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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

MASIMO CORPORATION,
Patent Owner.

Case IPR2024-00244
U.S. Patent 10,722,159

PATENT OWNER PRELIMINARY RESPONSE

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EXHIBIT LIST¹

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2002	Expert Declaration of Vijay K. Madiseti
2003	Commission Opinion (Public), <i>Certain Light-Based Physiological Measurement Devices and Components Thereof</i> , Inv. No. 337-TA-1276, EDIS No. 808521 (ITC Oct. 26, 2023)
2004	Decision Denying Institution of Inter Partes Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01271, Paper 15 (PTAB Jan. 24, 2023)
2005	Decision Denying Institution of Inter Partes Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01272, Paper 16 (PTAB Jan. 24, 2023)
2006	Decision Denying Institution of Inter Partes Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01273, Paper 15 (PTAB Jan. 24, 2023)
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2008	Decision Denying Institution of Inter Partes Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01275, Paper 15 (PTAB Jan. 30, 2023)
2009	Decision Denying Institution of Inter Partes Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01276, Paper 15 (PTAB Jan. 30, 2023)
2010	Plaintiff Apple Inc.'s Opposition to Defendants' Motion for Stay Pending Inter Partes Review (Public), <i>Apple Inc. v. Masimo Corp.</i> , No. 22-1378-MN-JLH (D. Del. Jan. 10, 2024), D.I. 457

¹ Masimo reserves certain exhibit numbers with the intent to reuse exhibit numbering from IPR2022-01291 should the Board institute IPR.

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2011	Plaintiff Apple Inc.'s Opening Brief in Support of Its Motion for an Expedited Trial, <i>Apple Inc. v. Masimo Corp.</i> , No. 22-1377-MN-JLH (D. Del. Feb. 10, 2023), D.I. 50
2012	Transcript of May 5, 2023 Hearing in <i>Apple Inc. v. Masimo Corp.</i> , Nos. 22-1377-MN-JLH, 22-1378-MN-JLH (D. Del. May 5, 2023)
2013	Original Scheduling Order, <i>Apple Inc. v. Masimo Corp.</i> , No. 22-1378-MN-JLH (D. Del. May 25, 2023), D.I. 92
2014	Amended Scheduling Order, <i>Apple Inc. v. Masimo Corp.</i> , No. 22-1378-MN-JLH (D. Del. Sept. 21, 2023), D.I. 359
2015	Lex Machina Patent Case Timeline Statistics for the District of Delaware between December 12, 2022 and December 12, 2023
2016	Lex Machina Case Statistics for Magistrate Judge Jennifer Hall
2017	Lex Machina Case Statistics for Judge Colm Connolly, Judge Maryellen Noreika, Judge Richard Andrews, Judge Gregory Williams, and Magistrate Judge Jennifer Hall
2018	Transcript of September 14, 2023 Markman Hearing, <i>Apple Inc. v. Masimo Corp.</i> , Nos. 22-cv-1377-MN-JLH, 22-cv-1378-MN-JLH
2019	Aaron Tilley, <i>The Entrepreneur Who Bet His Company on a Fight With Apple</i> , Wall Street J., Dec. 30, 2023, https://www.wsj.com/tech/joe-kiani-entrepreneur-apple-warning-52eb09a9
2020	Notice of Refund, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-1271, Paper 20 (PTAB June 20, 2023)
2021	Notice of Refund, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-1272, Paper 20 (PTAB June 20, 2023)

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2022	Notice of Refund, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-1273, Paper 19 (PTAB June 20, 2023)
2023	Notice of Refund, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-1274, Paper 19 (PTAB June 20, 2023)
2024	Notice of Refund, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-1275, Paper 19 (PTAB June 26, 2023)
2025	Notice of Refund, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-1276, Paper 20 (PTAB June 26, 2023)
2026	Notice of Refund, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-1292, Paper 17 (PTAB Mar. 7, 2023)
2027	Notice of Refund, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-1466, Paper 17 (PTAB Apr. 5, 2023)
2028	Correspondence from counsel for Apple to counsel for Masimo regarding Apple's prior art grounds in the Delaware Litigation, dated November 16, 2023
2029	June 6–10, 2022 Public Hearing Transcript, ITC Inv. No. 337-TA-1276
2030	Emails dated August–September 2022 between Apple's and Masimo's Counsel re IPR2022-01291 and -01465
2031	Email chain regarding false statements in IPR Petitions
2032	November 17, 2023 Letter from U.S. Food & Drug Administration to Masimo Corp. re Masimo W1 510(k) Clearance
2033	Petition for Inter Partes Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01292

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2034	Petition for Inter Partes Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01466
2035	Final Written Decision (Public Version), <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01291 (Jan. 30, 2024)
2036	Final Written Decision (Public Version), <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01465 (Feb. 2, 2024)
2037	Redacted Excerpt of the December 15, 2023 Rebuttal Report of Dr. Majid Sarrafzadeh
2038	Joint Claim Construction Statement Regarding Masimo Asserted Patents, <i>Apple Inc. v. Masimo Corp.</i> , No. 22-1378-MN-JLH (Aug. 31, 2023)
2039	Petitioner's Reply (Public Version), <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01291
2040	Order re Conduct of the Proceedings, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01291, Order Conduct of the Proceedings (Paper 43)
2041	Excerpt of Apple's Final Invalidity Contentions, <i>Apple Inc. v. Masimo Corp.</i> , No. 1:22-cv-1378-JLH (D. Del.)
2042	Masimo Post-Hearing Brief (Public Version), ITC Inv. No. 337-TA-1276
2043	ITC Final Initial Determination (Public Version), ITC Inv. No. 337-TA-1276
2050	Apple Inc.'s Post-Hearing Brief (Public Version), ITC Inv. No. 337-TA-1276
2056	Excerpts of File History of App. No. 16/532,065
2057	Excerpts of File History of App. No. 15/195,199

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2072	Excerpt of Webster's II New College Dictionary (2001)
2074	Nonconfidential Excerpt of Page 65 from June 6-10, 2022 Hearing Transcript, ITC Inv. No 337-TA-1276

Pursuant to 35 U.S.C. § 313, 37 C.F.R. § 42.107 and the Notice of Filing Date Accorded to Petition, dated January 11, 2024 (*see* Paper 5), Masimo Corporation (“Masimo”) hereby submits its Preliminary Response to the Petition for *Inter Partes* Review of U.S. Patent No. 10,722,159 (“the ’159 Patent”) filed by Apple Inc. (“Apple” or “Petitioner”).

I. INTRODUCTION

Masimo is the technology leader in the field of noninvasive physiological monitoring. In 1989, Masimo was a small startup operating in an inventor’s condo. Today, Masimo is a publicly traded company employing 6,300 people worldwide with annual revenues exceeding one billion dollars. Masimo technology is used in clinical care to monitor over 200 million patients per year. This growth followed Masimo’s development of a range of technologies that revolutionized the field of noninvasive physiological monitoring. Other Masimo patents have withstood extensive attacks, including in litigation through trials, inter-partes reexaminations, an ITC investigation, IPRs, and appeals.²

² *See, e.g., Mallinckrodt, Inc. v. Masimo Corp.*, 147 Fed. Appx. 158, 2005 WL 2139867 at *3 (Fed. Cir. Sept. 7, 2005); *Masimo Corp. v. Philips Elec. N. Am. Corp.*, 2015 WL 2379485 at *1 (D. Del. May 18, 2015); EX2003 (ITC Commission Opinion); EX2004-2009 (PTAB denials of institution for IPR2022-01271-IPR2022-

Apple’s Petition arises from parallel litigation in Delaware district court (“Delaware Litigation”). Apple was not, historically, a company that had any involvement in physiological monitoring technologies. But, around 2013, Apple decided to enter the field and sought out Masimo for its technology. Despite claiming an interest in integrating Masimo’s technology into Apple’s products, Apple began poaching Masimo’s employees, one after another. The poached employees included Chief Technical Officer Marcelo Lamago, an inventor of the three Masimo patents that the ITC recently found Apple infringed. Lamago took Masimo’s sensor design knowledge with him to Apple. And in the Delaware Litigation, Masimo accused Apple’s Watches of infringing Masimo’s patented technology, including key features disclosed and claimed in the ’159 Patent.

The Board should exercise its discretion to deny institution. Because Apple delayed until the one-year deadline to file its Petition, the Delaware Litigation is already at a late stage. The parties and Delaware court have already invested significantly in the Delaware Litigation. And trial preparations will cause that investment to grow by the time of the institution decision here. Further, Apple did

01276); *Masimo Corp. v. Apple Inc.*, 2023 WL 5921622, at *9 (Fed Cir. Sept. 12, 2023); *Apple Inc. v. Masimo Corp.*, 2024 WL 137336, at *1 (Fed. Cir. Jan. 12, 2024); *Apple Inc. v. Masimo Corp.*, 2024 WL 139570, at *1 (Fed. Cir. Jan. 12, 2024).

not provide a *Sotera* stipulation. Apple also did not inform the Board that it previously agreed to a claim construction and did not challenge patentability under the parties' agreed-upon construction. Apple's arguments rely on different claim constructions, thus raising the possibility of inconsistent opinions from the Board and the Delaware court. And in these IPRs, Apple falsely alleges that Masimo withheld certain references from the examiner during prosecution, despite Apple having previously admitted that similar statements were false. Apple's pattern of presenting inconsistent and false arguments demonstrates a lack of candor towards the Board that justifies denial of institution.

The Board should also deny the Petition on the merits. The Petition presents substantially the same Sarantos-Shie obviousness arguments that the Board previously rejected in IPR2022-01465 against a related patent. The Board need not waste resources to arrive at the same conclusion. The Petition presents no reason to revisit the Board's prior conclusion.

II. BACKGROUND

A. Apple Falsely Represented Masimo's Prosecution of the '159 Patent

Apple falsely alleged that Masimo withheld references identified in an Apple IPR petition against a related patent from the Examiner during prosecution of the '159 Patent. Specifically, Apple alleged:

Masimo filed the application that issued as the '159 Patent ... on February 14, 2020 ... approximately six months *after* Apple filed IPRs

challenging claims of genealogically related U.S. Patent No. 10,470,695 (“’695 Patent”).

Just 7 weeks later, on April 2, 2020, a Notice of allowance was issued, notably omitting any discussion of art applied in Apple’s IPRs, including art (e.g., Sarantos) on which the present Petition’s grounds are premised. ... Without bringing this omission to the attention of the examiner, Masimo paid the issue fee on April 21, 2020 ... in an apparent attempt to achieve issuance prior to the institution decision of the ’695 IPRs and allowed the patent to grant on July 28, 2020.

Pet., 3 (emphasis in original).³ But IPR2020-01722 and -01723 against the ’695 Patent were filed on **October 2, 2020**—several months *after* the ’159 Patent issued on June 28, 2020. Apple thus had no basis for alleging that Masimo somehow omitted “any discussion of art applied in Apple’s IPRs.” And Apple had knowledge of those dates because it filed those petitions in October 2020. Apple also included the following additional false allegations:

- “Notably, on May 12, 2021, the Board endorsed the relevance of this prior art, finding a reasonable likelihood of unpatentability to exist. Still, Masimo said nothing.” Pet., 4.
- “The ’159 Patent’s file history is without any indication that Masimo brought the prior art applied in this Petition to the examiner’s attention prior to allowance...” Pet., 4.

³ All emphases in this Preliminary Response are added unless noted otherwise.

- “Masimo failed to cite the Sarantos reference applied in this Petition to the examiner, despite being in possession of Apple’s earlier IPR petitions challenging claims of the related ’695 Patent based on Sarantos.” Pet., 83.

But these events from the ’695 Patent IPRs took place nearly a year *after* the ’159 Patent issued in July 28, 2020. Masimo could not have “failed to cite” references identified in Apple’s IPRs *after* the ’159 Patent issued.

Masimo alerted Apple to these false statements on March 6, 2024. Afterwards, Apple labeled the false statements as “clerical” errors and sought to correct them without changing the Petition’s filing date via a 37 C.F.R. § 42.104(c) motion. The Board denied Apple leave to change these statements. EX3001. But because there was no briefing on the issue, the Board was not apprised of the fact Apple’s counsel knew or at least should have known these allegations were false before filing the Petition.

First, the dates demonstrate that Apple’s statements were false. *Second*, before Apple filed this petition, Apple’s counsel made similar false statements in IPRs they filed against a related patent were false yet continued to pursue similar statements in this IPR. In 2022, Apple filed four IPRs challenging U.S. Patent No. 10,687,745 (the ’745 Patent), which shares the same specification as the ’159 Patent and which issued on June 23, 2020. *See* IPR2022-01291, -01292, -01465, -01466. Apple’s petitions against the ’745 Patent similarly alleged that “Masimo filed the

application that issued as the '745 Patent ... approximately seven months after Apple filed IPRs challenging claims of related U.S. Patent No. 10,470,695” and that “Masimo failed to cite either the Sarantos or Venkatraman references applied in this Petition to the examiner, despite being in possession of Apple’s earlier IPR petitions challenging claims of the '695 Patent based on those same references.” *See, e.g.,* IPR2022-01465, Paper 3 at 3, 77.

On September 9, 2022, Masimo’s counsel emailed Apple’s counsel to explain that those statements were false because Apple filed its IPRs challenging the '695 Patent *after* issuance of the '745 Patent. *See* EX2030, 6–7. On September 10, 2022, Apple’s counsel acknowledged the error: “As you correctly noted, the date of issuance of the '745 patent preceded the filing of IPR2020-01722 and -01723.” *Id.* at 5-6 (emphasis added). On October 7, 2022, Apple filed corrected petitions in each of IPR2022-01291, -01292, -01465, and -01466 which removed those statements. *See, e.g.,* IPR2022-01465, Paper 10.

Masimo once again notified Apple about these false statements in March 2024. Apple offered the excuse that the statements “appear[] to have been inadvertently copy-pasted from an originally-filed version of a petition challenging the '745 Patent.” EX2031, 4. But while the statements are similar to those in the '745 Patent IPRs, none of the false statements in this Petition are identical. Rather, the changes show that Apple revised the false statements about the '159 Patent.

Apple even added ***bold italics*** emphasis on the false statements—which Apple never included in the ’745 Patent IPRs. *See* Pet., 3 (“six months ***after*** Apple filed IPRs...”)
(original emphasis). Thus, Apple’s false statements in this IPR (and three other concurrently filed IPRs against the ’159 and ’743 Patents) were not mere “clerical” errors. Apple’s counsel owed a duty of candor and good faith to the Board. *See* 37 C.F.R. § 11.303(a)(1) (“A practitioner shall not knowingly ... [m]ake a false statement of fact or law to a tribunal...”); 37 C.F.R. §§ 11.18(b)(2)(iii) (by presenting a paper to the Board, a practitioner “is certifying that ... [t]he allegations and other factual contentions have evidentiary support”), 42.11(c), 42.12(a)(3). In this IPR Apple is represented by the ***same*** attorneys who acknowledged that similar statements in the ’745 Patent IPRs were false. *See* EX2030 (listing counsel in email headers). Apple’s repeated use of statements known to be false demonstrates a lack of candor towards the Board that justifies denial of institution. *See* 37 C.F.R. §§ 42.11–42.12.

B. Overview of the Technology

Pulse oximetry is a method of noninvasively measuring the proportional amount of hemoglobin carrying oxygen, called arterial oxygen saturation. EX1009, xv, 6; EX2002, ¶36. Pulse oximetry relies on the Beer-Lambert law, which allows the concentration of oxyhemoglobin and hemoglobin in blood to be calculated by measuring the absorption of light at known wavelengths. *See* EX1001, 1:65-2:3; *see*

also EX1009, 40.⁴ Pulse oximeters emit light of at least two wavelengths, typically red and infrared. EX2002, ¶36. Red and infrared wavelengths are chosen because hemoglobin absorbs more red light than oxyhemoglobin, while oxyhemoglobin absorbs more infrared light than hemoglobin. EX2002, ¶36. A detector measures the light after it has passed through the tissue and outputs a photoplethysmography (PPG) signal for each wavelength of light. EX2002, ¶¶37–38. The relative amounts of red and infrared light detected during systole and diastole (contraction and relaxation of the heart) can be used to calculate a ratio of ratios, which can then be mapped to an oxygen saturation (SpO₂) value indicting the proportional amount of hemoglobin carrying oxygen. EX2002, ¶38.

C. The '159 Patent

The '159 Patent, which claims priority to a provisional application filed July 2, 2015, is the result of inventor Ammar Al-Ali's research on pulse oximetry at the wrist around 2014 to 2015. EX1001, 2; EX2029, 248:24-249:8. The '159 Patent discloses sensor designs with various enhancements that improve signals typically obscured by noise. EX1001, 7:4-62, 8:54-9:10, 10:40-11:67, Figs. 7A-7B. Those enhancements improve measurement of oxygen saturation and other parameters

⁴ Unless stated otherwise, pincites generally refer to a document's original pagination.

during more difficult conditions and from more difficult sites like the wrist. *Id.* at 1:22-26, 2:39-3:3, 10:40-51; EX2002, ¶39.

Claims 1 and 19 recite novel sensors that measures from difficult locations like a user's wrist. EX2002, ¶40. The claims feature a "material positioned between the plurality of emitters and a tissue measurement site on a wrist of a user" and which changes the shape of light that is emitted from the LEDs from a "first shape" into a "second shape." The '159 Patent explains how using a material to change the shape of light improved measurement accuracy. Before the '159 Patent, pulse oximetry conventionally applied a two-dimensional analytical model to the three-dimensional space of the tissue measurement site. EX1001, 5:40-51. In this 2D model, a light source with negligible dimensions would be considered as a point source and the path of light as it penetrates the tissue would be considered as a line or vector, representing a two-dimensional construct. *Id.* at 5:62-65. Conventional wisdom was that using an optical point source would reduce the variability in the light pathlength, a variable in the Beer-Lambert law, which would lead to more accurate pulse oximetry measurements. *Id.* at 5:66-6:1. A study found, however, that the difference between the average pathlengths for red and infrared light affects the calibration curve for a pulse oximeter, thereby decreasing accuracy. EX1001, 6:1-20. Rather than irradiating tissue with a simple point source, Al-Ali departed from conventional wisdom and applied a three-dimensional model by adding a material to change the

shape of light emitted towards the user's tissue to irradiate a larger volume of tissue.

Id. at 6:21-7:3; *see also* EX2002, ¶40. The increased light interaction resulted in more accurate oxygen saturation measurements. EX1001, 6:64-7:3, EX2002, ¶40.

In conjunction with the material that changes the shape of light, Claims 1 and 19 also feature additional structures designed to improve signal quality. EX2002, ¶41. The claims recite a “surface comprising a dark-colored coating” positioned between the photodiodes and the user's tissue. The patent explains that the use of a dark-colored coating can also address a “multiple scattering” problem where emitted light can reflect back and forth between the user's tissue and the sensor, leading to considerably longer photon pathlengths that affect the accuracy of the measurement. '159 Patent, 8:54-9:7; EX2002, ¶41. The claims also recite a “light block” which can prevent LED light from reaching the detectors before attenuation by the tissue. *See* EX1001, 15:51-54, 10:49-51, 11:10-20, Figs. 7A-7B; EX2002, ¶41.

The claimed inventions of the '159 Patent thus provide novel combinations of features that improve measurement accuracy of a user's physiological parameters, such as SpO₂, at the user's wrist. *See, e.g.*, EX1001, 10:40-51, Figs. 7A-7B; EX2002, ¶42.

Based on Al-Ali's research and the resulting '159 Patent inventions, Masimo developed a commercial medical-grade wrist-based pulse oximeter that is now sold

as the Masimo W1™ watch, pictured below. EX2029, 248:24-250:14; EX2002, ¶43.



The Masimo W1™ is the only product on the market that provides continuous oxygen saturation measurements at the wrist. *See* EX2002, ¶44. Notably, on November 17, 2023, the Masimo W1™ received FDA 510(k) clearance for over-the-counter and prescription use for oxygen saturation monitoring. *See* EX2032. As of today, Masimo is ***the first and only company in the world*** to have received FDA clearance for a pulse oximeter that measures continuously at the wrist.

D. Level of Ordinary Skill

Apple presents a relatively low level of ordinary skill in the art. *Pet.*, 4-5. Masimo submits that Apple's low level of ordinary skill supports the patentability

of the claims. However, in the Delaware Litigation, Masimo’s expert presented a slightly different definition of the level of ordinary skill which includes education and/or experience with optical technologies. EX2002, ¶¶48–50. The difference between Masimo’s definition and Apple’s definition does not impact Apple’s patentability challenges here. *Id.* at ¶51.

III. CLAIM CONSTRUCTION

A. Apple Failed to Show That Any Prior Art Satisfies the Agreed-Upon Construction For “Second Shape”

Apple’s inconsistent claim construction positions here and in the Delaware Litigation warrant denial. The Board’s rules “place an affirmative burden on petitioners to ‘set forth: ... how the challenged claim is to be construed.’” *OrthoPediatrics Corp. v. K2M, Inc.*, Case IPR2018-01548, Paper 9, at 10 (March 1, 2019) (quoting 37 C.F.R. 42.104(b)(3)). “This burden continues by requiring petitioners to adequately explain ‘how the construed claim is unpatentable.’” *Id.* (quoting 37 C.F.R. § 42.104(b)(4)).

The Petition fails to satisfy these requirements because it does not explain how the prior art meets the parties’ agreed claim construction in the Delaware Litigation. *See Hologic, Inc. v. Enzo Life Sciences, Inc.*, IPR2018-00019, Paper 17 (Apr. 18, 2018) (denying institution where petitioner applied an incorrect construction). Specifically, the parties ***agreed*** that “second shape” in Claims 1 and 19 should be construed as “shape different from the first shape (not just a change in size).”

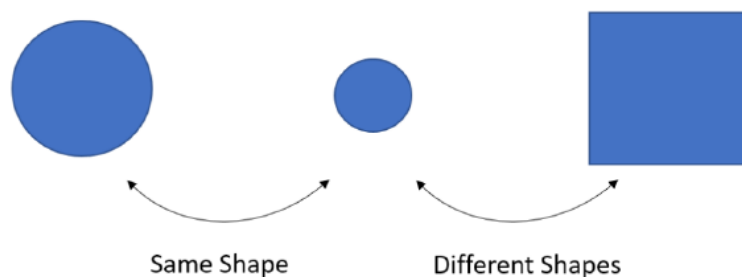
EX2038, 5; EX2002, ¶53. Apple offers no explanation why the previously agreed-upon construction should not be adopted here. Apple’s withholding of that construction justifies denial of institution. *See Facebook, Inc. v. Sound View Innovations, LLC*, IPR2017-00998, Paper 13 at 17–18 (Sept. 5, 2017) (denying institution due to petitioner’s lack of candor in failing to disclose its inconsistent claim construction position in parallel litigation); 37 C.F.R. § 42.11(a) (parties involved in IPR have a duty of candor and good faith to the Office).

Apple’s invalidity theories fail under the agreed-upon construction. Apple failed to demonstrate that the claimed material changed light into a “shape different from the first shape” and “not just a change in size.” Rather than address the proper construction, Apple argues that the “material configured to change the first shape into a second shape” limitation is met merely by a “translucent or transparent” window because “light shining through translucent or transparent material would change in shape due to the refractive properties of translucent and transparent materials.” Pet., 9–10. But that is not true. EX2002, ¶54. Masimo expressly overcame prior art during prosecution that disclosed a lens—a type of translucent or transparent material. *See* EX2056, 40, 59-60, 162; EX2002, ¶54. Indeed, Apple’s argument here is cumulative of those patent office proceedings. *Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 (Feb.

13, 2020) (petition may be denied institution for presenting substantially the same arguments previously presented to the Office).

B. The Board Should Construe “Change the First Shape into a Second Shape” Consistent with the Parties’ Agreement

Claims 1 and 19 both recite 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.”⁵ The plain meaning of “change” is to make different. *See* EX2072; EX2002, ¶52. The phrase does not require a specific first shape nor second shape. However, the phrase requires those shapes to be different from each other. A mere change in size does not meet this phrase, as illustrated below.



EX2002, ¶55.

The claim language makes clear that the first and second shapes must differ. EX2002, ¶56; *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1314-15 (Fed. Cir. 2005)

⁵ Claim 19 omits the bracketed “a surface of.”

(*en banc*) (claim language must be construed as part of the claim as a whole and in the context of the specification and prosecution history). The claim requires that the material is “configured to **change** the first shape **into** a second shape.” The “change” and “into” specify different shapes. EX2002, ¶56. Reading the claims to recite the same shapes would render “change” and “into” superfluous. *Id.*; see *Wasica Finance GmbH v. Continental Auto. Sys., Inc.*, 853 F.3d 1272, 1288 n.10 (Fed. Cir. 2017) (“It is highly disfavored to construe terms in a way that renders them void, meaningless, or superfluous.”).

The specification also supports the construction. EX2002, ¶57. It includes several examples of a material changing a first shape into a second shape. See EX1001, 7:63-8:14 (describing a diffuser that can “receive emitted light in the form of a point optical source” and “distribut[e] the emitted light on the surface of a plane (e.g., the surface of the tissue measurement site 102) in a predefined geometry (e.g., a rectangle, square, or circle)”), 10:65-11:2 (changing the shape of light into a “wide, donut-shaped area”); EX2002, ¶57. Thus, the specification confirms the claims recite different first and second shapes.

The prosecution history confirms that a change in size is not a change in shape. EX2002, ¶58. During prosecution of a parent application (App. No. 16/532,065), the Examiner rejected the claims based on prior art that included a lens that changed the size but not the shape of the emitted light. See EX2056, 40, 59-60; EX2002,

¶¶58–61. In response, Masimo proposed claim amendments during an Examiner interview “which reflect a *change in shape of emitted light beyond a change in size*.” See EX2056, 162; EX2002, ¶62. After the interview, the Examiner issued a Notice of Allowability including an approved amendment to require “the material configured to alter thea first shape into a second shape.” EX2056, 157; *see also* EX2002, ¶63. That prosecution history thus confirms that “change the first shape into a second shape” requires more than “a change in size.” EX2002, ¶¶64–65.

The parties therefore agreed in the Delaware Litigation that “second shape” in Claims 1 and 19 should be construed as “shape different from the first shape (not just a change in size).” EX2038, 5.

In IPR2022-01465, Masimo presented substantially similar claim construction arguments regarding the same phrase in the ’745 Patent. In the final written decision, the Board determined that construction was not necessary because Apple had not shown a motivation to combine Sarantos with Shie, regardless of whether the combination would produce the required change in shape. EX2036, 142–143. Here, because Apple also relies on Sarantos alone in Ground 1A, claim construction is necessary to resolve at least that ground.

In at least that ground Apple departs from its prior position and now argues, for the first time after years of litigating about this phrase and this specific reference, that Sarantos’ window is a material that changes the shape of light “due to the

refractive properties of translucent and transparent materials.” *See, e.g.,* Pet., 9-10. But light refraction is not sufficient to show a change in shape. EX2002, ¶54. Apple did not demonstrate how Sarantos’ window would satisfy the “second shape” limitation under the correct construction, as Apple has repeatedly agreed. *See* Section V.A. Thus, here, construction is necessary to resolve the dispute.

IV. THE BOARD SHOULD DENY INSTITUTION UNDER 35 U.S.C. § 314(a)

Apple waited until the one-year statutory deadline to file this Petition. In the parallel Delaware Litigation involving the same patent, Apple successfully obtained an accelerated schedule. EX2011; EX2012, 9:24-10:9; EX2013 (original schedule); EX2014 (amended schedule). Under that schedule, the Delaware Litigation has already progressed through fact and expert discovery, dispositive motions, and is ready for trial. Apple fails to explain why it delayed in filing this Petition until this late stage of the Delaware Litigation. Because Apple waited so long, institution here would be inefficient and contrary to the goals of the AIA. Apple’s unexplained delay in filing the Petition is one of many reasons why the *Fintiv* factors favor denying institution under § 314(a).

Fintiv sets forth six non-exclusive factors for determining “whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding.” *Apple Inc. v. Fintiv Inc.*, IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20, 2020) (precedential)

(“*Fintiv*”). Under those factors, the advanced stage of the Delaware Litigation and significant investment in it support denying institution. Apple also inexplicably delayed filing this Petition until the last day possible, when it had previously filed petitions based on the same prior art combinations over a year ago. Apple’s lack of candor towards the Board, including its repeated submission of false information and presentation of inconsistent arguments to the Board and the district court further weigh in favor of denial. Thus, the Petition needlessly multiplies the disputes between the parties and invites inconsistent decisions. The *Fintiv* factors weigh heavily in favor of denying institution.

A. Factor 1: No Stay Has Been Sought and None Is Likely

Apple has neither sought a stay for the ’159 Patent in the Delaware Litigation nor suggested it intends to do so. In fact, Apple *opposed* Masimo’s motion to stay Apple’s patent claims pending Masimo’s instituted IPRs. EX2010. Apple represented that “this case is at a late stage,” that “trial will likely occur months before the PTAB issues Final Written Decisions in [Masimo-filed] IPRs, the first of which is not due until September 20, 2024,” and that it is seeking “trial *at the Court’s earliest available date*.” *Id.* at 2, 11 (emphasis added). Thus, this factor favors denying institution. *See, e.g., Mylan Labs. Ltd. v. Janssen Pharmaceutica NV*, IPR2020-00440, Paper 17 at 14 (PTAB Sept. 16, 2020).

B. Factor 2: The Court’s Trial Date Is Long Before the Projected Statutory Deadline

To argue against denial, Apple relies on a “statistically indicated December, 2025 district court trial date.” Pet., 73. But Apple ignores the accelerated schedule that Apple obtained in the Delaware Litigation. EX2011; EX2012, 9:24-10:9; EX2013 (original schedule); EX2014 (amended schedule). And under that accelerated schedule, the Delaware Litigation has already proceeded through fact and expert discovery, dispositive motions, and is ready for trial. *See infra* § IV.C. Under that accelerated schedule, trial will likely occur long before Apple’s “statistically indicated” date. Indeed, just three weeks after filing this Petition, Apple represented to the District Court that “*trial will likely occur months before the PTAB issues [FWDs] in [Masimo-filed] IPRs, the first of which is not due until September 20, 2024.*” EX2010, 2. Apple’s arguments about the trial date undermine its statistical approach here and favor denial. *See, e.g., US Venture, Inc. v. Sunoco Partners Marketing & Terminals LP*, IPR2020-00728, Paper 10, 9 (PTAB Oct. 1, 2020); *Supercell Oy v. GREE, Inc.*, IPR2020-01619, Paper 15, 10-11 (PTAB Mar. 24, 2021).

Apple also relies on a Masimo IPR petition that cited time-to-trial statistics. Pet., 73. But Masimo diligently filed that petition at the outset of the Delaware Litigation when statistics were the only timing data available. Indeed, Masimo filed its petition in February 2023—two months before the district court ordered a

schedule. *Masimo Corp. v. Apple Inc.*, IPR2023-00634, Paper 1, 108 (PTAB Feb. 27, 2023). Unlike Masimo, Apple filed this Petition on the last possible day, just weeks before the parties would complete expert discovery and dispositive motions. The Delaware Litigation is now ready for trial. Under these circumstances, the stage of the case and the accelerated case schedule support denial. *See, e.g., US Venture*, Paper 10, 9.

Even if statistics are considered, Apple's generic and outdated statistics (EX1060, 14) should be rejected. The latest statistics show an average time-to-trial of approximately 34.9 months for patent cases in the District of Delaware in the year preceding the Petition. EX2015. Assuming Judge Hall takes over as district court judge in the pending cases she was previously assigned as magistrate judge, she would still preside over approximately 13% fewer cases than the other district judges in Delaware. *Compare* EX2016 *with* EX2017. Adjusting the time-to-trial based on Judge Hall's case load (i.e., from 34.9 months to 30.4 months), the expected trial date would occur in May 2025—approximately two months before the deadline for a FWD here. Thus, the pertinent statistics favor denial. *See, e.g., Vector Flow, Inc. v. HID Global Corp.*, IPR2023-00353, Paper 8, 20 (PTAB July 17, 2023).

C. **Factor 3: The Parties' Significant and Continuing Investment in the Litigation and Apple's Lack of Diligence Weighs Against Institution**

The amount and type of work already undertaken in the Delaware Litigation by the District Court and parties dwarfs Apple's investment in this Petition (and even

Apple's collection of petitions) by orders of magnitude. In the Delaware Litigation, the parties and district court have already completed:

- 1) fact discovery, including millions of pages of document production, approximately fifty interrogatories, and dozens of requests for admission per side;
- 2) more than *seventy-five fact depositions*;
- 3) dozens of third-party subpoenas and numerous third-party depositions;
- 4) infringement and validity contentions (including, for the '159 Patent and related '743 Patent, Apple's 6,251 pages of initial invalidity contentions involving 24 references, Masimo's 265 pages of responses to initial invalidity contentions, Apple's 6,878 pages of final invalidity contentions, and Masimo's 315 pages of responses to final invalidity contentions);
- 5) claim construction, including a four-hour hearing conducted over six months ago;
- 6) expert discovery, including **33** total reports exchanged totaling ***over 12,600 pages***, including the following reports specific to the '159 and '743 Patents:
 - a. For validity of the '159 Patent and related '743 Patent:
 - i. Dr. Sarrafzadeh's (Apple) 429-page opening report;
 - ii. Dr. Madisetti's (Masimo) 165-page rebuttal report;

- iii. Dr. Zavislan's (Masimo) 35-page rebuttal report;
- iv. Dr. Sarrafzadeh's (Apple) 167-page reply report;
- b. For infringement of the '159 Patent and related '743 Patent:
 - i. Dr. Madisetti's (Masimo) 691-page opening report, including 176 pages of claim charts relating to the '159 and '743 Patents;
 - ii. Dr. Zavislan's (Masimo) 223-page opening report;
 - iii. Dr. Sarrafzadeh's (Apple) 395-page rebuttal report;
 - iv. Dr. Madisetti's (Masimo) 488-page reply report, including over 98 pages dedicated to the '159 and '743 Patents;
 - v. Dr. Zavislan's (Masimo) 94-page reply report.
- 7) more than *twenty-five expert depositions*, including depositions of Dr. Madisetti, Dr. Zavislan, and Dr. Sarrafzadeh for the '743 and '159 Patents; and
- 8) more than twenty motions and dozens of hearings, including summary judgment and *Daubert*.⁶

⁶ Apple refuses to allow confidential information from the Delaware Litigation to be used here.

When, as here, final contentions are complete and fact and expert discovery has already closed long before the Board makes an institution decision, “the third *Fintiv* factor weighs heavily in favor of discretionary denial.” *See, e.g., Roku, Inc. v. IOENGINE, LLC*, IPR2022-01554, Paper 11 at 12 (May 5, 2023) (“*Roku*”); *see also Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15 at 14 (PTAB May 13, 2020) (“*Fintiv II*”) (level of investment and effort already expended in the District Court favors denial).

Apple trivializes the parties’ investment as shared “equally by both parties.” Pet., 75. But the third *Fintiv* factor considers the overall investment in the parallel litigation by the parties and court regardless of whether the parties share that investment. *Fintiv* at 9. Apple improperly disregards the District Court’s investment in the Delaware Litigation. *Id.*

Incredibly, Apple argues that its “substantial investment *in petitions*...should counterbalance—and frankly *outweigh*—the resources invested in the co-pending District Court litigation.” Pet., 75. But Apple has aggressively litigated the Delaware Litigation with dozens of outside counsel. As an example of the magnitude of its investment in the Delaware Litigation, Apple had seven attorneys argue claim construction and brought so many additional attorneys to the hearing that the courtroom ran out of seats. EX2018, 4. Masimo’s investment in the Delaware Litigation also drastically exceeds Apple’s investment in petitions. *See,*

e.g., EX2019 (explaining Masimo’s over \$100M investment in Apple litigation). Apple’s investment in petitions falls far short of the overall investment by Apple, Masimo, *and* the District Court that this factor considers.

Apple also refers to its investment in responding to petitions for the “10 patents asserted” by Masimo in the Delaware Litigation. Pet., 75. But this factor considers investment “*related to the patent at issue in the petition.*” *Fintiv* at 9-10. Therefore, Apple’s investment in IPRs challenging *other* patents does not support instituting this Petition.

Further, Apple’s petitions for five of those other patents challenged the “[Masimo] patents reasserted from ITC litigation.” Pet. 75. And Apple omits that it received refunds for eight such petitions on the ITC patents because the PTAB did not institute review. *See* EX2020–EX2027 (granted refund requests in IPR2022-1271-IPR2022-1276, IPR2022-1292, and IPR2022-1466). Apple’s unrelated petitions do not support instituting this Petition.

Apple asserts that its “substantial investment” in the Petition and diligence should weigh in favor of institution. Pet., 75, 74 n.7. But Apple did not substantially invest in this Petition nor was it diligent in preparing this Petition. Rather, Apple openly admitted that it copied arguments from IPR petitions against the ’745 Patent that it filed more than a year prior. Pet., 71 (“[The Petition] applies largely the same prior art to similarly address claims that closely resemble those of the ’745 patent

for which institution was recently granted.”). Indeed, the Sarantos-Shie combination presented here is the same combination that Apple briefed in 2022 in ITC Inv. No. 337-TA-1276 and IPR2022-01291 and -01465. Reiterating prior arguments does not demonstrate a “substantial investment.”

The only difference between this Petition and the previous ’745 Patent IPR petitions is that Apple substituted Venkatraman—a tertiary reference applied in prior petitions—for new references Brady, Han, and Utter. *See, e.g.*, IPR2022-01291, Paper 51 (Second Corrected Petition) at 2 (Sarantos-Shie-Venkatraman combination). But to be clear, Apple did so because it intends to use Venkatraman as prior art in the Delaware Litigation. *See* EX1068 at vi (relying upon Venkatraman as a primary reference against the ’159 Patent); EX1066 (stipulating that Apple will not use Sarantos, Shie, Brady, Han, and Utter in the Delaware Litigation).

Because Apple’s Petition merely copied previously existing arguments, Apple could have prepared and filed this Petition many months ago. Instead, Apple chose to wait until the one-year-bar date to file the Petition. Apple offers no excuse, let alone a legitimate reason, for the delay. That delay weighs in favor of denying institution. *See Next Caller Inc. v. TrustID, Inc.*, IPR2019-00961, Paper 10 at 15–16 (Oct. 16, 2019) (petitioner’s unexplained delay when it was aware of the prior art “well before” filing the petition favored denying institution).

Moreover, Apple gained a tactical advantage by delaying its Petition until the last possible day. Apple’s Petition is based on arguments it presented over a year ago in IPR2022-01291 and IPR2022-01465. Apple could have filed the current Petition much earlier but waited until *after* all of the briefing and oral arguments concluded in IPR2022-01291 and -01465 and *after* receiving Masimo’s responses to its invalidity contentions in the Delaware Litigation. Apple thus sought a clear tactical advantage in delaying its Petition, which further weighs in favor of denying institution. *See Apple Inc. v. Optis Cellular Tech., LLC*, IPR2020-00465, Paper 13 at 16 (Sept. 17, 2020) (denying institution and recognizing a petitioner’s tactical advantage from delay is a consideration under *Fintiv* factor 3).

Apple stipulates it will not pursue in the Delaware Litigation “any ground of invalidity that utilizes any of the prior art asserted in this petition.” Pet., 75–76. Apple argues that stipulation is somehow “broader” than a *Sotera* stipulation. *Id.*, 76. But that is incorrect. In a *Sotera* stipulation, a party agrees not to pursue in district court “any grounds that could have reasonably been raised in the petition.” EX1061, 7-8. *Sotera* stipulations thus mitigate inefficiency and a risk of conflicting decisions. *Id.* It is undisputed that Apple could have reasonably raised the invalidity grounds it asserts in Delaware in this IPR. EX2028. For example, Apple is maintaining obviousness grounds in the Delaware Litigation based on a combination of Ackermans and Savant and/or Venkatraman. *See* EX1068, 4–5. But Apple

actually raised those same grounds in other IPR petitions filed over a year ago against a related patent. *See generally* EX2033, EX2034. Apple’s narrow stipulation is not a *Sotera* stipulation and allows Apple to pursue different invalidity theories in the district court and this IPR. Such a result is the opposite of what a *Sotera* stipulation is designed to accomplish.

Apple’s stipulation provides nothing beyond the parties’ agreement on issue narrowing in the parallel case. In the Delaware Litigation, Apple’s initial invalidity contentions relied on the same Sarantos and Shie references presented here. *See* EX2041, 34–35. But Apple has since abandoned its invalidity arguments based on the same primary reference asserted here. EX1068, 5–6. Thus, Apple’s illusory stipulation imposes no real restriction on Apple and offers no real value to the District Court or the PTAB. Instead, Apple’s stipulation merely confirms that Apple seeks to enlarge the proceedings by re-raising the arguments it abandoned in the Delaware Litigation. That sort of inefficiency is contrary to the purpose of IPRs. EX1061, 7.

Under the circumstances, the third *Fintiv* factor heavily weighs in favor of denying institution.

D. Factor 4: Validity Issues Overlap with the Delaware Litigation and the Board Has Previously Created Conflicting Decisions

Apple argues that the Petition addresses claims that are not asserted in the Delaware Litigation, but offers no further analysis. Pet., 77. The “existence of non-

overlapping claim challenges” can weigh “for or against exercising discretion to deny institution,” depending on the circumstances. *Fintiv* at 13 (citing *Next Caller Inc. v. TrustID, Inc.*, IPR2019-00961, Paper 10 at 14 (Oct. 16, 2019) (denying institution where petition addressed more claims than district court litigation because all claims are directed to the same subject matter and petitioner did not argue it would be harmed if institution were denied)). Like in *Next Caller* the non-overlapping claims in this Petition are directed to the same subject matter as the asserted claims in the Delaware Litigation and Apple did not identify any significant differences between them. Moreover, Apple will not be harmed if institution is denied on the non-overlapping claims because Masimo already narrowed its claims in the Delaware Litigation.

Apple further argues factor 4 disfavors denial because there is an “absence of meaningful overlap between the District Court Litigation and IPR” due to its stipulation. Pet., 77. First, as explained with respect to factor 3, that is incorrect because Apple’s stipulation is not a *Sotera* stipulation.

Second, there is ***significant overlap*** in the issues between the District Court Litigation and this Petition. Apple focuses solely on the prior art references being different but ignores that both proceedings involve the same issues of reasonable expectation of success for determining oxygen saturation at the wrist and objective indicia of nonobviousness. Specifically, Claim 8—which is asserted against Apple

in Delaware—requires determining oxygen saturation at the wrist. *See* EX1001, Claim 8 (base Claim 1 recites “a tissue measurement site on a wrist of a user” and Claim 8 recites “oxygen saturation”). The parties have extensively litigated this issue across multiple forums, including the ITC and other IPRs. The same issue will also be litigated in the Delaware Litigation. Masimo’s expert has already provided opinions in the Delaware Litigation regarding reasonable expectation of success and objective indicia based on Apple documents and witness testimony. EX2002, ¶23. If this IPR were instituted, a large portion of this proceeding will be dedicated to obtaining evidence from the Delaware Litigation (because Apple has again refused to cooperate on cross-use of documents between the Delaware Litigation and the IPRs) and presenting substantially similar arguments regarding reasonable expectation of success and objective indicia.

Factor 4 weighs strongly in favor of denying institution because there is significantly more than a mere “possibility of conflicting decisions” that the Delaware Litigation and the Board would reach conflicting outcomes on the same issue of validity. *Fintiv* at 12. Rather, the Board has already come to an inconsistent decision on this issue in the past. During the ITC investigation, the ALJ found—based on Apple’s documents and engineer testimony—that there was no reasonable expectation of success in determining oxygen saturation at the wrist and that Apple’s engineers were skeptical that it could be done. EX2043, 219-220. The ALJ came

to that conclusion after receiving all of the evidence, including hearing live testimony from Apple's engineers, and evaluating their credibility. Yet, in IPR2022-01291 and -01465, the Board directly disagreed with the ALJ's original findings.⁷ See EX2035, 102 ("We also disagree with the ITC's conclusion that Apple's engineers express[ed] skepticism regarding the implementation of pulse oximetry *in a wrist-worn device.*") (emphasis in original). Thus, similar claims of a related patent have already been held valid in one forum and invalid in another. Instituting this Petition will only compound the inconsistencies.

E. Factor 5: The Delaware Litigation Involves the Same Parties

The fifth factor weighs against institution because the Petition and Delaware Litigation involve the same parties. See, e.g., *Supercell OY v. Gree, Inc.*, PGR2020-00039, Paper 14 at 18 (PTAB Sept. 14, 2020).

F. Factor 6: Other Considerations Favor Denying Institution

Several considerations under Factor 6, including the weak merits, Apple's lack of candor towards the Office and gamesmanship all justify denial of institution.

First, the Petition fails to present a compelling, meritorious challenge. The Petition presents the same Sarantos-Shie obviousness arguments that the Board

⁷ Masimo is appealing the Board's incorrect findings and conclusions in IPR2022-01291 and -01465.

previously rejected in IPR2022-01465 for not demonstrating a motivation to combine. *See* EX2036, 142–147. The Petition offers no compelling reason to depart from the Board’s prior decision with regard to Grounds 1B, 1E, 1F and 1H which are based on the same Sarantos-Shie combination.

Further, Apple presents no compelling challenge based on Sarantos *without* Shie in Grounds 1A, 1C, and 1D. In IPR2022-01465, Apple and Dr. Anthony, the same expert here, argued that it would have been obvious to “use the light shape changing material of Shie” in Sarantos. EX2036, 139. Thus, Apple’s prior position acknowledged that Sarantos did not teach or suggest the light shape changing material required by Claim 1 (Element 1.2) of the ’159 Patent. As explained herein, Sections III.A. and V.A., Apple’s unsupported position in this case fails to demonstrate its contrary position here, that Sarantos now discloses a “light shape changing material.” Nor does Apple explain why its contradictory position should be accepted. Grounds 1A, 1C and 1D therefore fail to present a compelling, meritorious challenge.⁸ With regard to Ground 1G, as explained below, Section V.B., Apple fails to address Limitation [14.2]. Thus, the Petition is not “sufficiently strong to override the concerns about duplication of effort by the Board and the

⁸ Grounds 1C and 1D rely solely on Sarantos for Element [1.2]. *See* Pet., 44, 46.

district court.” *Immersion Sys. LLC v. Midas Green Techs., LLC*, PGR2021-00104, Paper 15 at 16-17 (Jan. 31, 2022).

Second, Apple’s conduct in this and related proceedings demonstrates a lack of candor towards the Board that justifies denial of institution. As discussed above, Apple has ***repeatedly*** levied objectively false allegations against Masimo, despite the fact that its attorneys were on notice that similar statements were false. *See supra* Section II.A. Under the Board’s rules, Apple’s misrepresentation of the facts can justify dismissal of the petition. *See* 37 C.F.R. § 42.12(a)–(b). Given the repeated pattern of conduct, such a dismissal is warranted here.

In related IPRs against the related ’745 Patent, Apple also misinformed the Board regarding reasonable expectation of success for determining oxygen saturation at the wrist and related objective indicia of nonobviousness.⁹ Specifically, in IPR2022-01291, Masimo presented Apple engineer testimony and engineering documents demonstrating that a POSITA would not have had a reasonable expectation of success in determining oxygen saturation at the wrist as of the July 2015 priority date (the same priority date for this related ’159 Patent). *See*

⁹ If instituted, this IPR will involve the same issue because Claim 8 of the ’159 Patent, like Claims 9 and 18 of the ’745 Patent, recites oxygen saturation determinations at the wrist.

EX2035, 70–107. In response, Apple argued that Apple’s “engineers did not testify at the ITC from the perspective of a POSITA, and indeed, ***there is no evidence*** that the engineers ***were even aware*** (as a POSITA would have been) of the trove of prior art references and studies that had established the feasibility of determining oxygen saturation at the wrist before the ’745 Patent.” EX2039, 20. In response, the Board found “the engineers were not asked to address the specific issue presented here, which is whether a person of ordinary skill in the art would have reasonably expected success in determining oxygen saturation at the wrist at all.” EX2035, 102.

But Masimo has identified Apple’s own documents showing that Apple’s representation was false.¹⁰ Masimo has identified these documents with specificity to Apple’s Delaware Litigation counsel. Despite its duty of candor in this IPR, Apple has refused to permit the use of these documents in this IPR.

Moreover, as explained below, Apple did not inform the Board that Apple and Masimo agreed on a claim construction for the term “second shape” in the Delaware Litigation. *See supra* Sections III.A. Apple’s obviousness arguments based on Sarantos fail to disclose the limitation as the parties agreed it should be construed.

¹⁰ Apple made that representation at a time when Masimo was no longer permitted to introduce new evidence into the record. *See* EX2040, 3 (denying Masimo’s request to submit new evidence with sur-reply).

See infra Section V.A. Apple’s inconsistent positions between the Delaware Litigation and this IPR amounts to gamesmanship that weighs in favor of denial. *See Kiosoft Techs., LLC v. Payrange, Inc.*, IPR2021-00086, Paper 12 at 14–16 (Mar. 22, 2021) (Petitioner’s inconsistent claim construction positions between district court and IPR weighs in favor of denial under *Fintiv* factor 6).

In sum, Apple’s repeated conduct of presenting false allegations and contradicting arguments between the Delaware Litigation and this IPR demonstrate a lack of candor towards the Board. Factor 6 therefore weighs against institution. Under the totality of the circumstances, the Board should exercise its discretion to deny institution.

V. APPLE DOES NOT DEMONSTRATE A REASONABLE LIKELIHOOD OF SUCCESS ON THE MERITS

A. Ground 1A: Sarantos Does Not Disclose a Material Configured to Change the Shape of Light

Apple argues in Ground 1A that Sarantos alone discloses light that shines through a window that “may be made from translucent or transparent material.” Pet., 9–10. Apple also argues that “light shining through translucent or transparent material would change in shape due to the refractive properties of translucent and transparent materials.” Pet., 9-10; EX1003, ¶35. But Apple fails to show a change in shape that is not just a change in size. EX2002, ¶¶67–68, 70–71.

And in the file history, Masimo expressly distinguished the claimed “material” from a lens that merely changed the size of a shape of light during prosecution. *See supra* Section III.B.; EX2002, ¶69. Thus, the parties previously agreed that the claimed “second shape” must be a “shape different from the first shape (not just a change in size).” Neither Apple nor its expert show that Sarantos’ “window” would have changed the shape of light. EX2002, ¶¶70–71. Apple offered no evidence even addressing the change in shape that is not simply a change the size of the first shape. *See id.*

Apple’s Ground 1A therefore fails to demonstrate that the “second shape” is different than the “first shape” as required by the claims. EX2002, ¶72. Accordingly, Apple fails to demonstrate that Claims 1–5, 7–9, and 12–13 would have been obvious based on Sarantos. *Id.* at ¶73.

B. Grounds 1C, 1D, and 1G Fail to Demonstrate the Claims Would Have Been Obvious for the Same Reason as Ground 1A

Grounds 1C and 1D address Claims 2 and 3 which depend from Claim 1. Thus, Grounds 1C and 1D fail to demonstrate obviousness of any claims for at least the reasons Ground 1A fails. EX2002, ¶74.

Ground 1G addresses Claims 14, and 16–25, which depend from Claims 14 and 19. EX2002, ¶75. Claim 19 recites the same “material configured to change the first shape into a second shape” limitation as in Claim 1. EX2002, ¶80. Apple cross-references its Claim 1 argument for this limitation in Claim 19. Pet., 59. Thus,

Apple fails to demonstrate obviousness of Claims 19-25 for at least the reasons Ground 1A fails. *See* Pet., 59; EX2002, ¶¶80–81.

Claim 14 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.” (Apple refers to this as element [14.2]). However, Apple offered no argument for this limitation in Ground 1G that differs from its other arguments. Pet., 57–58. Instead, Apple argued, “Sarantos-Utter provides, or at least renders obvious, elements [14.0]-[14.6] for the reasons discussed in Ground 1B.” *Id.*; EX2002, ¶76. But that argument fails for at least two reasons.

First, Ground 1B is directed to a combination of Sarantos with Shie, not Sarantos alone. *See* Pet., 40–41 (arguing Limitation [14.2] is met by a diffuser from Shie combined with Sarantos); EX2002, ¶77. Anthony’s declaration also confirms that Apple’s reference to “Ground 1B” was not a typo because the cited paragraphs of his declaration also refer to his argument in Ground 1B. *See* EX1003, ¶171 (referencing “element [14.2] in Ground 1B, above”); EX2002, ¶77.

Second, even if Apple and Anthony meant to refer to Ground 1A, Ground 1A did not address Claim 14 and did not explain how Sarantos’ window is “a diffuser configured to be positioned between the plurality of optical sources and a tissue measurement site....” EX2002, ¶78. Accordingly, Ground 1G fails to present any

argument regarding Limitation [14.2]. *Id.* Ground 1G therefore fails to show that Claim 14 and dependent Claims 16–18 would have been obvious. *Id.* at ¶79. Ground 1G therefore also fails to show the unpatentability of any claims. *Id.* at ¶82.

C. Grounds 1B, 1E, 1F, and 1H Fail to Demonstrate the Claims Would Have Been Obvious

Apple’s Grounds 1B, 1E, 1F, and 1H present the same obviousness arguments that Board found “fail[ed] to provide a persuasive motivation for combining Sarantos and Shie” when Apple challenged similar claims of the related ’745 Patent. *See* EX2036, 137-152. The Petition similarly fails to demonstrate a motivation to combine for the same reasons. EX2002, ¶83. Additionally, Apple also fails to demonstrate that the proposed combination discloses the required change in the shape of light. *Id.* at ¶84.

1. Apple Fails to Demonstrate that the Combination of Sarantos and Shie Changes the Shape of Light as Claimed

Claims 1 and 19 require emitters to emit light in a “first shape” and a “material configured to change the first shape into a second shape.” For the substantially identical limitation in the related ’745 Patent, Apple represented that “the relevant comparison is between the shape of light when it reaches the [material] and the shape of light when it emerges from the [material].” EX2074, 65:20-23. But Apple did not perform that comparison here. Instead, Apple again fails to demonstrate that its

proposed combination of Sarantos and Shie would change a “first shape” of light into a “second shape.” EX2002, ¶84.

Apple *still* fails to identify what the Sarantos-Shie combination entails. EX2002, ¶85. In previous IPRs challenging the ’745 Patent, Apple failed to identify what specific optical element from Shie would purportedly be combined with Sarantos. Rather, Apple argued in its IPR2022-01465 Reply that “The proposed Sarantos-Shie relies on Shie’s general teaching of an optical element that shapes the light output, *not any of Shie’s particular optical elements.*” IPR2022-01465, Paper 39 at 24; EX2039, 25 (same argument in Apple’s IPR2022-01291 Reply). The Board noted that this lack of clarity made it “impossible to evaluate the merits” of Apple’s arguments, particularly regarding a motivation to combine Sarantos with Shie. EX2036, 143-144.

The present Petition suffers from the same flaw. Rather than presenting a combination of Sarantos with a particular optical element from Shie, Apple presents obtuse arguments that seemingly combine Sarantos with a hodgepodge of optical elements without further reasoning. For example, on page 30, Apple refers to “an optical element in the form of a cylindrical lens.” Pet., 30. On page 31, Apple refers to “Various ‘optical elements’ such as lenses.” Then, on page 32, Apple asserts that “Shei [sic] provides *numerous examples* of various lens shapes and structures that provide the disclosed light shaping functionality,” and cites numerous different

optical elements described in Shie’s Figures 1a-8b. Pet., 32 (citing EX1007, Figs. 1a-8b) (emphasis added). But those figures encompass at least a Fresnel lens, two different cylindrical lenses, a parabolic convex lens, a fiber optic cable, a prismatic element, a polarizer, a wave guide filter grating, and a parabolic concave lens. EX1007 at 4:49-5:17 (describing Figs. 1a-8b); EX2002, ¶85. Finally, on pages 36–38, Apple refers to “a parabolic convex lens,” a “lightpipe,” a “cylindrical lens,” and a “Fresnel lens” that “may be formed in any number of shapes, configurations and contours.” Pet., 36–38.

Apple’s lack of clarity regarding the Sarantos and Shie combination warrants denying institution. 35 U.S.C. § 312(a)(3) (A petition “may be considered only if...the petition identifies, in writing and 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”); 37 C.F.R. § 42.104(b)(4) (requiring petition to “specify where each element of the claim is found in the prior art patents or printed publications”); *see also Trend Micro, Inc. v. Open Text Inc.*, IPR2023-00692, Paper 8 at 28 (Nov. 6, 2023) (denying institution and explaining “the Board tends to reject a ‘pick-and-choose’ approach to the presentation of evidence, which is ‘challenging to follow and makes it difficult to piece together in order to understand Petitioner’s proposed combination or modification.’”).

Moreover, Apple fails to demonstrate that Sarantos when combined with some unspecified optical element from Shie, would change the shape of light as claimed by the '159 Patent. EX2002, ¶86. Apple argues that a “diffuser includes a ‘plurality of surface micro-structures’ that ‘are designed to homogenize light passing through’ the diffuser ‘to produce a predetermined pattern of smoothly varying, non-discontinuous light exiting the’ diffuser.” Pet., 30; *see also id.* at 36 (relying on “light diffusing and shaping advantages”). But that merely describes light diffusion. EX2002, ¶86. A diffuser does not necessarily change the shape of light. *Id.* Indeed, the '159 Patent specification explains that a diffuser must be “*further* configured to define a surface area shape.” EX1001, 3:7–10; EX2002, ¶86. This is also reflected by Claim 18, which recites that the “diffuser” of Claim 14 “comprises a material configured to change the first shape into a second shape.” *Id.*; *see Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004) (“[T]he presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim.”). Indeed, the ITC previously came to the same conclusion. *See* EX2043, 190 n.71 (identifying same passage in '745 Patent as “indicat[ing] that light diffusion, in itself, does not necessarily provide changes in ‘shape.’”).

Apple also quotes various sections of Shie that vaguely refer to “shape the light” and “shaping.” *See* Pet., 36–37. But Shie’s vague references to “shape” and

“shaping” do not demonstrate that Sarantos and Shie would change in the shape of light (and not just change its size). EX2002, ¶87.

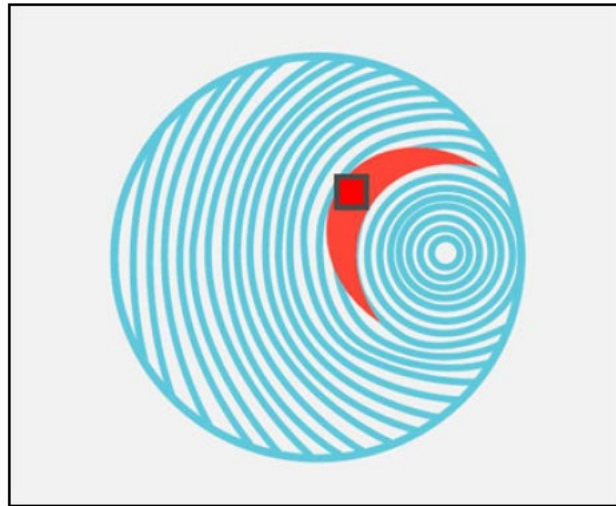
Apple also argues that a “parabolic convex lens,” a “lightpipe,” a “conventional cylindrical lens,” and a “Fresnel lens” would change the shape of light. Pet., 36–38. But Apple relies on speculation by its expert witness who is not qualified to predict how light interacts with particular optical elements and who conducted no testing to confirm his speculation. Pet., 37–38. Such speculation does not demonstrate a change in shape. EX2002, ¶¶88, 95. Apple also relies on descriptions in Shie of “shape the light into a narrow distribution” or “provide a broader light distribution pattern,” but those descriptions describe changing the size, not the shape, of light. Pet., 37 (citing EX1007, 7:8-27); EX2002, ¶89. Apple also does not explain how a lightpipe makes any sense in Sarantos’ physiological monitoring device. EX2002, ¶90. Apple also relies on a passage stating that in a cylindrical lens, “a beam of light entering the lens remains unaffected in its width and is spread by the cylindrical lens contour in a direction perpendicular to its width.” Pet., 37 (citing EX1007, 1:20-24). That passage describes how the light would be projected at a distance away from the lens, but not how the light would appear when it emerges from the lens, as required by the claims. EX2002, ¶¶91–92. Apple also argues, based on its expert’s testimony, that a Fresnel lens would change the shape of light. Pet., 37–38. But Anthony cited no such evidence in support.

EX1003, ¶111. Instead, he relied on references discussing microlens diffusers, not Fresnel lenses.¹¹ See EX1003, ¶ 111 (citing EX1053); EX2002, ¶¶93–94.

Apple’s unsupported arguments contradict evidence and arguments that Apple presented in the ITC and in the Delaware litigation. For example, Apple relies on Dr. Anthony’s testimony that “a circle shaped Fresnel lens with diffusing microstructures would change Sarantos’s square shaped light beam ... entering the Fresnel lens into a circle shaped light beam exiting the lens.” EX1003, ¶ 111; Pet., 38. But Anthony opined that Sarantos has a “square shaped light beam” based on “square shaped light-emitting devices 1810” in Sarantos. *Id.* Apple’s and Anthony’s IPR arguments directly contradict Apple’s and its litigation expert’s arguments in the ITC and in Delaware for at least two reasons. **First**, in the ITC, Apple relied on its expert to argue that light from a square LED “changes from a square to a circular shape without passing through any material....” EX2050, 160, 166-168; EX2002, ¶95. **Second**, Apple argued in the ITC that a circular Fresnel lens would change the

¹¹ Apple argued that the accused Apple Watches do not infringe because the identified optical material does not change the shape of light. See, e.g., EX2043, 183–187.

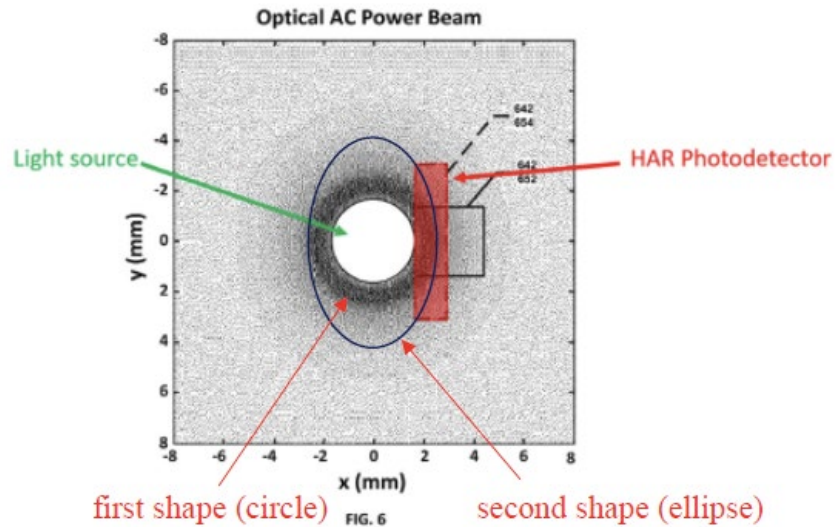
shape of light into a crescent, not into a circular shape.¹² Specifically, Apple’s ITC expert presented the following illustration of how he believed a Fresnel lens would change the shape of light into a crescent shape, shown in red below:



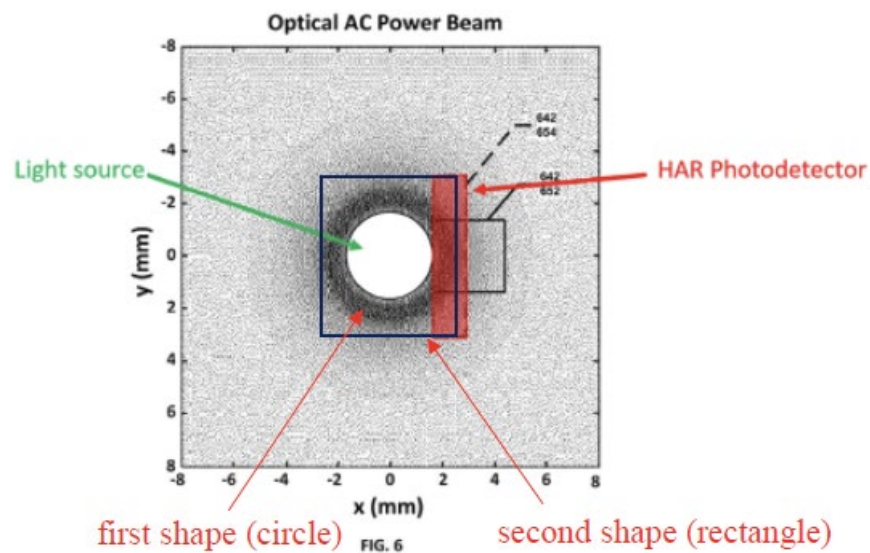
EX2042, 220 (reproducing demonstrative from Apple’s ITC expert’s testimony); EX2002, ¶95. Apple’s own experts fundamentally disagree.

Additionally, Apple’s expert declaration confirms that Apple and Anthony misapplied the “first shape” and “second shape” limitations to the prior art. Anthony’s declaration includes the following two diagrams showing how he thinks an alleged “first shape” in Sarantos would change into two different “second shape[s].” EX1003, ¶102.

¹² Apple’s crescent-shape theory in the ITC was also unsupported by evidence. EX2002, ¶95.



APPLE-1005, FIG. 6 (annotated)



APPLE-1005, FIG. 6 (annotated)

Id. (annotating EX1005, Fig. 6). In both of the annotated diagrams, Anthony identified a dark ring as the “first shape (circle).” Anthony also identified his own drawings of an ellipse and a rectangle as the alleged “second shape.” But none of

those are the claimed “first shape” and “second shape” recited in Claim 1 and 19.

EX2002, ¶¶96, 103

Claims 1 and 19 recite “a plurality of emitters configured to emit light in a first shape” and a “material configured to change the first shape into a second shape by which the light ... is projected towards [a surface of] the tissue measurement site.” Thus, the “first shape” is the shape received by the material and the “second shape” is the shape exiting the material. EX2002, ¶103; *see also* EX2074 at 65:18–23 (Apple arguing in ITC, “the requirement is to change the first shape into a second shape at the material, at the material. So the relevant comparison is between the shape of the light when it reaches the MLA and the shape of the light when it emerges from the MLA.”).

In contrast, the dark ring in Sarantos’ Figure 6 is *not* the “first shape” of light emitted by Sarantos’ light emitter. EX2002, ¶103. Rather, Sarantos explained the dark ring represents the intensity of light that is reflected *out* of the user’s skin as a result of light shining into the skin at the center of the region. *See* EX1005, 6:5-8 (“FIG. 6 depicts a simulation of the AC intensity or power of light that is emanated within a 16 mm by 16 mm region of skin as a result of light that is shined into the skin at the center of the region....”), 10:51-11:3; EX2002, ¶103. It is therefore not the claimed “first shape.” *Id.*

For the same reason, neither the ellipse nor rectangle that Anthony drew on the figure are the “second shape” of light recited in the claims. EX2002, ¶103. Nothing in the annotated figure shows the “second shape” of light projected towards the tissue measurement site. *Id.* Apple therefore does not demonstrate that the prior art discloses Claims 1 and 19 because what its expert identified as the “first shape” and “second shape” are not the claimed “first shape” and “second shape.” *Id.* Accordingly, Apple does not demonstrate that the Sarantos-Shie combination discloses Claims 1 and 19 and their dependent claims.

2. Apple Fails to Demonstrate a Motivation to Combine Sarantos and Shie

The Board previously found in IPR2022-01465 that Apple failed to demonstrate a motivation to combine Sarantos and Shie. *See* EX2036, 143-144. This Petition presents the same arguments and offers no reason to depart from the Board’s prior conclusions. EX2002, ¶97.

As Masimo noted previously, a coherent motivation to combine supported by contemporaneous evidence is necessary because Sarantos and Shie have nothing to do with each other. Sarantos does not discuss placing an optical material between the LED and the user’s skin to change the shape of light. EX2002, ¶98. And Shie has nothing to do with physiological sensors at all. *Id.* There is no reason why a POSITA would have looked to Shie. *Id.*

Apple argues that a POSITA would have allegedly been motivated to combine Sarantos with some unspecified optical element from Shie for three reasons: (1) “to more precisely direct the light emitted toward the tissue so as to increase power efficiency,” (2) to “direct[] light towards a larger area to decrease irregular readings caused by moles or other aberrations on the skin,” (3) “to obscure appearance of the light source from a user.” Pet., 32-35.¹³ But just as in IPR2022-01465, the Petition fails to identify *which* optical element from Shie would provide those benefits and *how*. EX2002, ¶¶99–100. Instead, the Petition leaves the combination vague by arguing that “Shei [sic] provides numerous examples of various lens shapes and structures that provide the disclosed light shaping functionality.” Pet., 32 (citing numerous optical elements in Shie’s Figs. 1a-8b); EX2002, ¶100.

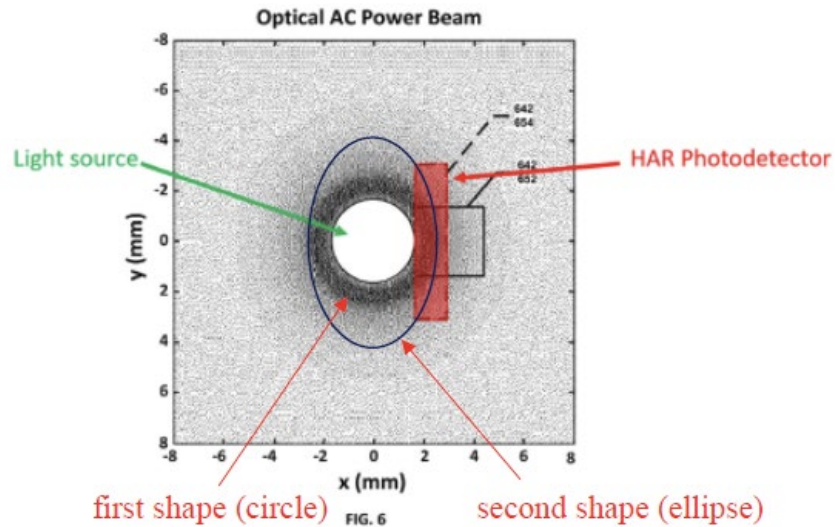
As Masimo previously explained, and the Board agreed, establishing motivation to combine Sarantos and Shie and a reasonable expectation of success requires a “clear, evidence-supported account of the contemplated workings of the combination.” *Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017); EX2036, 144. The Petition’s vague and nonspecific arguments are

¹³ Apple also argues the modification would enable the designers to “tune the light intensity to provide the most accurate physiological parameter detection,” which appears to be a variation of arguments (1) and (2). Pet., 34.

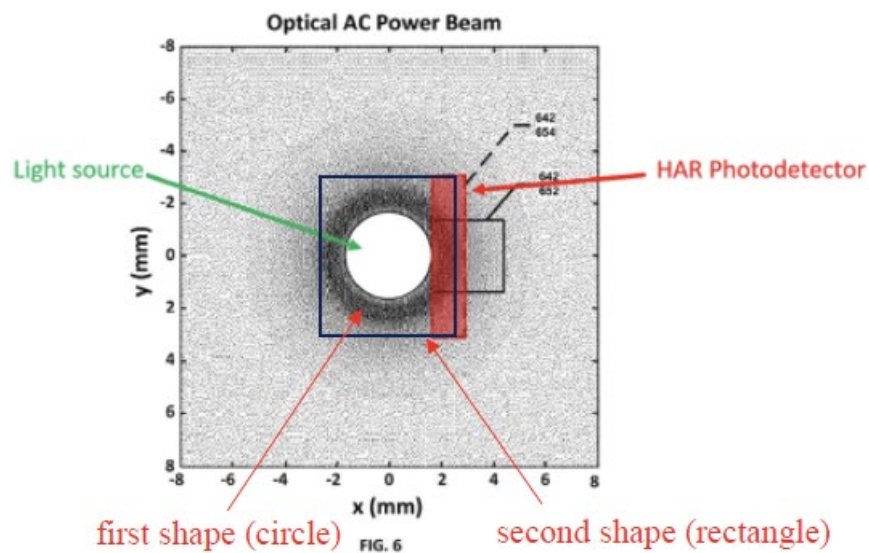
insufficient. As the Board explained: “[I]t is impossible to evaluate the merits of these assertions without first identifying a particular lens structure for use in Sarantos’s Figure 22 sensor. We reject the notion that *any* light shape changing material would have achieved these three benefits in Sarantos’s Figure 22 sensor.” EX2036, 143–144. That conclusion is equally applicable to the same arguments presented here. EX2002, ¶100.

Moreover, Anthony’s declaration does not cure the deficiencies in the Petition. Anthony does not identify any specific optical element in Shie that could provide all three purported benefits. *See* EX1003, ¶¶99–102; *see also* EX2002, ¶102. Moreover, it is unclear how *any* optical element can provide both purported benefits of “precisely directing the light ... closer to the photodiodes” and “directing light towards a larger area.” *Compare* Pet., 32–33 *with id.* at 33–34. Those two motivations describe opposite effects. EX2002, ¶101.

Anthony’s declaration includes the following two diagrams showing how he thinks an alleged “first shape” would change into two different “second shape[s].” EX1003, ¶102.



APPLE-1005, FIG. 6 (annotated)



APPLE-1005, FIG. 6 (annotated)

Id. (annotating EX1005, Fig. 6). But as discussed in the preceding section, neither of these annotated diagrams show the “first shape” or “second shape.” *See supra* Section V.C.1; EX2002, ¶103. Anthony’s faulty motivation to combine reasoning

also relies on his misapplication of the claim terms to the prior art. EX2002, ¶103.

Accordingly, none of Apple's grounds presents a reasonable likelihood of success on the merits. EX2002, ¶¶104–105. The Board should therefore deny institution.

VI. RESERVATION OF RIGHTS

Should the Board decide to institute an *inter partes* review, Masimo reserves all rights to make additional arguments in and present claim constructions and evidence with its Patent Owner Response. Masimo's silence on any particular claim or limitation at this time is not a concession that the Petition's discussion of that claim or limitation is properly based. Patent Owner also reserves the right to dispute the level of ordinary skill in the art if the Board decides to institute *inter partes* review. Accordingly, Masimo reserves the right to submit additional or alternative arguments of patentability, and nothing in this Preliminary Response acts or should be construed to act as an admission, acquiescence, or estoppel on the merits of the Petition.

VII. CONCLUSION

For the reasons explained above, Masimo respectfully requests that the Board deny institution.

IPR2024-00244

Apple Inc. v. Masimo Corp.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: April 11, 2024

/ Brian C. Claassen /

Brian C. Claassen (Reg. No. 63,051)

Customer No. 64,735

Attorney for Patent Owner

Masimo Corporation

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), Counsel for Patent Owner Masimo Corporation hereby certifies that this document complies with the type-volume limitation of 37 C.F.R. § 42.24(b). According to Microsoft Office Word 2010's word count, this document contains approximately 10,625 words, including any statement of material facts to be admitted or denied in support, and excluding the table of contents, table of authorities, mandatory notices under § 42.8, exhibit list, certificate of service or word count, or appendix of exhibits or claim listing.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: April 11, 2024

/ Brian C. Claassen /

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Attorney for Patent Owner
Masimo Corporation

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to 37 C.F.R. § 42.6(e) and with the agreement of counsel for Petitioner, a true and correct copy of **PATENT OWNER PRELIMINARY RESPONSE AND EXHIBITS 2001-2043, 2050, 2056-2057, 2072 and 2074** are being served electronically on April 11, 2024, to the e-mail addresses shown below:

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Dated: April 11, 2024

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