

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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MED-EL ELEKTROMEDIZINISCHE GERÄTE GES.M.B.H.,  
Petitioner,

v.

SONOVA AG,  
Patent Owner.

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IPR2021-00023  
Patent 7,267,847 B2

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Before MICHELLE N. ANKENBRAND, PATRICK R. SCANLON, and  
AVELYN M. ROSS, *Administrative Patent Judges*.

ROSS, *Administrative Patent Judge*.

JUDGMENT  
Final Written Decision  
Determining All Challenged Claims Unpatentable  
35 U.S.C. § 318(a)

## I. INTRODUCTION

MED-EL Elektromedizinische Geräte Ges.m.b.H. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1, 2, 5, 7, 8, 10, 11, and 14 of U.S. Patent No. 7,267,847 B2 (Ex. 1001, “the ’847 patent”). Sonova AG (“Patent Owner”) filed a Preliminary Response to the Petition (Paper 7).<sup>1</sup> With Board authorization, Petitioner filed a pre-institution reply brief (Paper 8) and Patent Owner filed a pre-institution sur-reply brief (Paper 9) to address the status of co-pending district court litigation.

Upon consideration of the Petition, Preliminary Response, pre-institution reply, pre-institution sur-reply, and the parties’ evidence, we determined that Petitioner had demonstrated a reasonable likelihood that it would prevail with respect to at least one claim of the ’847 patent. Paper 10 (“Decision on Institution” or “DI”). Thus, pursuant to the Supreme Court’s decision in *SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (2018), and USPTO Guidance,<sup>2</sup> we instituted review of all challenged claims on all asserted grounds. *Id.*

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<sup>1</sup> Petitioner identifies “MED-EL Elektromedizinische Geräte Ges.m.b.H and its subsidiary MED-EL Corporation, USA” as real parties-in-interest. Pet. 68. Patent Owner identifies “Sonova AG; Advanced Bionics, LLC; and Advanced Bionics AG” as real parties-in-interest. Patent Owner’s Mandatory Notices, Paper 5, 2.

<sup>2</sup> In accordance with USPTO Guidance, “if the PTAB institutes a trial, the PTAB will institute on all challenges raised in the petition.” See USPTO, Guidance on the Impact of SAS on AIA Trial Proceedings (April 26, 2018), available at <https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial> (“USPTO Guidance”).

Following institution of trial, Patent Owner filed a Patent Owner Response (Paper 18, “PO Resp.”), Petitioner filed a Reply (Paper 19, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 20, “Sur-reply”). In support of their respective positions, Petitioner relies on the testimony of Dr. Jeffrey Giacomini (Ex. 1002, “Giacomini Declaration”; Ex. 2011, “Giacomini Deposition”) and Patent Owner relies on the testimony of Dr. Darren J. Young (Ex. 2009, “Young Declaration”).<sup>3</sup>

We held an oral hearing for this proceeding on January 5, 2022, and a transcript of the hearing is included in the record (Paper 27, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 2, 5, 7, 8, 10, 11, and 14 of the ’847 patent are unpatentable.

#### *A. Related Proceedings*

The parties identify as a related proceeding the pending district court litigation styled *MED-EL Elektromedizinische Geräte Ges.m.b.H. v. Advanced Bionics*, No. 1:18-cv-01530 (D. Del.) (“the district court litigation”). Pet. 68; see Paper 5, 2.

Patent Owner also identifies Petitioner’s co-pending petitions for an *inter partes* review of U.S. Patent Nos. 8,155,746, 6,761,681, and 8,155,747 as related proceedings. Paper 5, 3; IPR2020-01016, Paper 1; IPR2021-00044, Paper 1; IPR2020-00176, Paper 1; IPR2020-00190, Paper 1. The

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<sup>3</sup> The Young Declaration is entered as Exhibit 2009, but bears an exhibit label “SONOVA Ex 2019.” Patent Owner and Petitioner refer to the Young Declaration as Exhibit 2009 in their briefing. See, e.g., PO Resp., vi, 2, 12, 16, 24; Pet. Reply 1; Sur-reply, iv, 4–5, 16, 18. We do the same.

Board instituted trial in IPR2020-01016, IPR2020-00176, IPR2020-00190, and IPR2021-00044. *See* IPR2020-01016, Paper 13; IPR2020-00176, Paper 13; IPR2020-00190, Paper 15; IPR2021-00044, Paper 14. A Final Written Decision determining all challenged claims unpatentable issued on June 2, 2021, in IPR2020-00176. *See* IPR2020-00176, Paper 38. Each above-identified patent is asserted in the district court litigation. Paper 5, 3.

Patent Owner further identifies Advanced Bionic LLC's petitions for an *inter partes* review of U.S. Patent Nos. 8,634,909 and RE46,057 as related matters. Paper 5, 3; IPR2019-01469, Paper 1; IPR2019-01572, Paper 1. The Board declined to institute an *inter partes* review in these matters. *See* IPR2019-01469, Paper 6; IPR2019-01572, Paper 11. The patents challenged in IPR2019-01469 and IPR2019-01572 are also at issue in the district court litigation. Paper 5, 2.

*B. The '847 Patent*

The '847 patent, titled "Hydrophobic Coating of Individual Components of Hearing Aid Devices," issued on September 11, 2007.

Ex. 1001, codes (45), (54). The '847 patent

refers to a process for sealing of smallest crevices, chinks and/or openings in walls of housings against penetration of fluids, the use of the process, housings of electrical or electronic devices having crevices, capillaries, chinks, openings . . . which have to be sealed against penetration of fluids, but not against penetration of gases as well as a battery compartment of a hearing aid device.

*Id.* at 1:6–13. The '847 patent explains that penetration of fluids, humidity, or perspiration into certain components of medical devices, such as hearing aids, may cause corrosion and result in the device not operating properly.

*Id.* at 1:15–21. The '847 patent purports to solve the problem of unwanted fluid entry and "to protect individual components or areas of a casing wall of

an electrical or electronic device . . . by specific hydrophobic coating in the area of the mentioned capillary crevices, chinks and the same against the penetration of a fluid.” *Id.* at 2:38–43. As a result, the ’847 patent explains that, “the liquid droplets . . . cannot spread on the surface of the component or housing areas but will contract with a higher contact angle,” making it “more difficult for a liquid droplet to penetrate the interior of the medical device through the capillary crevices.” *Id.* at 2:46–52. According to the ’847 patent, “[b]y applying a hydrophobic coating on the surface . . . the contact angle of water . . . can be increased substantially, as e.g. above 100°, which is equivalent to the wettability of Teflon.” *Id.* at 3:12–15.

### *C. Illustrative Claims*

Petitioner challenges claims 1, 2, 5, 7, 8, 10, 11, and 14 of the ’847 patent. Independent claim 1 is the only independent claim challenged and is reproduced below.

1. Process for the liquid impervious sealing of one or more of small crevices, chinks, capillaries and openings in a wall of a hearing device housing which occur due to an assembly of at least two structural components of the hearing device, wherein at least certain gas permeability has to be obtained, said method comprising the step of providing a hydrophobic coating on the housing wall at least in the area of the one or more of crevices, chinks, openings and capillaries to prevent moisture from an exterior of said housing wall from entering the one or more of crevices, chinks, openings and capillaries.

Ex. 1001, 5:2–12.

### *D. The Asserted Unpatentability Challenges*

Petitioner asserts that claims 1, 2, 5, 7, 8, 10, 11, and 14 would have been unpatentable on the following grounds:

| Claims Challenged | 35 U.S.C. § <sup>4</sup> | Reference(s)/Basis             |
|-------------------|--------------------------|--------------------------------|
| 1, 2, 7, 8, 14    | 102                      | Meier <sup>5</sup>             |
| 5, 10, 11         | 103                      | Meier, Kenigsberg <sup>6</sup> |
| 1, 2, 7, 8        | 102                      | Haertl <sup>7</sup>            |
| 5, 10, 11         | 103                      | Haertl, Kenigsberg             |

## II. ANALYSIS

### A. Principles of Law

To prevail in its challenge, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “In an IPR [(*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) (2012) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This

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<sup>4</sup> The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103, effective March 16, 2013. Because the application from which the ’847 patent issued was filed before this date, the pre-AIA version of §§ 102 and 103 apply.

<sup>5</sup> Meier, WO 99/45744, published September 10, 1999 (Ex. 1004, “Meier PCT”). United States Patent No. 6,574,343 B1 to Meier, issued June 3, 2003 (Ex. 1003, “Meier”), is an English translation of WO 99/45744. Petitioner also submits a certified English translation of WO 99/45744 (Ex. 1008, “Translated Meier”). For convenience, Petitioner and Patent Owner cite to Exhibit 1003. See generally Pet.; PO Resp. 5, 21, 22; Sur-reply 15–17. We do the same.

<sup>6</sup> Kenigsberg et al., US 5,156,780, issued October 20, 1992 (Ex. 1006, “Kenigsberg”).

<sup>7</sup> Haertl, US 4,987,597, issued January 22, 1991 (Ex. 1005, “Haertl”).

burden of persuasion never shifts to the patent owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

To anticipate, a reference must “show all of the limitations of the claims arranged or combined in the same way as recited in the claims.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed. Cir. 2008); *accord In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). Although the elements must be arranged or combined in the same way as the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., the identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009); *accord In re Bond*, 910 F.2d at 832. Further, to be anticipating, a prior art reference must be enabling and must describe the claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the art. *Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 1346 (Fed. Cir. 2000); *In re Paulsen*, 30 F.3d 1475, 1479 (Fed. Cir. 1994).

Obviousness is a question of law based on underlying determinations of fact. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966); *Richardson-Vicks, Inc. v. Upjohn Co.*, 122 F.3d 1476, 1479 (Fed. Cir. 1997). A claim is unpatentable as obvious, under 35 U.S.C. § 103, if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence

of nonobviousness.<sup>8</sup> *Graham*, 383 U.S. at 17–18. Consideration of the *Graham* factors “helps inform the ultimate obviousness determination.” *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc). To prevail in an *inter partes* review, Petitioner must explain how the proposed combinations of prior art would have rendered the challenged claims unpatentable. Subsumed within the *Graham* factors are the requirements that where all claim limitations are found in a number of prior art references, Petitioner must show that the skilled artisan would have had a reasonable expectation of success in combining the prior art references to achieve the claimed invention. *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1361 (Fed. Cir. 2007). “Obviousness does not require absolute predictability of success . . . all that is required is a reasonable expectation of success.” *In re O’Farrell*, 853 F.2d 894, 903–04 (Fed. Cir. 1988) (citations omitted).

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

*B. Level of Ordinary Skill in the Art*

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention. *Graham*, 383 U.S. at 17.

Petitioner contends that a person of ordinary skill in the art “would have had, as of December 2003, the equivalent of a Bachelor of Science degree in chemical engineering, mechanical engineering, physics or a related discipline and at least two years of related experience, preferably with a working understanding of plastics manufacturing, chemistry, and/or

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<sup>8</sup> The parties have not asserted or otherwise directed our attention to any objective evidence of nonobviousness. Pet. 59; see generally PO Resp.

materials science.” Pet. 17–18 (citing Ex. 1002 ¶ 20). Patent Owner does not propose its own definition or dispute Petitioner’s proposed definition except to assert that “other disciplines including electrical engineering should be included.” PO Resp. 8–9.

In light of the record before us, we determine that Petitioner’s proposed definition is consistent with the prior art of record and apply it for this Decision. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining that specific findings on ordinary skill level are not required “where the prior art itself reflects an appropriate level and a need for testimony is not shown” (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985))). We also include disciplines, including electrical engineering, as Patent Owner proposes. Accordingly, the definition for a person of ordinary skill in the art, applied herein, “would have had, as of December 2003, the equivalent of a Bachelor of Science degree in chemical engineering, mechanical engineering, electrical engineering, physics, or a related discipline and at least two years of related experience, preferably with a working understanding of plastics manufacturing, chemistry, and/or materials science.”

### C. Claim Construction

We construe claim terms according to the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc); 37 C.F.R. § 42.100(b) (2020). Under *Phillips*, we give claim terms “their ordinary and customary meaning.” *Phillips*, 415 F.3d at 1312. “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Id.* at 1313. “Importantly, the person of ordinary

skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.*

Petitioner requests that we apply ordinary meaning to the term “coating.” Pet. 18–19. Patent Owner argues that “coating” “does not need to be construed to resolve this [*inter partes* review].” PO Resp. 11. Patent Owner contends that we should apply the construction of “hydrophobic” adopted by the district court in the district court litigation. *Id.* at 9–11. We address these limitations below.

1. “*coating*”

According to Petitioner, “[t]he term ‘coating’ should be given its ordinary meaning in the context of the claims and prosecution history.” Pet. 18. Petitioner explains that “a [person of ordinary skill in the art] would understand the term ‘coating’ to mean a material applied on the housing wall using the process of coating.” *Id.* at 19 (citing Ex. 1002 ¶ 36). Petitioner explains that, because it foresees Patent Owner will broaden its arguments during trial (as it did in the district court litigation), we should construe “coating” “to mean any layer applied to a material, including placing a separate component onto the housing wall, such as a membrane, which needs to be secured in place by additional means,” such as an adhesive layer. *Id.* at 41.

Patent Owner disagrees with Petitioner’s proposed construction and asserts “coating” does not need to be construed. PO Resp. 11. According to Patent Owner, Petitioner “does not explain why this construction is necessary” “[n]or does Petitioner appear to apply this construction in the Petition.” *Id.* (citing Pet. 18, 27).

Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (applying *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). We agree with Patent Owner that this term need not be expressly construed because, as explained below, Petitioner has sufficiently shown the cited art discloses a “coating” regardless of whether we adopt Petitioner’s proposed construction.

2. “*hydrophobic*”

In its Preliminary Response, Patent Owner argued that we should adopt the district court’s construction of the term “hydrophobic” because “in the district court proceeding Petitioner advocated for and received a narrow construction of ‘hydrophobic.’” Prelim. Resp. 7–8 (citing Ex. 2002, 2). Therefore, Patent Owner explained that we should construe “hydrophobic” to mean “having a resistance to water penetration wherein the contact angle between the water droplet with the surface exceeds 90 degrees,” i.e., the construction the district court adopted. *Id.* at 8, 20.

In our Institution Decision, we acknowledged the district court’s construction, but determined that adopting the district court’s construction as our own was unnecessary to resolve the instant dispute. DI 25–26 (citing *Vivid Techs.*, 200 F.3d at 803; *Nidec*, 868 F.3d at 1017). Our decision was based, in part, on the fact that the ’847 patent does not expressly define the term “hydrophobic” and because of the limited record as to the what one of ordinary skill in the art would have understood “hydrophobic” to mean. *Id.* at 26. Instead, we determined that “[t]he term ‘hydrophobic’ . . . would at

least encompass the explicit materials identified as ‘hydrophobic’ in the ’847 patent.” *Id.* at 27.

Patent Owner reasserts that we should hold Petitioner to the construction it advocated for and received in the district court litigation. PO Resp. 9, 11 (citing Ex. 2002, 2). Patent Owner argues that “Petitioner further asserted [in the district court litigation] that 90 degrees is the standard threshold for hydrophobicity in the art.” *Id.* at 10 (citing Ex. 2007, 44).

Petitioner asserts that no construction is necessary for the term “hydrophobic.” Pet. Reply 4; *see also* Tr. 6. Petitioner argues that “there is no need to construe the term ‘hydrophobic’ when the exact same word is used in the prior art in the same context to describe solving the same problem with the same devices as in the ’847 patent.” Pet. Reply. 4.

Patent Owner contends that Petitioner’s assertion that the “the exact same word[, that is, ‘hydrophobic’] is used in the exact same context to describe solving the same problem with the same devices as in the ’847 patent” lacks evidentiary support and is untrue. Sur-reply 2–3. Patent Owner explains that “the same material may exhibit different contact angles in different applications of the material depending on several factors, including: surface chemistry, the heterogeneity/homogeneity and smoothness/roughness of the coated substrate, the method by which the coating is applied, and any additives or treatments applied to the coating.” *Id.* at 4–5 (citing Ex. 2016, 230–33, 238; Ex. 2009 ¶ 62). According to Patent Owner, “a material may have ‘resistance to water penetration wherein the contact angle between a water droplet and the material surface exceeds 90 degrees’ in one application (*e.g.* the ’847 patent), but might not in another

application (*e.g.*, Meier or Haertl).” *Id.* at 3–4. Therefore, relying on “statements within the references to Teflon or the word ‘hydrophobic’” are insufficient. PO Resp. 14; *see also id.* at 15–16 (disagreeing with our reasoning in the Institution Decision). Patent Owner asserts that resolving the construction of “hydrophobic” is necessary because “[i]f the Board construes ‘hydrophobic’ consistent with the district court’s construction—a construction based on what Petitioner itself proposed—then Petitioner has not met its burden to prove unpatentability and the petition fails.” Sur-reply 3.

We begin our analysis by first looking at the language of the claims. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) (“First, we look to the words of the claims themselves . . . to define the scope of the patented invention.”). Claim 1 recites a “[p]rocess for the liquid impervious sealing of one or more small crevices, chinks, capillaries and openings in the wall of a hearing device housing,” including “the step of providing a hydrophobic coating on the housing wall at least in the area of the one or more crevices, chinks, openings and capillaries to prevent moisture from an exterior of said housing wall from entering the one or more crevices, chinks, openings and capillaries.” Ex. 1001, 5:2–12. The language of the claim itself does not define “hydrophobic” or provide any standard by which to determine whether a coating is “hydrophobic” other than that it would “prevent moisture from” entering the “crevices, chinks, openings and capillaries.” *Id.*

We next turn to the Specification of the ’847 patent. *Vitronics*, 90 F.3d at 1582 (“[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to

the meaning of the disputed term.”). The ’847 patent Specification does not expressly define the term “hydrophobic.” *See generally* Ex. 1001; Ex. 2003,

10. Instead, the ’847 patent describes “hydrophobic materials” as those

[w]hich could reduce the wettability and therefore the penetration of fluids through capillary crevices fails, . . . such materials like Teflon [*id.* at 2:29–32];

[which] protect individual components or areas of a casing wall . . . against the penetration of fluid [*id.* at 2:37–44]; and

[where] the contact angle of water 2 can be increased substantially, as e.g. above 100°, which is equivalent to the wettability of Teflon [*id.* at 3:11–15]; and

made out of hydrated silanes (hydro-silicones, fluorine containing poly-condensate coatings, etc. [*id.* at 4:31–34].

*See also id.* at Figs. 1a–1b (comparing the contact angle of an untreated substrate, i.e., Fig. 1a, with that of a hydrophobic surface, i.e., Fig. 1b), claims 5 and 16 (describing hydrated silanes, hydro-silicones, or fluorine containing polymers as aiding in creating a hydrophobic coating).

According to the ’847 patent, when treated with a “hydrophobic coating,” “liquid droplets, such as water, perspiration and the like cannot spread on the surface of the component or housing areas but will contact with a higher contact angle . . . . Therefore, it is more difficult for a liquid droplet to penetrate the interior of the . . . hearing aid.” *Id.* at 2:46–52, Figs. 1–2. The ’847 patent exemplifies Teflon, i.e., polytetrafluoroethylene (“PTFE”), and coatings “made out of hydrated silanes (hydro-silicones) [and] fluorine containing poly-condensate[s],” as hydrophobic materials. *Id.* at 2:32, 3:11–15, 4:31–34, 5:28–31, 6:31–34 (claims 5 and 16); *see* Ex. 1002 ¶ 63 (“Teflon is a polytetrafluoroethylene (PTFE).”).

The district court construed the term “hydrophobic” as “having resistance to water penetration wherein the contact angle between the water droplet with the surface exceeds 90 degrees.” Ex. 2002, 2. According to the district court, “the inventors intended, and a person skilled in the art would have understood, the contact angle to define whether something is ‘hydrophobic.’” Ex. 2003, 10. And “[i]n describing an untreated surface, the specification describes a contact angle that is ‘substantially below’ 80 degrees” and “then illustrates a hydrophobic coating that has a contact angle that is ‘above 100’ degrees.” *Id.* (citing Ex. 1001, 3:6–7, 3:12–15). The district court explained that “[w]hile these illustrations demonstrate that a contact angle above 100 degrees is hydrophobic, they do not establish the lower limit for hydrophobicity.” *Id.* at 11. “The reference to 80 degrees only establishes that a surface with a contact angle substantially below 80 degrees is not hydrophobic [and] [t]hat description does not establish the inverse: that is above 80 degrees is hydrophobic.” *Id.* Relying on the definition for “hydrophobic” the American Society of Testing Materials (ASTM) provides—and Petitioner offered to support its position in the district court litigation—the district court determined that “[w]ater exhibits an obtuse contact angle with hydrophobic materials,” i.e., having a measurement greater than 90 degrees. *Id.* at 11–12.

Petitioner has not persuasively explained why we should depart from the construction for “hydrophobic” adopted in the district court. Nor has Petitioner persuasively explained why here different constructions should apply in different forums. *See* Tr. 6:16–7:9, 32:3–9. Pursuant to 37 C.F.R. § 42.100(b), we have considered the district court construction of the term “hydrophobic,” which is consistent with the record evidence, and adopt it as

our own. Therefore, we construe “hydrophobic” to mean “having resistance to water penetration wherein the contact angle between the water droplet with the surface exceeds 90 degrees.”

*D. Challenges based on Meier alone and in combination with Kenigsberg*

Petitioner alleges that Meier anticipates claims 1, 2, 7, 8, and 14, and that Meier, in combination with Kenigsberg, would have rendered obvious claims 5, 10, and 11 of the '847 patent. Pet. 20, 36. Petitioner also relies on the testimony of Dr. Giacomini to support its arguments. *See id.*

*1. Overview of the Prior Art*

*a) Meier (Ex. 1003)*

Meier is directed to a hearing aid that includes a cover element formed of “an open-pore material.” Ex. 1003, 1:63–67, 3:18–19. In particular, Meier explains in one embodiment that “the homogeneously constituted cover elements are coated with a thin and permeable layer for instance of Teflon.” *Id.* at 2:19–20. The coating “repel[s] water, body sweat and body fat[, which] is necessary and demanded for the daily use of hearing aids” and “repel[s] other chemicals,” which “make[s] such an additional feature desirable.” *Id.* at 3:48–52. According to Meier, “[r]esistance to weather is of great importance when using hearing aids daily and can be achieved by using a hydrophobic cover element or at least hydrophobing the surface, or coating it with a hydrophobic material.” *Id.* at 3:53–56.

Meier depicts two hearing aid embodiments; one that discloses the cover elements useful in behind-the-ear hearing aids and the other that discloses the cover elements useful for in-ear hearing aids. *See id.* at 2:56–57, Figs. 1–5 (behind the ear hearing aids), Figs. 6A–6B (in-ear hearing aids). Meier explains, however, that the embodiments in Figures 1–5 and

Figure 6 “mostly differ[] by a different configuration of the hearing-aid components. However, the principle of the invention remains unaffected thereby.” *Id.* at 4:53–57.

*b) Kenigsberg (Ex. 1006)*

Kenigsberg explains that “[i]t is desirable . . . to have porous materials that will repel water and oil, but at the same time allow the passage of air and other gases.” Ex. 1006, 1:24–26. Accordingly, Kenigsberg describes “a method for treating a porous substrate to achieve permanent water and oil repellency while maintaining the porosity thereof.” *Id.* at 3:52–54.

“Generally, the substrate is treated by coating it with a mixture of fluoroacrylate monomer” and then polymerized “to form a conformal coating on the substrate.” *Id.* at 4:35–43. Exemplary porous substrates include fluorocarbon membranes, acrylic/urethane microporous membranes, acrylic membranes, aromatic polysulfone membranes, other microporous membranes, and natural microporous materials. *Id.* at 4:38–62, 5:11–12.

*2. Analysis of Claim 1*

Petitioner contends that “[a]ll of the elements of claim 1 are disclosed by the hearing device disclosed in Meier.” Pet. 20–21 (citing Ex. 1003, 2:18–26, 3:42–56; Ex. 1002 ¶ 46). Petitioner asserts that Meier describes “a cover element used in hearing aids that covers the acoustic input or output apertures and that covers vents that supply air to a zinc-air battery within the hearing aid housing,” as well as a process for coating the cover with a permeable, hydrophobic material. *Id.*; *see id.* at 26 (“cover elements are porous and an air supply must be assured for the battery in the hearing device”). According to Petitioner, the hydrophobic coating repels water, sweat, and other chemicals and the cover element may be formed of Teflon.

*Id.* at 21–22 (citing Ex. 1003, 3:48–56, 4:60–67, 5:6–14), 27 (citing Ex. 1003, 2:18–20, 3:53–56). Petitioner explains that “Meier describes the coated cover element and the hearing aid housing as two individual components of the hearing aid” where the coated cover element is removable and a separate component. *Id.* at 22 (citing Ex. 1003, Figs. 3–6; Ex. 1002 ¶ 47), 27 (citing Ex. 1003, 4:66–5:5; Ex. 1002 ¶ 52). According to Petitioner, “the separate cover element forms crevices when assembled onto the housing” and “[t]he hydrophobic coating allows the hearing aid, with these crevices, to be used even in an environment that includes . . . water, body sweat, and other chemicals” because the hydrophobic coating repels water and prevents liquid from entering the crevices. *Id.* at 29 (citing Ex. 1002 ¶¶ 54–57; Ex. 1012; Ex. 1013). Accordingly, Petitioner alleges Meyer discloses all limitations of claim 1. *Id.* (citing Ex. 1002 ¶¶ 59–69).

Patent Owner does not challenge many of Petitioner’s allegations regarding the teachings of Meier. *See generally* PO Resp. Instead, Patent Owner focuses its argument on Petitioner’s purported failure to set forth its grounds with particularity, to show Meier discloses a “hydrophobic” coating as properly construed, and to establish that Meier discloses a hydrophobic coating that prevents moisture from entering crevices in the housing wall as claimed. *Id.* at 12–27. We have reviewed the evidence and argument of record and determine that Petitioner establishes, by a preponderance of the evidence, that each uncontested limitation of claim 1 of the ’847 patent, is present in Meier alone. We address Patent Owner’s arguments below. Before turning to those arguments, however, we first address Patent Owner’s assertion that we should not reach the merits of Petitioner’s Meier-based

grounds because Petitioner cites to the wrong version of Meier to support its challenges.

*a) Whether Petitioner's citation to Meier is fatal to its grounds based on Meier PCT.*

Patent Owner argues that Petitioner has failed to “set forth in the Petition ‘with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim.’” PO Resp. 18 (quoting 35 U.S.C. § 312(a)(3)). According to Patent Owner, Petitioner’s Grounds 1 and 2 are based on Meier PCT (Ex. 1004), but Petitioner does not support its grounds based on the certified English translation (Ex. 1008, “Translated Meier”) as required under 37 C.F.R. § 42.63(b). *Id.* Instead, Petitioner relies on Meier (Ex. 1003), the United States version of Meier PCT. *Id.* Patent Owner acknowledges that Meier “purports to be a continuation of PCT Application No. PCT/CH99/00093, from which Meier [PCT] published, but [contends] it is *not* a substitute for a certified English translation of Meier [PCT].” *Id.* at 18–19 (relying on *Stevens v. Tamai*, 366 F.3d 1325 (Fed. Cir. 2004)). Patent Owner accuses Petitioner of “play[ing] fast-and-loose with the Meier reference” which “dooms Grounds 1 and 2 under 35 U.S.C. §312(a)(3).” *Id.* at 19.

Petitioner argues that “the Petition states that claims 1, 2, 7, 8, and 14 are anticipated by Int’l Publ. No. WO 99/45744 (“Meier WO ’744”) (Ex. 1004) and makes clear that U.S. Patent No. 6,574,343 to Meier (“Meier ’343 patent”) (Ex. 1003) is being cited as an English translation of Meier WO ’744. Pet. 4, 11.” Pet. Reply 1–2. Petitioner also asserts that “a certified English translation of Meier WO ’744 was properly provided in Exhibit 1008.” *Id.* at 2. Petitioner explains that its citations to Meier are

“for convenience” and “to avoid disputes regarding the substance of the English translation of Meier [PCT],” as “Patent Owner has already asserted that the Meier ’343 patent was an accurate English translation of Meier [PCT],” during prosecution of that patent. *Id.* at 2, 3.

We do not agree with Patent Owner that Petitioner’s failure to cite to Translated Meier is fatal to its grounds based on Meier. Our rules require that “[w]hen a party relies on a document or is required to produce a document in a language other than English, a translation of the document into English and an affidavit attesting to the accuracy of the translation must be filed with the document.” 37 C.F.R. § 42.63; *see also* Consolidated Trial Practice Guide, November 2019 (“CTPG”),<sup>9</sup> § I.F.1.(c) (“Unless accompanied by an English language translation, such documents in a language other than English will not be considered by the Board.”). This is because “[a]ll proceedings before the Board will be conducted in English.” CTPG § I.F.1.(c). Petitioner satisfied this requirement when it submitted Translated Meier with its Petition. Petitioner makes clear that it views Meier PCT and Meier as containing the same disclosure. Pet. 3–4, 10–11; Ex. 1002 ¶ 38; *see* Tr. 10:24–11:7. Petitioner purports to provide citations to Meier as opposed to Translated Meier for convenience and to avoid disputes over the accuracy of Translated Meier by using Patent Owner’s own translation—as opposed to Petitioner’s certified translation, i.e., Translated Meier. Pet. Reply 1–2. Although Petitioner’s approach may be unconventional, our rules do not prohibit it.

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<sup>9</sup> Available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>

Patent Owner’s argument that Petitioner’s failure to provide citations to Translated Meier results in a failure to identify “with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the challenge to each claim,” is unconvincing. PO Resp. 18 (quoting 35 U.S.C. § 312(a)(3) and citing 37 C.F.R. § 42.104(b)(4)). Petitioner identified each challenged claim, the grounds upon which each claim was challenged, and the Petition was accompanied by all prior art and evidence supporting each ground—including Meier PCT, Translated Meier, and Meier. Pet. vi, 3–4, 10, 20–40.

The purpose of § 312(a) is to ensure Patent Owner is on notice of the allegations forming the basis of the challenges against the subject patent.

Section 312(a)(3)’s particularity requirement is designed, at least in part, to ensure that a patent owner has sufficient notice of the challenge against which it must defend. Once inter partes review is instituted, the patent owner’s response—its opening brief, essentially—is filed as an opposition to the challenger’s petition. See § 316(a)(8); 37 CFR § 42.120. Thus, if a petition fails to state its challenge with particularity—or if the Patent Office institutes review on claims or grounds not raised in the petition—the patent owner is forced to shoot into the dark. The potential for unfairness is obvious.

*Cuozzo Speed Techs., LLC v. Lee*, 579 U.S. 261, 296 (2016) (Alito, J. concurring in part and dissenting in part). Patent Owner does not contend that it lacks sufficient notice of Petitioner’s allegations or that Petitioner’s allegations are unclear. *See generally* PO Resp. Rather, Patent Owner’s concern is simply that Translated Meier was not cited. *Id.* at 18–19. Patent Owner acknowledges that it has not identified any material differences between Translated Meier and Meier. Tr. 30:19–31:3.

Further, the present facts are distinguishable from those in *Stevens*, the case that Patent Owner cites for the proposition that the “national stage application is not the equivalent of a certified translation of a PCT application.” PO Resp. 18–19. *Stevens* did not involve a translation of a PCT application asserted as prior art against the claims of a challenged patent. Rather, *Stevens* involved an interference with a preliminary motion for benefit to an earlier-filed application. *Stevens*, 366 F.3d at 1328–1329. In *Stevens*, “Tamai [one of the parties] was required to file a translation of the PCT application along with the motion. This Tamai did not do.” *Stevens*, 366 F.3d at 1329. Here, it is undisputed that Petitioner filed a translation of Meier PCT.

Thus, contrary to Patent Owner’s arguments, Petitioner has complied with the requirements of both 35 U.S.C. § 312(a) and 37 C.F.R. § 42.63. Accordingly, we consider the merits of Petitioner’s Meier-based challenges.

*b) Whether Meier discloses a “hydrophobic” coating as properly construed*

Patent Owner argues that “Petitioner has not demonstrated how the prior art meets the construction of the term ‘hydrophobic’ that it proposed or that the district court adopted in the parallel district court proceeding.” PO Resp. 12. According to Patent Owner, Petitioner fails to show that Meier discloses a hydrophobic coating, as “Petitioner provides ***no analysis*** whatsoever in the Petition regarding the contact angles that a droplet of water would form with the surfaces described in the cited art or otherwise even mention contact angles.” *Id.* at 14. Patent Owner states that “Petitioner ‘points to statements within the references to Teflon and the word ‘hydrophobic.’ But that is not sufficient to disclose . . . ‘hydrophobic’ under either Petitioner’s proposed construction in the district court . . . or the

district court's construction, both of which require exceeding a 90-degree contact angle." *Id.* (internal citations omitted). Patent Owner, relying on the testimony of Dr. Young, contends that "a variety of factors and variables affect whether a given material achieves that contact angle in a given application," and that "the very same material may exhibit different contact angles in different applications depending on properties such as the surface chemistry, the heterogeneity/homogeneity and smoothness/roughness of the coated substrate, the method by which the coating is applied, any additives or treatments applied to the coating, among other factors." *Id.* at 16; Sur-reply, 3–4 (citing Ex. 2016, 230–33, 238; Ex. 2009 ¶ 62). Patent Owner alleges that because "[n]either Petitioner, nor its expert, nor the cited references provide any discussion or analysis to suggest that [the coating] applied in Meier . . . would achieve a contact angle greater than 90 degrees," the grounds based on Meier must fail. PO Resp. 16.

Petitioner replies that Meier describes its coatings as "hydrophobic" and uses Teflon, as an exemplary hydrophobic material, as does the '847 patent. Pet. Reply 4–5, 10–11. Petitioner argues that "Patent Owner is thus asserting a position inconsistent with its '847 patent, given that the patent explicitly acknowledges the very hydrophobic materials disclosed in Meier." *Id.* at 6. According to Petitioner, "Patent Owner and its expert are conjuring up issues that go far beyond the '847 patent and what is claimed." *Id.* at 7–8. Specifically,

[t]he factors, variables and analysis now being asserted as critical are notably absent from the disclosure in the '847 patent. If disclosing use of a hydrophobic coating was enough for a [person of ordinary skill in the art] to understand whether moisture would be prevented from entering through the crevice in the '847

patent, such disclosure of these same concepts in Meier . . . should be sufficiently enabling.

*Id.*

Here, the record evidence as a whole establishes that a person of ordinary skill in the art would have understood that Teflon is hydrophobic and possesses a contact angle of water greater than 90 degrees. For example, the '847 patent describes that “by applying a hydrophobic coating on the surface 5 as shown in FIG. 1b the contact angle of water 2 can be increased substantially, as e.g. *above 100°*, which is *equivalent to the wettability of Teflon.*” Ex. 1001, 3:11–15 (emphasis added); *see also id.* at 2:28–33 (describing Teflon as hydrophobic); Ex. 1009, 4:30–37 (disclosing using hydrophobic coating materials and permeable membranes, such as Teflon). Similarly, Kenigsberg uses PTFE membrane coatings (Ex. 1006, 3:45–49, 11:5–6, 11:55–56) and explains that “[t]he purpose of treating the substrate [with the coating] is to increase its repellency by increasing the contact angle above 90°” (*id.* at 2:49–50). *See also id.* at 2:59–63 (stating that “[i]n a hydrophobic porous substrate, the contact angle for water is greater than 90°”). Meier also coats its cover elements with Teflon to create a hydrophobic surface. Ex. 1003, 2:19–22, 3:40–52, claims 6, 8 (stating that the PTFE layer, i.e., Teflon, is hydrophobic and oleophobic); *see also* Ex. 1005 3:11–33 (using PTFE membranes which are described as “porous, air permeable, extremely strong, hydrophobic, and biocompatible.”). And Dr. Giacomini testifies that “[i]t was widely known that Teflon, when used as a coating material . . . is hydrophobic.” Ex. 1002 ¶ 63 (citing Ex. 1024, 20986–20990 (describing “Teflon films, made from polytetrafluoroethylene (PTFE), [as] widely known hydrophobic materials”)); Ex. 2011, 144:11–21

(stating that a person of ordinary skill in the art would have understood that Teflon is hydrophobic).

We acknowledge Patent Owner's position, based on the testimony of Dr. Young that

[t]here are many factors and variables that *may affect* whether a given material achieves a specific contact angle in a given application. The same material may exhibit different contact angles in different applications depending on properties such as the surface chemistry, the heterogeneity/homogeneity and smoothness/roughness of the coated surface, the method by which the coating is applied, any additives or treatments applied to the coating, among other factors.

Ex. 2009 ¶ 62 (citing Ex. 2016, 230–33, 238) (emphasis added). But, the identification of factors that *may affect* a specific contact angle does little to refute the record evidence establishing that PTFE, i.e., Teflon, possesses a contact angle greater than 90° and is widely recognized as a hydrophobic material.<sup>10</sup>

Based on this record, the preponderance of the evidence establishes that Teflon is a “hydrophobic coating” that has a contact angle that exceeds 90 degrees. Thus, we determine that Petitioner has shown, by a preponderance of the evidence, that Meier teaches a “hydrophobic” coating as recited in claim 1.

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<sup>10</sup> Notably, Dr. Young does not dispute that Teflon is widely known as a hydrophobic material or that it has a contact angle with water greater than 90°. See *generally* Ex. 2009. Rather, Dr. Young's position is that “[n]either Meier nor Haertl mention a specific contact angle for their proposed coating solution.” *Id.* ¶ 59.

*c) Whether Petitioner has shown that Meier discloses a hydrophobic coating that prevents moisture from entering crevices in the housing wall as claimed*

Patent Owner asserts that “Petitioner has not established that Meier discloses a coating to ‘prevent moisture from an exterior of said housing wall from entering’ through crevices in the housing wall, as required by Challenged Claim 1.” PO Resp. 21. In particular, Patent Owner alleges that “Meier discloses that a coating can be applied to a porous cover element (DE) that is designed to allow the passage of acoustic signals” and that “Meier focuses on reducing moisture from entering through pores in this cover element,” not from entering the crevices as claimed. *Id.* Patent Owner asserts that in Meier, only a portion of the area around the crevices, i.e., the cover, is coated. *Id.* at 22. Patent Owner explains that Petitioner’s position “that ‘the hydrophobic coating on the cover element of Meier is sufficient to repel water from getting into the device and thus prevents liquid from entering into the crevices,’ ” relies only on the conclusory testimony of Dr. Giacomini and “does not identify any supporting disclosure in Meier.” *Id.* at 21–23. Patent Owner criticizes Dr. Giacomini’s reliance on a study that “shows the results of capillary rise for tests comparing the rise of water between two glass plates with the rise of water between a Teflon plate and a glass plate” because the results “cannot be generalized to suggest that the coating on Meier’s cover element will prevent water or moisture from entering through crevices formed in the area where the cover element and the device housing are adjoined.” *Id.* at 24 (citing Ex. 1012, Fig. 5). Dr. Young testifies that additional factors must be considered, such as “different configurations beyond that of two plates, the orientation of the crevices, the shape of the crevices, or even expand the comparison beyond one particular

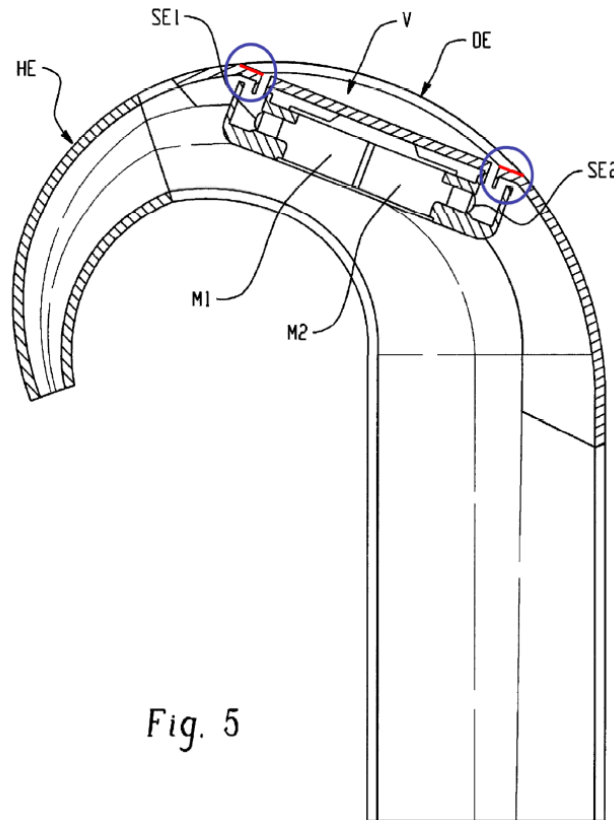
type of glass,” among others, to be able to ascertain whether water would be prevented from entering the crevices in Meier. *Id.* at 24–25.

Petitioner argues that “claim 1 of the ’847 patent simply requires the step of ‘providing a hydrophobic coating on the housing wall at least in the area of the one or more crevices . . . to prevent moisture from an exterior of said housing wall from entering the one or more of crevices.’” Pet. Reply 16 (citing Ex. 1001, 5:7–12) (emphasis omitted). Petitioner also asserts that Patent Owner’s contention that “Meier does not disclose any coating that would prevent moisture ingress through crevices,” is untrue. *Id.* at 18 (quoting PO Resp. 21–22). Petitioner contends that “Meier specifically discloses that resistance to weather can be achieved when using hearing aids daily by using a hydrophobic cover element” and that “repelling water, body sweat and body fat is necessary and demanded for the daily use of hearing aids.” *Id.* at 18 (citing Ex. 1003, 3:44–56). According to Petitioner, Patent Owner’s position that Meier “somehow *only* discloses repelling water from entering one specific group of openings—the pores in the cover element—but does not disclose repelling water from entering through the other group of openings—the crevices formed with the assembly of the cover element and the housing,” “is absurd and contrary to the very teachings of Meier.” *Id.* at 19; *see also* Pet. 21, 26–27 (discussing the vent between the cover element and the housing). Petitioner further explains that the ’847 patent does not require that the coating is provided in an area surrounding the crevices, as Patent Owner suggests, but only requires a coating provided “at least *in the area* of one or more crevices.” Pet. Reply 16 (citing Ex. 1001, 5:7–12); *see* PO Resp. 21–22.

The parties spend considerable pages discussing whether Meier is enabled as an anticipatory reference. Pet. Reply 6–15; Sur-reply 7–9, 13–15. Like Patent Owner, we do not view this issue as one of enablement but rather, anticipation. PO Resp. 7–8. Specifically, Patent Owner alleges that Petitioner has failed to show that Meier discloses providing a hydrophobic coating in the area of one or more crevices to prevent moisture from an exterior from entering the crevices. *Id.* at 21. On this matter, however, the preponderance of the evidence supports Petitioner’s position.

In order to prove that a claim is anticipated, Petitioner must show a single prior art reference discloses, either expressly or inherently, each limitation of the claim. *Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1565 (Fed. Cir. 1992). Further, the reference must “show all of the limitations of the claims arranged or combined in the same way as recited in the claims.” *Net MoneyIN*, 545 F.3d at 1370. In the context of anticipation, the dispositive question “is whether one skilled in the art would reasonably understand or infer from a prior art reference that every claim element is disclosed in that reference.” *AstraZeneca LP v. Apotex, Inc.*, 633 F.3d 1042, 1055 (Fed. Cir. 2010); see *Genentech v. Hospira, Inc.*, 946 F.3d 1333, 1340 (Fed. Cir. 2020) (same).

Here, Petitioner directs us to evidence demonstrating that Meier broadly discloses the method of the ’847 patent. Pet. 20–36. Petitioner illustrates the claimed crevices by referring to annotated Figures 5 and 6A–B. Annotated Figure 5 is reproduced below as an example.



Annotated Figure 5 depicts “a longitudinal section of a hearing aid of the invention comprising several microphones.” Ex. 1003, 2:35–36. Figure 5 shows microphones, M1 and M2, and acoustic apertures, SE1 and SE2, within the hearing aid housing. *Id.* at 4:35–47. Cover element DE is fitted to the housing and “covers an acoustic input aperture SE.” *Id.* Petitioner circles (in blue) and identifies (in red) the intersection between the housing wall and cover element DE where “small crevices, chinks, capillaries and openings . . . occur due to an assembly of at least two structural components of the hearing device.” Pet. 24; *see also id.* at 25 (depicting claimed intersection with reference to Figures 6A–B).

Meier teaches that its cover element may be coated with hydrophobic materials such as Teflon. Ex. 1003, 2:19–20, 3:44–45. Such coatings are useful to prevent water, perspiration, and wax from penetrating the hearing

aid. *Id.* at 1:41–51. Meier also explains that such coatings “[o]ffer the advantages of increasing chemical resistance and thereby the hearing aid of the invention can be used under adverse ambient conditions . . . [to] repel[] water, body sweat and body fat[, which] is necessary and demanded for [] daily use.” *Id.* at 3:45–48. Meier states that “[r]esistance to weather is of great importance when using hearing aids daily and can be achieved by using a hydrophobic cover element or at least hydrophobing the surface, or coating it with a hydrophobic material.” *Id.* at 4:53–56.

Though Meier describes certain preferred embodiments as including a porous cover element for acoustic aperture SE, Meier’s disclosure is not so limited. *Id.* at 3:18–21. For example, Meier describes “cover elements for vents.” *Id.* at 4:66; *see* Ex. 2011, 73:1–5 (Dr. Giacomini’s similar testimony). Petitioner, relying on the testimony of Dr. Giacomini, explains that “[b]ased on the disclosure of Meier, the cover element covers the air vent in a manner similar to how the cover elements are shown covering the acoustic input or output apertures, e.g., the cover element is assembled with the housing such that crevices are formed between these two components.” Pet. 26–27; *see also id.* at 21 (same); Ex. 1002 ¶¶ 42, 44–46, 52, 60–61. Dr. Giacomini testifies that even when a nonporous cover element is used, the cover element needs to be coated with a hydrophobic coating to prevent water from entering the vents, i.e., crevices. Ex. 2011, 73:1–23. Dr. Giacomini’s testimony below illustrates Petitioner’s position.

Q. Where are the pores in the cover element located with reference to Figure 5 of Meier?

A. Well, the cover element is DE. And the cover element may or may not be made of a porous material.

Q. If it is not made of a porous material, is there any need to coat the cover element with a hydrophobic coating?

A. If DE contained vents, for instance, then, yes, you would.

Q. So either there are porous – materials are porous or vents somewhere if you're applying a hydrophobic coating, right?

A. Well, or the crevices.

Q. And does Meier mention anything about applying hydrophobic coating or any crevices?

A. Figure 5 certainly implies that where Meier has drawn the mating surfaces, that would create the crevices.

Q. Does Meier state anywhere that the hydrophobic coating is applied for the purpose of preventing moisture from entering the crevices?

A. Yes, he does. A person would understand the paragraph that begins at the bottom of Column 4 to mean that, specifically where he says, in this respect, cover elements for vents are also conceivable.

*Id.* at 72:20–73:22; *see also id.* at 75:5–8 (“[A] person of ordinary skill in the art would understand that a cover in this context is not a seal and that it will -- it will vent, for instance, batteries.”), 75:20–23 (“[A] person of ordinary skill in the art would expect venting to happen through those crevices and, of course, would worry about water getting through there.”). We credit Dr. Giacomini’s un rebutted testimony. Accordingly, the preponderance of the evidence supports Petitioner’s position that Meier “provide[s] a hydrophobic coating on the housing wall at least in the area of the one or more crevices . . . to prevent moisture from an exterior of said housing wall from entering the one or more of crevices,” as claimed.

Thus, we determine that Petitioner has shown, by a preponderance of the evidence, that Meier teaches each of the limitations recited in claim 1 and, therefore, anticipates claim 1.

3. *Remaining Claims (claims 2, 5, 7, 8, 10, 11 and 14)*

Petitioner also alleges that Meier anticipates claims 2, 7, 8, and 14 and Meier in combination with Kenigsberg would have rendered obvious claims 5, 10, and 11. Pet. 30–36, 36–41. Each of claims 2, 5, 7, 8, 10, 11 and 14 depends, directly or indirectly, from claim 1.

With respect to claims 5, 10, and 11, Petitioner contends that a person of ordinary skill in the art would have had reason to combine Meier and Kenigsberg with a reasonable expectation of success. Pet. 37. Specifically, Petitioner alleges that

[b]ased on the teachings in Meier, a [person of ordinary skill in the art] would be motivated to find a coating that provides enhanced water and oil resistance while still not affecting the pore size and open pore ratio of the porous cover element that is important to the proper functioning of the hearing aid.

*Id.* (citing Ex. 1002 ¶ 90). According to Petitioner, “Kenigsberg discloses coating the porous substrate to achieve permanent water and oil repellency while maintaining the porosity by forming a conformal, mechanically adhered coating that maintains the surface topology of the substrate and is not removed by washing or mechanical abrasion.” *Id.* Thus, Petitioner reasons that a person of ordinary skill in the art would have had reason to substitute Meier’s coating with that of Kenigsberg to provide “permanent water and oil repellency while maintaining the porosity and gas permeability of the porous cover element.” *Id.* at 38. In addition, Petitioner alleges that the microporous hydrophobic materials disclosed in Kenigsberg—i.e., hydrated silanes, hydro silicones or fluorine containing condensates—“are

known chemicals used in known coating processes, and thus [are] merely a combination of [known] prior art elements to yield predictable results.” *Id.*

Patent Owner does not separately address the additional limitations of claims 2, 5, 7, 8, 10, 11 and 14 and, therefore, has forfeited any arguments as to the additional limitations of those claims. *See generally* PO Resp. 28–31; *cf. In re NuVasive, Inc.*, 842 F.3d 1376, 1381 (Fed. Cir. 2016). Instead, Patent Owner asserts that for claims 5, 10, and 11, Petitioner has failed to establish a reason to combine Meier and Kenigsberg because Kenigsberg is nonanalogous art, and because the combination is “hindsight-inspired” and illusory. *Id.*

We have reviewed the information Petitioner provides, including the relevant portions of the Giacomini Declaration and Petitioner’s arguments, and determine that Petitioner has established by a preponderance of the evidence that the additional limitations of claims 2, 5, 7, 8, 10, 11 and 14 are present in the combination of Meier and Kenigsberg. We address Patent Owner’s arguments regarding lack of reason to combine below.

*a) Whether Kenigsberg is analogous art*

Patent Owner argues that a person of ordinary skill in the art would not have been motivated to combine the teachings of Meier and Kenigsberg because Kenigsberg is nonanalogous art. PO Resp. 29–30. Patent Owner asserts that Kenigsberg “never mentions that the proposed hydrophobic coating is suitable for use with hearing aids, making it unclear whether a [person of ordinary skill in the art] seeking to modify Meier would have ever looked to Kenigsberg in the first instance.” *Id.* at 30. Instead, Patent Owner contends that “Kenigsberg explicitly states that it is directed to ‘repellancy treatments’ for ‘substrates such as ***paper, fabric, or polymers,***’ which do not

suffer from reduced ‘effectiveness’ caused ‘after **washing or dry cleaning.**’” Sur-reply 20 (quoting Ex. 1006, 1:24–44). Therefore, Patent Owner argues that Kenigsberg is directed to “an entirely distinct field,” namely, “‘repellency treatments for paper, fabrics, or polymers ... after washing or dry cleaning’ and not hydrophobic coating for wearable devices like hearing aids.” *Id.* Patent Owner also asserts that Kenigsberg is not directed “to the particular problem with which the inventor is involved” because it does not discuss wearable devices. *Id.*

Petitioner contends that “Meier . . . make[s] clear that hydrophobic coatings and hydrophobic membranes come within the hearing aid field of art.” Pet. Reply 23. Petitioner argues that Patent Owner’s “position that art related to hydrophobic coatings should not be considered in the same field of endeavor, but rather only art related to hearing aid devices” is erroneous because “[t]he very title of the ’847 patent is ‘Hydrophobic Coating of Individual Components of Hearing Aid Devices.’” *Id.* at 23–24 (quoting Ex. 1001, code (54)). Petitioner further explains that the background section of the ’847 patent describes hydrophobic coatings applied to various devices such as microphones and over-voltage conductors, and asserts that “[i]t is difficult to understand how a [person of ordinary skill in the art] would not find art related to hydrophobic coatings in the same field of endeavor.” *Id.* Petitioner further argues that “Kenigsberg is also clearly directed toward the same problem that the ’847 patent was trying to solve—providing a hydrophobic coating on a substrate that prevents moisture from entering a device while also allowing gas through the hydrophobic coatings and membranes” and “the same problem that Meier . . . w[as] known to solve using hydrophobic coatings and hydrophobic membranes on porous

substrates.” *Id.* at 24. According to Petitioner, Kenigsberg describes using VERSAPOR®, as a hydrophobic coating, which was known to be useful in the “hearing device field” at the time of the ’847 invention. *Id.* (citing Ex. 1006, 4:47–62; Ex. 1025, 4:30–38).

We are persuaded that Kenigsberg is analogous art to the ’847 patent. Whether a prior art reference is “analogous art,” making that reference available for consideration in an obviousness analysis, is a question of fact. *In re Bigio*, 381 F.3d 1320, 1324 (Fed. Cir. 2004); *In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992).

Two separate tests define the scope of analogous prior 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.

*Bigio*, 381 F.3d at 1325. The appropriate field of endeavor is determined by referring to the specification of the patent at issue “including the embodiments, function, and structure of the claimed invention.” *Id.* at 1325–26. “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.” *Clay*, 966 F.2d at 659.

Here, Kenigsberg is within the same field of endeavor as the ’847 patent. Both Kenigsberg and the ’847 patent describe applying a hydrophobic coating to polymer substrates. Ex. 1006, 3:52–54, 3:65–68, 4:33–38, 5:64–68, 8:11–39; Ex. 1001, 2:38–46, 3:3–7, 3:11–15. Kenigsberg, like the ’847 patent, states that the hydrophobic coating’s

purpose is to repel water and oil while permitting the flow of air and gas. Ex. 1006, 1:24–26, 3:51–54, 10:1–2; Ex. 1001, 2:46–48, 2:53–56, 3:22–26, 4:62–64, claims 1, 15. The coating in each of Kenigsberg and the '847 patent may be applied using a variety of known methods and may be applied to a variety of substrate materials, including polymers. Ex. 1006, 4:38–42, 5:11–12, 6:45–47, 8:11–39, 8:41–59; Ex. 1001, 3:64–4:1, 4:4–15, 4:35–36. Each of Kenigsberg and the '847 patent are useful in the medical field—Kenigsberg exemplifying “a microporous vent for use in an intravenous line,” and the '847 patent broadly describing electrical or electronic devices or medical devices, such as hearing aids. Ex. 1006, 10:37–38; Ex. 1001, 2:40–41, 2:51–53, 4:62–64, Figs. 2–4. And Kenigsberg, as well as the '847 patent, measures hydrophobicity based on contact angle and describes use of fluorine containing polymers such as PTFE. Ex. 1006, 1:16–18, 2:49–63, 4:35–38, 5:5–8, 11:5–11, 11:15–19, Table 5; Ex. 1001, 2:28–34, 3:6–7, 3:11–15, 4:31–34, 4:40–44, claim 5. That there may be other differences—even significant differences—does not dissuade us that the evidentiary record supports a finding that Kenigsberg is in the same field of endeavor as the '847 patent.

*b) Whether Petitioner's reason to combine is persuasive*

Patent Owner also contends that “Petitioner’s alleged motivation is premised on an illusory ‘need,’ namely maintaining the porosity required of the cover element in Meier’s device, which Meier . . . addressed by proposing a Teflon coating on the cover element.” PO Resp. 30–31. According to Patent Owner, “Meier does not discuss any problems with the disclosed Teflon coating, or suggest that it does not sufficiently protect the cover element” and therefore, “offers no basis for why a [person of ordinary

skill in the art] would have abandoned Meier's Teflon coating and used a different coating as set forth in Kenigsberg.” *Id.*

Petitioner explains that “Meier discloses a hydrophobic coating on a porous cover element and Kensigberg discloses porous materials with a hydrophobic, conformal coating, that allows the passage of air and other gases.” Pet. Reply 25. Petitioner asserts that a person of ordinary skill in the art would have reason to use the coating in Kenigsberg because “[n]ot only is Kenigsberg hydrophobic, but the coating provides a permanent water and oil repellency which is not removed by repeated cleanings.” Pet. 37. Further, Petitioner argues that “[m]odifying the coating on the porous cover element of Meier with the hydrophobic coating of Kenigsberg is nothing more than the simple substitution of one known element for another to yield the predictable result of an improved hydrophobic coating on the Meier hearing device.” Pet. Reply 25.

Our review of the parties' arguments and evidence shows no “hindsight bias” or “illusory” reason to combine Meier and Kenigsberg. A “[d]etermination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.” *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998); *see also KSR*, 550 U.S. at 421 (warning against hindsight bias). Instead, there must be “articulated reasoning with some rational underpinning” to support a conclusion of invalidity based on these combinations and to combine them in the way they are combined by the inventor. *KSR*, 550 U.S. at 418.

Here, Kenigsberg purports to have the added advantage of “permanent water and oil repellency” and washability. *See* Ex. 1006, 1:13–16, 3:52–54,

4:33–35, 4:43–46, 6:19–22, 12:38–42 (“one of the most significant findings in connection with the present invention is the fact that the process provides greatly enhanced washability”). Petitioner proposes substituting Meier’s coating with that of Kenigsberg to achieve these distinct advantages. Pet. 37–38. Kenigsberg, therefore, provides a benefit Meier does not possess. *See KSR*, 550 U.S. at 401 (explaining 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 that person’s skill”).

Furthermore, as Petitioner contends, substituting Kenigsberg’s coating for that of Meier involves a simple substitution of one known hydrophobic coating for another. Pet. 38; Pet. Reply 25. Both Kenigsberg and Meier describe hydrophobic coatings useful for repelling water and oil when applied to polymer surfaces. Ex. 1003 3:45–51, 3:36–39; Ex. 1006, 3:52–54, 3:65–68, 4:33–38, 8:11–39. Thus, the evidence of record would have suggested to the ordinarily skilled artisan the desirability of substituting Kenigsberg’s coating for that of Meier. *See Wm. Wrigley Jr. Co. v. Cadbury Adams USA LLC*, 683 F.3d 1356, 1364 (Fed. Cir. 2012) (noting that the substitution of “one well-known cooling agent for another” presents “a strong case of obviousness”); *KSR*, 550 U.S. at 401 (“A court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. Following these principles may be difficult if the claimed subject matter involves more than the simple substitution of one known element for another or the mere

application of a known technique to a piece of prior art ready for the improvement.”).

Therefore, Petitioner’s reasons to combine are neither illusory nor inspired by impermissible hindsight. We determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Meier and Kenigsberg suggests each limitation of claims 2, 5, 7, 8, 10, 11 and 14 and that Petitioner provides sufficient reasoning with rational underpinning for combining the references’ teachings to achieve the invention the claims of the ’847 patent recite.

*E. Remaining Grounds*

Petitioner argues that Haertl anticipates claims 1, 2, 7, and 8, and that Haertl, in combination with Kenigsberg, would have rendered obvious claims 5, 10, and 11 of the ’847 patent. Pet. 41, 54. Petitioner directs us to portions of the asserted references that purportedly disclose the limitations in these claims. *Id.* at 41–59.

Having determined that Petitioner establishes by a preponderance of the evidence that Meier alone, or in combination with Kenigsberg, renders claims 1, 2, 5, 7, 8, 10, 11, and 14 of the ’847 patent unpatentable, we need not address Petitioner’s additional grounds challenging claims 1, 2, 5, 7, 8, 10, and 11 based on Haertl alone, or in combination with Kenigsberg. *See SAS*, 138 S. Ct. at 1359 (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App’x 984, 990 (Fed. Cir. 2020) (nonprecedential) (“We agree that the Board need not address [alternative grounds] that are not necessary to the resolution of the proceeding.”).

### III. CONCLUSION

For the foregoing reasons, we conclude that Petitioner has satisfied its burden of demonstrating, by a preponderance of the evidence, that the subject matter of claims 1, 2, 5, 7, 8, 10, 11, and 14 of the '847 patent is unpatentable.<sup>11</sup>

### IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, Petitioner established by a preponderance of the evidence that claims 1, 2, 5, 7, 8, 10, 11 and 14 of U.S. Patent No. 7,267,847 are unpatentable; 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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<sup>11</sup> 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).

In summary:

| <b>Claims</b>              | <b>35 U.S.C. §</b> | <b>Reference(s)/<br/>Basis</b> | <b>Claims<br/>Shown<br/>Unpatentable</b> | <b>Claims Not<br/>Shown<br/>Unpatentable</b> |
|----------------------------|--------------------|--------------------------------|------------------------------------------|----------------------------------------------|
| 1, 2, 7, 8, 14             | 102                | Meier                          | 1, 2, 7, 8, 14                           |                                              |
| 5, 10, 11                  | 103                | Meier,<br>Kenigsberg           | 5, 10, 11                                |                                              |
| 1, 2, 7, 8                 | 102 <sup>12</sup>  | Haertl                         |                                          |                                              |
| 5, 10, 11                  | 103 <sup>13</sup>  | Haertl,<br>Kenigsberg          |                                          |                                              |
| <b>Overall<br/>Outcome</b> |                    |                                | 1, 2, 5, 7, 8,<br>10, 11, 14             |                                              |

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<sup>12</sup> In view of our determination that claims 1, 2, 5, 7, 8, 10, 11, and 14 are unpatentable in view of the teachings of Meier alone, or in combination with Kenigsberg, we do not reach this ground.

<sup>13</sup> In view of our determination that claims 1, 2, 5, 7, 8, 10, 11, and 14 are unpatentable in view of the teachings of Meier alone, or in combination with Kenigsberg, we do not reach this ground.

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