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Paper 53
Dated: July 8, 2025

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

MASIMO CORPORATION,
Patent Owner.

IPR2024-00244
Patent 10,722,159 B2

Before ROBERT L. KINDER, RICHARD H. MARSCHALL, and DAVID COTTA, *Administrative Patent Judges*.

MARSCHALL, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)
Dismissing Petitioner's Motion to Exclude and
Patent Owner's Motion to Strike
37 C.F.R. § 42.64(c)
Granting Petitioner's Motions to Seal
37 C.F.R. §§ 42.14, 42.54(a)

Petitioner Apple Inc. challenges claims 1–5, 7–14, and 16–25 of U.S. Patent No. 10,722,159 B2 (Ex. 1001, "the '159 patent"), which is assigned to Patent Owner Masimo Corporation. We have jurisdiction under 35 U.S.C. § 6, and we issue this Final Written Decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons set forth below, we determine that Petitioner has not shown that any of the challenged claims are unpatentable in this proceeding.

BACKGROUND

A. Summary of Filings

Petitioner filed a Petition requesting *inter partes* review of claims 1–5, 7–14, and 16–25 of the '159 patent. *See* Paper 3, ("Pet."), 1–2. Patent Owner filed a Preliminary Response to the Petition. Paper 6 ("Prelim. Resp."). With our authorization, Petitioner filed a Preliminary Reply (Paper 9), and Patent Owner filed a Preliminary Sur-reply (Paper 10). Pursuant to 35 U.S.C. § 314, we instituted an *inter partes* review as to all challenged claims and all grounds raised in the Petition. Paper 11 ("Institution Decision" or "Inst. Dec.").

After institution, Patent Owner filed a Response (Paper 20, "PO Resp."), Petitioner filed a Reply (Paper 28, "Pet. Reply"), and Patent Owner filed a Sur-reply (Paper 42, "PO Sur-reply"). Patent Owner filed a Motion to Strike (Paper 32) and Petitioner filed an Opposition to that Motion (Paper 37). Petitioner also filed a Motion to Exclude (Paper 39), Patent Owner filed an Opposition to that Motion (Paper 41), and Petitioner filed a Reply (Paper 43). Petitioner also filed various unopposed Motions to Seal (Papers 24, 29, 44, 46, 49).

The record includes a transcript of an oral hearing held on April 16, 2025. Papers 51 (public portion of transcript), 52 (confidential portion of transcript). With our authorization, Patent Owner filed a post-hearing brief (Paper 50, "PO Post-hearing").

B. Real Parties-in-Interest and Related Matters

Petitioner identifies itself as its only real party-in-interest. Pet. 84. Patent Owner identifies itself as its only real party-in-interest. Paper 4, 1.

There are two related matters involving the '159 patent. Petitioner challenges 1–25 of the '159 patent in concurrently-filed IPR2024-00243 (the "-243 IPR"). Pet. 85. We issue our Final Written Decision in the -243 IPR concurrently with this Decision. In addition, Patent Owner asserts the '159 patent in *Apple Inc. v. Masimo Corporation et al.*, Case No. 1-22-cv-01378 (D. Del.) ("Delaware Litigation"). Pet. 85; Paper 4, 1.

Petitioner identifies a number of related *inter partes* review proceedings[1] and describes three *inter partes* review proceedings as "particularly relevant": IPR2020-01722 (involving US 10,470,695), IPR2022-01291 (the "-1291 IPR," involving US 10,687,745 (the "'745 patent")), and IPR2022-01465 (the "-1465 IPR," also involving the '745 patent). Pet. 85–86. Petitioner also identifies an ITC proceeding between

[1] According to Petitioner, it "has also previously filed IPRs challenging Masimo patents in IPR2022-01271, IPR2022-01272, IPR2022-01273, IPR2022-01274, IPR2022-01275, IPR2022-01276, IPR2022-01299, IPR2022-01300, IPR2022-01291, IPR2022-01292, IPR2022-01465, IPR2022-01466, IPR2020-01520, IPR2020- 01521, IPR2020-01722, IPR2020-01536, IPR2020-01537, IPR2020-01538, IPR2020-01539, IPR2020-01713, IPR2020-01714, IPR2020-01715, IPR2020-01716, IPR2020-01723, IPR2020-01737, IPR2021-00195, IPR2021-00208, and IPR2021-00209." Pet. 85.

the parties involving the '745 patent. *Id.* at 86 (citing *Masimo Corp. v. Apple Inc.*, ITC Inv. No. 337-TA-1276).

Patent Owner identifies the following *inter partes* review proceedings related to patents asserted by Patent Owner in the above-referenced Delaware Litigation as related matters:

Petitioner	Case No.	Patent No.
Apple Inc.	IPR2024-00290	8,190,223
Apple Inc.	IPR2024-00296	10,984,911
Apple Inc.	IPR2024-00243	10,722,159
Apple Inc.	IPR2024-00293	10,736,507
Apple Inc.	IPR2024-00294	10,736,507
Apple Inc.	IPR2024-00241	10,687,743
Apple Inc.	IPR2024-00242	10,687,743

Paper 4, 2. Patent Owner also identifies a number of patents and applications that share a priority claim with the '159 patent. *Id.* at 1; Paper 7, 1.

C. The '159 Patent

The '159 patent is directed to a non-invasive, optical-based physiological monitoring device. Ex. 1001, code (57). In one embodiment, the device is utilized to measure a patient's arterial blood oxygen saturation, sometimes shorthanded as "SpO2." *See id.* at 1:22–26, 1:53–2:3, 2:15–17. In other embodiments, the device is utilized to measure other blood constituent characteristics. *See id.* at 2:39–49 (stating the device can measure "oxygen, carboxyhemoglobin, methemoglobin, total hemoglobin, glucose, proteins, lipids, a percentage thereof (e.g., saturation), pulse rate, perfusion index, oxygen content, total

hemoglobin, Oxygen Reserve Index™ (ORI™) or . . . many other physiologically relevant patient characteristics").

Figure 3 of the '159 patent is reproduced below.

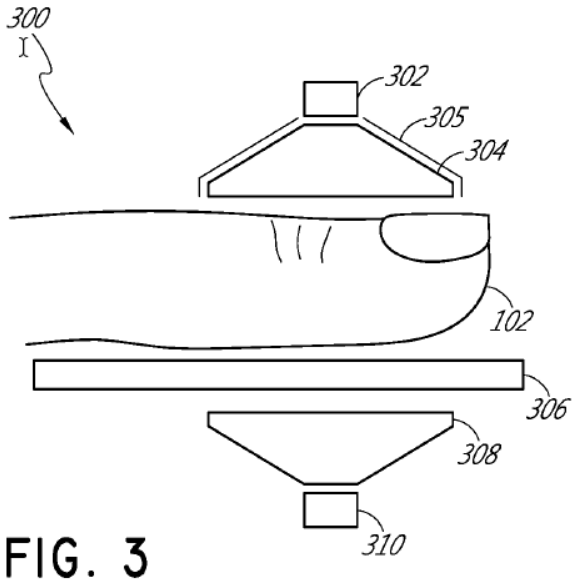


FIG. 3

Figure 3 is a schematic side view of pulse oximetry sensor 300 and tissue measurement site 102 (i.e., a patient's fingertip). Ex. 1001, 5:12–14, 7:4–9. Sensor 300 includes reflector 305, emitter 302, light diffuser 304, light-absorbing detector filter 306, light concentrator 308, and detector 310. *Id.* at 7:12–14, 7:17–18.

Emitter 302 emits light toward tissue site 102, and diffuser 304 spreads the light over an area. *See* Ex. 1001, 7:12–14, 7:30–49. "In some embodiments, the light diffuser 304 is a beam shaper that can homogenize the input light beam from the emitter 302, shape the output intensity profile of the received light, and define the way (e.g., the shape or pattern) the emitted light is distributed to the tissue measurement site 102." *Id.* at 7:44–49; *see also id.* at 7:63–66 ("Advantageously, the diffuser 304 can receive emitted light in the form of a point optical source and spread the light to fit a

desired surface area on a plane defined by the surface of the tissue measurement site 102."). Reflector 305 prevents the emitted light from escaping out of the top portion of diffuser 304, thereby maximizing the light that reaches tissue site 102. *Id.* at 7:14–29.

The light enters tissue site 102, interacts with the patient's blood flowing through the tissue site, and exits the tissue on the opposite side from which the light entered the tissue. Ex. 1001, Fig. 3, 6:55–64, 7:6–22. Filter 306 is coated with a "light-absorbing" material "such as, for example, black pigment," and it has an opening (not shown in Figure 3) through which the transmitted light may pass to reach light concentrator 308 and light detector 310. *Id.* at 7:12–14, 8:32–38, 8:54–59; *see also id.* at 9:31–51 (describing the light absorbing filter 306 in Figure 4A as having a "rectangular opening 402," through which light may pass to the light concentrator 308 and light detector 310). Detector 310 outputs a signal responsive to the transmitted light, and the signal is communicated to a processor which utilizes the signal to determine a physiological parameter of interest, such as blood oxygen saturation. *Id.* at 9:19–30; *see also id.* at 12:1–14:29 (describing embodiment depicted in Figure 8).

Figures 7A and 7B of the '159 patent are reproduced below.

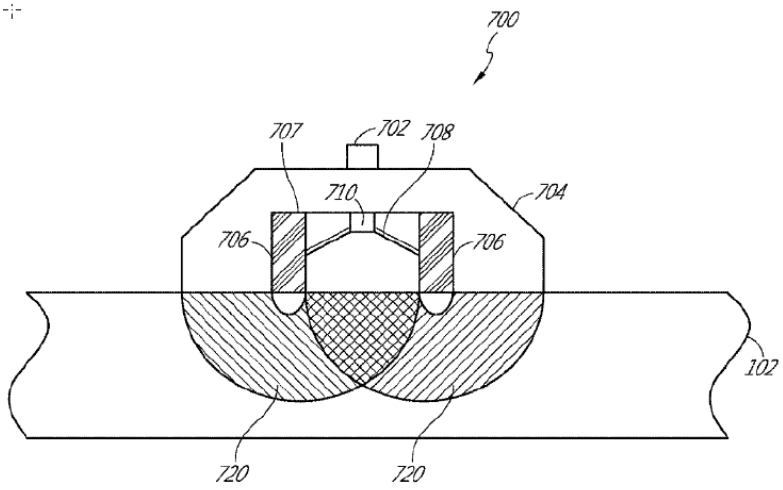


FIG. 7A

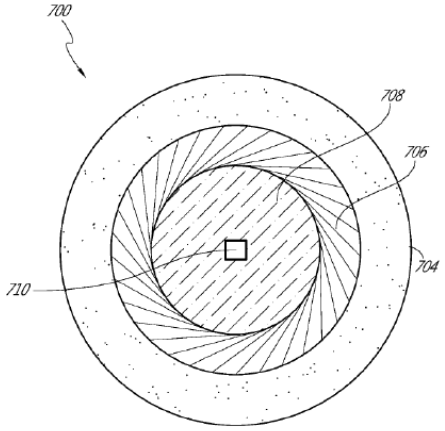


FIG. 7B

Figure 7A is a schematic side view of pulse oximetry sensor 700 and tissue measurement site 102, and Figure 7B is a schematic top view of sensor 700 with some components removed. Ex. 1001, 5:28–33, 10:40–42, 11:54–56. The '159 patent describes sensor 700 as useful in connection with a tissue site having a "relatively flat surface, such as, for example a wrist, because the emitter 702 and detector 710" are located on "the same side of the tissue measurement site 102." *Id.* at 10:43–49. Sensor 700 includes light diffuser 704 and light concentrator 708, and components 702, 704, 708, and 710 function substantially the same as the corresponding components 302, 304, 308, and 310 of sensor 300 as described above. *Id.* at 10:49–11:9, 11:21–43.

One difference, however, is that diffuser 704 spreads the light "over a wide, donut-shaped area . . . outlined by the light diffuser 704" (seen best in Figure 7B) to enter tissue site 102. *Id.* at 10:65–11:6. Sensor 700 additionally includes light blocker 706 and cover 707, which prevent light from emitter 702 from passing directly into light detector 710 without first traversing light path 720 within tissue site 102. Ex. 1001, 11:10–20, 11:44–67.

D. Challenged Claims

The '159 patent includes 25 claims, including challenged independent claims 1, 14, and 19. Ex. 1001, claims; Pet. 1. Claims 1 and 14, which are illustrative of the subject matter of the challenged claims, are reproduced below.

1. [1.0] A physiological monitoring device comprising:

[1.1] a plurality of emitters configured to emit light in a first shape;

[1.2] a material positioned between the plurality of emitters and a tissue measurement site on a wrist of a user when the physiological monitoring device is in use, the material configured to change the first shape into a second shape by which the light emitted from one or more of the plurality of emitters is projected towards a surface of the tissue measurement site;

[1.3] a plurality of detectors configured to detect at least a portion of the light after passing through tissue, the plurality of detectors further configured to

output at least one signal responsive to the detected light;

[1.4] a surface comprising a dark-colored coating, the surface positioned between the plurality of detectors and the tissue when the physiological monitoring device is in use,

[1.5] wherein an opening defined in the dark-colored coating is configured to allow at least a portion of light reflected from the tissue to pass through the surface;

[1.6] a light block configured to prevent at least a portion of the light emitted from the plurality of emitters from reaching the plurality of detectors without first reaching the tissue; and

[1.7] a processor configured to receive and process one or more signals responsive to the at least one outputted signal and determine a physiological parameter of the user responsive to the one or more signals.

14. [14.0] A physiological monitoring device comprising:

[14.1] a plurality of optical sources configured to emit light proximate a wrist of a user;

[14.2] a diffuser configured to be positioned between the plurality of optical sources and a tissue measurement site on the

> wrist of the user when the physiological monitoring device is in use;
>
> [14.3] a light block having a circular shape;
>
> [14.4] a plurality of detectors configured to detect at least a portion of the light after the light passes through a portion of the tissue measurement site bounded by the light block, wherein the plurality of detectors are arranged in an array having a spatial configuration corresponding to a shape of the portion of the tissue measurement site bounded by the circular shaped light block, wherein the plurality of detectors are further configured to output at least one signal responsive to the detected light, and wherein the plurality of optical sources and the plurality of detectors are arranged in a reflectance measurement configuration;
>
> [14.5] wherein the light block is configured to prevent at least a portion of light emitted from the plurality of optical sources from reaching the plurality of detectors without first reaching tissue;
>
> [14.6] a processor configured to receive and process one or more signals responsive to the at least one outputted signal and determine a physiological parameter of the user responsive to the one or more signals; and
>
> [14.7] wherein the physiological monitoring device is configured to transmit physiological parameter data to a separate processor.

Ex. 1001, 15:31–58, 16:28–58 (with bracketed designations added by Petitioner, *see* Pet. viii–xii).

E. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–5, 7–14, and 16–25 would have been unpatentable on the following grounds (Pet. 1):

Claim(s) Challenged	35 U.S.C. §[2]	Reference(s)/Basis
1–5, 7–9, 12, 13	103	Sarantos[3]
1–5, 7–14, 16–18	103	Sarantos, Shie[4]
2	103	Sarantos, Brady[5]
3	103	Sarantos, Brady, Han[6]
2	103	Sarantos, Shie, Brady
3	103	Sarantos, Shie, Brady, Han
14, 16–25	103	Sarantos, Utter[7]
14, 16–25	103	Sarantos, Shie, Utter

Petitioner relies on the declarations of Brian W. Anthony, Ph.D. Exs. 1003, 1079. Patent Owner relies on the declarations of Vijay K. Madisetti, Ph.D. Exs. 2002, 2100. In its post-hearing brief, Patent Owner relies on the declarations of R. James Duckworth, Ph.D., filed in the -1291 IPR. *See* PO Post-hearing 1; Exs. 2121, 2122.

[2] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112–29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. §§ 102, 103 effective March 16, 2013. The date of the earliest patent document to which the '159 patent claims priority is July 2, 2015. *See* Ex. 1001, codes (63), (60). Because that date falls after the effective date of the applicable AIA amendments, we apply the AIA versions of §§ 102 and 103 here.
[3] US 9,392,946 B1, issued July 19, 2016 (Ex. 1005, "Sarantos").
[4] US 6,483,976 B2, issued November 19, 2002 (Ex. 1007, "Shie").
[5] US 2006/0253010 A1, published November 9, 2006 (Ex. 1021, "Brady").
[6] US 2016/0058312 A1, published Mar. 3, 2016 (Ex. 1008, "Han").
[7] US 8,446,275 B2, issued May 21, 2013 (Ex. 1006, "Utter").

ANALYSIS

A. Legal Standards

To prevail in its challenges, Petitioner must prove unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e) (2018); 37 C.F.R. § 42.1(d). "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 Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burdens of proof in an *inter partes* review).

Petitioner relies on obviousness in its challenges. Pet. 1–2. A claim is unpatentable as obvious under 35 U.S.C. § 103 if the differences between the claimed invention and the prior art are such that the subject matter, as a whole, would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. 35 U.S.C. § 103; *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 skill in the art; and (4) where in evidence, so-called secondary considerations, also known as objective indicia of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

The level of ordinary skill in the art is "a prism or lens" through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The person of ordinary skill in the art is a hypothetical person presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, we may consider certain factors, including: "(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field." *Best Med. Int'l, Inc. v. Elekta Inc.*, 46 F.4th 1346, 1353 (Fed. Cir. 2022) (quoting *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007)). "The patent's purpose can also be informative." *Id.*

Petitioner describes a person of ordinary skill in the art ("POSITA") as follows:

> A person of ordinary skill in the art relating to the subject matter of the '159 Patent ("POSITA") would have had a working knowledge of physiological monitoring technologies. The person would have had a Bachelor of Science degree in an academic discipline emphasizing the design of electrical, computer, or software technologies, in combination with training or at least one to two years of related work experience with capture and processing of data or information, including but not limited to physiological monitoring technologies. APPLE-1003, ¶¶20-22. Alternatively, the person could have had a Master of Science degree in a relevant academic discipline with less than a year of related work experience in the same discipline. *Id.*

Pet. 4–5.

Patent Owner notes that we "adopted Petitioner's definition of the level of ordinary skill in the art" in our Institution Decision and contends that Petitioner "failed to show unpatentability under any proposed level of skill." PO Resp. 6. Patent Owner does not dispute Petitioner's proposed definition in its Response or argue that any issues in this case turn on the definition of a POSITA. *See id.*; *see also* Inst. Dec. 10–11 (instructing the parties to "explain the differences and their relevance to the patentability issues in this case, and state whether any issue in the case turns on those differences" if either party continued to propose differing proposals during trial).

Based on our review of the record, we find Petitioner's proposal consistent with the level of skill exemplified by the prior art of record and the disclosure of the '159 patent. Accordingly, we apply Petitioner's proposal in our analysis in this Decision. *See Okajima*, 261 F.3d at 1355 ("the prior art itself" may reflect an appropriate level of the ordinary level of skill in the art) (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985)).

C. Claim Construction

We construe each claim "using the same claim construction standard that would be used to construe the claim in a civil action" under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b). Under this standard, claim terms are generally given their ordinary and customary meaning as would have been 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 v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc) ("We have frequently stated that the words of a claim 'are generally given their ordinary and customary meaning.'" (citations omitted)). "The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'" *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

In the Petition, Petitioner "submits that no claim terms need be construed to resolve issues of controversy in the present Petition." Pet. 5. Patent Owner raises only one claim construction issue. PO Resp. 7. Patent Owner asserts that we should construed "change the first shape into a second shape" in claims 1 and 19 to mean a second shape "different from the first shape (not just a change in size)." *Id.* As Patent Owner correctly notes, we already adopted such an approach in the Institution Decision, where we stated that "this claim limitation in claims 1 and 19 refers to different shapes rather than merely different sizes of the same shape." *Id.* (quoting Inst. Dec. 24). We also noted that Petitioner applies that construction in its analysis. *See* Inst. Dec. 24–25. Based on the parties' agreement on this issue, we see no reason to depart from our analysis in the Institution Decision and continue to apply a construction to claims 1 and 19 that requires the first shape and second shape to be different shapes and not merely different sizes of the same shape. *See id.* at 24. No other claim elements require express construction.

A. Obviousness Based on Sarantos

Petitioner challenges claims 1–5, 7–9, 12, and 13 as obvious based on Sarantos. *See* Pet. 1, 5–30. Patent Owner argues that the Petition fails to show that Sarantos discloses changing a first shape of light to a different, second shape of light. PO Resp. 8–18. We first provide a brief overview of Sarantos, and then address the parties' arguments.

1. Sarantos

Sarantos discloses a fitness monitor worn on a user's wrist like a wristwatch, which utilizes photoplethysmography (PPG) sensors (i.e., light-based sensors) to measure the wearer's heart rate. *See* Ex. 1005, code (54), 1:7–24, 1:36–56 (describing prior art monitor 100 shown in Fig. 1), 6:66–7:23 (describing Sarantos's monitor 200 shown in Fig. 2). Figure 22 of Sarantos is reproduced below.

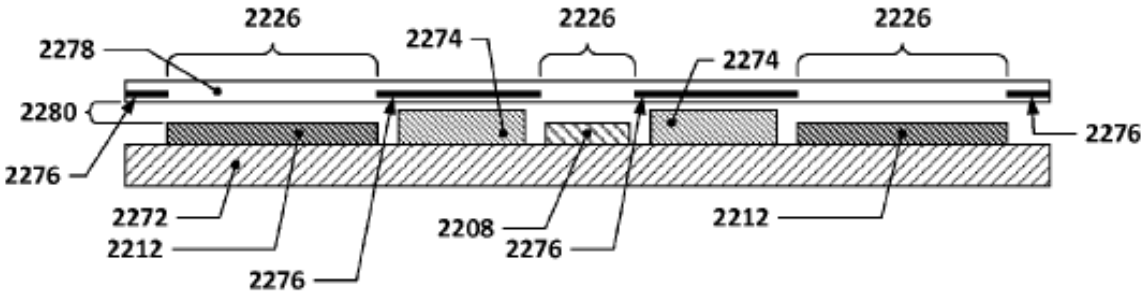


Figure 22 is a cross-sectional view of a PPG sensor. Ex. 1005, 6:52–54, 16:60–62. The PPG sensor has a central light source 2208 flanked by two photodetector elements 2212 disposed on substrate 2272, with walls 2274 disposed in between. *See id.* at 17:1–3, 17:26–32. In this way, the sensor "may be held against a person's skin, e.g., by being held in place with a strap" so light emitted by light source 2208 shines "into the person's skin,

where the light then diffuses into the surrounding flesh and is then emitted back out of the person's skin and into the . . . photodetector elements 2212" to measure the person's heart rate. *Id.* at 17:16–25, 17:39–42.

Sarantos's PPG sensor includes window 2278 composed of a transparent material such as acrylic, "with an in-mold label 2276 embedded within it." Ex. 1005, 17:3–6. Label 2276 "may be black or otherwise rendered opaque to light to prevent light from entering or exiting the PPG sensor through the window 2278 except through window regions 2226." *Id.* at 17:6–10. Also, "other masking techniques, such as a painted or silk-screened mask applied to the window 2278, may be used." *Id.* at 17:10–12. In this way, "label 2276 or the masking may prevent stray light from other sources, e.g., ambient light, from reaching . . . photodetector elements 2212 and affecting the heart rate signal obtained by the PPG sensor." *Id.* at 17:12–16.

2. Independent Claim 1

a. The Parties' Positions

We begin with Petitioner's argument that independent claim 1 would have been obvious in view of Sarantos. *See* Pet. 1, 5–14. Claim limitation 1.2 requires a "material configured to change the first shape into a second shape by which the light emitted from one or more of the plurality of emitters is projected towards a surface of the tissue measurement site." Ex. 1001, claim 1. In the claim construction discussion, we agreed with Patent Owner that the

plain language of the claim requires the light to change in shape and not merely size when passing through the claimed material. For this limitation, Petitioner relies on Figure 22 in Sarantos as allegedly depicting light source 2208 shining light through window region 2226 defined by in-mold labels 2274, with the window "made from translucent or transparent material." Pet. 9 (citing Ex. 1003 ¶¶ 34–35; Ex. 1005, 2:17–19, 17:1–51, 18:8–16, Fig. 22). Petitioner argues that a "POSITA would have found it obvious that light shining through the translucent or transparent material would change in shape due to the refractive properties of translucent and transparent materials." *Id.* at 9–10 (citing Ex. 1003 ¶ 35). The cited declarant testimony states that a POSITA "would have understood that light shining through a translucent or transparent material as described in the specific arrangement of Sarantos would necessarily change in shape due to the refractive properties of translucent and transparent materials and due to the shape defined by the in-mold label." Ex. 1003 ¶ 35.

In our Institution Decision, we noted that although "the Petition uses the word 'obvious' in its argument," we did "not read the Petition as setting forth a traditional obvious modification and rationale." Inst. Dec. 29 (citing Pet. 9–10). We concluded that "[w]hen reading the Petition and supporting testimony as a whole, we view Petitioner's position as based on its argument

that a POSITA, when interpreting Sarantos, would understand that its translucent or transparent window material would necessarily change the shape of the light." *Id.* (citing Pet. 9–10; Ex. 1003 ¶ 35).

In its Response, Patent Owner argues that we should reject Petitioner's argument because (1) Petitioner "admitted that Sarantos alone does not disclose a change in the shape of light;" (2) "light transmitting through a flat transparent or translucent window like in Sarantos does not change shape;" and (3) judicial estoppel prevents Petitioner "from arguing that a transparent or translucent material would 'necessarily' change the shape of light based on its successful argument at the ITC that its own microlens array, which is a transparent or translucent material, did not change the shape of light." PO Resp. 8–9 (citing Ex. 2100 ¶ 52). As to the second argument, Patent Owner asserts that Petitioner relies on inherency when it argues "that light passing through Sarantos's window would 'necessarily' change the shape of light." *Id.* at 9–10. Patent Owner contends that Petitioner's argument lacks support because the prosecution of the parent application to the '159 patent "confirms that there are refractive materials that do not change the shape of light," Dr. Anthony failed to demonstrate any change in shape through testing, and "a POSITA would not expect that Sarantos's window would change the shape of light." *Id.* at 10–14 (citing Pet. 9–10; Ex. 2038, 5; Ex. 2056, 162; Ex. 2097, 62–63; Ex. 2100 ¶¶ 55–60; Ex. 2107, 41:11–42:9, 61:12–62:1, 94:2–10, 105:11–18, 110:19–111:14).

In its Reply, Petitioner argues that Dr. Anthony testified that Sarantos discloses changing the emitted light from a first shape into a second shape "not only due to the refractive properties of translucent and transparent

materials, but also 'due to the shape defined by the in-mold label.'" Pet. Reply 2 (citing Ex. 1003 ¶ 35). As to the first shape of light, Petitioner contends that Sarantos discloses several different shapes depending on the arrangement of each light-emitting device. *Id.* at 2–5 (citing Ex. 1003 ¶¶ 31–33; Ex. 1005, 2:18–19, 3:58–62, 6:39–42, 13:34–14:1, 14:5–22, 15:24–36, 17:1–25, 19:33–35, 21:3–9, Figs. 18, 22, 25; Ex. 1079 ¶¶ 56–59). As to the second shape, Petitioner argues that "Sarantos provides, or at least renders obvious," a second, different shape "defined by the refractive properties of the window ***and*** due to the shape defined by the in-mold label," i.e., the "shape of the window region over the light-emitting devices." *Id.* at 5–6 (citing Pet. 9–10; Ex. 1003 ¶¶ 34–35; Ex. 1079 ¶¶ 60–61). Petitioner asserts that Sarantos teaches windows that refract light, multiple different spatial arrangements of light-emitting devices, and "multiple configurations for its window region defined by the mask/in-mold label." *Id.* at 6 (citing Ex. 1003 ¶¶ 32–35; Ex. 1005, 13:34–14:1, 19:33–52, 6:39–42, 15:24–36, 17:1–18:16, 18:23–31, 21:3–9, Figs. 18, 25; Ex. 1079 ¶¶ 60–61). According to Petitioner, "a POSITA would have 'at once envisage[d]' from Sarantos's disclosures as a whole that all possible combinations of light-emitting device arrangements and window region shapes that are not [the] same geometric shape would have changed the light from a first shape to a different second shape." *Id.* (citing Ex. 1079 ¶ 61; *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015)).

In its Sur-reply, Patent Owner argues that Petitioner abandons the inherency theory in the Petition and now improperly raises a new argument based on a theory that the second shape is "defined by the in-mold label." PO Sur-reply 4 (citing Pet. Reply 2, 5). Patent Owner asserts that the

Petition only relied on the "material" to cause a shape change and "expressly identified Sarantos's acrylic window as the claimed material." *Id.* (citing Pet. Reply 9–10, 28). Patent Owner also argues that Petitioner's new theory fails on the merits because (1) "the in-mold label is not 'positioned *between* the plurality of emitters and a tissue measurement site'" as the claim requires; (2) Petitioner's theory conflicts with its theory for dependent claim 9, "which requires the same material that changes the shape of light be made of plastic;" (3) Petitioner's theory rests on vague and unreliable speculation from its expert; and (4) Sarantos does not describe any embodiments using the LED arrangements and window region shapes that are different, and Petitioner fails to explain why a POSITA would combine them to change the shape of light. *Id.* at 5–7.

b. Discussion

As an initial matter, we reiterate our interpretation of the arguments set forth in the Petition for this limitation. As we stated in our Institution Decision, although "the Petition uses the word 'obvious,'" it fails to set forth any cogent obviousness argument and instead bases its argument on the notion that "a POSITA, when interpreting Sarantos, would understand that its translucent or transparent window material would necessarily change the shape of the light." Inst. Dec. 29 (citing Pet. 9–10; Ex. 1003 ¶ 35). We also note that the supporting expert testimony does not even use the word "obvious" or set forth any obviousness rationale for this limitation, such that any obviousness argument contained in the Petition lacks adequate factual support. *See* Ex. 1003 ¶¶ 34–35 (no mention of obviousness in relation to limitation requiring a "material configured to change the first shape into a

second shape"), 47–48 (articulating obviousness arguments in connection with claim 1's "processor" limitation).

Notably, Petitioner does not directly address or disagree with our interpretation of the arguments in the Petition as excluding obviousness. *See* Pet. Reply 1–6. Petitioner uses the term "obvious" once in its Reply when it contends that "Sarantos provides, or at least renders obvious, a second, different shape . . . ." Pet. Reply 5 (citing Pet. 9–10; Ex. 1003 ¶¶ 34–35). This brief statement fails to articulate an obviousness theory for this limitation and, as noted above, the cited expert testimony fails to even mention obviousness. *See id.*; Ex. 1003 ¶¶ 34–35.

Dr. Anthony's Supplemental Declaration, submitted with Petitioner's Reply, arguably sets forth obviousness arguments not made in his original declaration, but we do not consider these references as articulating an obviousness argument that we must address here because (1) Petitioner does not disagree with our determination that it does not rely on obviousness for these limitations; and (2) the Reply itself does not make the obviousness arguments alluded to in Dr. Anthony's Supplemental Declaration. *See* Pet. Reply 1–6; Ex. 1079 ¶¶ 60–61. In addition, if Petitioner did set forth new obviousness arguments in its Reply, we would not consider the arguments because they would be meaningfully distinct from the arguments made in the Petition, without any articulated basis for doing so, such as an argument from Petitioner that the obviousness arguments were responsive to arguments raised by Patent Owner or statements in our Institution Decision. *See Yita LLC v. MacNeil IP LLC*, 69 F.4th 1356, 1366–67 (Fed. Cir. 2023) (determining that the Board did not abuse its discretion in refusing to consider obviousness argument made for the first time in reply); 37 C.F.R. §

42.23(b) ("A reply may only respond to arguments raised in the corresponding opposition, patent owner preliminary response, patent owner response, or decision on institution.").

Turning to Petitioner's argument that Sarantos discloses a "material configured to change the first shape into a second shape," we first note that Petitioner does not cite to any portion of Sarantos that expressly describes its material as changing the shape of emitted light. *See* Pet. 9–10; Pet. Reply 1–6. Instead, the relied-upon portions of Sarantos merely describe its window material as translucent or transparent without describing its impact on the shape of emitted light passing through the material. *See* Ex. 1005, 17:4–6 ("The window 2278, in this implementation, is made from a translucent or transparent material, such as transparent acrylic, with an in-mold label 2276 embedded within it."); *see also id.* at 2:17–19, 17:1–51, 18:8–16; Pet. 9–10 (citing Ex. 1005, 2:17–19, 17:1–51, 18:8–16, FIG. 22); *see also* Pet. Reply 7 (acknowledging "a lack of an express statement by Sarantos that the specific window region 2226 of the embodiment of FIG. 22 changes the shape of light") (citing PO Resp. 9; Ex. 1005, 18:6–19:9).

We also find Petitioner's argument that Sarantos "necessarily" discloses the claimed material unpersuasive. *See* Pet. 9–10 (citing Ex. 1003 ¶ 35); Ex. 1003 ¶ 35 ("A POSITA would have understood that light shining through a translucent or transparent material as described in the specific arrangement of Sarantos would *necessarily change* in shape due to the refractive properties of translucent and transparent materials and due to the shape defined by the in-mold label.") (emphasis added). The Petition and accompanying expert testimony lack adequate explanation or support for such an argument, and merely referring to the translucent or transparent

window material of Sarantos fails to establish that the material necessarily changes the shape of emitted light. *See* Pet. 9–10; Ex. 1003 ¶¶ 34–35. The expert testimony refers to the "specific arrangement of Sarantos" as changing the shape of light, but never identifies the specific arrangement aside from shining light through the shape of the in-mold label, without identifying any particular shapes of light or the in-mold label that would produce different shapes. Ex. 1003 ¶ 35.

More importantly, Petitioner admits in its Reply that the material in Sarantos does not *necessarily* change the shape of light. In its Reply, Petitioner argues for the first time that Sarantos discloses different arrangements of light-emitting devices that emit different shapes of light and different in-mold labels having certain shapes. *See* Pet. Reply 1–6. According to Petitioner, when the shapes of light are different than the shapes formed by the in-mold labels, the emitted light will change shape as it passes through Sarantos's material. *Id.* Petitioner's argument implicitly acknowledges that Sarantos's device would *not* change the shape of light when the arrangement of light sources and the window regions defined by the in-mold labels have the same shape. *See* Pet. Reply 6 (limiting its argument to situations where Sarantos employs "light-emitting device arrangements and window region shapes that are not the same geometric shape") (citing Ex. 1079 ¶ 61). Petitioner's expert expressly acknowledged this aspect of the argument. Ex. 1079 ¶ 61 ("[A]s would have been apparent to a POSITA, the *only* scenarios in which Sarantos's device would not have changed the first shape to a second shape are those configurations in which the arrangement of the plurality of light sources/light-emitting devices and the arrangement of the window region produce the same shape." (emphasis

in original)). Accordingly, Sarantos's material would not necessarily change the shape of light as required by claim 1 because, as Petitioner's Reply acknowledges at least one circumstance where the material would not change the shape of light, i.e., when the light-emitting devices emit a light having the same shape as the window regions defined by the in-mold labels.

In addition, we do not find Petitioner's new argument based on specific combinations of emitted light shapes and window region shapes sufficient to meet its burden. First, the argument goes far beyond the argument included in the Petition and accompanying expert testimony. *Compare* Pet. 9–10 (citing Ex. 1003 ¶¶ 34–35), *with* Pet. Reply 1–6 (citing Ex. 1079 ¶¶ 56–61). Petitioner provides no excuse for its failure to fully articulate its theory for why Sarantos discloses this limitation in the Petition and accompanying expert testimony.

Second, claim 1 requires the "material" to change the shape of light, but Petitioner now relies heavily on the shape of the in-mold label as necessary to change the shape of light. *See* Pet. 9–10 (relying on Sarantos's window region made from translucent or transparent material as the claimed "material"), 28 (arguing in the context of claim 9 that "Sarantos teaches that its window (the claimed material, supra [1.2]) may be formed from 'acrylic,' which a POSITA would have known is a type of plastic"); Pet. Reply 5–6 (relying on shape of window region defined by in-mold label). Petitioner fails to persuasively explain how the shape defined by the in-mold label meets the "material" limitation of claim 1, or how we should reconcile its reliance on the in-mold label in its Reply with its prior reliance on Sarantos's acrylic window alone as the claimed "material" in the Petition. *See* Pet. 9–10, 28; Pet. Reply 5–6; PO Sur-reply 5–6.

Third, Petitioner fails to explain how Sarantos describes the specific shapes of the window regions defined by the in-mold labels, a necessary predicate for Petitioner's argument. *See* Pet. Reply 1–6. This deficiency is compounded by the fact that the cited portions of Sarantos describe the different shapes of photodetectors, not the in-mold labels. *See id.* at 5–6; Ex. 1079 ¶ 61 (referring to "square" and "non-square" configurations of photodetectors); Ex. 1005, 7:3–23 (referring to square and non-square photodetector elements); *see also* PO Sur-reply 6–7 (arguing lack of evidence supporting Petitioner's theory relying on in-mold label). Given the lack of clarity as to the shapes of the in-mold labels in Sarantos, and the lack of any embodiment combining the use of different LED shapes with in-mold label shapes, we disagree with Petitioner that "a POSITA would have 'at once envisage[d]' from Sarantos's disclosures as a whole that all possible combinations of light-emitting device arrangements and window region shapes that are not [the] same geometric shape would have changed the light from a first shape to a different second shape." Pet. Reply 6 (citing Ex. 1079 ¶ 61; *Kennametal*, 780 F.3d at 1381).

Finally, even if we agreed with Petitioner that Sarantos discloses embodiments that included differently-shaped LEDs and window regions, Petitioner's argument lacks support. Such an argument relies on a specific combination of various aspects of Sarantos's embodiments, which requires an obviousness analysis. *See Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008) (stating, in the context of different embodiments in a prior art reference, that "differences between the prior art reference and a claimed invention, however slight, invoke the question of obviousness"). As noted above, Petitioner does not rely on obviousness for this limitation,

and even if we considered such an argument, Petitioner fails to articulate any rationale for *why* a POSITA would seek to pick and choose aspects of Sarantos's various embodiments in a manner that would result in a material that changes the shape of light as claimed. *See* Pet. Reply 5–6; Ex. 1079 ¶¶ 60–61.

Based on the foregoing, we find that Petitioner fails to show that Sarantos discloses a "material configured to change the first shape into a second shape" as claim 1 requires and as Petitioner alleges. Pet. 9–10. Accordingly, we conclude that Petitioner fails to prove by a preponderance of the evidence that claim 1 would have been obvious based on Sarantos.

3. Dependent Claims 2–5, 7–9, 12, and 13

Challenged dependent claims 2–5, 7–9, 12, and 13 ultimately depend from independent claim 1. *See* Ex. 1001, 15:59–16:27. Petitioner's argument that Sarantos renders dependent claims 2–5, 7–9, 12, and 13 obvious relies on the same analysis as independent claim 1. *See* Pet. 15–30. Accordingly, for the same reasons discussed above in the context of claim 1, we conclude that Petitioner fails to prove by a preponderance of the evidence that any of claims 2–5, 7–9, 12, and 13 would have been obvious based on Sarantos.

4. Additional Challenges to Claims 2 and 3 Based on Sarantos's Teachings as to Claim 1

Petitioner argues that claim 2 would have been obvious based on Sarantos and Brady and claim 3 would have been obvious based on Sarantos, Brady, and Han. Pet. 1, 44–50. Petitioner's arguments as to these challenges are premised on its argument that Sarantos alone renders claim 1 obvious. *See id.* at 44–50. Because we disagree with that premise, for the same reasons stated above in the context of claim 1, we conclude that

Petitioner fails to prove by a preponderance of the evidence that claim 2 would have been obvious based on Sarantos and Brady or that claim 3 would have been obvious based on Sarantos, Brady, and Han.

B. Obviousness Based on Sarantos and Utter

Petitioner argues that claims 14 and 16–25 would have been obvious based on Sarantos and Utter. Pet. 1, 51–68. We first address the challenge to independent claim 14 and then address the challenge to claims 16–25.

1. Independent Claim 14

Petitioner's challenge to claim 14 provides reasons why a POSITA would have been motivated to combine Sarantos and Utter with a reasonable expectation of success. Pet. 54–57. Petitioner sets forth an element-by-element comparison of the challenged claims to the asserted art and, for some limitations, Petitioner incorporates its analysis addressing previous claims. *Id.* at 57–58. For limitations 14.0–14.6, the Petition states that "Sarantos-Utter provides, or at least renders obvious, elements [14.0]-[14.6] for the reasons discussed in Ground 1B, *supra*." *Id.* (citing Ex. 1003 ¶¶ 169–175, 118–133).

In its Preliminary Response, Patent Owner argued that Petitioner fails to account for limitation 14.2, which recites "a diffuser configured to be positioned between the plurality of optical sources and a tissue measurement site on the wrist of the user when the physiological monitoring device is in use." Prelim. Resp. 36–37 (citing Pet. 57–58). First, Patent Owner argued that the Petition improperly incorporates by reference the analysis addressing the ground based on Sarantos and Shie ("Ground 1B"), rather than the ground based on Sarantos alone ("Ground 1A"), which makes no sense given that the combination at issue here, Sarantos and Utter, does not

include Shie. *Id.* at 36. Second, Patent Owner argued that even if the Petition meant to refer to Ground 1A involving Sarantos, that ground fails to address the diffuser limitation 14.2, which does not appear in the analysis of Ground 1A. *Id.* at 36–37.

In our Institution Decision we noted "[i]t appears that Petitioner meant to incorporate by reference its analysis in Ground 1A addressing Sarantos when incorporating analysis by reference in the Sarantos-Utter combination, because incorporating analysis involving Shie would make little sense given that the Sarantos-Utter combination does not include Shie." Inst. Dec. 33 (citing Pet. 58). We did not resolve these issues at that time, noting that "Patent Owner's argument may have merit," inviting the parties to develop these issues during trial. *Id.*

In its Response, Patent Owner raises the same arguments it raised prior to institution, focusing on Petitioner's improper incorporation of Ground 1B, which relies on Shie for the diffuser limitation, even though this Sarantos-Utter challenge does not include Shie. PO Resp. 23 (citing Pet. 40–41; Ex. 1003 ¶ 171; Ex. 2100 ¶¶ 73–74). Patent Owner also repeats its argument that Ground 1A did not identify a diffuser in Sarantos and that Petitioner admitted in related proceedings that Sarantos does not disclose a diffuser. *Id.* at 23–24 (citing Ex. 1011, 17–18; Ex. 2100 ¶¶ 75–77; Ex. 2105, 63). Petitioner did not respond to this argument in its Reply, which Patent Owner noted in its Sur-reply. *See* PO Sur-reply 8.

We find Patent Owner's unopposed arguments on this issue persuasive. *See* PO Resp. 23–24. Petitioner's argument as to claim 14 based on Sarantos and Utter fails to adequately address the diffuser limitation in limitation 14.2 because (1) the Petition incorporates an analysis

by reference that relies on Shie as disclosing a diffuser, not Sarantos or Utter; (2) the Petition does not appear to allege at any point that either Sarantos or Utter disclose a diffuser; and (3) Petitioner does not respond to Patent Owner's arguments on these points or attempt to explain how the Sarantos-Utter combination discloses the claimed diffuser in its Reply. *See* Pet. 40–41, 57–58; PO Resp. 23–24; PO Sur-reply 8.

Based on the foregoing, we determine that Petitioner has not shown that the combination of Sarantos and Utter discloses the claimed diffuser. Accordingly, Petitioner has not proven by a preponderance of the evidence that claim 14 would have been obvious based on Sarantos and Utter.

2. Claims 16–25

Claims 16–18 depend from claim 14. *See* Ex. 1001, 16:63–17:7. Petitioner's challenge to claims 16–18 based on Sarantos and Utter relies on its analysis for claim 14 as a predicate, and further incorporates analysis of its previous challenges based on Sarantos alone. *See* Pet. 58–59. Petitioner's arguments do not address the deficiency as to the diffuser limitation noted above. *See id.* Accordingly, for the same reasons discussed in the context of independent claim 14, we conclude that Petitioner has not proven by a preponderance of the evidence that any of dependent claims 16–18 would have been obvious based on Sarantos and Utter.

Petitioner also challenges independent claim 19 and claims 20–25 that depend from claim 19 based on Sarantos and Utter. *See* Pet. 69–70. Claim 19 includes substantively the same limitations as claim 1, including limitation 19.3 requiring a "material configured to change the first shape into a second shape." *See* Ex. 1001, 17:14–15. Petitioner incorporates its arguments for claim 1 as it relates to limitations 19.0–19.7. *See* Pet. xi, 59.

Both parties treat the similar limitations in claims 1 and 19 together as a group, including the limitation requiring a "material configured to change the first shape into a second shape" that we addressed above in the context of claim 1. *See* Pet. 59; PO Resp. 8–17; Pet. Reply 1–7; PO Sur-reply 1–7. Accordingly, for the same reasons discussed in the context of claim 1, we conclude that Petitioner fails to prove by a preponderance of the evidence that claim 19 would have been obvious based on Sarantos and Utter. In addition, because claims 20–25 depend from claim 19 and Petitioner's arguments as to these claims rely on its arguments as to claim 19, for the same reasons we conclude that Petitioner fails to prove that any of claims 20–25 would have been obvious based on Sarantos and Utter. *See* Pet. 65–68.

C. Obviousness Based on Sarantos and Shie

Petitioner argues that claims 1–5, 7–14, and 16–18 would have been obvious based on Sarantos and Shie, and that claims 2, 3, 14, and 16–25 would have been obvious based on Sarantos, Shie, and one or more other references. Pet. 1–2, 30–44, 50, 68–70. As part of its arguments, Petitioner provides a number of reasons to combine Sarantos and Shie. *See id.* at 30-35. Patent Owner argues that Petitioner "presented the same arguments regarding Sarantos and Shie" in the -1465 IPR where the Board resolved those issues against Petitioner in a Final Written Decision[8] that Petitioner did not appeal, such that collateral estoppel prevents Petitioner from rearguing those arguments here. PO Resp. 25–31; -1465 FD, 137–148. Patent Owner also argues that Petitioner's motivation arguments fail on the merits and that

[8] *Apple Inc. v. Masimo Corp.*, IPR2022-01465, Paper 72 (PTAB Feb. 2, 2024) (the "-1465 FD").

the proposed combination fails to disclose a material that changes the shape of light. *See* PO Resp. 31–40. We focus on the collateral estoppel issue because we find it determinative.

"It is well established that collateral estoppel applies to IPR proceedings." *Google LLC v. Hammond Dev. Int'l, Inc.*, 54 F.4th 1377, 1381 (Fed. Cir. 2022). To establish that collateral estoppel applies here, Patent Owner must show:

> (1) the issue is identical to one decided in the first action; (2) the issue was actually litigated in the first action; (3) resolution of the issue was essential to a final judgment in the first action; and (4) [the party against whom collateral estoppel is being asserted] had a full and fair opportunity to litigate the issue in the first action.

Google, 54 F.4th at 1381 (quoting *In re Freeman*, 30 F.3d 1459, 1465 (Fed. Cir. 1994)). The sole disputed issue here turns on the first element—whether the obviousness issues here are identical to the issues in the -1465 IPR.[9]

Patent Owner argues that in the -1465 IPR, "the parties litigated the same issue presented here: whether a POSITA would have been motivated to combine Sarantos with some optical material from Shie to change the shape of light." PO Resp. 26. Patent Owner also asserts that Petitioner previously characterized the limitations in the claims of the '745 patent and '159 patent

[9] Petitioner does not dispute that the Sarantos-Shie issues were actually litigated in the -1465 IPR (the second element), that the resolution of the Sarantos-Shie motivation to combine issue was essential to the judgment in the -1465 IPR (the third element), or that Petitioner had a full and fair opportunity to litigate the issue in the -1465 IPR (the fourth element). *See* Pet. Reply 13–17. Petitioner also does not contest the fact that collateral estoppel may apply to the claims of the '159 patent even though the -1465 IPR involved the related '745 patent. *See id.*

as "almost identical" and shows the similarity in the relevant limitations of independent claim 1 in each patent. *Id.* at 26–27 (citing Ex. 2098 ¶ 144). According to Patent Owner, Petitioner's arguments as to why a POSITA would have been motivated to combine Sarantos and Shie in the -1465 IPR employs "the same reasoning" as the motivation arguments here, and the same reasons the Board rejected those arguments in the -1465 FD apply equally to the arguments in this proceeding. *See id.* at 27–29 (citing Pet. 31–38, 71; -1465 FD, 139, 143–144; Ex. 1007, 4:49–5:17). Patent Owner acknowledges that Petitioner relies on "some additional references" here in support of its motivation to combine arguments, but argues that "reliance on new evidence does not change the result substantively," because "collateral estoppel applies 'even if new evidence exists.'" *Id.* at 30 (citing *SynQor, Inc v. Vicor Corp.*, 988 F.3d 1341, 1355 (Fed. Cir. 2021)).

Petitioner argues that the -1465 IPR "involved a different patent and different factual record" and that Patent Owner "misstates the finding of the Board" in the -1465 IPR such that "the issue in the present proceeding is not 'identical to one *decided* in the first action.'" Pet. Reply 13–14. According to Petitioner, in the -1465 IPR the Board decided that Petitioner's "case for obviousness fails to provide a persuasive motivation for combining Sarantos and Shie" and that Petitioner failed to "explain sufficiently why a person of ordinary skill in the art would have been led to use a light shape changing lens within the context of Sarantos's sensor." *Id.* at 14 (quoting -1465 FD, 142–143, 145) (emphasis omitted). Petitioner contends that the situation here involving a failure to "'explain sufficiently' why a POSITA would have combined the references" distinguishes this case from *SynQor*, which involved "fundamental incompatibility between the two references." *Id.*

(citing *SynQor*, 988 F.3d at 1353; -1465 FD, 142–143, 145). Petitioner asserts that "as most," it "is estopped from arguing that the record in the IPR2022-01465 proceeding established a motivation to combine Sarantos with Shie." *Id.* Petitioner also contends that it "has presented a substantially different set of arguments and evidence to establish specific modifications to Sarantos's device based on specific lenses discussed in Shie," such that the "arguments and record" in each proceeding are not the same. *Id.* at 14–17.

In its Sur-reply, Patent Owner describes Petitioner's argument that it "is only 'estopped from arguing that *the record in the IPR2022-01465 proceeding* established a motivation to combine Sarantos with Shie'" as "frivolous." PO Sur-reply 11 (citing Pet. Reply 13–14). According to Patent Owner, "estoppel still applies because *every* decision is necessarily decided on a particular factual record." *Id.* Patent Owner asserts that *SynQor* rejected a similar argument and stated that collateral estoppel applies even if new evidence exists in the later proceeding. *Id.* at 11–12 (citing *SynQor*, 988 F.3d at 1355). Patent Owner also disputes Petitioner's assertion that the present case involves substantively different arguments and evidence. *Id.* at 13.

We begin by addressing the degree of similarity between the claims at issue in the -1465 IPR involving the '745 patent and the '159 patent at issue here. Although the claims of the '745 patent addressed in the -1465 FD and the claims of the '159 patent at issue here differ, "[i]t is well established that patent claims need not be identical for collateral estoppel to apply." *Google*, 54 F.4th at 1381; *Ohio Willow Wood Co. v. Alps S., LLC*, 735 F.3d 1333, 1342 (Fed. Cir. 2013) ("Our precedent does not limit collateral estoppel to patent claims that are identical."). "[C]ollateral estoppel may apply even if

the patent claims use slightly different language to describe substantially the same invention." *Google*, 54 F.4th at 1381 (citation and internal quotation marks omitted). Here, if the '159 patent claims do not "present materially different issues that alter the question of patentability," they are not "patentably distinct" from the claims of the'745 patent, and collateral estoppel applies. *MaxLinear, Inc. v. CF CRESPE LLC*, 880 F.3d 1373, 1377–78 (Fed. Cir. 2018); *see also Ohio Willow Wood*, 735 F.3d at 1342 ("If the differences between the unadjudicated patent claims and adjudicated patent claims do not materially alter the question of invalidity, collateral estoppel applies.").

Based on our review of the claims of the '745 patent and '159 patent, we find that they use slightly different claim language to cover substantially the same invention, such that they do not present materially different patentability issues. For example, claim 1 in the respective patents use nearly identical language throughout, with only minor non-substantive differences in language. *Compare* Ex. 1001, 15:31–58, *with* Ex. 1071, 15:32–61; PO Resp. 26–27 (citing Ex. 2098 ¶ 144). Similarly, claim 14 of the '159 patent, which requires a "diffuser," tracks the language in independent claim 15 of the '745 patent, which requires "a light diffusing material." *See* Ex. 1001, 16:28–58; Ex. 1071, 16:36–17:3. In addition, claim 19 of the'159 patent tracks the language in independent claim 20 of the '745 patent. *See* Ex. 1001, 17:8–18:14; Ex. 1071, 17:20–18:18.

Notably, Petitioner does not argue that any differences in the claim language support its argument that the issues in the two cases are not the same. *See* Pet. Reply 13–17. Nor does Petitioner argue that its Sarantos-Shie combination and its application to the claims here materially differs

from the Sarantos-Shie combination and application to the claims in the -1465 IPR. *See id.* In addition, Petitioner does not dispute Patent Owner's contention that both cases involve the issue of "whether a POSITA would have been motivated to combine Sarantos with some optical material from Shie to change the shape of light." *See id.*; PO Resp. 26. In our view, these undisputed points fully support Patent Owner's argument that the obviousness issues here are the same as those decided in the -1465 FD. *See* PO Resp. 26–30. The -1465 FD resolved the same Sarantos-Shie obviousness issues addressing substantively the same claims as here, including whether Petitioner showed an adequate motivation to combine Sarantos with optical material from Shie that would change the shape of light. *See* -1465 FD, 137–148; Pet. 30–44, 50, 68–70.

Rather than point to any material differences in claim language or in how it applies the Sarantos-Shie combination (or other prior art) to the claims, Petitioner focuses on alleged differences in its motivation to combine arguments, pointing out that its motivation arguments here are longer and include additional alleged motivations. *See* Pet. Reply 15–17. Aside from attempting to distinguish the cases Patent Owner relies on, which focus on the similarity of the claim language at issue in the respective cases, Petitioner provides no persuasive legal support for its position. *See id.* at 13–17. Petitioner's focus on alleged differences in the arguments and evidence supporting its motivation to combine arguments misses the mark because the relevant issue for purposes of collateral estoppel turns on whether Petitioner had a full and fair opportunity to litigate the same patentability issues in the two cases, which does not turn on whether the factual records in each case are the same. *See Ohio Willow Wood*, 735 F.3d

at 1342 ("[I]t is the identity of the *issues* that were litigated that determines whether collateral estoppel should apply."). Under Petitioner's approach, an unfavorable ruling in a prior case could be easily avoided and relitigated by simply raising more extensive arguments and filing additional evidence in the second case.

The Federal Circuit addressed a similar attempt to avoid collateral estoppel in *SynQor*. *See SynQor*, 988 F.3d at 1353–55. In *SynQor*, as here, the prior proceeding involved the Board finding a lack of motivation to combine two prior art references. *See id.* at 1353–54. The Federal Circuit determined that the subsequent proceeding, which involved the same proposed combination of prior art, addressed identical issues for purposes of collateral estoppel "even if new evidence exists." *Id.* at 1355 (internal citation omitted). According to the Federal Circuit,

> [a] losing party does not get a second bite at the apple simply because they can find a new and arguably more persuasive witness to present their evidence; this is *precisely* the type of rematch that collateral estoppel is intended to foreclose to serve the interests of repose and finality.

Id.; *see also Broaden v. Dep't of Transportation*, No. 2023-2316, 2024 WL 2105544, *3 (Fed. Cir. May 10, 2024) (non-precedential) ("Merely presenting new evidence is not sufficient to preclude the application of res judicata and collateral estoppel."); *Dana v. E.S. Originals, Inc.*, 342 F.3d 1320, 1325 (Fed. Cir. 2003) (rejecting argument that the evidence "differed qualitatively and quantitatively from the evidence submitted" in the earlier case because "[t]hat statement does not indicate that there is any difference in the issues presented in the two cases" and "it simply reflects the defendants' wish to buttress their case through different evidence, including a new expert witness declaration"). The same logic applies here, where

Petitioner seeks to avoid the prior Board determination that it failed to establish a motivation to combine Sarantos and Shie, and now seeks to relitigate that issue with additional arguments and evidence. Petitioner's new motivation to combine arguments and evidence does not provide a basis for Petitioner to avoid collateral estoppel and "get a second bite at the apple." *SynQor*, 988 F.3d at 1355.

Petitioner attempts to distinguish *SynQor* on the basis that the Board in the -1465 FD "***did not find*** a fundamental incompatibility between the two references or otherwise decide that the references could not be combined," as was the case in *SynQor*, and instead the Board relied on a lack sufficient explanation for the combination. Pet. Reply 14. Petitioner asserts that collateral estoppel only applies to the record in the -1465 IPR on the motivation to combine issue. *Id.* Petitioner provides no support for its narrow reading of *SynQor*, and we find Petitioner's reading of the case incompatible with *SynQor's* statement that collateral estoppel applies even if new and more persuasive evidence is presented in the later case. *SynQor*, 988 F.3d at 1355. Petitioner's approach also reads collateral estoppel too narrowly by confining it to situations where the records are the same, which conflicts with the notion that collateral estoppel applies as long as the prior case involved a "full and fair *opportunity* to litigate the issue in the first action," and applies even if the litigant fails to present sufficient evidence after given that opportunity. *See Google*, 54 F.4th at 1381; *SynQor*, 988 F.3d at 1355.

Based on our review of the parties' arguments and evidence, we find that Patent Owner establishes that the issue decided in the -1465 FD is the same as the issue here for purposes of collateral estoppel. We have also

reviewed Patent Owner's arguments and evidence as to the remaining three collateral estoppel factors, which Petitioner does not dispute. *See* PO Resp. 30–31; Pet. Reply 13–17. We agree with Patent Owner that these requirements are met here for the reasons advanced by Patent Owner. *See* PO Resp. 30–31. For these reasons, we find that collateral estoppel applies to Petitioner's obviousness arguments based in whole or in part on the combination of Sarantos and Shie. Accordingly, Petitioner has not proven that any of the claims challenged on that basis are unpatentable. *See* Pet. 30–44, 50, 68–70.

D. Patent Owner's Motion to Strike

Patent Owner's Motion to Strike relates to two categories of documents and arguments. Paper 32, 1–7. The first category includes Exhibits 1017, 1036, 1038, and 1042–1048 and arguments related to them in Petitioner's Reply. *Id.* at 1, 3–6. These documents and arguments relate to the parties' dispute over the reasonable expectation of success in determining oxygen saturation at the wrist, which relates to dependent claims 8 and 17. *See id.*; PO Resp. 40–66. The second category of information Patent Owner seeks to strike relates to Petitioner's reliance on Patent Owner's expert testimony in the -1291 IPR from Dr. Duckworth. Paper 32, 1, 6–7. Petitioner cited to Dr. Duckworth's testimony from the -1291 IPR, which Patent Owner alleges it "cannot adequately address without Duckworth's direct testimony" from Dr. Duckworth's declarations. *See id.* In its Motion, Patent Owner notes that it "originally requested the Board allow [Patent Owner] to file this motion or, alternatively, allow [Patent Owner] to submit rebuttal evidence" such as Dr. Duckworth's declarations. *Id.* at 7–8 (citing Ex. 3003). After the hearing, we granted

Patent Owner's request to file various rebuttal evidence as well as a post-hearing brief. *See* Exs. 3005, 3007.

We need not reach the merits of Patent Owner's Motion to Strike for two independent reasons. First, after the hearing, we granted Patent Owner's alternative request to file certain evidence in lieu of striking the material at issue in the Motion, which obviates the need to strike any of the material in question. *See* Exs. 3003 (Patent Owner seeking authorization to file a motion to strike, or "[a]lternatively," to permit Patent Owner to file evidence with its Sur-reply), 3005 (listing evidence Patent Owner sought to introduce), 3007 (granting Patent Owner's request to submit evidence); PO Post-hearing 1–3, Paper 32, 7–8. Second, because we determine that Petitioner fails to prove that any of the challenged claims are unpatentable in this proceeding without reaching any of the issues raised by Patent Owner's Motion to Strike, deciding the Motion would have no impact on the outcome of any issues in this proceeding. Based on the foregoing, we dismiss Patent Owner's Motion to Strike as moot.

E. Petitioner's Motion to Exclude

Petitioner "moves to exclude Exhibits 2076–2078, 2080–2086, 2089, 2094, and portions of Exhibit 2100." Paper 39, 1. Petitioner argues that Patent Owner's Response "does not establish the relevance of Exhibits 2076–2078, 2080–2086, and 2094 to the issues in the present proceeding." *Id.* at 2. The Exhibits generally relate to ITC testimony from Petitioner's employees and the patentability of dependent claims requiring determination of oxygen saturation at the wrist. *See id.* at 2–6. The portions of Exhibit 2100 that Petitioner seeks to exclude relate to Dr. Madisetti's opinions addressing similar issues. *See id.* at 11–13; *see also* PO Resp. 44–66

(relying in part on disputed exhibits when addressing dependent claims 8 and 17).

We need not reach the merits of Petitioner's Motion to Exclude because we find Petitioner's challenges to the claims in this proceeding unpersuasive for reasons that do not relate to the evidence Petitioner seeks to exclude. Accordingly, we dismiss Petitioner's Motion to Exclude as moot.

F. Petitioner's Motions to Seal

Petitioner filed five unopposed Motions to Seal. *See* Papers 24, 29, 44, 46, 49. Although the Motions seek to seal distinct information in the papers and exhibits, they rely on common arguments and themes. *See id.* We refer to the arguments made in Petitioner's first Motion to Seal (Paper 24) as representative.

In its various Motions to Seal, Petitioner seeks to seal certain information it deems confidential business information ("CBI"). *See* Paper 24, 1. According to Petitioner, this information includes "sensitive information regarding Apple's Watch products, including proprietary research and development (R&D) information, trade secrets, proprietary processes, and confidential business operations information." *Id.* The produced documents generally originate from related proceedings in the ITC and the Board, including the -1291 IPR and -1465 IPR. *See id.* at 2. Petitioner contends that some exhibits should be sealed in their entirety, while others may be sealed in part, with the public and redacted versions of these documents striking the correct balance between the public's interest in providing a complete and understandable record the parties' interest in protecting sensitive information. *See id.* at 2–4. In some cases, the material

in question was already sealed in previous proceedings before the Board. *See id.* at 3 n.2.

In an *inter partes* review, the moving party bears the burden of showing that the relief requested should be granted. 37 C.F.R. § 42.20(c). A party moving to seal must show "good cause" for the relief requested. *Id.* § 42.54(a). The "good cause" standard for granting a motion to seal reflects the strong public policy for making all information in Board proceedings open to the public. *See Argentum Pharms. LLC v. Alcon Research, Ltd.*, IPR2017-01053, Paper 27 at 3 (PTAB Jan. 19, 2018) (informative). When assessing if the good cause standard has been met, we may consider whether (1) the information at issue is confidential, (2) harm would result upon public disclosure, (3) there exists a genuine need to rely in the trial on the specific information sought to be sealed, and (4) the interest in maintaining confidentiality as to the information outweighs the strong public interest in an open record. *Id.* at 4.

In the Motions, Petitioner identifies the documents and information it seeks to seal with particularity, and identifies the CBI it contends supports sealing the information. *See* Paper 24, 3–4. Petitioner also addresses each of the factors set forth in *Argentum* and contends that they support sealing the information in question. *See id.* at 4–12. Petitioner also notes that Patent Owner does not oppose the Motions, although the parties dispute the extent of redactions necessary to protect Petitioner's CBI. *See id.* at 13–15.

Based on our review of the material in the Exhibits and Petitioner's representations, we agree that the Exhibits contain confidential, potentially sensitive information, that Petitioner would be harmed by not sealing the information, and that the interest in maintaining the information as

confidential outweighs the public interest in having the information unsealed. We have also reviewed Petitioner's redactions, which appear to be consistent with our rules and practices, and allow the public to ascertain the nature of the arguments and evidence at issue. *See, e.g.*, Paper 25 (public version of Patent Owner Response with redactions), Paper 33 (public version of Petitioner Reply with redactions), 47 (public version of Patent Owner Sur-reply with redactions). Accordingly, we conclude that good cause exists to seal the information as set forth in Petitioner's Motions to Seal. *See* Papers 24, 29, 44, 46, 49.

CONCLUSION[10]

Based on the foregoing, we determine that Petitioner fails to establish that any of the claims challenged in this proceeding are unpatentable, Patent Owner's Motion to Strike and Petitioner's Motion to Exclude are dismissed as moot, and Petitioner's Motions to Seal are granted.

The following chart summarizes our patentability determinations:

[10] 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, 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. §§ 42.8(a)(3), (b)(2).

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–5, 7–9, 12, 13	103	Sarantos		1–5, 7–9, 12, 13
1–5, 7–14, 16–18	103	Sarantos, Shie		1–5, 7–14, 16–18
2	103	Sarantos, Brady		2
3	103	Sarantos, Brady, Han		3
2	103	Sarantos, Shie, Brady		2
3	103	Sarantos, Shie, Brady, Han		3
14, 16–25	103	Sarantos, Utter		14, 16–25
14, 16–25	103	Sarantos, Shie, Utter		14, 16–25
Overall Outcome				1–5, 7–14, 16–25

ORDER

Accordingly, it is:

ORDERED that Petitioner has not proven by a preponderance of the evidence that any of claims 1–5, 7–14, and 16–25 of U.S. Patent No. 10,722,159 B2 are unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Strike is *dismissed* as moot;

FURTHER ORDERED that Petitioner's Motion to Exclude is *dismissed* as moot;

FURTHER ORDERED that Petitioner's Motions to Seal (Papers 24, 29, 44, 46, 49) are *granted*; 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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