent Owner contingently proposes substituting claims 14–26 in place of original claims 1–13. RMTA 1. Proposed substitute claims 14, 17, and 22 are illustrative of the subject matter of the proposed amendments and are reproduced below, showing the proposed amendments to the original claims with the added language underlined:

Claim 14. [Proposed substitute for claim 1] A method for managing a wireless earpiece, comprising:

powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to 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

altering the power sent to the circuitry of the wireless earpiece to a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces.

RMTA Appx. A-1.

Claim 17. [Proposed substitute for claim 4] The method of claim 14, wherein the magnetic field is applied by a magnet of a smart case configured to receive the wireless earpiece, wherein the smart case comprises a rechargeable battery configured to charge the wireless earpieces.

RMTA Appx. A-1, A-2.

Claim 22. [Proposed substitute for claim 9] The method of claim 14, wherein the low power mode is a power saver mode and the user biometrics is utilized by the wireless earpiece to alter the power mode.

RM TA Appx. A-3.

3. *Compliance with Statutory and Regulatory Requirements*

Patent Owner bears the burden to ensure that its Motion to Amend complies with the legal requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121. *Lectrosonics*, Paper 15 at 4–5, 7–8. For the reasons that follow, we determine that Patent Owner has satisfied that burden.

a. *Proposal of a reasonable number of substitute claims*

A motion to amend must “propose a reasonable number of substitute claims.” 35 U.S.C. § 316(d)(1)(B); *see also* 37 C.F.R. § 42.121(a)(3) (“A motion to amend may cancel a challenged claim or propose a reasonable number of substitute claims.”). “There is a rebuttable presumption that a reasonable number of substitute claims per challenged claim is one (1) substitute claim.”

Lectrosonics, Paper 15 at 4; *see also* 37 C.F.R. § 42.121(a)(3).

Here, Patent Owner proposes a reasonable number of substitute claims. Patent Owner proposes a one-to-one substitution of proposed claims 14–26 for original claims 1–13. RM TA 2, Appx. A. Petitioner does not argue otherwise. *See generally* Opp. RM TA; Sur-Reply. We determine that this requirement is met.

b. *Amendments responsive 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).

Petitioner asserts that “[a]ll the proposed substitute claims include at least one amendment that does not respond to any ground of unpatentability involved in this IPR and thus PO’s RMTA should be denied.” Opp. RMTA 23. According to Petitioner, the additions of “a portion of the [left/right] wireless earpiece fits within the ear canal opening” (substitute claims 14–26), “the smart case comprises[/comprising] a rechargeable battery configured to charge the [in-ear] wireless earpieces” (substitute claims 17, 19, 20), and “the user biometrics is utilized by the wireless earpiece to alter the power mode” (substitute claim 22) are not relied upon by Patent Owner to overcome any ground of unpatentability. *Id.* at 23–24.

In its Revised Motion to Amend, Patent Owner argues that “none of [Petitioner’s originally asserted references] . . . disclose a wireless earpiece(s) ‘configured to read user biometrics’” as required by all proposed substitute claims. RMTA 8–10. Patent Owner elaborates, “Hain does not state the claimed hearing aids are configured to read user biometrics. Nor does Hain mention biometrics at all,” “Steinbrecher does not disclose reading a user’s biometrics, nor does it even mention biometrics,” “Shaffer, Hain, Sørensen . . . do not disclose a wireless earpiece(s) ‘configured to read user biometrics,’” and “none of [Shaffer, Steinbrecher, and Sørensen] . . . disclose a wireless earpiece(s) ‘configured to read user biometrics’” as required by all proposed substitute claims. *Id.* Thus, Petitioner’s contention that “PO does not rely on any of the . . . amendments [added to the substitute claims] to overcome any ground of unpatentability in this IPR” (*see* Opp. RMTA 23) is inaccurate. *See* Reply RMTA 11.

Moreover, as noted in our precedential decision, Rule 41.121 “does not require . . . that every word added to or removed from a claim in a motion to amend be solely for the purpose of overcoming an instituted ground.”

Lectrosonics, Paper 15 at 5. The Federal Circuit, in accord with that view of our rules, has found that “so long as a proposed claim amendment does not enlarge the scope of the claims, does not add new matter, and responds to a ground of unpatentability in the proceeding, the patent owner may also make additional amendments to a claim without running afoul of the relevant statutes and regulation.” *Am. Nat’l Mfg. Inc. v. Sleep No. Corp.*, 52 F.4th 1371, 1380 (Fed. Cir. 2022).

As such, we find that the proposed amendments are responsive to a ground of unpatentability involved in the trial.

c. No enlargement of the scope of the claims

An amendment may not seek to 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). The amendments proposed in the Revised Motion to Amend do not enlarge the scope of the claims but include narrowing limitations to the original claims of the ’014 patent. *See* RMTA Appx. A. Petitioner does not argue otherwise. *See generally* Opp. RMTA; Sur-Reply. We determine that this requirement is met.

d. No introduction of new matter

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.”). Patent Owner also is required to show written description support “in the original disclosure of the

patent for each claim that is . . . amended.” 37 C.F.R. §§ 42.121(b)(1), 42.121(b)(2).

Patent Owner has identified adequate written description support for proposed substitute claims 14–26. *See* RMTA 5–6, Claims App. The amendments do not add new matter. *See id.* Petitioner does not argue otherwise. *See generally* Opp. RMTA; Sur-Reply. We determine that each proposed substitute claim is supported by the original disclosure of the ’014 patent and does not seek to add new matter. We determine that this requirement is met.

4. *Indefiniteness*

The Board must assess the patentability of proposed substitute claims “without placing the burden of persuasion on the patent owner.” *Aqua Prods., Inc. v. Matal*, 872 F.3d 1290, 1328 (Fed. Cir. 2017) (en banc); *see also Lectrosonics*, Paper 15 at 3–4. The petitioner must prove that the proposed substitute claims are unpatentable by a preponderance of the evidence. *Bosch Auto. Serv. Sols., LLC v. Matal*, 878 F.3d 1027, 1040 (Fed. Cir. 2017); *Lectrosonics*, Paper 15 at 3–4.

Petitioner, supported by a declaration from Dr. Kiaei (Ex. 1026), asserts indefiniteness as a ground of unpatentability in regards to the proposed substitute claims. Opp. RMTA 24–25. Patent Owner, supported by declarations from Dr. Young (Exs. 2005, 2006) opposes. Reply RMTA 11–12.

In particular, Petitioner argues that proposed substitute claims 14–26 are indefinite. Opp. RMTA 24–25. Petitioner argues that: (i) it is unclear which “ear canal opening” is being referenced in proposed substitute independent claims 14 and 23 because the claimed “*the* ear canal opening” lacks antecedent basis; (ii) it is unclear in proposed substitute claim 17 which “wireless earpieces” (plural) are being referenced in the limitation “*the* wireless earpieces” that are allegedly not referenced in the plural form in claim 14 (from which claim 17 depends); (iii) it is

unclear which “*in-ear* wireless earpieces” are being referenced in proposed substitute claims 19 and 20 because base claim 14 (from which claims 19 and 20 depend) recites “a wireless earpiece” but not “in-ear wireless earpieces,” moreover, the term “in-ear” itself is indefinite; and (iv) it is unclear in proposed substitute claim 22 which “power mode” should be “alter[ed]” from among the “power saver mode” recited therein and the “low power” and “high power” modes recited in base claim 14. *See id.*

“[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 Instruments, Inc.*, 572 U.S. 898, 901 (2014). We are unpersuaded by Petitioner’s contentions with respect to points (i), (ii), and (iv) above, for the following reasons. However, we are persuaded by Petitioner’s contentions with respect to point (iii) above.

Regarding the claimed phrase “the ear canal opening” in proposed substitute claims 14 and 23, it is implicit that an ear canal has an opening, even in light of there being no prior recitation of “ear canal” in the claims. *Bose Corp. v. JBL, Inc.*, 274 F.3d 1354, 1359 (Fed. Cir. 2001). Furthermore, proposed substitute claims 14 and 23 inform, with reasonable certainty, that the referenced “ear canal opening” is in fact that of the “user” mentioned in these claims. *See* RMTA Appx. A-1 (claim 14 referencing “user biometrics”), A-3 (claim 23 referencing “user biometrics”). That is, in view of the reference to a “user” whose biometrics are being read in these claims, one having ordinary skill in the art would understand that “the ear canal opening” recited therein belongs to that “user.” *See* Reply RMTA 11; *see Energizer Holdings, Inc. v. Int’l Trade Comm’n*, 435 F.3d 1366,

1370–71 (Fed. Cir. 2006) (“an antecedent basis can be present by implication”). We, therefore, find no fatal lack of clarity in this claim limitation.

Regarding the claimed “the wireless earpieces” recited in proposed substitute claim 17, Patent Owner argues, “[t]he wireless earpieces’ of Substitute Claim 17 have antecedent basis in the ‘[one or more] wireless earpiece’ of Substitute Claim 14” as “using ‘a’ before a noun [(e.g., in claim 14)] naming object requires the phrase to be construed as ‘one or more.’” Reply RMTA 11–12. We agree with Patent Owner because, in this situation, the intent of the claim recitation in claim 17 is reasonably ascertainable by those skilled in the art. *Bose*, 274 F.3d at 1359. Moreover, claim 14 actually mentions “one or more of the wireless earpieces” (in the last line of the claim). *See* RMTA Appx. A-1.

Regarding “the in-ear wireless earpieces” recited in proposed substitute claims 19 and 20, we observe that “in-ear” wireless earpiece(s) are not mentioned in claim 14 from which claims 19 and 20 depend. Claim 14, on the contrary, recites “a portion of the wireless earpiece fits within the ear canal opening” and the earpiece of claims 19 and 20 is “in-ear.” We do not see an earpiece that has a portion fitting in the ear canal as providing basis for an “in-ear” wireless earpiece. We, therefore, agree with Petitioner that “it is unclear which ‘in-ear wireless earpieces’ are being referenced” in claims 19 and 20. *See* Opp. RMTA 24.

Regarding the claimed phrase “alter the power mode” in proposed substitute claim 22, it appears that the claim informs, with reasonable certainty, those skilled in the art about its scope. In particular, claim 22 first recites that “the low power mode is a power saver mode,” immediately thereafter specifying that “the user biometrics is utilized by the wireless earpiece to alter the power mode.” *See* RMTA Appx. A-3. In view of the language in claim 22, we agree with Patent Owner that one having ordinary skill in the art would understand that “to alter the

power mode” refers to the altering of the power mode referenced immediately prior—i.e., “the low power mode [that] is a power saver mode.” *See* Reply RMTA 12. We, therefore, find no lack of clarity in the claim limitation directed to “alter[ing] the power mode.”

On this record, Petitioner has not established that the phrases “the ear canal opening,” “alter the power mode,” and “the wireless earpieces” recited in proposed substitute claims 14, 23, 22, and 17 render the claims unclear and indefinite. Thus, on this record, Petitioner has not shown that proposed substitute claims 14–18 and 21–26 fail to comply with the definiteness requirement.

Petitioner has, however, established that the phrase “in-ear wireless earpieces” recited in proposed substitute claims 19 and 20 renders these claims unclear and indefinite.

5. *Enablement*

As noted *supra*, the Board must assess the patentability of proposed substitute claims “without placing the burden of persuasion on the patent owner.” *Aqua Prods*, 872 F.3d at 1328; *see also Lectrosonics*, Paper 15 at 3–4. The petitioner must prove that the proposed substitute claims are unpatentable by a preponderance of the evidence. *Bosch Auto. Serv. Sols.*, 878 F.3d at 1040; *Lectrosonics*, Paper 15 at 3–4.

Petitioner, supported by a declaration from Dr. Kiaei (Ex. 1026), asserts lack of enablement as a ground of unpatentability in regards to the proposed substitute claims. Opp. RMTA 19–23. Patent Owner supported by declarations from Dr. Young (Ex. 2006) opposes. Reply RMTA 9–11.

a. Proposed substitute claims 14–21 and 23–26

Petitioner argues the '014 patent does not enable a person of ordinary skill in the art to make and use the invention claimed by the proposed substitute independent claims (and by all the proposed substitute dependent claims by virtue of their dependency) under 35 U.S.C. § 112(a). In particular, Petitioner argues “[t]he '014 patent specification fails to enable a POSITA to make and use a ‘wireless earpiece [] configured to read user biometrics’” as recited in proposed substitute independent claims 14 and 23. Opp. RMTA 19–20; *see also* Sur-Reply 9.

As pointed out by Petitioner, substitute claims 14 and 23 “simply require a wireless earpiece to be ‘configured to read user biometrics,’ with no restrictions on the type of user biometrics or how their reading is accomplished,” thereby covering “the **entire class** of user biometrics”; however, “[t]he '014 patent specification fails to enable a POSITA to make and use a wireless earpiece configured to read the entire class of user biometrics.” Opp. RMTA 20–21.

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.’” Reply RMTA 9 (quoting *Amgen*, 598 U.S. at 611).

According to Patent Owner's expert, Dr. Young, the term "user biometrics" as used in the '853 patent¹³ means "biological, physiological, or chemical characteristics with respect to the individual." *See* Ex. 1032,¹⁴ 15:6–16:12.

Patent Owner cites to the '031 application as providing support for the term "user biometrics." *See* RMTA 5–6 (citing Ex. 1008, 4:19–22, 5:3–15, 6:6–20, 7:5–13, 7:27–8:8, Figs. 1, 2, 4). The cited portions of the '031 application provide: "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 '014 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, 5:17–22. "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 9:64–10:3.

¹³ The '853 patent is the parent of the '014 patent (which is a continuation thereof, *see* Ex. 1001, code (63)), and Patent Owner acknowledges that the '014 patent's specification is the same as the '853 patent's specification. *See* RMTA 5–6 (whereby Patent Owner identifies support for the proposed substitute claims in the specification of US Patent Appl. No. 15/245,031 (the '031 application), which is the application from which the '853 patent issued).

¹⁴ Exhibit 1032 is a Transcript of a Second Deposition of Dr. Darrin Young dated 9/27/2024 originally filed in another proceeding (IPR2023-01150). In the current proceeding, Patent Owner stipulated that the 9/27/2024 deposition of Dr. Young in IPR2023-01150 applies to the current proceeding. *See* Ex. 1035.

Patent Owner's expert, Dr. Young, states that "user biometrics" also includes retinal scans. Ex. 1032 at 16:24–17:3 ("for example, I [came a]cross technology where something is scanning an individual's retinal eye. . . . that will be considered a biometrics"). According to Dr. Kiaei, the specification of the '014 patent does not disclose how to make a wireless earpiece configured to read DNA sequencing, retinal scans, vein patterns, or facial features. Ex. 1026 ¶ 106.

Petitioner argues, as a consequence, the '014 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. Sur-Reply 10.

Patent Owner attempts to limit the scope of "user biometrics" recited in proposed substitute claims 14 and 23 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. Reply RMTA 10. In particular, Patent Owner argues:

The Substitute Claims require a wireless earpiece configured to fit within the ear canal and to read user biometrics. Thus, a POSITA would know that only a limited set of biometrics would be suitable for an earpiece worn within the ear and for performing associated functions, which would include controlling various power modes, and would not logically include things like endoscopic pill, bone implants, etc. Ex. 1001 (2:1-2:2, 3:23-3:26). Ex. 2006 ¶ 62.

. . . .
[T]hese techniques [(DNA sequencing, facial recognition, and retinal scans)] would not be employed in an earpiece.

Id.

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).

We conclude that the '014 patent disclosure does not enable those skilled in the art to make and use the full scope of the invention claimed in proposed substitute claims 14 and 23 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 Co. v. Teva Pharms. 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 (Reply

RMTA 10), the breadth of the functional recitation of “wireless earpiece [that] is 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. 1032, 15:2–14; *see also* Ex. 1026 ¶¶ 105–106.

As noted *supra*, Patent Owner submits that, based on the language of claim 14, “a POSITA would know that only a limited set of biometrics would be suitable for an earpiece worn within the ear and for performing associated functions” which “would include controlling various power modes, and would not logically include things like endoscopic pill, bone implants” or “DNA sequencing, facial recognition, and retinal scans” because “these techniques would not be employed in an earpiece.” Reply RMTA 9–10. We are not persuaded by Patent Owner’s arguments because proposed substitute claims 14 and 23 provide no limit on the type of the “user biometrics” that are read. Moreover, these claims only require that “a portion of the wireless earpiece fits within the ear canal opening” (claim 14), “a portion of the left wireless earpiece fits within the ear canal opening” (claim 23), and “a portion of the right wireless earpiece fits within the ear canal opening” (claim 23) and that the “wireless earpiece is configured to read user biometrics.” *See* RMTA Appx. A-1, A-3.

A plain reading of these claims shows that it is not required that biometric information be read *while* the wireless earpiece is worn in the ear canal. *See* Sur-Reply 10–11 (“[the substitute claims] do not require that the wireless earpieces read user biometrics while they are worn within the ear, meaning the earpieces could read user biometrics while not positioned within the ear”).

For example, as Petitioner points out, the language in proposed substitute claims 14 and 23 does not preclude a wireless earpiece “configured to perform retinal scans or facial recognition when *not* worn within the ear, such as by having sensor(s) in a wireless earpiece to scan the face or eyes while a user holds and looks into the wireless earpiece.” Sur-Reply 11 (citing Ex. 1026 ¶ 106). Moreover, we are persuaded by Petitioner’s argument that the language in proposed substitute claims 14 and 23 reciting that “a portion of the wireless earpiece fits within the ear canal opening” allows “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.” Sur-Reply 11. As such, one of ordinary skill in the art would have to engage in extensive experimentation to make and use the full breadth of biometrics that may be used in the earpieces of claims 14 and 23, and how those biometrics would be implemented in the earpiece. *See* Sur-Reply 10–12.

With respect to *Wands* factors (5) and (7), “the state of the prior art” and “the predictability or unpredictability of the art” associated with “biometrics,” Petitioner submits that efforts are ongoing for which measurement techniques have been constantly evolving for, e.g., DNA sequencing, retinal scans, vein pattern recognition, and facial recognition; moreover, some types of user biometrics that involve biology, chemistry, or physiology, such as DNA sequencing, retinal scans, and vein patterns, may be challenging to measure. *See* Opp. RMTA 22–23 (citing Ex. 1026 ¶¶ 107–108). 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. 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.” *Id.* at 23. Even if some

types of biometrics such as heart beat or temperature may be well-known and have well understood measurement techniques, other types of biometrics (such as DNA sequencing, retinal scans, and vein pattern recognition) involve areas of biology, chemistry, or physiology that are more unpredictable. *Id.* (citing Ex. 1026 ¶ 108).

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.” Ex. 2006 ¶ 62.

As to *Wands* factors (2) and (3), “the amount of direction or guidance presented” by, and “the presence or absence of working examples” in, the disclosure of the ’014 patent, we find that the disclosure is minimal, if not non-existent, for the full scope of claims 14 and 23 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 recognition.

Thus, while we find that the disclosure in the '014 patent 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 making and using Patent Owner's proposed substitute claims 14 and 23 for the full scope of biometric information.

We find before us an extremely broad claim limitation in claims 14 and 23, 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 weighting of the *Wands* factors is heavily weighted towards undue experimentation. We conclude that the '014 patent disclosure does not enable those skilled in the art to make and use the full scope of the invention claims in proposed substitute claims 14 and 23 (and proposed substitute dependent claims 15–21 and 24–26) without undue experimentation.

b. Proposed substitute claim 22

We analyze proposed substitute claim 22 separately because we do not find that Petitioner's non-enablement arguments directed to "the wireless earpiece [that] is configured to read user biometrics" (recited in claim 14) apply equally to the method of proposed substitute claim 22, in which "the low power mode is a power saver mode and the user biometrics is utilized by the wireless earpiece to alter the power mode." See RMTA Appx. A-3.

For example, with respect to claim 22, we are unpersuaded by Petitioner's arguments that: "the entire class of all user biometrics must be enabled [by the

'014 patent]" including "DNA sequencing, retinal scans, vein patterns, or facial features"; the claim would not be enabled because "making a wireless earpiece configured to read all user biometrics, such as DNA sequencing, retinal scans, vein patterns, and facial features, would require undue experimentation"; the "user biometrics" recited therein are "incredibly broad, covering any []biological, physiological or chemical characteristics of the user"; and the state of the art and predictability of "DNA sequencing, retinal scans, vein pattern recognition, and facial recognition" are particularly relevant to claim 22. *See* Opp. RMTA 20–23.

Biometrics such as DNA, retinal scans, vein patterns, and facial features appear to be inapposite to the user biometrics recited in claim 22 (which are "utilized by the wireless earpiece to alter the power mode"), and Petitioner does not explain why an ordinarily skilled artisan would naturally consider DNA analysis, retinal scans, vein patterns, and facial recognition when seeking to make and use a wireless earpiece that uses read user biometrics "to alter the power mode," as claimed.

Moreover, with respect to *Wands* factors (2) the amount of direction or guidance presented, and (3) the presence or absence of working examples, we observe that the '014 patent provides at least one working example of user biometrics read by a wireless earpiece being configurable to alter the earpiece's power mode. *See* Ex. 1001, 5:17–32, 9:62–10:2. In particular, the '014 patent describes

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). For example, if the wireless earpieces 142, 144 are near the smart case 102 and no heart beat is detected, the smart case 102 may send a command for the wireless earpieces 142, 144 to shut themselves down or enter a low power mode with minimum functionality. In one

embodiment, power to onboard sensory arrays may be terminated and only essential functions remain on. For example, in the low power mode allows charging of the wireless earpieces 142, 144 and/or smart case 102 and uploads/downloads to the wireless earpieces 142, 144 while in the low power mode.

....

the wireless earpiece may download or synchronize data with the smart case. *The data may include biometric information (e.g., pulse rate, oxygenation, distance traveled, 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. (emphases added).

In conclusion, we find that Petitioner has not demonstrated, by a preponderance of the evidence, that the '014 patent's disclosure would not enable those skilled in the pertinent art to make and use the full scope of the invention claimed in proposed substitute claim 22.

6. *Obviousness of Proposed Substitute Claims*

As noted *supra*, the Board must assess the patentability of proposed substitute claims “without placing the burden of persuasion on the patent owner.” *Aqua Prods.*, 872 F.3d at 1328; *see also Lectrosonics*, Paper 15 at 3–4. The petitioner must prove that the proposed substitute claims are unpatentable by a preponderance of the evidence. *Bosch Auto. Serv. Sols.*, 878 F.3d at 1040; *Lectrosonics*, Paper 15 at 3–4.

Petitioner, supported by declarations from Dr. Kiaei (Exs. 1018, 1026), asserts the following obviousness grounds as grounds of unpatentability in regards

to the proposed substitute claims. Opp. RMTA 2–19.¹⁵ Patent Owner supported by declarations from Dr. Young (Exs. 2005, 2006) opposes. Reply RMTA 1–9.

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
14–16, 18	103	Hain and Rass ¹⁶
23, 24	103	Steinbrecher and Rass
14–20, 22	103	Shaffer, Hain, and Rass
17, 19–21	103	Shaffer, Hain, Sørensen, and Rass
23–26	103	Shaffer, Steinbrecher, and Rass
23–26	103	Shaffer, Steinbrecher, Sørensen, and Rass
14–16, 18	103	Hain and Aumer ¹⁷
23, 24	103	Steinbrecher and Aumer
14–20	103	Shaffer, Hain, and Aumer
17, 19–21	103	Shaffer, Hain, Sørensen, and Aumer
23–26	103	Shaffer, Steinbrecher, and Aumer
23–26	103	Shaffer, Steinbrecher, Sørensen, and Aumer
22	103	Shaffer, Hain, Aumer, Rass

¹⁵ Although Petitioner’s Opposition does not list every ground applied to the proposed substitute claims (instead using “and/or” language when referring to proposed combinations of references, *see* Opp. RMTA 5, 14), the Opposition states that it seeks “to combine Rass’s [sic] and/or Aumer’s teachings with the references in each of the Petition grounds” (*see id.* at 2–3).

¹⁶ U.S. Pat. No. 7,522,739 B2, issued Apr. 21, 2009 (Ex. 1033, “Rass”).

¹⁷ U.S. Pat. Pub. No. 2016/0094899 A1, published Mar. 31, 2016 (Ex. 1027, “Aumer”).

a. Overview of Rass (Ex. 1033)

Rass is a U.S. patent titled “Hearing Aid with a Switching Device for Switching On and Off and Corresponding Method,” filed on May 10, 2005, and issued on April 21, 2009. Ex. 1033, codes (12), (22), (45), (54). Rass describes a “hearing aid (I) [that] 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.” *Id.* at code (57). “The hearing aid is then switched on and off again based on the temperature signal.” *Id.*

Figure 1 of Rass is reproduced below.

FIG 1

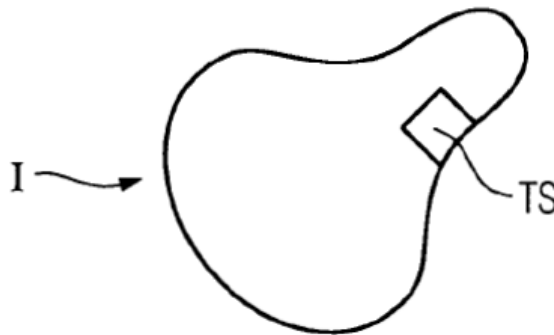


Fig. 1 shows a temperature sensor in an in-the-ear (ITE) hearing aid.
Id. at 2:53–54.

Rass explains that the ITE hearing aid illustrated in Fig. 1 has a temperature sensor TS, and when the hearing aid is worn, “the hearing aid I or its shell heats up,” “temperature sensor TS registers this heat,” and “[o]nce a certain temperature threshold is exceeded, the device is switched on.” *Id.* at 2:63–3:4. However, “[i]f the temperature drops back to below a lower temperature threshold, the hearing aid I switches off again.” *Id.* Rass further provides that “[t]his temperature-controlled switching on and off is also possible in principle with a single temperature threshold.” *Id.*

Rass therefore provides a “method for switching a hearing aid on and off, by obtaining a switch signal from . . . a temperature signal relating to the body heat of a hearing aid wearer.” *Id.* at 2:5–9. Rass explains that an advantage of its solution is that “there is no need for a mechanical switch, e.g. the battery compartment switch” with “[a]utomatic switching on and off . . . represent[ing] a significant increase in user-friendliness.” *Id.* at 2:14–20. According to Rass, its “switching on and off operations include switching to or from standby mode. . . . [which] extends the useful life or endurance of the hearing aid battery during normal operation.” *Id.* at 2:28–31.

b. Overview of Aumer (Ex. 1027)

Aumer is a U.S. patent application publication titled “Methods and Apparatus for Improving Signal Quality in Wearable Biometric Monitoring Devices,” filed on August 18, 2015, and published on March 31, 2016. Ex. 1027, codes (12), (22), (43), (54). Aumer “relates generally to monitoring devices and methods, more particularly, to monitoring devices and methods for measuring physiological information” (Ex. 1027 ¶ 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” and “[i]n 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.

Id. ¶ 64.

Figures 2A and 2B of Aumer, reproduced below, “illustrate a biometric monitoring device that can be positioned within an ear of a subject. *Id.* ¶ 23.

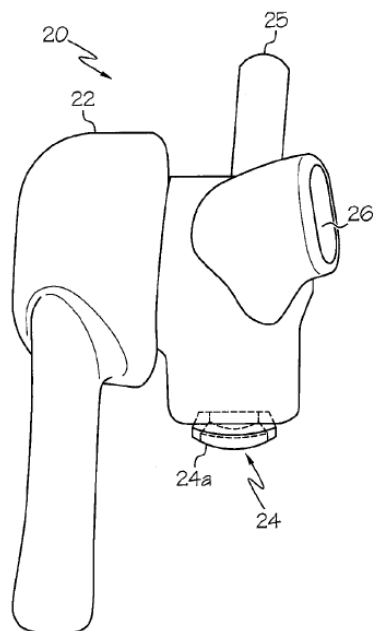


FIG. 2A

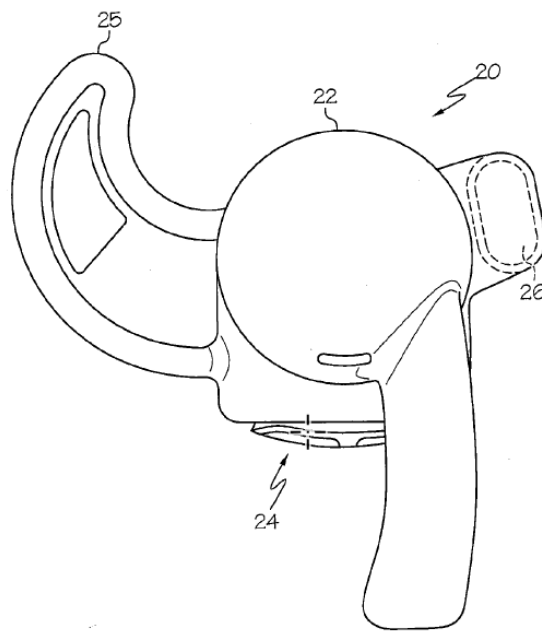


FIG. 2B

Figures 2A and 2B illustrate a biometric monitoring device 20 that can be positioned within an ear of a subject. *Id.* ¶¶ 23, 65–66, 71.

Aumer's monitoring earpiece 20 includes an earpiece body or housing 22, a sensor module 24, a stabilizer 25, and a sound port 26, and “[w]hen positioned within the ear of a subject, the sensor module 24 has a region 24a configured to contact a selected area of the ear” such as “matingly engag[ing] a portion of the ear between the anti tragus and acoustic meatus” while “the stabilizer is configured to engage the anti-helix.” *Id.* ¶¶ 66, 69. “However, monitoring devices in accordance with [Aumer's] embodiments . . . can have sensor modules with one or more regions configured to engage various portions of the ear.” *Id.* ¶ 66. Sensor module 24 is “configured to detect and/or measure physiological information from the subject.” *Id.* ¶ 69. More particularly, Aumer provides that:

A sensor module utilized in accordance with embodiments of the present invention may be an optical sensor module that includes at least one optical emitter and at least one optical detector. Exemplary optical emitters include, but are not limited to light-emitting diodes (LEDs), laser diodes (LDs), organic light-emitting diodes (OLEDs),

compact incandescent bulbs, micro-plasma emitters, IR blackbody sources, or the like. In addition, a sensor module may include various types of sensors including and/or in addition to optical sensors. For example, a sensor module may include one or more inertial sensors (e.g., an accelerometer, piezoelectric sensor, vibration sensor, photoreflexor sensor, etc.) for detecting changes in motion, one or more thermal sensors (e.g., a thermopile, thermistor, resistor, etc.) for measuring temperature of a part of the body, one or more electrical sensors for measuring changes in electrical conduction, one or more skin humidity sensors, and/or one or more acoustical sensors.

Id. ¶ 70. The sensor may also be “a PPG sensor” whose operation is “based upon shining light into the human body and measuring how the scattered light intensity changes with each pulse of blood flow,” whereby “[t]he 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.* ¶¶ 3, 19.

Monitoring earpiece 20 further includes at least one processor that is coupled to the sensor(s) and that is configured to receive and analyze signals produced by the sensor(s), a communication component, and an adjustment mechanism. *Id.* ¶¶ 66, 71. The communication component allows the processor(s) to communicate with a wearer of the monitoring earpiece 20 via a remote device (such as a smart phone or computer). *Id.* ¶ 72. Adjustment mechanism 18 is a device that facilitates proper placement of the monitoring earpiece 20 relative to the body of the subject. *Id.* ¶ 73.

Aumer provides that its 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” to “improve the biometric fit (and hence the biometric signal quality).” *Id.* ¶¶ 6–8. Aumer’s

“method of monitoring signal quality of [the] wearable biometric monitoring device” includes “instructing the subject via the at least one processor [of the biometric monitoring device] to begin an exercise regimen,” “measuring signal quality produced by the at least one sensor [of the biometric monitoring device],” and “communicating information to the subject regarding the signal quality during the exercise regimen.” *Id.* ¶ 7.

c. Obviousness of Proposed Substitute Claims 14 and 23

We begin by addressing the parties’ disputes regarding whether proposed substitute independent claims 14 and 23 would have been obvious over (i) Petitioner’s respective asserted Rass-based combinations that include the combination of Hain and Rass, the combination of Steinbrecher and Rass, and the combination of Shaffer, Hain, and Rass, and (ii) Petitioner’s respective asserted Aumer-based combinations that include the combination of Hain and Aumer, the combination of Steinbrecher and Aumer, and the combination of Shaffer, Hain, and Aumer. *See* Opp. RMTA 3–19.

Proposed substitute independent claim 14 includes amendments to original independent claim 1, and proposed substitute independent claim 23 includes similar amendments to original independent claim 10. *See* RMTA Appx. A-1, A-3, A-4. For the reasons given above (*see* Sections III.B.3, III.C.2, and III.D.1), based on the arguments and evidence of record, we determine that Petitioner has proved, by a preponderance of evidence, that claim 1 is unpatentable as anticipated by Hain, and as rendered obvious by Shaffer and Hain, and that claim 10 is unpatentable as anticipated by Steinbrecher. Below we address the parties’ disputes regarding proposed substitute claims 14 and 23, and the features recited in Patent Owner’s proposed amendments in claims 14 and 23.

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).

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 the Petition's original grounds, that none of Petitioner's originally-asserted references disclose any wireless earpiece(s) "configured to read user biometrics" as recited in proposed substitute claims 14 and 23. RMTA 8–9 (citing Ex. 2005 ¶¶ 67–72).

In response to Patent Owner's Revised Motion to Amend, Petitioner presents revised grounds, arguing that proposed substitute claim 14 is obvious over (i) the combination of Hain and Rass, (ii) the combination of Shaffer, Hain, and Rass, (iii) the combination of Hain and Aumer, and (iv) the combination of Shaffer, Hain, and Aumer. Opp. RMTA 3–19. Petitioner also presents revised grounds arguing that proposed substitute claim 23 is obvious over (v) the combination of Steinbrecher and Rass and (vi) the combination of Steinbrecher and Aumer. *Id.* In

particular, Petitioner asserts that a person of ordinary skill in the art “would have been motivated to include in a wireless earpiece, as taught by Hain, Steinbrecher, or Shaffer (*e.g.*, Hain’s hearing aids 1 and 11, Steinbrecher’s hearing aid H, Shaffer’s earbuds 1010 and 1012),” a “temperature sensor to detect user temperature and automatically switch on and off the hearing aid or earbud based on the detected temperature, as taught by Rass” or “one or more sensors, a processor, and a communication component to read user biometrics, as taught by Aumer.” *Id.* at 5–6, 14.

Patent Owner argues that Petitioner’s showing in the Opposition is insufficient. Reply RMTA 1–9. In particular, Patent Owner argues that the above-referenced combinations do not render proposed substitute claims 14 and 23 obvious because, *inter alia*, Rass and Aumer are allegedly not analogous art to the ’014 patent (Reply RMTA 2–4, 6–7); Petitioner (purportedly) has not established proper motivation to combine each of Rass and Aumer with Hain, Shaffer, and Steinbrecher (*id.* at 1, 4–8); and Rass’ disclosed temperature reading is not a reading of user biometrics as claimed in claims 14 and 23 (*id.* at 4, 7–8).

After considering amended claims 14 and 23 as a whole, in light of the parties’ arguments and evidence of record, we find Petitioner’s arguments and evidence to be persuasive and agree with Petitioner’s assertions that one of ordinary skill in the art would have understood the disclosures of Rass, Aumer, Hain, Shaffer, and Steinbrecher, as combined by Petitioner, to teach or at least suggest all of the respective limitations of proposed substitute claims 14 and 23. 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 of claims 14 and 23, by a preponderance of the evidence over the respective asserted combinations of Hain and Rass, Steinbrecher

and Rass, Shaffer, Hain, and Rass, Hain and Aumer, Steinbrecher and Aumer, and Shaffer, Hain, and Aumer.

- i. *“Wireless earpiece [that] is configured to read user biometrics” recited in claims 14 and 23*

Rass-based Grounds

Petitioner’s asserted Rass-based grounds against proposed substitute claim 14 include the ground based on the combination of Hain and Rass, and the ground based on the combination of Shaffer, Hain, and Rass. *See* Opp. RMTA 4–5.

Petitioner’s asserted Rass-based grounds against proposed substitute claim 23 include the ground based on the combination of Steinbrecher and Rass. *Id.*

Patent Owner’s proposed amendments in claim 14 recite “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-1. Patent Owner’s proposed amendments in claim 23 recite similar limitations pertaining to left and right wireless earpieces: “wherein a portion of the left wireless earpiece fits within the ear canal opening and the left wireless earpiece is configured to read user biometrics” and “wherein a portion of the right wireless earpiece fits within the ear canal opening and the right wireless earpiece is configured to read user biometrics.” RMTA Appx. A-3.

In the Opposition, Petitioner argues that “Rass teaches ‘the wireless earpiece is configured to read user biometrics,’ as recited in substitute claim 14” and “Rass teaches ‘the [left/right] wireless earpiece is configured to read user biometrics,’ as recited in substitute claim 23” because “Rass discloses its hearing aid I fitted with a temperature sensor to ‘detect the body heat of the hearing aid wearer.’” Opp. RMTA 4, 7 (citing Ex. 1033, 2:5–8, 2:64–3:2, Abstr., Fig. 1). Petitioner emphasizes Rass’ disclosure of “switching on and off an ‘in-the-ear (ITE)’ hearing

aid (I) by fitting it ‘with a **temperature sensor (TS)** to *detect the body heat of the hearing aid wearer*,’” and compares this disclosure with the ’014 patent’s description of “biometric readings, such as heart beat or temperature [that] 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.” Opp. RMTA 3–4 (citing Ex. 1033, 2:5–8, 2:27–29, 2:53–54, 2:63–3:2, Abstr., Fig. 1; Ex. 1001, 5:18–21; Ex. 1026 ¶¶ 9–10).

In the Reply, in the section on Rass discussing issues of analogous art and motivation to combine (discussed in detail in Sections IV.C.6.c.ii–iii below), Patent Owner also submits that “[Rass] temperature sensor is not detecting the body temperature of the wearer, which is understood by a POSITA to be a biometric signal. Rather, the temperature sensor is detecting an increase in heat, which could be the result of power dissipation of the hearing aid device itself.” Reply RMTA 4 (citing Ex. 1033, 2:64–67; Ex. 2006 ¶¶ 64–67, 82);¹⁸ *see also* Reply RMTA 7–8 (arguing that “Rass . . . mentions using the temperature of the hearing aid or shell to turn a hearing aid on or off, not the direct body temperature of the user” and “a POSITA would not consider the temperature of a hearing aid or hearing aid shell to be a biometric reading.”).

Petitioner responds that “[Patent Owner’s] position is in direct contradiction with Rass’s [sic] explicit disclosure, which states that its hearing aid temperature sensor ‘detect[s] the *body heat of the hearing aid wearer*.’” Sur-Reply 5 (citing Ex. 1033, Abstr.). Petitioner also submits that “the ’014 patent like[] [Rass] has no disclosure or teaching regarding how to limit the detection of heat to that of a user, rather than from other alleged heat sources,” while “[Patent Owner’s] expert

¹⁸ Dr. Young’s relied-upon declaration testimony (Ex. 2006 ¶¶ 64–67, 82) restates this argument.

agree[d] a POSITA ‘would know how to include a sensor in a wireless earpiece to measure the temperature of a user.’” *Id.* at 5–6 (citing Ex. 1032, 17:7–18:22).

Based on the complete record, we find Petitioner’s arguments and evidence persuasive. Petitioner’s arguments that Rass teaches the claimed “wireless earpiece [that] is configured to read user biometrics” is supported by a preponderance of evidence cited by Petitioner. In particular, Rass expressly discloses that its hearing aid is to be “inserted in the auditory canal” and “is fitted with a temperature sensor (TS) to detect the body heat of the hearing aid wearer” and obtain “a temperature signal relating to the body heat of [the] hearing aid wearer.” Ex. 1033, 1:62–66, 2:6–8, Abstr. The in-the-ear hearing aid shown in Rass’ Fig. 1 “has a temperature sensor TS” and

[w]hen worn [sic], the hearing aid I or its shell heats up. The temperature sensor TS registers this heat. Once a certain temperature threshold is exceeded, the device is switched on. If the temperature drops back to below a lower temperature threshold, the hearing aid I switches off again. This temperature-controlled switching on and off is also possible in principle with a single temperature threshold.

Id. at 2:63–3:4, Fig. 1. Thus, Rass’ temperature sensor in the wireless earpiece inserted in the auditory canal senses body heat of the hearing aid wearer, and produces a temperature signal related to that body heat. *See id.* That is, the *temperature read by Rass’ earpiece* when worn by a wearer is directly related to, and caused by, the body heat of the wearer—which is commensurate with the broad description of *user biometrics read by an earpiece* in the disclosure of the ’014 patent. *See id.*

In particular, the disclosure of the ’014 patent mentions “biometric readings, such as . . . temperature [which] may be utilized by the wireless earpieces 142, 144 and smart case 102 to alter the power mode,” and “data [synchronized by the earpieces with the smart case] . . . includ[ing] medical information, such as . . .

temperature.” *See* Ex. 1001, 5:18–22, 10:6–10. The ’014 patent also references “user biometrics and actions (e.g., heart rate, motion, sleeping, etc.),” and provides that “biometric information” may be “logged by sensors (e.g., heart rate monitor, pulse oximeter, accelerometers, gyroscopes, etc.) of the wireless earpiece or otherwise determined.” *Id.* at 3:12–14, 9:64–10:2.

To the extent the temperature reading of a wireless earpiece inserted in the auditory canal may be influenced by “power dissipation” of the earpiece itself (as argued by Patent Owner, *see* Reply RMTA 4) or by “the temperature of [the] hearing aid” itself (as argued by Patent Owner, *see* Reply RMTA 7–8), we observe that the ’014 patent does not discuss a *precision* of the user biometrics read by the wireless earpiece, or a *precision* of the wireless earpiece’s sensor(s) reading the user biometrics. And proposed substitute claims 14 and 23 merely recite that the “wireless earpiece is configured to read user biometrics,” without specifying how those biometrics are read, or the precision of the sensor(s) reading them. Thus, the claimed reading of user biometrics in claims 14 and 23 does not require a particular precision of the read user biometrics, nor does it require correcting the user biometrics for externalities such as power dissipation or temperature of the earpiece (as referenced by Patent Owner, *see* Reply RMTA 4, 8).

The claimed reading of user biometrics in claims 14 and 23 also *does not require* specifics that were referenced during the oral hearing by Patent Owner’s counsel (*see generally*, Tr.)—such as measuring user biometrics (such as temperature) *using an infrared technology*, or employing a comparator *to compare readings to stored measurements or a baseline* to confirm they are within range of human characteristics or consistent with previously measured human characteristics. *See* Tr. 50:17–58:9. The claimed reading of user biometrics in claims 14 and 23 also *does not preclude* particular characteristics referenced by

Patent Owner’s counsel—such as a reading done *through an intermediary* (e.g., a shell) that is between the user and the biometric sensor (as opposed to the biometric sensor measuring directly against the user’s skin), or the reading being done *by a sensor that may provide readings even when not in the vicinity of a human being*. *See id.*

We, therefore, are persuaded by Petitioner that the broad limitations in claim 14 of a “wireless earpiece [that] is configured to read user biometrics” and in claim 23 of “left wireless earpiece [that] is configured to read user biometrics” and “right wireless earpiece [that] is configured to read user biometrics” read on Rass’ wireless hearing aid configured (via an included temperature sensor) to read a temperature that is based on the detected body heat of the hearing aid wearer. *See* Opp. RMTA 3–4.

Aumer-based Grounds

Petitioner’s asserted Aumer-based grounds against proposed substitute claim 14 include the ground based on the combination of Hain and Aumer, and the ground based on the combination of Shaffer, Hain, and Aumer. *See* Opp. RMTA 13–14. Petitioner’s asserted Aumer-based grounds against proposed substitute claim 23 include the ground based on the combination of Steinbrecher and Aumer. *See* Opp. RMTA 13.

Petitioner argues that “Aumer teaches ‘the wireless earpiece is configured to read user biometrics,’ as recited in substitute claim 14” and “Aumer teaches the ‘wireless earpiece is configured to read user biometrics,’ as recited in substitute claim 23” because “Aumer discloses [] wireless earpiece 20 that includes one or more sensors (e.g., sensor module 24) ‘configured to detect and/or measure physiological information from the subject’ such as temperature, blood gas levels, cardiopulmonary functioning” and “discloses techniques for configuring []

wearable biometric monitoring device such as earpiece 20 to include [the] one or more sensors to read user biometrics and improving the biometric signal quality from the sensors.” Opp. RMTA 13–16 (citing Ex. 1027 ¶¶ 2, 64, 66, 69–72, Title, Abstr., Figs. 1, 2A–2B, 5A–8B). Petitioner emphasizes the disclosure in paragraph 64 of Aumer that “[t]he ear is an ideal location for wearable health and environmental monitors” such that “[m]onitoring devices located at an ear have . . . 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)” —and compares this disclosure with the ’014 patent’s description of “biometric readings, such as heart beat or temperature” and “biometric information (e.g., pulse rate, oxygenation, distance travelled, calories burned, etc.).” See Ex. 1027 ¶ 64; Opp. RMTA 11–12, 15 (citing Ex. 1027 ¶ 64; Ex. 1001, 5:18–19, 9:64–66).

Patent Owner submits arguments (discussed in the next sections *infra*) against Petitioner’s combinations including Aumer, but does not appear to dispute Petitioner’s contention that Aumer describes a wireless earpiece configured to read user biometrics. See generally Reply RMTA.

Based on the arguments and evidence of record, including Aumer’s description of biometric monitoring earpiece 20, we are persuaded by Petitioner’s argument that Aumer teaches a wireless earpiece that is configured to read user biometrics, as recited in proposed substitute claims 14 and 23. See Opp. RMTA 13. More particularly, we determine that wireless earpiece 20 (which Aumer describes as an exemplary “wearable biometric monitoring device 10,” see Ex. 1027 ¶¶ 65–66, 71) including sensor(s) 24 inserted into a user’s auditory canal to measure biometric characteristics such as core body temperature or blood gas levels (*id.* ¶¶ 64, 66, 71), is encompassed by the term “wireless earpiece . . .

configured to read user biometrics,” as that dispositive limitation in proposed substitute claims 14 and 23 is described in the ’014 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, 5:17–22. “The data may include biometric information (e.g., pulse rate, oxygenation . . .) . . . logged by sensors. . . . [and] may also include medical information, such as blood measurements . . . temperature.” *Id.* at 9:64–10:9.

ii. Whether Rass and Aumer are Analogous Art

Rass

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. *Innovention 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 Petitioner’s grounds of unpatentability with respect to proposed substitute claims 14 and 23 in accordance with the above-stated principles.

Patent Owner contends that Rass is not analogous art to the '014 patent because Rass and the '014 patent are not from the same field of endeavor. Reply RMTA 2–3. In particular, Patent Owner states that “[t]he '014 Patent’s stated field of invention relates to ‘wireless electronics and *battery systems* [and] more specifically . . . wireless earpieces managing and extending battery life,’ to include techniques for charging the earpieces using a smart case,” whereas “Rass’ field of invention is ‘a hearing aid unit [and corresponding method] with a switching device for switching the hearing aid on and off.’” *Id.* at 3 (citing Ex. 1001, 1:21–24; Ex. 1033,¹⁹ 1:14–17).

Patent Owner further alleges “Rass is also not reasonably pertinent to the problem with which the inventor of the '014 Patent is involved” because “Rass is concerned with switching a hearing aid on and off. . . . whereas the '014 Patent is concerned with managing and extending battery life of wireless electronics through the variation of power modes and methods of charging.” Reply RMTA 3–4 (citing Ex. 1001, 1:24–41; Ex. 1033, 1:15–17).

The '014 patent explains 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, 1:16–20 (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 “a system, method, and

¹⁹ The Reply occasionally cites to “Ex. 1035” when discussing Rass; this appears to be a typographical error, as Rass is Exhibit 1033, while Exhibit 1035 is a stipulation.

wireless earpieces for managing and preserving battery life” where the “wireless earpieces 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 2:38–45.

As to the first prong of the *Bigio* test, Petitioner argues that “Rass is analogous art to the ’014 patent. . . . It is from the same field of endeavor—wireless electronics, namely wireless earpieces.” Opp. RMTA 5–6 (citing Ex. 1001, 1:17–20; Ex. 1033, 1:14–17, 2:53–54, 2:63–64, Fig. 1); *see also* Sur-Reply 3. Petitioner references *Netflix, Inc. v. DivX, LLC*, 80 F.4th 1352, 1359 (Fed. Cir. 2023) (Opp. RMTA 6, Sur-Reply 3) noting that “field of endeavor may be broadly defined because it relies on ‘the complete disclosure of all embodiments in the patent’s specification.’” *See Netflix*, 80 F.4th at 1359 (quoting Jeffrey T. Burgess, *The Analogous Art Test*, 7 BUFF. INTELL. PROP. L.J. 63, 72 (2009)). Petitioner notes that “PO does not dispute that Rass (or any of Hain, Steinbrecher, and Shaffer) discloses a wireless earpiece.” Sur-Reply 3.

The *Netflix* court held, “[w]e have affirmed findings of analogous art where the references shared a general field of endeavor.” *Netflix*, 80 F.4th at 1359 (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 ’014 patent is “wireless electronics, namely wireless earpieces.” Opp. RMTA 6; Sur-Reply 3. Patent Owner argues that “Petitioner’s stated field of endeavor is oversimplified” because “[t]he ’014 Patent’s stated field of invention relates to “wireless electronics and *battery systems* [and] more specifically . . . wireless earpieces managing and extending battery life. . . . the ’014 Patent focuses on preserving battery life through varying power modes and

actively charging the earpieces, using a smart case”—while “Rass’s [sic] field of invention is ‘a hearing aid unit [and corresponding method] with a switching device for switching the hearing aid on and off. . . . Rass only focuses on turning the device on and off.” Reply RMTA 3 (citing Ex. 1001, 1:21–24, 10:33–36; Ex. 1033, 1:14–17).

Consistent with the holding in *Netflix* and the ’014 patent’s stated field of invention quoted above, and guided by *KSR*, we agree with Petitioner that the ’014 patent’s general field of endeavor is wireless electronics that include wireless earpieces. We are also of the view that Rass operates in this same general field of endeavor because, as pointed out by Petitioner, Rass discloses “***a hearing aid unit***” such as an “an in-the ear (ITE)” hearing aid having a battery and “[a]utomatic switching on and off.” See Ex. 1033, 1:14–17, 2:5–8, 2:18–20, 2:27–31, 2:53–54, 2:64–3:2, Fig. 1; Opp. RMTA 3–6 (citing Ex. 1033, 1:14–17, 2:5–8, 2:14–31, 2:53–54, 2:64–3:2, Abstr., Fig. 1); Sur-Reply 2–3.

We are persuaded by Petitioner that Rass and the claimed invention are both in the same general field of endeavor with respect to *Bigio* prong 1, i.e., wireless electronics that include 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*.

We are persuaded by Petitioner that Rass is reasonably pertinent to a particular problem with which the inventor of the ’014 patent is involved under prong 2 of the *Bigio* test. See Opp. RMTA 7–8.

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, “Rass is concerned with switching a hearing aid on and off. . . . whereas the ’014 Patent is concerned with managing and extending battery life of wireless electronics through the variation of power modes and methods of charging.” Reply RMTA 3 (citing Ex. 1001, 1:24–41; Ex. 1033, 1:15–17).

Petitioner counters that Rass, too, is concerned with managing and extending battery life of a wireless earpiece as “Rass discloses techniques to ‘extend[] the useful life or endurance of the hearing aid battery.’ . . . [and] explains that this extension in battery life results from ‘the switching on and off operations [which] include switching to or from standby mode’—that is, variation of power modes.” Sur-Reply 3–4 (citing Ex. 1033, 2:5–8, 2:27–31, 2:64–3:2, Abstr., Fig. 1); *see also* Opp. RMTA 4, 8 (citing Ex. 1033, 2:14–31). Petitioner reasons that a reasonably skilled artisan aware of Rass’ disclosure, “would have reasonably considered Rass when faced with the problem of implementing a wireless earpiece that can manage and extend battery life.” Opp. RMTA 8 (citing Ex. 1026 ¶¶ 19, 20, 33, 34, 47, 48; Ex. 1033, 2:27–31, 2:5–8, 2:64–3:2, Fig. 1, Abstr.). We find this argument to be persuasive because Rass is, indeed, concerned with “switching on and off operations.” *See* Ex. 1033, 2:27–31, 2:64–3:4. And Rass discloses that its “switching on and off operations” allow “extend[ing] the useful life or endurance of the hearing aid battery during normal operation.” *See id.* at 2:27–31.

That is, if we were to adopt Patent Owner’s characterization of the problem solved by the ’014 patent, i.e., managing and extending battery life of wireless

electronics through the variation of power modes and methods of charging (*see* Reply RMTA 3), Rass can be viewed as addressing this problem by using “a temperature sensor (TS) [fitted in a hearing aid] to detect the body heat of the hearing aid wearer” when “the hearing aid is inserted in the auditory canal” thereby allowing “[t]he hearing aid . . . [to be] switched on and off again based on the temperature signal.” Ex. 1033, Abstr., Fig. 1; *see* Opp. RMTA 3–4, 6–8.

Petitioner further observes that Rass is reasonably pertinent to a problem faced by the inventors of the '014 patent also “because [Rass] relates to how to configure a wireless earpiece to read user biometrics,” which is a feature described in the '014 patent and added to all of Patent Owner’s proposed substitute claims. Opp. RMTA 7–8 (citing Ex. 1001, 5:18–19; Ex. 1033, 2:5–8, 2:64–3:2, Abstr., Fig. 1; *Netflix*, 80 F.4th at 1361–62). Petitioner further reasons that, faced with the problem of how to configure a wireless earpiece to read user biometrics, “[a] POSITA would have reasonably considered Rass, which discloses a temperature sensor fitted in the hearing aid for measuring user temperature.” *Id.* at 7–8 (citing Ex. 1033, 2:5–8, 2:64–3:2, Abstr., Fig. 1). We find this argument to be persuasive as well because Rass is, indeed, concerned with a hearing aid equipped with a “sensor (TS) to detect the body heat of the hearing aid wearer.” *See* Ex. 1033, 2:64–3:4, Abstr., Fig. 1.

Patent Owner also argues that “[c]omparing Hain with Rass yields the same result” because “Hain is directed to a hearing aid system having the ability to detect magnetic fields for alternating between various (i.e., more than two) power modes” while “Rass seeks to implement a switch to turn on or off the hearing aid by detecting various ‘signals,’ one of which is related to the temperature of the hearing aid shell.” Reply RMTA 4. It appears that the “same result” referred to by Patent Owner pertains to an analogous art analysis because Patent Owner next

submits that “Rass is not in the same field of endeavor as Hain.” *See id.* Patent Owner submits similar arguments regarding Steinbrecher and Shaffer. *See id.* at 5–6.

More particularly, Patent Owner submits that “[a] POSITA would not have combined Steinbrecher with Rass for the same reasons why a POSITA would not have combined Hain with Rass” including that “Steinbrecher with Rass . . . are not directed to solving the same problems or the same technological fields”; rather, “Steinbrecher relates to a ‘procedure and a device for the contactless loading of an accumulator battery in a hearing aid . . . located in a charging shell.’ . . . Steinbrecher is not concerned with monitoring biometrics.” *Id.* at 5 (citing Ex. 2006 ¶¶ 70–71).²⁰ Patent Owner also submits that “a POSITA would not have been motivated to combine Rass with Shaffer for the same reasons a POSITA would not have combined Hain or Steinbrecher with Rass,” in view of the fact that “Shaffer is directed ‘to a mobile device case that serves as an electrical charger and storage dock for rechargeable wireless audio earbuds’” and “Shaffer’s focus is the charging case, not turning the earpieces on/off, like Rass.” *Id.* at 5–6 (citing Ex. 1003 ¶ 2; Ex. 2006 ¶¶ 72–75).

In response, Petitioner points out that “the field-of-endeavor test is relevant to determining whether a reference is ‘analogous to the claimed invention,’ not other references.” Sur-Reply 4–5, 7–8 (citing *Bigio*, 381 F.3d at 1320, 1325; *Sanofi-Aventis Deutschland GmbH v. Mylan Pharms. Inc.*, 66 F.4th 1373, 1380 (Fed. Cir. 2023); *Corephotonics, Ltd. v. Apple Inc.*, 84 F.4th 990, 1007 (Fed. Cir. 2023)). Petitioner observes that “PO does not dispute that Rass (or any of

²⁰ Patent Owner cites to “Ex. 1011 (9:3–5)” when discussing Steinbrecher (*see* Reply RMTA 5), however, the Certified English translation of Steinbrecher is at Exhibit 1006.

Hain, Steinbrecher, and Shaffer) discloses a wireless earpiece. . . . that Hain is analogous to the '014 patent or PO's proposed substitute claims. . . . [and] that Steinbrecher or Shaffer is analogous to the '014 patent or PO's proposed substitute claims." *Id.* at 3, 5, 7. Petitioner also notes, "[r]egardless, Prof. Kiaei explained that Hain, just like Rass . . . is analogous art. . . . [and] that Steinbrecher and Shaffer, just like Rass . . . are analogous to the '014 patent, including the proposed substitute claims." *Id.* at 5, 7 (citing Ex. 1026 ¶¶ 15, 16, 19, 29, 30, 33, 43, 44, 47).

We find Petitioner's arguments to be persuasive, and further observe that, like the '014 patent and Rass (concerned with wireless earpieces and managing and extending battery life, as discussed *supra*), Hain, Shaffer, and Steinbrecher, too, are concerned with wireless earpieces and their battery life. *See* Ex. 1004 ¶¶ 5–6, 8, 11, 18–20, Abstr., Fig. 1; Ex. 1003 ¶¶ 3–4, 56–57; Ex. 1006 ¶¶ 1, 3–4, 8, 16, 18, 24–25, Fig. 1. For example, Hain discloses earpieces having (*inter alia*) "transmitting and receiving coils 7 or 17" and "a voltage source (battery or accumulator) for supplying voltage to the electronic components," and capability for "wireless signal transmission between the hearing aids" and "wireless data transmission, in conjunction with an external programming unit." Ex. 1004 ¶¶ 1, 8, 18. And Hain is concerned with "increas[ing] the service life of the voltage source of a hearing aid," "switch[ing] [hearing aids] off automatically immediately after use," and "eliminat[ing] the need for manually operated on-and-off switches." *Id.* ¶¶ 5–6, 11, 19–20.

Shaffer is similarly concerned with wireless earbuds and attendant power issues such as that "[e]xisting charging devices for wireless earbuds require users to carry external battery packs, storage devices, or dedicated plug-in charging devices" and "[m]aintaining wireless earbuds can be inconvenient to a user because they require regular electrical charge." *See* Ex. 1003 ¶¶ 3–4. Shaffer

“address[es] some or all of the issues” with “earbuds 34 and 35 that contain internal rechargeable batteries” which are chargeable by a rechargeable case battery 109. *Id.* ¶¶ 4, 46, 56–57.

Steinbrecher is concerned with “contactless loading of an accumulator battery in a hearing aid” such as an “in-the-ear device,” addressing problems such as “[t]he disadvantage . . . that the user does not receive any information about the state of charge,” “the limited service life of the batteries, which only support a number of charging and discharging cycles depending on a type.” Ex. 1006 ¶¶ 1, 3–4, 24. Steinbrecher’s method and apparatus for charging hearing aids provide to the user “the remaining life expectancy of the battery” and “information about the number of charging cycles that have been carried out and/or that are still possible and about the required service intervals,” and seek to ensure “that energy is not consumed unnecessarily” “during the charge process and as soon as the hearing aid is located in the charging shell.” *Id.* ¶¶ 16, 18, 24, 26.

Accordingly, we are persuaded by Petitioner’s arguments that Rass is analogous art to the claimed invention, and we are unpersuaded by Patent Owner’s arguments that Rass, Hain, Shaffer, and Steinbrecher have disjunctive fields of endeavor or technological areas of interest.

Aumer

Patent Owner contends that Aumer is not analogous art to the ’014 patent because Aumer and the ’014 patent are not from the same field of endeavor. Reply RMTA 6–7. In particular, Patent Owner states that “[t]he ’014 Patent’s stated field of invention relates to ‘wireless electronics and battery systems [and] more specifically . . . wireless earpieces managing and extending battery life,’” whereas “Aumer . . . defines its field of invention as ‘monitoring devices and methods for

measuring physiological information.” *Id.* at 6–7 (citing Ex. 1001, 1:21–24; Ex. 1027 ¶ 2; Ex. 2006 ¶¶ 77–79).

Patent Owner further alleges “Aumer is also not reasonably pertinent to the problem with which the inventor [of the ’014 patent] is involved” because “[a]s [Aumer’s] title discloses, Aumer is concerned with improving signal quality . . . whereas the ’014 Patent is concerned with managing and extending battery life of wireless electronics.” Reply RMTA 7 (citing Ex. 1001, 1:24–41; Ex. 1027,²¹ Title; Ex. 2006 ¶¶ 77–79).

As discussed in the immediately prior section *supra*, we observed that the ’014 patent explains that it “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, 1:15–20 (emphasis added).

As to the first prong of the *Bigio* test, Petitioner argues that “Aumer is analogous art to the ’014 patent. . . . It is from the same field of endeavor—wireless electronics, namely wireless earpieces.” Opp. RMTA 14–15 (citing Ex. 1001, 1:17–20; Ex. 1027 ¶¶ 64, 66, 74, Figs 2A–2B); *see also* Sur-Reply 8 (submitting that “Aumer is . . . from the ’014 patent’s general field of endeavor (wireless electronics; wireless earpieces)”). Petitioner again references *Netflix*, 80 F.4th 1359 (Opp. RMTA 15, Sur-Reply 8) which notes that “field of endeavor may be broadly defined because it relies on ‘the complete disclosure of all embodiments in the patent’s specification.’” *See Netflix*, 80 F.4th at 1359 (quoting Jeffrey T. Burgess, *The Analogous Art Test*, 7 BUFF. INTELL. PROP. L.J. 63, 72 (2009)).

²¹ The Reply occasionally cites to “Ex. 1029” when discussing Aumer; this appears to be a typographical error, as Aumer is Exhibit 1027 (while Exhibit 1029 is one of the provisional applications to which Aumer claim benefit).

The *Netflix* court held, “[w]e have affirmed findings of analogous art where the references shared a general field of endeavor.” *Netflix*, 80 F.4th at 1359 (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’”). As noted, Petitioner argues that the field of endeavor of the ’014 patent is “wireless electronics, namely wireless earpieces.” Opp. RMTA 14; Sur-Reply 8. Patent Owner argues that “Petitioner’s stated field of endeavor is wrong” presumably because Aumer is not concerned with “*battery systems*” and “wireless earpieces *managing and extending battery life*” like the ’014 patent. See Reply RMTA 6 (citing Ex. 1001, 1:21–24) (emphases added).

Consistent with the holding in *Netflix* and the ’014 patent’s stated field of invention quoted above, and guided by *KSR*, we agree with Petitioner that the ’014 patent’s general field of endeavor is wireless electronics that include 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 discloses wearable wireless earpieces. Opp. RMTA 11–14 (citing Ex. 1027 ¶¶ 64, 66, 70–72, 74, Figs 2A–2B); see also Tr. 25:13–26:9.

We are persuaded by Petitioner that Aumer and the claimed invention of the ’014 patent are both in the same general field of endeavor with respect to *Bigio* prong 1, i.e., wireless electronics that include 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*.

We are persuaded by Petitioner that Aumer is reasonably pertinent to a particular problem with which the inventor of the ’014 patent is involved under prong 2 of the *Bigio* test. See Opp. RMTA 15–16.

Patent Owner argues, “Aumer is also not reasonably pertinent to the problem with which the inventor [of the ’014 patent] is involved” because “Aumer is concerned with improving signal quality . . . whereas the ’014 Patent is concerned with managing and extending battery life of wireless electronics.” Reply RMTA 7 (citing Ex. 1001, 1:24–41; Ex. 1027, Abstr.; Ex. 2006 ¶¶ 77–79).

Petitioner counters, “the only point of novelty that PO identifies is the requirement that the [claimed] wireless earpieces are configured to read user biometrics” and “Aumer is not only from the ’014 patent’s general field of endeavor (wireless electronics; wireless earpieces) but also from this alleged specific point of novelty.” Opp. RMTA 15 (citing Ex. 1001, 5:18–19, 9:64–66; Ex. 1027 ¶¶ 64, 66, 69–72); Sur-Reply 8. Petitioner submits that “Aumer is reasonably pertinent to a problem faced by the inventors of the ’014 patent because it relates to how to configure a wireless earpiece to read user biometrics,” particularly as Aumer discloses a wireless earpiece 20 that includes sensors “configured to detect and/or measure physiological information from the subject” (such as temperature and blood gas levels) and also discloses techniques for configuring an earpiece to read user biometrics and improving the biometric signal quality from the earpiece’s sensors. Opp. RMTA 15–16 (citing Ex. 1027 ¶¶ 2, 64, 66, 69–72, Title, Abstr., Figs. 1, 2A–2B, 5A–8B); Sur-Reply 8. Petitioner reasons that, in view of the disclosure in Aumer, “a POSITA would have reasonably considered Aumer when contemplating the problem of how to configure a wireless earpiece to read user biometrics.” Opp. RMTA 16 (citing Ex. 1026 ¶¶ 66, 67, 80, 81, 94, 95). We find Petitioner’s arguments persuasive in view of Aumer’s disclosed concerns (*see* Ex. 1027 ¶¶ 2, 4 (discussing signal quality problems of wearable monitoring devices, such as biometric earbuds)) and wireless earpieces to address these concerns (*see id.* ¶¶ 64, 66, 69–72).

Patent Owner also argues that “[c]omparing Hain with Aumer yields the same result.” Reply RMTA 7 (citing Ex. 2006 ¶¶ 77–79). It appears that the “same result” referred to by Patent Owner also pertains to an analogous art analysis, because Patent Owner next submits that “Hain is concerned with adjusting power modes based a magnetic field” while “Aumer is concerned with detecting biometric signals” such that “Aumer is not in the same field of endeavor as Hain.” *Id.* (citing Ex. 2006 ¶ 80). Patent Owner submits similar arguments regarding Shaffer and Steinbrecher. *See id.* at 8. In particular, Patent Owner argues that “[a] POSITA would not have combined these references [(i.e., Steinbrecher and Aumer)] for the same reasons” as those discussed with respect to Petitioner’s asserted Steinbrecher-Rass combination; and “a POSITA would not have been motivated to combine Aumer with Shaffer for the same reasons a POSITA would not have combined Hain or Steinbrecher with Aumer” such as the reason that “[t]he focus on Shaffer is on the charging case, not the wireless earbuds themselves.” *Id.* at 8 (citing Ex. 1003 ¶ 2).

In response, Petitioner points out that “the field-of-endeavor test is relevant to determining whether a reference is ‘analogous to the claimed invention,’ not other references.” Sur-Reply 4–5, 7–8 (citing *Bigio*, 381 F.3d at 1320, 1325; *Sanofi-Aventis Deutschland GmbH v. Mylan Pharms. Inc.*, 66 F.4th 1373, 1380 (Fed. Cir. 2023); *Corephotonics, Ltd. v. Apple Inc.*, 84 F.4th 990, 1007 (Fed. Cir. 2023)). Petitioner also observes that “PO does not dispute that Hain, Steinbrecher, or Shaffer is analogous to the ’014 patent or PO’s proposed substitute claims” and submits that “these references, just like Aumer . . . are analogous art [to the ’014 patent].” *Id.* at 8–9 (citing Ex. 1026 ¶¶ 63–68, 77–82, 91–96). We find Petitioner’s arguments to be persuasive, especially as Hain, Steinbrecher, and Shaffer (like the ’014 patent and Aumer) are all concerned with wireless earpieces.

See Ex. 1004 ¶¶ 5–6, 8, 11, 18–20, Abstr., Fig. 1; Ex. 1003 ¶¶ 3–4, 56–57; Ex. 1006 ¶¶ 1, 3–4, 8, 18, 24–25, Fig. 1; Opp. RMTA 13–14; Sur-Reply 8–9.

Accordingly, we are persuaded by Petitioner’s arguments that Aumer is analogous art to the claimed invention. And we are unpersuaded by Patent Owner’s arguments that Aumer, Hain, Shaffer, and Steinbrecher have disjunctive fields of endeavor or technological areas of interest.

iii. Petitioner’s Motivation to Combine

Rass-based Grounds

Petitioner asserts multiple reasons as to why a person with ordinary skill in the art would have been motivated to combine the teachings of Rass with Hain, Steinbrecher, and/or Shaffer. Opp. RMTA 5–10.

Predictable Result

Petitioner asserts, with respect to combining the teachings of Hain, Steinbrecher, and Shaffer, with Rass, that “implementing hearing aids or earbuds, as taught by Hain, Steinbrecher, or Shaffer, to include a temperature sensor to detect the temperature of the wearer, as taught by Rass, would have yielded expected, predictable results.” Opp. RMTA 8.

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 Hain, Steinbrecher, Shaffer, and Rass (i.e., hearing aids 1 and 11 in Hain, hearing aid H in Steinbrecher, earbuds 1010 and 1012 in Shaffer, and hearing aid I fitted with temperature sensor TS as taught by Rass)

using known and routine electronic device design and manufacturing techniques to modify each of earpiece to include a temperature sensor to detect the temperature of the wearer and further configure each to switch on and off based on the detected temperature. Such modification would have been readily predictable and recognized by a POSITA and would have been well within the knowledge and skillset of a POSITA.

Opp. RMTA 9 (citing Ex. 1026 ¶¶ 22, 24, 36, 38, 50, 52).

Patent Owner argues that “implementing a magnetic-field hearing aid system as taught by Hain to include a temperature sensor would not have been a ‘predictable result’ because . . . Rass is not in the same field of endeavor as Hain.” Reply RMTA 4. As discussed *supra*, however, we are not persuaded by Patent Owner’s arguments that Rass and Hain have disjunctive fields of endeavor; rather (as noted *supra*), like the ’014 patent and Rass, Hain, too, is concerned with wireless earpieces and their battery life. Patent Owner also recognizes elsewhere (see Reply RMTA 11) that “[a] POSITA would have known how to implement a sensor for reading various user biometrics”²² (of which those identified in the ’014 patent include user temperature, see Ex. 1001, 5:17–20, 10:6–8). See also Opp.

²² Although Patent Owner noted this in the context of enablement of the proposed substitute claims, we determine that this statement also equally applies to the motivation issues before us in connection with obviousness over the various base references in combination with Rass.

RM TA 9, 17 (citing Ex. 1032, 18:18–22, 22:12–19) (observing that “PO’s expert testified that a POSITA would know how to include a sensor in a wireless earpiece to read user temperature”).

Patent Owner additionally argues that “[a] POSITA would not have been motivated to incorporate a temperature sensor in Hain because of the interference signal imposed on the temperature sensor and sensor electronics due to the magnetic field emitted by the telephone when it is being held next to the user’s ear during conversation,” and this “interference signal can produce a wrong temperature reading, thus, causing the hearing aid to shut down.” Reply RM TA 4–5 (citing Ex. 2006 ¶ 68). Petitioner responds that “[Patent Owner] provides no support or further explanation for how or why a magnetic field would interfere with a temperature sensor, other than citing to an expert declaration that merely parrots the Reply language verbatim” and “[f]urthermore, Hain’s telephone mode is irrelevant because at no point during this proceeding did Petitioner rely on Hain’s telephone mode for its obviousness positions or otherwise.” Sur-Reply 6.

During inquiry at trial (*see* Tr. 41:16–42:8, 43:14–48:19, 65:15–66:4, 83:15–85:24), Patent Owner disagrees with Petitioner’s assessment that it has “provide[d] no support or further explanation for how or why a magnetic field would interfere with a temperature sensor” (*see* Sur-Reply 6). In particular, Patent Owner notes that Rass itself mentions “interference” as it provides that prior “sensors are however relatively expensive, sensitive to interference or require additional objects for switching purposes” and Rass’ goal is “to improve or simplify the automatic switching on and off of hearing aids.” *See* Ex. 1033, 1:56–61; Tr. 41:16–42:8, 43:14–48:19, 65:15–66:4, 83:15–85:24).

Upon consideration of the arguments and evidence of both parties we do not find Patent Owner’s “interference” arguments persuasive. Patent Owner’s

argument in the Reply is that a magnetic field emitted during Hain’s hearing aid’s telephoning mode imposes an interference signal on a temperature sensor, and possibly on its attendant sensor electronics (e.g., on the temperature sensor in Rass), and this interference signal impacts the temperature sensor’s reading. See Reply RMTA 4–5. On the other hand, we observe that Rass provides a general reference to “interference” by stating that “[t]he said sensors [(the ones mentioned at col. 1, lines 31–53)] are however relatively expensive, sensitive to interference or require additional objects for switching purposes.” See Ex. 1033, 1:31–59 (emphasis added). The sensors referenced at Rass column 1, lines 31–53 are “[a] remotely controlled hearing aid . . . which can be switched on and off using an external control device” (*id.* at 1:31–35), which does not appear relevant to Patent’s Owner’s arguments concerning magnetic field interference; hearing aids employing “detecti[on] [of] acoustic parameters for the adjustment of hearing aids. . . [by which] the acoustic parameters of the ear are determined by measuring the impedance of the auditory canal” (*id.* at 1:35–40), which again does not appear relevant to Patent’s Owner’s arguments concerning magnetic field interference; a “hearing aid with a sensor circuit . . . which is switched on upon insertion into the auditory canal” while “[t]he electrical connection is . . . measured between two sensor arcs” (*id.* at 1:45–48); “a hearing aid that can be switched on and off using an infrared sensor” that “detects a corresponding signal and switches the hearing aid on [when the hearing aid is inserted into the auditory canal]” (*id.* at 1:49–53); and a hearing aid with “[a]n automatic hearing aid switch. . . [that] operates on a magnetic basis” whereby “[i]f an object containing a magnet moves into the vicinity of the hearing aid, the hearing aid is switched accordingly” (*id.* at 1:40–44).

Rass’ discussion of the last two of these hearing aids (e.g., the infrared-based hearing aid and the magnetic-based hearing aid, Ex. 1033, 1:40–44, 1:49–53) having “sensors [that] are . . . sensitive to interference or require additional objects for switching purposes” (*id.* at 1:56–59) does not actually disclose that *a magnetic field* (e.g., from the hearing aid) *would impose an interference signal on a temperature sensor*, as Patent Owner argues. Reply RMTA 4–5. Rather, Rass’ disclosure appears to merely indicate that the “infrared sensor” and the “automatic hearing aid switch. . . . [that] operates on a magnetic basis” by sensing “an object containing a magnet” are “sensitive to interference” (*see* Ex. 1033, 1:40–44, 49–59)—without specifying whether *the interferences* that these sensors are sensitive to *include both* (i) interference caused by similar devices (e.g., infrared-based interference impacting an infrared sensor, or magnetic-based interference affecting a magnetic-based hearing aid switch) *and* (ii) interference caused by dissimilar devices (such as interference not caused by an infrared-device impacting the infrared sensor, or interference not caused by a magnetic device affecting the magnetic-based hearing aid switch).

Rass’ reference to “interference” does not specify that *a magnetic field* would *interfere* with *the operation of a temperature sensor to impact temperature readings*, as Patent Owner argues. Reply RMTA 4–5. We also do not see Rass as teaching away from, or disparaging (as Patent Owner’s counsel argued during the oral hearing, *see supra*) the use of *magnetic switching together with a temperature-sensing in one earpiece*. Although Rass expresses that magnetic switching is “sensitive to interference” (Ex. 1033, 1:56–59), Rass does not teach away from equipping a hearing aid that relies on magnetic switching (e.g., like the earpiece of Hain) with an additional temperature sensor or temperature-based switch. In order for a reference to teach away, the reference must criticize, discredit or otherwise

discourage the solution claimed. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). Rass, on the other hand, merely discloses that hearing aids employing magnetic switching “are . . . relatively expensive, sensitive to interference or require additional objects for switching purposes) (Ex. 1033, 1:56–59), but does not explicitly address the use of temperature sensors in magnetic-based hearing aids. Thus, we are not persuaded that “Rass on its face, is looking away from the teachings of Hain, the teachings of Shaffer and Steinbrecher,” (as Patent Owner’s counsel argued in the oral hearing, *see* Tr. 58:25–26).

As Rass does not specify that a magnetic field would interfere with the operation of a temperature sensor, and Patent Owner does not provide other evidence in support of this interference argument, we find persuasive Petitioner’s contention that “[Patent Owner] provides no support or further explanation for how or why a magnetic field would interfere with a temperature sensor.” *See* Sur-Reply 6.

Thus, we agree with Petitioner and determine that combining any one of Hain’s hearing aid, Steinbrecher’s hearing aid, and Shaffer’s earbud with Rass’ temperature sensor “to detect the temperature of the wearer and further configure each to switch on and off based on the detected temperature” would yield predictable results. *See* Opp. RMTA 5–6, 8–9.

Reasonable Expectation of Success

Petitioner finally argues that an ordinarily skilled artisan would have had a reasonable expectation of success in applying Rass’ teachings of a hearing aid temperature sensor to the hearing aids or earbuds of Hain, Steinbrecher, or Shaffer. Opp. RMTA 8–9.

Patent Owner responds, “a POSITA would not have had a reasonable expectation of success in combining Hain and Rass because there was no

motivation to combine these references besides Petitioner’s hindsight.” Reply RMTA 5 (citing Ex. 2006 ¶ 68); *see also id.* at 1 (arguing that “Petitioner’s alleged motivation to combine rests on conclusory statements, mischaracterization of the references’ disclosures, and hindsight bias”), 2 (arguing that “Petitioner’s motivation to combine is insufficient”). Patent Owner further contends that Petitioner’s Steinbrecher-Rass combination is improper because “Steinbrecher is not concerned with monitoring biometrics, and besides hindsight, a POSITA would not have combined Steinbrecher’s charging with biometric readings.” Reply RMTA 5 (citing Ex. 2006 ¶¶ 70–71). Patent Owner also contends, “a POSITA would not have been motivated to combine Rass with Shaffer for the same reasons a POSITA would not have combined Hain or Steinbrecher with Rass.” Reply RMTA 5–6 (citing Ex. 2006 ¶¶ 72–75).

As explained above, we determine that Petitioner has established, by a preponderance of the evidence, that combining any of Hain’s hearing aid, Steinbrecher’s hearing aid, or Shaffer’s earbud, with Rass’ temperature sensor to detect the temperature of the wearer, and configure each to switch on and off based on the detected temperature, would yield predictable results. We also observe that Petitioner has presented articulated reasoning with a rationale underpinning for incorporating Rass’ temperature sensor into Hain’s hearing aid, Steinbrecher’s hearing aid, and Shaffer’s earbuds. *See* Opp. RMTA 4–6, 9–10 (citing Ex. 1026 ¶¶ 11, 14, 23, 28, 37, 42, 51).

In particular, Petitioner notes that Rass describes several advantages and benefits of its implementation (e.g., of switching on and off a hearing aid based on the temperature detected by a temperature sensor fitted therein)—including “a significant increase in user-friendliness” by providing “[a]utomatic switching on and off” with “no need for a mechanical switch,” allowing for a standby mode that

“extends the useful life or endurance of the hearing aid battery.” Opp. RMTA 4, 9–10 (citing Ex. 1033, 2:14–31). Petitioner then submits that an ordinarily skilled artisan “would have been motivated to include in a wireless earpiece, as taught by Hain, Steinbrecher, or Shaffer . . . a temperature sensor to detect user temperature and automatically switch on and off the hearing aid or earbud based on the detected temperature, as taught by Rass.” *Id.* at 5–6, 9–10. The ordinarily skilled artisan would have been so motivated by the above-referenced “benefits [disclosed in Rass] of switching on and off a hearing aid based on the temperature detected by a temperature sensor fitted therein.” *Id.* at 9–10 (citing Ex. 1033, 2:14–31; Ex. 1026 ¶¶ 23, 37, 51); *see also* Sur-Reply 6–7.

Patent Owner, on the other hand, did not provide sufficient evidence or persuasive reasoning to support the contention of impermissible hindsight or to illustrate that any knowledge regarding the inclusion of a biometrics-reading sensor in a wireless earpiece was gleaned only from the '014 patent's disclosure. *See In re Cree*, 818 F.3d 694, 702 n.3 (Fed. Cir. 2016); *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

We determine that Petitioner has established, by a preponderance of the evidence, that there is sufficient motivation to employ a temperature sensor as taught by Rass, in Hain's hearing aid, Steinbrecher's hearing aid, and Shaffer's earbuds.

Aumer-based Grounds

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 Hain, Steinbrecher, and/or Shaffer. Opp. RMTA 14–19.

Predictable Result

Petitioner asserts, with respect to combining the teachings of Hain, Steinbrecher, and Shaffer, with Aumer, that “implementing hearing aids or earbuds, as taught by Hain, Steinbrecher, or Shaffer, 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.” Opp. RMTA 16.

Petitioner contends that a person with skill in the art would have combined the elements taught by Hain, Steinbrecher, Shaffer, and Aumer (i.e., hearing aids 1 and 11 in Hain, hearing aid H in Steinbrecher, earbuds 1010 and 1012 in Shaffer, and earpiece 20 with one or more sensors, a processor, and a communication component as taught by Aumer.

using known and routine electronic device design and manufacturing techniques to modify each earpiece to include one or more sensors, a processor, and a communication component to read user biometrics. Such modification would have been readily predictable and recognized by a POSITA and would have been well within the knowledge and skillset of a POSITA.

Opp. RMTA 16–17 (citing Ex. 1026 ¶¶ 69, 72, 83, 86, 97, 100).

Patent Owner argues, “implementing a magnetic field hearing aid system as taught by Hain to include a biometric monitoring would not have been a ‘predictable result’ because Aumer is not in the same field of endeavor as Hain,” with “Hain . . . concerned with adjusting power modes based a magnetic field [sic]” and “Aumer . . . concerned with detecting biometric signals.” Reply RMTA 7 (citing Ex. 2006 ¶ 80). Patent Owner, however, has recognized elsewhere (*see* Reply RMTA 11) that “[a] POSITA would have known how to

implement a sensor for reading various user biometrics.”²³ *See also* Opp. RMTA 9, 17 (citing Ex. 1032, 18:18–22, 22:12–19) (observing that “PO’s expert testified that a POSITA would know how to include a sensor in a wireless earpiece to read user biometrics such as temperature and heart beat.”)

Patent Owner further submits that “[a] POSITA would not have combined [Steinbrecher and Aumer] . . . for the same reasons” as those described with respect to the Steinbrecher-Rass ground, and the “POSITA would not have been motivated to combine Aumer with Shaffer for the same reasons a POSITA would not have combined Hain or Steinbrecher with Aumer.” Reply RMTA 8. However, as discussed, *supra*, we are not persuaded by Patent Owner’s arguments that Aumer is not analogous art to the ’014 patent, or that Aumer (on one hand) and Hain, Shaffer, and Steinbrecher (on the other hand) have disjunctive technological fields. Rather, we agree with Petitioner that Hain, Steinbrecher, and Shaffer (like the ’014 patent and Aumer) are concerned with wireless earpieces. *See* Ex. 1003 ¶¶ 3–4, 56–57; Ex. 1004 ¶¶ 5–6, 8, 11, 18–20, Abstr., Fig. 1; Ex. 1006 ¶¶ 1, 3–4, 8, 18, 24–25, Fig. 1; Opp. RMTA 14, 16.

Thus, we agree with Petitioner and determine that combining Hain’s hearing aid, Steinbrecher’s hearing aid, and Shaffer’s earbud with Aumer’s sensors, processor, and communication component to read user biometrics would yield predictable results. *See* Opp. RMTA 14–16.

²³ Although Patent Owner noted this in the context of enablement of the proposed substitute claims, we determine that this statement also equally applies to the motivation issues before us in connection with obviousness over the various base references in combination with Rass.

Use of Biometrics for Power Management was Known

As asserted by Petitioner (and as also discussed above in the context of the Rass grounds), the Rass reference provides, *inter alia*, an indication that an ordinarily skilled artisan, before the priority date of the '014 patent, would know that “a sensor in a wireless earpiece could allow the wireless earpiece to automatically switch . . . on or off . . . depending on user biometrics.” Opp. RMTA 18 (citing Ex. 1033, 2:27–29, Abstr.); *see also* Ex. 1033, 2:63–3:4. Petitioner reasons that the ordinarily skilled artisan “would have been motivated to include, in each of Hain’s hearing aids 1 and 11, Steinbrecher’s hearing aid H, or Shaffer’s earbuds 1010 and 1012, a sensor that reads user biometrics, as taught by Aumer” for “automatically switching the power mode of the hearing aid or earbud depending on user biometrics” which “would provide the added benefit of improving user-friendliness and extending the battery life of the hearing aid or earbud.” Opp. RMTA 18–19 (citing Ex. 1033, 2:14–31; Ex. 1026 ¶¶ 71, 85, 99).

Patent Owner takes issue with Petitioner’s assertion because “Rass . . . mentions using *the temperature of the hearing aid or shell* to turn a hearing aid on or off, *not the direct body temperature of the user*” and “a POSITA would not consider *the temperature of a hearing aid or hearing aid shell* to be a biometric reading.” Reply RMTA 7–8 (citing Ex. 1033, 2:64–2:65; Ex. 2006 ¶ 82) (emphases added). As discussed *supra*, however, we are not persuaded by Patent Owner’s arguments that Rass’ temperature sensor registers only “the temperature of the hearing aid or shell . . . [and] not the direct body temperature of the user” (as Patent Owner argues, Reply RMTA 7–8). Instead, as explained, *supra*, we agree with Petitioner that Rass explicitly discloses that its temperature sensor inserted in the auditory canal (via the wireless earpiece) senses body heat of the hearing aid

wearer, and produces a temperature signal related to that body heat. *See* Ex. 1033, 1:62–66, 2:6–8, 2:63–3:4 Abstr.; Sur-Reply 5–6.

We, therefore, determine that Petitioner has shown, 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 and Increased Consumer Interest

Petitioner argues that an ordinarily skilled artisan would have had a reasonable expectation of success in applying Aumer’s teachings to the hearing aids or earbuds of Hain, Steinbrecher, or Shaffer. Opp. RMTA 16–17.

Petitioner also asserts that, at the time of the filing of Aumer, consumers were demonstrating increased interest in personal health and sensor miniaturization. Opp. RMTA 17–18 (citing to Ex. 1030 ¶¶ 2–3, Ex. 1031 ¶ 3). Petitioner emphasizes that Aumer identifies the ear as being “an ideal location for wearable health and environmental monitors,” and allows for monitoring of various user biometrics including “core body temperature” and “blood gas levels.” *Id.* at 17–18 (citing Ex. 1027 ¶ 64). Petitioner argues that, in view of such consumer interests in health monitoring and miniaturization, “a POSITA aware of Hain, Steinbrecher, or Shaffer and Aumer . . . would have been motivated to implement each of Hain’s hearing aids 1 and 11, Steinbrecher’s hearing aid H, or Shaffer’s earbuds 1010 and 1012 to include one or more sensors, a processor, and a communication component, as taught by Aumer” in order to “read and provide user biometrics to consumers, allowing them to monitor their personal health.” *Id.* (citing Ex. 1026 ¶¶ 70, 84, 98).

Thus, Petitioner presents articulated reasoning with a rationale underpinning for incorporating Aumer’s biometrics-reading sensor(s) configurable in an earpiece, into Hain’s hearing aid, Steinbrecher’s hearing aid, and Shaffer’s

earbuds. *See* Opp. RMTA 14–15, 17–19. Petitioner’s reasons for incorporating biometrics-reading sensor(s) (and their attendant electronics, such as processor and communication component, as disclosed by Aumer) are that those earpiece sensor(s) allow an earpiece “to read user biometrics and improv[e] the biometric signal quality from the sensors” ultimately “provid[ing] user biometrics to consumers, allowing them to monitor their personal health.” *See id.* at 12–13, 16, 18 (citing Ex. 1027 ¶¶ 2, 64, 66, 69, 70–72, Abstr., Figs. 2A–2B, 5A–8B; Ex. 1026 ¶¶ 70, 84, 98).

For these reasons, Petitioner submits that an ordinarily skilled artisan “would have been motivated to implement each of Hain’s hearing aids 1 and 11, Steinbrecher’s hearing aid H, or Shaffer’s earbuds 1010 and 1012 to include one or more sensors, a processor, and a communication component, as taught by Aumer.” Opp. RMTA 17–18.

Patent Owner disputes Petitioner’s arguments because, allegedly, such “‘increased consumer interest in personal health and advances in miniaturizing sensors’ . . . is irrelevant,” as an ordinarily skilled artisan “concerned with the problems described in Hain would not have been motivated to add biometric monitoring to the magnetic-field hearing aid system of Hain” because “[t]his would not have helped with improving the magnetic field to adjust power modes disclosed by Hain.” Reply RMTA 7 (citing Ex. 2006 ¶ 81).

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 1030 and 1031. 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.

Here, Patent Owner’s argument does not negate Petitioner’s asserted rationales for incorporating Aumer’s earpiece sensor(s) into Hain’s hearing aid. Patent Owner’s argument is that an ordinarily skilled artisan would not have been motivated to add biometric monitoring to Hain’s magnetic-field hearing aid system because “[t]his would not have helped with improving the magnetic field to adjust power modes disclosed by Hain.” See Reply RMTA 7 (citing Ex. 2006 ¶ 81) (emphasis added).

However, in an obviousness determination, the references and the reasoning for combining them do not have to address (or be directed to trying to solve) the same problem that a particular one of the references (e.g., Hain) addresses. See *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (in a determination of obviousness, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art)). Thus, not only Hain, but also Aumer may be relied upon for all that it would have reasonably suggested to a skilled artisan. See *id.*; see also Sur-Reply 9 (citing *KSR*, 550 U.S. at 420–421 (“familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle”))).

We are persuaded by Petitioner’s motivation arguments, because, as opined by Dr. Kiaei, “in view of the consumer interests, advances in sensors, and Aumer’s

teachings, a POSITA aware of Hain [,Steinbrecher, and Shaffer,] and Aumer . . . would have been motivated to implement each of Hain’s hearing aids,” “each of Shaffer’s earbuds 1010 and 1012,” and “Steinbrecher’s hearing aid H” 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.” Ex. 1026 ¶¶ 70, 84, 98.

We determine that Petitioner has established, by a preponderance of the evidence, that there is sufficient motivation to include, in Hain’s hearing aid, Steinbrecher’s hearing aid, and Shaffer’s earbuds, one or more sensors, a processor, and a communication component to read user biometrics as taught by Aumer.

iv. Additional Grounds with Respect to Claim 23

Petitioner’s grounds against proposed substitute claim 23 include additional combinations of: Shaffer, Steinbrecher, and Rass; Shaffer, Steinbrecher, Sørensen, and Rass; Shaffer, Steinbrecher, and Aumer; and Shaffer, Steinbrecher, Sørensen, and Aumer. Opp. RMTA 2–3, 5, 14. Petitioner’s showing for these grounds is substantially the same as that for the grounds discussed in the previous sections *supra* (i.e., the Hain-Rass ground, the Steinbrecher-Rass ground, the Shaffer-Hain-Rass ground, the Hain-Aumer ground, the Steinbrecher-Aumer ground, and the Shaffer-Hain-Aumer ground). See Opp. 5, 14.

With respect to the Rass-based grounds including Shaffer and Steinbrecher, Patent Owner relies on the same arguments discussed above for proposed substitute claims 14 and 23 and the Hain-Rass, Steinbrecher-Rass, and Shaffer-Hain-Rass grounds. See Reply RMTA 5–6 (arguing that “a POSITA would not have been motivated to combine Rass with Shaffer for the same reasons a POSITA

would not have combined Hain or Steinbrecher with Rass” including that “Shaffer’s focus is the charging case, not turning the earpieces on/off, like Rass”).

With respect to the Aumer-based grounds including Shaffer and Steinbrecher, Patent Owner relies on the same arguments discussed above for proposed substitute claims 14 and 23 and the Hain-Aumer, Steinbrecher-Aumer, and Shaffer-Hain-Aumer grounds. *See* Reply RMTA 8 (arguing that “a POSITA would not have been motivated to combine Aumer with Shaffer for the same reasons a POSITA would not have combined Hain or Steinbrecher with Aumer”).

As analyzed above in connection with the Hain-Rass ground, Steinbrecher-Rass ground, Shaffer-Hain-Rass ground, Hain-Aumer ground, Steinbrecher-Aumer ground, and Shaffer-Hain-Aumer ground, we reiterate that Rass and Aumer, and the ’014 patent may be viewed as sharing the same general field of endeavor, i.e., wireless earpieces; that is, Rass and Aumer (like Hain, Shaffer, and Steinbrecher) are concerned with wireless earpieces. In addition, based upon Petitioner’s arguments concerning motivation to combine Hain, Steinbrecher, and Shaffer, with each of Rass and Aumer (*see* Opp. RMTA 5–10, 14–19), we determine that the reasons submitted are persuasive for the reasons we outlined in the previous sections *supra*, in connection with the detailed analysis of proposed substitute claims 14 and 23.

v. Conclusion for Obviousness of Claims 14 and 23

For the reasons provided above, Petitioner has sufficiently shown that each of Petitioner’s asserted grounds against claim 14 discussed *supra* (i.e., Hain in combination with Rass, Shaffer in combination with Hain and Rass, Hain in combination with Aumer, and Shaffer in combination with Hain and Aumer) renders proposed substitute independent claim 14 obvious. Petitioner also has sufficiently shown that each of Petitioner’s asserted grounds against claim 23

discussed *supra* renders proposed substitute independent claim 23 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 proposed substitute claims 14 and 23 is obvious over Petitioner's asserted combinations of art referenced above.

d. Obviousness of Proposed Substitute Claims 15–21 and 24–26

Proposed Substitute Claims 15, 16 and 18, and
Hain-Rass and Hain-Aumer Grounds

Petitioner contends the combination of Hain and Rass renders proposed substitute claims 15, 16, and 18 obvious because “Rass teaches ‘the wireless earpiece is configured to read user biometrics,’ as recited in substitute claim 14” from which claims 15, 16, and 18 depend, and “a POSITA would have been motivated to include in a hearing aid, as taught by Hain, a temperature sensor to detect user temperature to automatically switch on and off the hearing aid, as taught by Rass.” Opp. RMTA 4. Petitioner also contends that the combination of Hain and Aumer renders claims 15, 16, and 18 obvious because “Aumer teaches ‘the wireless earpiece is configured to read user biometrics,’ as recited in substitute claim 14” and “a POSITA would have been motivated to include in a hearing aid, as taught by Hain, one or more sensors, a processor, and a communication component to read user biometrics, as taught by Aumer.” *Id.* at 13.

With respect to proposed substitute claims 15, 16, and 18, Patent Owner relies on the same arguments discussed above for claim 14. *See generally* Reply

RM TA 2–8. More particularly, Patent Owner’s arguments regarding claims 15, 16, and 18 and the Hain-Rass ground are the same as the arguments submitted with respect to claim 14 and the Hain-Rass ground (*see id.* at 2–5) and Patent Owner’s arguments regarding claims 15, 16, and 18 and the Hain-Aumer ground are the same as the arguments submitted with respect to claim 14 and the Hain-Aumer ground (*see id.* at 6–8).

Proposed substitute claims 15, 16, and 18 do not include amendments with respect to their corresponding original claims 2, 3, and 5, and the only change in proposed substitute claims 15, 16, and 18 (with respect to their corresponding original claims) is the dependency, whereby claims 15, 16, and 18 depend from proposed substitute claim 14. *See* RM TA Appx. A-1, A-2. Above, we provide the reasons for our determination that Petitioner has proved, by a preponderance of evidence, that original claims 2, 3, and 5 are unpatentable on grounds presented by Petitioner. Moreover, for the same reasons given for proposed substitute claim 14 and discussed *supra*, based on the arguments and evidence of record, we determine that Petitioner has proved, by a preponderance of evidence, that proposed substitute claims 15, 16, and 18 would have been obvious over the combination of Hain and Rass, and over the combination of Hain and Aumer.

Proposed Substitute Claim 24 and
Steinbrecher-Rass and Steinbrecher-Aumer Grounds

Petitioner contends that the combination of Steinbrecher and Rass renders proposed substitute claim 24 obvious because “Rass teaches ‘the [left/right] wireless earpiece is configured to read user biometrics,’ as recited in substitute claim 23” (from which claim 24 depends), and “a POSITA would have been motivated to include in a hearing aid, as taught by Steinbrecher, a temperature sensor to detect user temperature to automatically switch on and off the hearing

aid, as taught by Rass.” Opp. RMTA 4–5. Petitioner also contends that the combination of Steinbrecher and Aumer renders claim 24 obvious because “Aumer teaches the ‘wireless earpiece is configured to read user biometrics,’ as recited in substitute claim 23” and “a POSITA would have been motivated 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.” *Id.* at 13.

With respect to proposed substitute claim 24, Patent Owner, in response, relies on the same arguments discussed above for claim 23. *See generally* Reply RMTA 5, 8. More particularly, Patent Owner’s arguments regarding claim 24 and the Steinbrecher-Rass ground are the same as the arguments submitted with respect to claim 23 and the Steinbrecher-Rass ground (*see id.* at 5) and Patent Owner’s arguments regarding claim 24 and the Steinbrecher-Aumer ground are the same as the arguments submitted with respect to claim 23 and the Steinbrecher-Aumer ground (*see id.* at 8).

Proposed substitute claim 24 does not include amendments with respect to its corresponding original claim 11, and the only change in proposed substitute claim 24 (with respect to its corresponding original claim) is the dependency, whereby claim 24 depends from proposed substitute claim 23. *See* RMTA Appx. A-4. Above, we provide the reasons for our determination that Petitioner has proved, by a preponderance of evidence, that original claim 11 is unpatentable on grounds presented by Petitioner. Moreover, for the same reasons given for proposed substitute claim 23 and discussed *supra*, based on the arguments and evidence of record, we determine that Petitioner has proved, by a preponderance of evidence, that proposed substitute claim 24 would have been obvious over the combination of Steinbrecher and Rass, and over the combination of Steinbrecher and Aumer.

Proposed Substitute Claims 15–21 and 24–26 and
the Shaffer-based Grounds

Proposed substitute dependent claims 15, 16, 18, 21, and 24–26 do not include amendments with respect to their corresponding original claims 2, 3, 5, 8, and 11–13. The only changes in these proposed substitute claims with respect to their corresponding original claims are the dependencies, with claims 15, 16, 18, 21 depending from proposed substitute claim 14, and claims 24–26 depending from proposed substitute claim 23 (directly or indirectly). *See* RMTA Appx. A-1, A-2, A-3, A-4. Proposed substitute dependent claims 17, 19, and 20 include amendments (with respect to their corresponding original claims 4, 6, and 7) directed to “the smart case compris[ing] a rechargeable battery configured to charge the wireless earpieces” (or similar language). *See* RMTA Appx. A-2.

Petitioner contends that various combinations including Shaffer and Rass (particularly, Shaffer-Hain-Rass, Shaffer-Hain-Sørensen-Rass, Shaffer-Steinbrecher-Rass, and Shaffer-Steinbrecher-Sørensen-Rass) render claims 15–21 and 24–26 obvious because “Rass teaches the ‘wireless earpiece is configured to read user biometrics’” and “a POSITA would have been motivated to include in an earbud, as taught by Shaffer, a temperature sensor to detect user temperature to automatically switch on and off the earbud, as taught by Rass.” *Opp.* RMTA 5. Petitioner sets forth the same motivation arguments in connection with modifying the above-mentioned references with the teachings of Rass, as with the grounds asserted against proposed substitute claim 14 when combining Hain and Shaffer with Rass, and proposed substitute claim 23 when combining Steinbrecher with Rass. *See id.* (citing to Section II.A.5).

Petitioner contends that various combinations including Shaffer and Aumer (particularly, Shaffer-Hain-Aumer, Shaffer-Hain-Sørensen-Aumer, Shaffer-

Steinbrecher-Aumer, and Shaffer-Steinbrecher-Sørensen-Aumer) render claims 15–21 and 24–26 obvious because “Aumer teaches the ‘wireless earpiece is configured to read user biometrics’” and “a POSITA would have been motivated to include in an earbud, as taught by Shaffer, one or more sensors, a processor, and a communication component to read user biometrics, as taught by Aumer.” Opp. RMTA 14. Petitioner sets forth the same motivation arguments in connection with modifying the above-mentioned references with the teachings of Aumer, as with the grounds asserted against proposed substitute claim 14 when combining Hain and Shaffer with Aumer, and proposed substitute claim 23 when combining Steinbrecher with Aumer. *See id.* (citing Section II.B.5).

With respect to proposed substitute claims 15–21 and 24–26 and the Rass-based grounds, Patent Owner relies on the same arguments discussed above for proposed substitute claims 14 and 23 and the Hain-[Shaffer-]Rass and Steinbrecher-Rass grounds. *See* Reply RMTA 5–6 (arguing that “a POSITA would not have been motivated to combine Rass with Shaffer for the same reasons a POSITA would not have combined Hain or Steinbrecher with Rass”). With respect to proposed substitute claims 15–21 and 24–26 and the Aumer-based grounds, Patent Owner relies on the same arguments discussed above for proposed substitute claims 14 and 23 and the Hain-[Shaffer-]Aumer and Steinbrecher-Aumer grounds. *See id.* at 8 (arguing that “a POSITA would not have been motivated to combine Aumer with Shaffer for the same reasons a POSITA would not have combined Hain or Steinbrecher with Aumer”).

As analyzed above in connection with the Hain-Shaffer-Rass, Hain-Shaffer-Aumer, Steinbrecher-Rass, and Steinbrecher-Aumer grounds asserted against proposed substitute claims 14 and 23, we reiterate that Rass and Aumer, and the ’014 patent may be viewed as sharing the same general field of endeavor, i.e.,

wireless earpieces; that is, Rass and Aumer (like Hain, Steinbrecher, and Shaffer) are concerned with wireless earpieces. In addition, based upon Petitioner's various arguments concerning motivation to combine Hain, Steinbrecher, and Shaffer with each of Rass and Aumer (*see* Opp. RMTA 5–10, 14–19), we determine that the reasons submitted are persuasive for the reasons we outlined above in connection with proposed substitute claims 14 and 23.

Thus, based on the arguments and evidence of record, we determine that Petitioner has proved, by a preponderance of evidence, that proposed substitute claims 15–21 and 24–26 would have been obvious over Petitioner's asserted Shaffer-Rass and Shaffer-Aumer combinations.

e. Obviousness of Proposed Substitute Claim 22

We now turn to Petitioner's arguments that proposed substitute dependent claim 22 would have been obvious over the combination of Shaffer, Hain, and Rass, and over the combination of Shaffer, Hain, Aumer, Rass. *See* Opp. RMTA 10, 19.

Proposed substitute dependent claim 22 includes an amendment (with respect to its corresponding original claim 9) directed to “the user biometrics [being] utilized by the wireless earpiece to alter the power mode.” *See* RMTA Appx. A-3.

Petitioner contends that each of the combination of Shaffer, Hain and Rass, and the combination of Shaffer, Hain, Aumer, and Rass, renders claim 22 obvious because “Rass teaches ‘the user biometrics is utilized by the wireless earpiece to alter the power mode,’ as recited in substitute claim 22.” Opp. RMTA 10, 19. In particular, Petitioner submits that Rass discloses techniques for switching on and off an “in-the-ear (ITE)” hearing aid (I) by fitting it “with a **temperature sensor (TS)** to *detect the body heat of the hearing aid wearer*,” whereby “the switching

on and off operations include switching to or from standby mode.” *Id.* at 3–4 (citing Ex. 1033, 2:5–8, 2:27–29, 2:53–54, 2:63–3:2, Abstr.; Ex. 1026 ¶¶ 9–10, 54, 102). More particularly, at column 2, line 63–column 3, line 4, Rass describes an exemplary in-the-ear hearing aid Fig. 1 that “has a temperature sensor TS” and

[w]hen worm [sic], the hearing aid I or its shell heats up. The *temperature sensor TS registers this heat*. Once a certain temperature threshold is exceeded, *the device is switched on*. If the *temperature drops back* to below a lower temperature threshold, *the hearing aid I switches off again*. This *temperature-controlled switching on and off* is also possible in principle with a single temperature threshold.

Ex. 1033, 2:63–3:4 (emphases added), Fig. 1. Petitioner submits that “[s]witching on and off the hearing aid [based on a temperature signal relating to the body heat of the wearer in Rass] alters the power mode of the hearing aid” such that Rass teaches the added limitation in claim 22 requiring that “the user biometrics [read by the wireless earpiece] is utilized by the wireless earpiece to alter the power mode.” Opp. RMTA 10, 19.

Petitioner sets forth the same motivation arguments in connection with modifying Hain and Shaffer with the teachings of Rass, and with the teachings of Rass and Aumer, as with the grounds asserted against proposed substitute claim 14 when combining Hain and Shaffer with Rass and Aumer. *See id.* at 10, 19 (citing to Sections II.A.5 and II.B.5; Ex. 1026 ¶¶ 54, 102).

Patent Owner responds that “Shaffer, Hain, and Rass do not render claim 22 obvious” because “a POSITA would not have been motivated to combine Rass with Shaffer for the same reasons a POSITA would not have combined Hain or Steinbrecher with Rass.” *See Reply RMTA 5–6* (emphasis omitted) (citing Ex. 2006 ¶¶ 72–75). Patent Owner also contends that “Shaffer, Hain, Aumer, and Rass do not render claim 22 obvious” because “a POSITA would not have been motivated to combine Aumer and Rass with Shaffer for the same reasons a

POSITA would not have combined Hain or Steinbrecher with Aumer and Rass.”
See id. at 8–9 (citing Ex. 2006 ¶ 92).

As discussed *supra* (in the context of the grounds applied to claims 14 and 23), we are not persuaded by Patent Owner’s arguments that Petitioner’s motivations to combine Hain and Shaffer with Rass and with Aumer are insufficient, or that Hain and Shaffer (on one hand) and Rass and Aumer (on the other hand) have disjunctive fields of endeavor or technological areas of interest. As analyzed above in connection with the grounds asserted against proposed substitute claims 14 and 23, we reiterate that Rass and Aumer, and the ’014 patent may be viewed as sharing the same general field of endeavor, i.e., wireless earpieces; that is, Rass and Aumer (like Hain and Shaffer) are concerned with wireless earpieces.

As analyzed above in connection with the grounds asserted against proposed substitute claims 14 and 23, we also determined that Petitioner has established, by a preponderance of the evidence, that there is sufficient motivation to employ a temperature sensor as taught by Rass, in Hain’s hearing aid and Shaffer’s earbuds, and that there is sufficient motivation to employ a sensor to read user biometrics as taught by Aumer, in Hain’s hearing aid and Shaffer’s earbuds.

Thus, based on the arguments and evidence of record, we determine that Petitioner has proved, by a preponderance of evidence, that proposed substitute claim 22 would have been obvious over the combination of Shaffer, Hain and Rass, and over the combination of Shaffer, Hain, Aumer, and Rass.

V. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–13 of the ’014 patent are

unpatentable.²⁴ In addition, we determine that Petitioner has demonstrated by a preponderance of the evidence that proposed substitute claims 14–26 are unpatentable. Our determinations are summarized below.

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

Motion to Amend Outcome	Claims
Original Claims Cancelled by Amendment	
Substitute Claims Proposed in the Amendment	14–26
Substitute Claims: Motion to Amend Granted	
Substitute Claims: Motion to Amend Denied	14–26
Substitute Claims: Not Reached	

²⁴ 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).

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 1–13 of the '014 patent are unpatentable;

FURTHER ORDERED that Petitioner has shown by a preponderance of the evidence that proposed substitute claims 14–26 are unpatentable and Patent Owner's request to issue substitute claims 14–26 is *denied*; and

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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