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Filed on behalf of:

Patent Owner Masimo Corporation
By: Brian C. Claassen (Reg. No. 63,051)
Daniel Hughes (Reg. No. 76,592)
Irfan A. Lateef (Reg. No. 51,922)
Jarom D. Kesler (Reg. No. 57,046)

KNOBBE, MARTENS, OLSON & BEAR, LLP
2040 Main Street, Fourteenth Floor
Irvine, CA 92614
Tel.: (949) 760-0404
Fax: (949) 760-9502
E-mail: AppleIPR507-2@knobbe.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

MASIMO CORPORATION,
Patent Owner.

Case IPR2024-00294
U.S. Patent 10,736,507

PATENT OWNER PRELIMINARY RESPONSE

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2001	R. James Duckworth, Ph.D. Curriculum Vitae
2002	Expert Declaration Of R. James Duckworth, Ph.D.
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 <i>Inter Partes</i> Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01271, Paper 15 (PTAB Jan. 24, 2023)
2005	Decision Denying Institution of <i>Inter Partes</i> Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01272, Paper 16 (PTAB Jan. 24, 2023)
2006	Decision Denying Institution of <i>Inter Partes</i> Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01273, Paper 15 (PTAB Jan. 24, 2023)
2007	Decision Denying Institution of <i>Inter Partes</i> Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01274, Paper 15 (PTAB Jan. 24, 2023)
2008	Decision Denying Institution of <i>Inter Partes</i> Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01275, Paper 15 (PTAB Jan. 30, 2023)
2009	Decision Denying Institution of <i>Inter Partes</i> 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 <i>Inter Partes</i> Review (Public), <i>Apple Inc. v. Masimo Corp.</i> , No. 22-1378-MN-JLH (D. Del. Jan. 10, 2024), D.I. 457

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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	Joint Claim Construction Briefing (August 31, 2023) in <i>Apple Inc. v. Masimo Corp et al.</i> , C.A. 22-1378-MN-JLH
2030	Excerpts of the Transcript of the Deposition of Steven Warren in <i>Apple Inc. v. Masimo Corp et al.</i> , C.A. 22-1378-MN-JLH
2031	Excerpts of the Rebuttal Expert Report of Steven Warren in <i>Apple Inc. v. Masimo Corp et al.</i> , C.A. 22-1378-MN-JLH
2032	Blood Oxygen App On Apple Watch, Apple (retrieved March 12, 2024)
2033	CC1100 Single Chip Low Cost Low Power RF Transceiver, Texas Instruments (June 20, 2006)

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2034	Exhibit D-1 to Apple's June 8, 2023 Initial Invalidity Contentions, <i>Apple Inc. v. Masimo Corp.</i> , No. 22-1378-MN-JLH (D. Del.)
2035	Exhibit D-3 to Apple's June 8, 2023 Initial Invalidity Contentions, <i>Apple Inc. v. Masimo Corp.</i> , No. 22-1378-MN-JLH (D. Del.)
2036	Excerpts of Masimo's June 22, 2023 Responses to Apple Inc.'s Initial Invalidity Contentions, <i>Apple Inc. v. Masimo Corp.</i> , No. 22-1378-MN-JLH (D. Del.)

Pursuant to 35 U.S.C. § 313, 37 C.F.R. § 42.107 and the Notice of Filing Date Accorded to Petition, dated December 28, 2023 (*see* Paper 4), Masimo Corporation (“Masimo”) hereby timely submits its Preliminary Response to the Petition for *Inter Partes* Review of U.S. Patent No. 10,736,507 (“the ’507 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 that employs 6,300 people worldwide and has annual revenues exceeding one billion dollars. Masimo technology is used in clinical care to monitor over 200 million patients 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.¹

¹ 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-IPR2022-01276); *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).

Apple's Petition arises from parallel litigation with Masimo before the Delaware district court ("Delaware Litigation"). Apple was not, historically, a company that had any involvement in physiological monitoring devices. 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 products, Apple began poaching Masimo's employees, one after another. The poached employees included Chief Technical Officer Marcelo Lamago—an inventor of three Masimo patents that Apple was recently found to infringe. Lamago took Masimo's sensor design knowledge with him to Apple. And in the Delaware Litigation, Masimo accuses Apple's Watches of infringing Masimo's patented technology, including key features disclosed and claimed in the '507 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 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 chose not to provide a *Sotera* stipulation, and in the Delaware Litigation, Apple relies on inconsistent claim construction positions and asserts similar references to the primary reference as the Petition. Thus, there are severe concerns about inconsistent results and duplicative

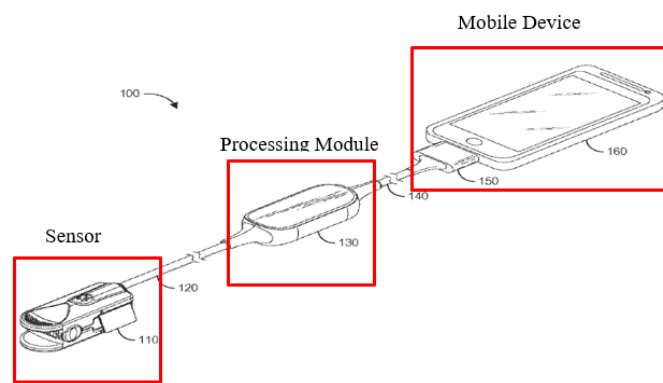
efforts. Apple also fails to show any material error during prosecution. Discretionary denial is thus strongly favored under *Fintiv*.

Institution should also be denied because the Petition lacks merit. Apple takes inconsistent claim construction positions here and in the district court, and fails to even present patentability challenges under the constructions it asserts are correct. Additionally, limitations of the independent claims are not disclosed and a POSITA would not have been motivated to make the asserted modifications/combinations or reasonably expected such modifications/combinations to succeed.

II. BACKGROUND

A. The '507 Patent

The '507 Patent is directed to a patient monitor that connects to mobile devices. EX1001, 1:20-25. In some embodiments, the patient monitor includes three components: (1) a sensor that connects to (2) a processing module that then connects to (3) a mobile device. *Id.*, FIG. 1A, 3:57-62, 4:65-5:14. Figure 1A shows this configuration:



Id., FIG. 1A. The processing module receives signals from the sensor, processes the signals, calculates measurement values, and then sends them to the mobile device. *Id.*, 4:65-5:14. The mobile device contains “software applications for managing the data and sensor.” *Id.*, 10:43-46. These applications can display the measurement values on the mobile device and provide a user interface for interacting with the application. *Id.*, 10:35-46. The ’507 Patent explains that the processing module can comprise one or more processing boards that perform the functions of the module, such as an analog processing board and a digital processing board. *Id.*, FIG. 1C, 9:1-6, 9:62-65.

The inventions claimed in the ’507 Patent provide distinct advantages over the prior art. EX2002, ¶59. As described in the ’507 Patent, “[m]obility and ease of use are key factors in the health care industry because they correlate to efficient, rapid patient care as well as enable patients to participate in their own care.” EX1001, 2:14-16. The claimed inventions allow for accurate measurements of SpO₂ values outside of a hospital environment using a mobile device, in part by using a separate processing board. As the specification explains, a processing board can provide more accurate SpO₂ measurement values to the mobile computing device, compared to using the mobile computing device itself to compute the values. EX2002, ¶59. For example, the specification explains “the board or card can include one or more signal processors and associated memory, I/O, and the like to provide

monitored physiological data to applications executing on traditional smartphone processing environments, such that board or card handles advanced signal processing and the smartphone displays parameter data.” *Id.*, 2:29-38; *see also id.*, 9:47-65. Using a dedicated processing board also improves power savings and decreases measurement latency when compared to using a processor on a mobile device. *Id.*, 6:38-7:2. This innovative system allows for more comprehensive patient care than was previously available, for example by allowing a patient’s blood oxygenation values to be continuously monitored to identify a risk of hypoxemia prior to a surgery. *Id.* 2:58-3:5; *see also* EX2002, ¶59.

B. Introduction To Independent Claims

The ’507 Patent has two independent claims: Claim 1 (system) and 13 (method). Claim 13 is illustrative (but not representative) of some relevant features claimed in the ’507 Patent. Petitioner has numbered the claim limitations (*See e.g.*, Pet. vii-xii). Masimo has adopted Petitioner’s numbering system for ease of reference. Claim 13 recites:

[13pre]	A computer-implemented method of informing a user of mobile measurement of oxygen saturation (“SpO2”), the computer-implemented method comprising:
[13a]	outputting, from an optical sensor of an SpO2 measurement system, one or more signals responsive to light from a light source attenuated by tissue of the user at a measurement site, said one or more signals responsive to an oxygen saturation of said tissue; and
[13b]	via a processing board of the SpO2 measurement system, the processing board in data communication with the optical sensor and a mobile computing device including a display:

[13c]	receiving said one or more signals from the optical sensor;
[13d]	processing said one or more signals to generate the SpO2 measurement values; and
[13e]	outputting the SpO2 measurement values to the mobile computing device; and
[13f]	via an application configured to execute commands on the mobile computing device:
[13g]	generating a graphical user interface having a plurality of display portions;
[13h]	displaying, in at least one portion of the plurality of display portions, a representation of a physiological parameter of a plurality of physiological parameters comprising at least the SpO2 measurement values; and
[13i]	displaying, in a different portion of the plurality of portions, a plurality of user inputs configured to allow the user to interact with at least one of the plurality of display portions or the application.

III. LEVEL OF ORDINARY SKILL IN THE ART

A POSITA at the time of the '507 Patent would be a person with a working knowledge of physiological monitoring technologies and/or optical sensors used in physiological monitoring technologies. Ex2002, ¶35. The person would have had a Bachelor of Science degree in an academic discipline emphasizing the design of electrical, computer, software, or optical technologies, in combination with training or at least one to two years of related work experience with capture and processing of data or information, or designing and using optical sensors or systems, including but not limited to physiological monitoring technologies. *Id.* 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.*

Apple proposes a different level of skill that requires no coursework, training, or experience with optics or optical physiological sensors and focuses on general physiological monitoring rather than optical sensors. Pet., 7; EX1003, ¶¶32; EX2002, ¶¶36-37. However, Apple does not contend that the level of skill in the art affects the patentability of the challenged claims. *Id.*; See EX1003, ¶¶32-33. While Masimo submits that its level of skill is more accurate, for at least the reasons set forth below, Masimo agrees that the claims' patentability is confirmed regardless of the level of skill. See EX2002, ¶39.

IV. OVERVIEW OF THE ALLEGED PRIOR ART

A. Mendelson (EX1011)

All of Petitioner's unpatentability grounds (Grounds 1A-2I) depend on Mendelson. Pet. 1-2. The Mendelson publication, "A Wearable Reflectance Pulse Oximeter for Remote Physiological Monitoring" authored by Mendelson, Duckworth², and Comtois, discloses a pulse oximeter "for remote physiological monitoring." EX1011, 1; EX2002, ¶60. The Mendelson system includes three components: (1) a "Sensor Module;" (2) a "Receiver Module;" and (3) a PDA. EX1011, 2; EX2002, ¶60. The "Sensor Module" generates digital data and then wirelessly transmits information in packets to the Receiver Module which conducts

² Dr. Duckworth submits his expert opinion herewith that none of Petitioner's grounds show the unpatentability of any challenged claim. See EX2002, [47]-[48].

further processing. EX1011, 2; EX2002, ¶60. The Receiver Module transmits information to the PDA, which then generates displays based on the information. EX1011, 2-3; EX2002, ¶60.

B. D'Angelo (EX1007)

D'Angelo is a conference paper allegedly published in September 2011. D'Angelo describes a system for interfacing sensor nodes and smartphones in a manner to allow for the logging of continuously measured data when a smartphone is not currently available. *See* EX1007, 2-3; EX2002, ¶61. D'Angelo does not discuss any particular sensor, and details only the use of a management device, that draws power from a smartphone. EX2002, ¶61.

C. Moon (EX1010)

Moon is a December 23, 2010, publication of a patent application directed to a body-worn pulse oximeter. EX1010, 1. Moon describes a system including an oximetry probe and a wrist-worn transceiver, configured to monitor blood oxygenation, blood pressure, motion, posture, and activity level. *See* Ex1010, Abstract; EX2002, ¶62.

D. Additional References

Apple includes various additional combinations of references in order to allege the claims of the '507 Patent are obvious. These references include Goldsmith, Ording, Kiani, and Tran. *See* Pet., 1-2.

V. LEGAL STANDARD

“In an IPR, 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). An IPR may be instituted only if “the information presented in the petition ... shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). The Board is not “free to adopt arguments on behalf of petitioners that could have been, but were not, raised by the petitioner during an IPR.” *In re Magnum Oil Tools, Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016). “The petitioner must instead articulate specific reasoning, based on evidence of record,” as set out in its petition “to support the legal conclusion of obviousness.” *Id.*, 1380. The Board “must base its decision on arguments that were advanced by a party.” *Id.*, 1381. The Board cannot “decide unpatentability theories never presented by the petitioner.” *Id.*

To prevail on any anticipation ground, a petitioner must show that a single “prior art reference ... disclose[s] all elements of the claim within the four corners of the document ... ‘arranged as in the claim.’” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (citation omitted).

To prevail on any obviousness ground, a petitioner may not simply identify individual claim components—it must show why a “skilled artisan, with no

knowledge of the claimed invention, would have selected these components for combination in the manner claimed.” *In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000). The petitioner must support even simple modifications to a reference with some motivation to make the change. *See In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

In addition, a petitioner cannot rely on “mere conclusory statements.” *Magnum Oil*, 829 F.3d at 1380. Rather, the petitioner must set forth “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418-19 (2007) (internal citation omitted). Similarly, a petitioner cannot simply rely on an expert’s unsubstantiated and conclusory opinions. *See* 37 C.F.R. § 42.65 (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); *Harmonic*, 815 F.3d at 1363 (Affirming that the petitioner failed to establish obviousness where expert testimony “add[ed] nothing beyond the conclusory statements in [the] petition.”).

An appropriate obviousness inquiry cannot involve even a “hint of hindsight.” *Star Sci., Inc. v. R.J. Reynolds Tobacco Co.*, 655 F.3d 1364, 1375 (Fed. Cir. 2011). A petitioner may not “simply retrace[] the path of the inventor with hindsight, discount[] the number and complexity of the alternatives, and conclude[] that the invention . . . was obvious.” *Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520

F.3d 1358, 1364 (Fed. Cir. 2008). Likewise, “[c]are must be taken to avoid hindsight reconstruction by using the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.” *In re NTP, Inc.*, 654 F.3d 1279, 1299 (Fed. Cir. 2011) (internal quotations omitted).

VI. CLAIM CONSTRUCTION

The Board should give the claims their ordinary and customary meaning, consistent with the specification, as a POSITA would understand them. 37 C.F.R. § 42.100(b); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (*en banc*). Before the District Court, Masimo explains that the claims have their plain meaning and thus require no construction. EX2029, 57-84. Masimo applies this same construction here. EX2002, ¶¶40-46.

Unlike Masimo, Apple presents inconsistent claim construction positions in the parallel proceedings. Before the district court, Apple argues that the disputed terms require the following express (and narrow) constructions: (1) “one or more signals” should be construed as referring to “raw detected signal(s);” and (2) that the preamble of Claim 13 of the ‘507 Patent is limiting and that the term “mobile measurement” in the preamble of the claims should be construed as meaning “measurement during motion.” EX2029, 29-30. Apple relies on these narrow constructions for noninfringement arguments. *See generally* EX2031. But here,

Apple did not even mention those constructions. Rather, Apple now seeks broader claim scope to support the Petition’s patentability challenges by arguing “no express constructions are required.” *Compare id. with* Pet., 7-8. Apple thus violates a fundamental tenet of patent law—the claims “must be interpreted and given the same meaning for purposes of both validity and infringement analysis.” *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343 (Fed. Cir. 2001). As explained below, Apple’s inconsistent claim construction positions warrant denying institution for numerous reasons. *Infra* §§VI-VII; *see also* EX2002, ¶¶69-93.

VII. THE PETITION SHOULD BE DENIED BECAUSE IT FAILS TO APPLY APPLE’S OWN CONSTRUCTIONS

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 *Apple’s* own claim constructions in the Delaware Litigation. Pet. §III. Thus, the Petition should be denied. *See Hologic, Inc. v. Enzo Life Sciences, Inc.*, IPR2018-00019, Paper 17 at 6-9 (PTAB Apr. 18, 2018) (“*Hologic*”)

(denying institution for failing to satisfy 37 CFR §42.104(b)(3)-(4) because while “Petitioner was free to advocate unpatentability under a claim construction it considered to be correct[,] [i]t did not do so.”); *Jiawei Tech. Ltd. v. Simon Nicholas Richmond*, IPR2014-00937, Paper 22 at 7-8 (PTAB Dec. 16, 2014) (denying institution because the petition did not “explain how the challenged claims are to be construed” and, therefore, “has not demonstrated a reasonable likelihood of success”). EX2002, ¶¶67-68.

Moreover, Apple could not argue unpatentability under its Delaware constructions because the Petition’s references do not meet those constructions. EX2002, ¶¶69-93.

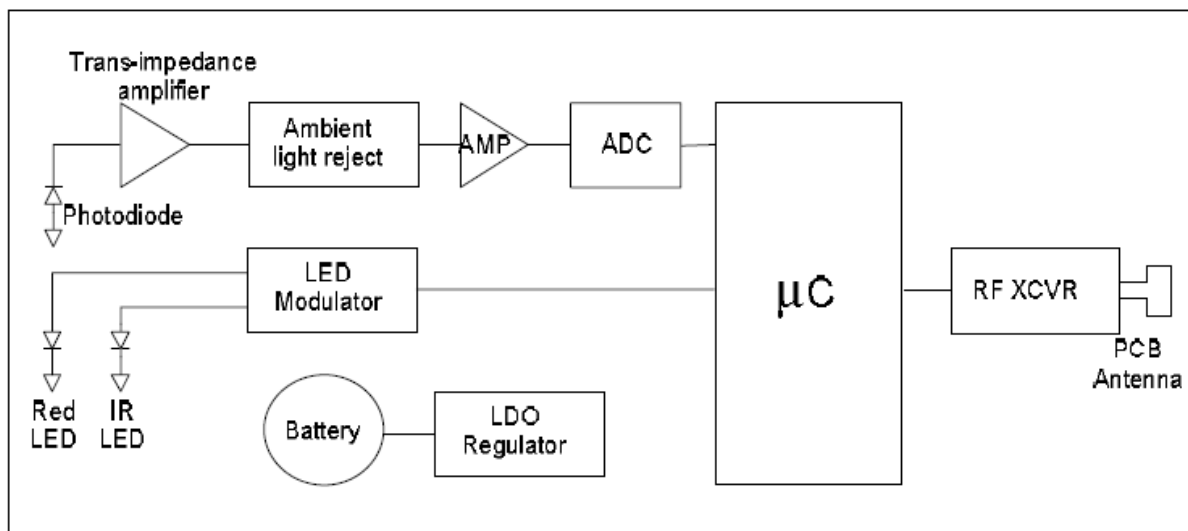
A. Mendelson Does Not Disclose “One Or More Signals” Under Apple’s Delaware Construction

Apple argues in Delaware that the claimed “one or more signals” means “raw detected signal(s).” *See* EX2029, 35-38. Apple argues that “the claims make clear that the optical sensor detects signals, the optical sensor outputs those detected signals, and those detected signals are then received by the processing board.” EX2029, 36. Apple also contends that the claims recite that “the processing board then processes those detected signals and outputs SpO₂ measurement values.” Thus, Apple argues that “[i]t *necessarily follows* that the detected signals received by the processing board—which are the same detected signals output from the optical sensor as evidenced by ‘said one or more signals’—are the unprocessed signals (i.e.,

raw signals).” *Id.* Apple further argues that the specification “confirms” this construction. *Id.*

Based on that construction, Apple argued in the Delaware Litigation that the Apple Watch does not transmit “raw detected signal(s)” because a POSITA would understand such signals to be “raw signals as detected by a photodetector rather than signals that had been converted, amplified, filtered, or otherwise processed.” EX2031, 340-41. Here, Apple did not even address its construction and Apple’s arguments contradict its Delaware constructions. EX2002, ¶¶71-77. Like Apple’s arguments about the Apple Watch, Mendelson teaches that the output of its photodiode is similarly “converted, filtered, and amplified.” *Id.*, ¶¶74-77.

In the petition, Apple argues that the “Sensor Module” of Mendelson is the “sensor” of all of the independent claims of the 507 Patent. *See* Pet., 6-9, 40-44; EX2002, ¶75. Apple does not rely on any other prior art to teach this sensor element. Figure 2 of Mendelson, partially reproduced below, is a block system diagram of Mendelson’s Sensor Module. EX2002, ¶75.



EX1011, 2. As shown, Mendelson's Sensor Module comprises various components, including "analog signal processing circuitry," and photodiodes used to receive light emitted by red and infrared LEDs after backscattering from skin tissue of a user. EX2002, ¶76. The signals generated by the photodiodes in response to the received light are transmitted through a transimpedance amplifier, an "ambient light reject" component, an amplifier, an analog to digital converter (ADC), and a microcontroller (μC). *Id.* The sensor data output by the μC is provided as input to the RF transceiver for transmission to the Receiver Module. *Id.*; EX1011, 2. The RF transceiver performs additional processing on the sensor data to generate packetized sensor data, which is then transmitted to the Receiver Module. EX2002, ¶76; *See* EX1011, 2.

These components of Mendelson convert, filter, amplify and then process the sensor data generated by the photodiode to generate packetized sensor data for radio frequency transmission by the RF transceiver component. EX2002, ¶77; *See* EX1011, 2. Thus, Apple arguments in the Delaware litigation contradict its positions here. Indeed, Apple’s own expert argued that signals cannot be “raw” signals under Apple’s Delaware construction if the signal passes through an A/D converter. *See* EX2030, 249:12-16 (“a signal converted from an analog signal to a digital signal, via an A/D converter, is no longer a raw signal because that signal has been processed and sampled.”). He further testified that “when you change an analog signal into a digital signal, you change the nature of the signal; and you, therefore, process it.” *Id.*, 250:11-15. Mendelson’s sensor module includes an A/D converter (labeled ADC) that changes the analog signal to a digital signal before transmission. EX2002, ¶77, EX1011, 2. Apple does not rely on any other prior art to teach this sensor element. Thus, the only reference Apple relies on for this element contradicts Apple’s position in the Delaware litigation. *Id.*

B. Mendelson Alone Or In Combination With Moon Does Not Disclose “Mobile Measurement” Under Apple’s Delaware Construction

Apple argues in Delaware that the preamble of Claim 13 is limiting and that the term “mobile measurement” in the preamble means “measurement during motion.” *See* EX2029, 29-31, 33-34. The preamble of Claim 1 similarly recites “mobile measurement.” EX1001, Claim 1. Based on those constructions, Apple

argues that the Apple Watch does not infringe because the Apple Watch does not “inform a user of mobile measurement of oxygen saturation.” EX2031, ¶327.

Here, for Grounds 1A-1I, Apple does not argue that any reference teaches measurement during motion. *See* Pet., 64-65; EX2002, ¶79. Thus, Apple does not claim that any reference in any of these grounds meets its claim construction in the Delaware Litigation. EX2002, ¶79.

However, in Grounds 2A-I, Apple argues that Moon discloses a pulse oximeter that “filter[s] the PPG and PTT waveforms using detected motion of the patient to more accurately determine SpO₂.” Pet., 66 (citing EX1010, [0025], [0073]-[0074], [0089]-[0092]). Apple then argues that “[t]hese techniques allow for ‘motion [to] be detected and accounted for during pulse oximetry measurements to minimize the occurrence of false alarms and, additionally, make accurate readings in the presence of motion.’” Pet., 66 (citing EX1010, [0082], [0089]). However, Moon does not measure through motion. EX2002, ¶¶80-93. Instead, Moon determines that too much motion is present and then declines to provide a measurement at all. *Id.*, 81.

The portions of Moon that Apple relies on makes this clear. *Id.*, ¶¶82-85. Moon explains that it uses motion sensors, such as an accelerometer, to determine how much the user is moving. EX1010, [0025], [0070], [0091]]. If motion is present, Moon explains that its photodetector signals “are typically not processed

further when the motion sensors indicate that motion is greater than an acceptable level.” EX1010 at [0025]. Similarly, Moon explains that its algorithm only proceeds to calculate SpO2 “[i]f the algorithm determines that no significant motion is present.” EX1010, [0073]. Moon also explains that “if motion was indeed present during a timer interval” and the motion “exceeded a pre-determined coefficient” then “the pulse is considered to be corrupted to an extent that neither PTT nor parameters associated with SpO2 (e.g. RED/IR (foot) and RED/IR(peak)) can be accurately measured.” EX1010, [0091]. Thus, Moon does not disclose measuring through motion, but instead declining to measure if motion is present above a predetermined threshold. EX2002, ¶87.

Moon’s discussion of alarms confirms this. *Id.* ¶88. Apple also relies on Moon’s disclosure that “knowledge of a patient’s motion, activity level, and posture can greatly enhance the accuracy of alarms/alerts generated by the body-worn monitor” to claim that Moon measures through motion. Pet., 68; EX1010, [0015]. But Moon explains that “a *walking patient typically yields noisy PPG waveforms*, but also has a low probability of being hypoxic due to their activity state. According to the invention, a patient in this condition thus *does not typically generate an alarm/alert, regardless of the value of SpO2 that is measured.*” EX1010, [0015]; EX2002, ¶¶88-89. Thus, Moon’s solution is to determine when motion is above an

acceptable level, such as during walking, and then to suppress alarms because the SpO₂ measurements are unreliable. EX2002, ¶90.

The Apple Watch, which Apple claims does not infringe, similarly declines to measure blood oxygen during motion. *Id.*, ¶¶91-93. Indeed, Apple’s Delaware expert argued that the Apple Watch does not infringe because the Apple Watch does not measure through motion. EX2031, ¶327. Apple’s own publicly released documentation states that “[m]otion and low blood perfusion can obscure the underlying heartbeat-induced pulsatile signals ... [t]o ensure accurate reporting, *the Blood Oxygen app withholds readings when it determines that* the PPG signals from Apple Watch are inadequate or that *positional or movement conditions are unsuitable for reliable SpO₂ readings.*” EX2032, 4 (emphasis added). Apple cannot argue that Moon discloses measurement through motion while claiming that the Apple Watch does not measure through motion. EX2002, ¶¶78-93. Accordingly, institution should be denied because Apple did not—and could not—present a challenge under the constructions it considers correct. *Hologic*, 8-9.

**VIII. THE BOARD SHOULD DENY INSTITUTION
UNDER 35 U.S.C. §§ 314(a) AND 325(d)**

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. EX2010; 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).

A. The *Fintiv* Factors Favor Denial 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. Also, Apple's claim constructions here conflict with its constructions for noninfringement in the Delaware Litigation. Apple also unfairly resurrects references and arguments that it dropped from the Delaware Litigation after obtaining Masimo's extensive and costly responses to Apple's invalidity contentions. Thus, rather than streamlining the disputes, the Petition needlessly expands them and creates the possibility of inconsistent decisions. The *Fintiv* factors thus support denying institution.

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

Apple has neither sought a stay for the '507 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.*, 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).

Apple mentions a stay for Masimo patents involved an ITC investigation. Pet., 76. But that stay (mandated by 28 U.S.C. § 1659) does not encompass the '507 Patent and is thus irrelevant to this factor. And Apple omits that the ITC determined that Apple infringed Masimo patents and violated 19 U.S.C. § 1337. EX2003. Apple also omits that the Board denied institution of IPR for the Masimo patents infringed by Apple. EX2004-2009 (IPR2022-01271-IPR2022-01276).

2. **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. 95. 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* §VII.A.3. 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. 95. 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, after strategically obtaining fact and expert discovery from Masimo regarding substantially the same primary reference asserted in this Petition. *Infra* §VII.A.4.

Under these circumstances, the stage of the case and 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).

3. Factor 3: The Parties' Significant and Continuing Investment in the Litigation 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. At this stage of the litigation, the parties and District Court have completed:

- (1) fact discovery, including producing millions of pages of documents, and responding to 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 '507 Patent, Apple's 47 pages of initial invalidity contentions involving 12 references and Masimo's 29 pages of responsive contentions, as well as Apple's 79 pages of final invalidity contentions involving 35 references and Masimo's 341 pages of responsive contentions);
- (5) claim construction (30 pages of briefing on five terms of the '507 Patent, and a four-hour hearing conducted over six months ago);
- (6) expert discovery (33 expert reports comprising 12,000+ pages, including, for validity of the '507 Patent, 363 pages of Apple's expert's opening report, 309 pages of Masimo's expert's rebuttal report, and 166 pages of Apple's expert's reply report);
- (7) more than *twenty-five expert depositions*; and

- (8) more than twenty motions and dozens of hearings, including summary judgment and *Daubert*.³

When, as here, final contentions are complete and fact and expert discovery closed by the time the Board makes an institution decision, “the third *Fintiv* factor weighs heavily in favor of discretionary denial.” *See, e.g., Roku*, 12; *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., 77. 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., 77. 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

³ Apple refuses to allow confidential information from the Delaware Litigation to be used here.

that the courtroom ran out of seats. EX2018, 4:10-14, 3:6-13. 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 petitions for the “10 patents asserted” by Masimo in the Delaware Litigation. Pet., 77. 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., 77. And Apple omits that it received refunds for eight such petitions on the ITC patents because the PTAB did not institute review. EXS2020-2027 (granted refund requests in IPR2022-1271-IPR2022-1276, IPR2022-1292, and IPR2022-1466). Apple’s unrelated petitions do not support instituting this Petition. *Fintiv* at 9-10.

Apple also ignores the parties’ significant investment in the Delaware Litigation related to the same references now re-asserted in Apple’s Petition. Apple invested in preparing invalidity contentions based on the primary reference, Mendelson, as well as one of the secondary references, Moon, relied on in this

Petition. EX2034 (Mendelson); EX2035 (Moon). Masimo invested in responding to those contentions. EX2036. The Petition merely re-asserts Apple's District Court references and arguments, which is not "substantial investment in petitions." *Cf.* Pet., 77.

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., 78. Apple argues that stipulation is somehow "broader" than a *Sotera* stipulation. *Id.* 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.* In contrast, Apple's stipulation preserves for the Delaware Litigation the printed publication-based invalidity contentions that Apple asserts there. EX2028. And Apple could have raised those grounds in this Petition. *Id.* Thus, Apple's narrow stipulation is not a *Sotera* stipulation and does not adequately protect against inefficiency or the risk of conflicting decisions.

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 primary reference (Mendelson) and one of the same secondary references (Moon) now asserted in the Petition, as explained above. But Apple has since abandoned its invalidity arguments based on the same primary

reference asserted here. *Id.* Thus, Apple's illusory stipulation imposes no real restriction on Apple and offers no real value to the District Court. 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.

In sum, under the circumstances, the third *Fintiv* factor heavily favors denying institution.

4. Factor 4: The Validity Issues in the Petition Overlap with the Delaware Litigation

Apple's Petition raises validity issues that overlap with the Delaware Litigation. Apple asks both the Board and the District Court to decide validity based on printed publications. *Compare* EX2028 with Pet., 2-3. As explained for Factor 3, Apple's Petition relies on the same primary reference and one of the same secondary references as Apple's initial invalidity contentions in Delaware. Apple does not eliminate the overlap in *issues* by electing to rely on other printed publications for its obviousness grounds in Delaware. Rather, Apple seeks to rely on publications here that it abandoned in Delaware. Presumably, Apple abandoned those publications because it believes the other publications asserted in Delaware will be more persuasive to the factfinder. And recycling abandoned arguments from the District Court does *not* promote efficiency—it needlessly enlarges proceedings.

Apple could have waived using overlapping validity arguments in the Delaware Litigation by providing a *Sotera* stipulation here. But Apple did not. *Supra* Section VIII.A.3. And Apple’s narrow stipulation fails to resolve concerns of duplicative efforts and conflicting decisions between the Board and district court. *Id.*; *see, e.g., ResMed*, 15.

For at least these reasons, the fourth factor favors denying institution.

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

The fifth factor also 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).

6. Factor 6: Other Considerations Favor Denying Institution

Because the first five *Fintiv* factors favor denying institution, the only remaining consideration is whether the Petition presents a “compelling, meritorious challenge” that meets the “compelling merits” standard. *Roku*, 15; *CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 at 5 (Feb. 27, 2023)(precedential)(“*CommScope*”). “The Director defines ‘[c]ompelling, meritorious challenges [as] those in which the evidence, if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.’” *Roku*, 15. This “compelling merits standard is a higher standard than the standard for institution set by statute.” *CommScope*, 3.

Apple fails to present a compelling, meritorious challenge. Like the petitioner in *ResMed*, Apple now asks the Board to review patentability challenges under “construction[s] it already asserted in district court [are] *wrong*.” *ResMed*, 17.⁴ In the Delaware Litigation, Masimo argued that each disputed term of the ’507 Patent had its plain meaning and thus required no construction. *Supra* Section VI. Apple argued Masimo’s constructions are wrong because those terms require narrow express constructions. EX2004.

But here, Apple now argues that no terms require construction. Thus, Apple argues under constructions it asserted were wrong in the District Court. That tactic “undermines [petitioner’s] argument that the Petition presents a compelling patentability challenge.” *ResMed*, 17.

Nor did Apple present alternative arguments in the Petition under its Delaware claim constructions. As shown above, Apple could not present such a challenge because the Petition references do not meet Apple’s constructions. *Supra* Section VI. Thus, institution should be denied because the Petition fails to present a challenge under the constructions Apple argues are correct in Delaware. *Id.*

Under these circumstances, “[the Board] would not be able to determine whether the prior art reads on the claims” under Apple’s Delaware constructions

⁴ The Board has criticized this shifting-sands approach to claim construction as “not being transparent.” *ResMed*, 17.

“because the Petition does not provide explanation under [those constructions].” *ResMed*, 17. Apple leaves the Board to navigate between alternative claim constructions that could either lead to inconsistent rulings or finding that the Petition fails to provide sufficient evidentiary basis to support institution. *See, e.g., id.*, 17-18 (“For this reason, the Petition fails to meet the compelling merits standard, and this factor weighs in favor of [denial].”). Apple’s inconsistent claim construction positions create a serious risk of inconsistent decisions before the Board and District Court. And that “potential for conflicting decisions favors denial.” *ResMed*, 17 (citing *Fintiv*, 12).

Furthermore, Apple’s references do not disclose the inventions claimed by the ’507 Patent under any proposed construction. As explained below, none of Apple’s references teach an optical sensor outputting “one or more signals” which is received by a processing board. Thus, Apple cannot show that any claim so the ’507 Patent is obvious or anticipated by its references. Further, as shown below, Apple cannot show that a POSITA would be motivated to modify its primary reference, Mendelson, to disclose a processing board that “is configured to draw power for operation from the mobile computing device.” Such a modification would be contrary to the purpose and design of Mendelson.

In sum, the sixth *Fintiv* factor also favors denying institution.

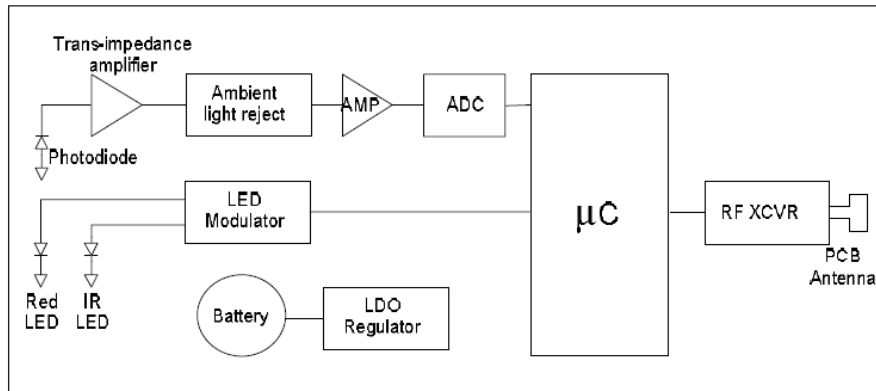
**IX. MENDELSON, ALONE OR IN COMBINATION WITH OTHER
REFERENCES, FAILS TO ANTICIPATE OR RENDER OBVIOUS THE
CLAIMS OF THE '507 PATENT**

Apple fails to demonstrate that any references disclose, or render obvious, the inventions recited in the independent claims.

**A. Mendelson Does Not Disclose A Processing Board “receiving one or more signals”
(All Grounds)**

Claim 1 of the '507 Patent recites “an optical sensor” and a “processing board” configured to “receive one or more signals from the optical sensors.” The other independent claim, Claim 13, also recites “outputting, from an optical sensor . . . , one or more signals” and “via a processing board . . . receiving said one or more signals from the optical sensor.” Apple relies solely on Mendelson to teach these limitations for each ground in the petition. But Mendelson does not disclose a processing board receiving one or more signals from an optical sensor under the plain and ordinary meaning of “one or more signals.” Ex2002, ¶¶94-104.

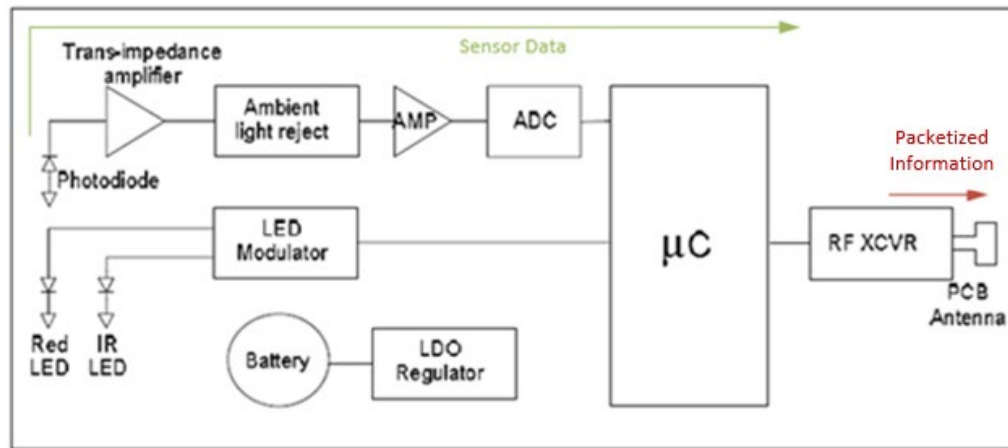
Apple identifies Mendelson’s “Sensor Module” as disclosing the claimed “optical sensor.” Pet., 10-11. Mendelson Figure 2 illustrates a schematic diagram of the Sensor Module circuitry:



EX1011, FIG. 2. Figure 2 shows a photodiode that outputs a signal. EX2002, [97]. That signal then enters a transimpedance amplifier, “ambient light reject” signal conditioning, an amplifier, and an analog to digital converter (marked ADC). *Id.* However, the digital output of that converter then enters a microcontroller (marked μC). *Id.* After processing that digital output, the microcontroller sends a different digital output to an RF Transceiver (marked RF XCVR) to transmit “information” to the Receiver Module. *Id.*; EX1011, 2. Specifically, Mendelson explains that the “The information acquired by the Sensor Module is transmitted wirelessly via an RF link over a short range to a body-worn Receiver Module.” EX1011, 2.

The “information” sent by the RF Transceiver, however, is packetized. EX2002, ¶¶97-101. None of the packets are the “signal” from the photodiode. *Id.* Rather, by “information,” Mendelson refers to portions of digital data along with at least packet headers and checksums. *Id.* ¶97. Indeed, a POSITA would understand this information in that way at least based on the normal and customary operation of a RF transceiver. *Id.* ¶¶97-98. Annotated Figure 2, illustrates how the sensor data

enters the microcontroller, but different “information” is transmitted by the “RF XCVR”:



Professor Duckworth confirms that his RF Transceiver operated exactly in this way. *Id.* ¶98. The RF Transceiver of in Mendelson is a Texas Instruments CC1100 Low-Power Sub- 1GHz RF Transceiver (“CC1100”), which is designed to packetize data before transmission. *Id.*; *see e.g.*, EX2033, 1-2, 31-35. The CC1100 “provides extensive hardware support for packet handling.” *Id.*, 1; EX2002, ¶98. These packets include a preamble, a sync word, length and address fields, a data field which contains the sensor data for the packet, and a checksum as shown in the figure below:

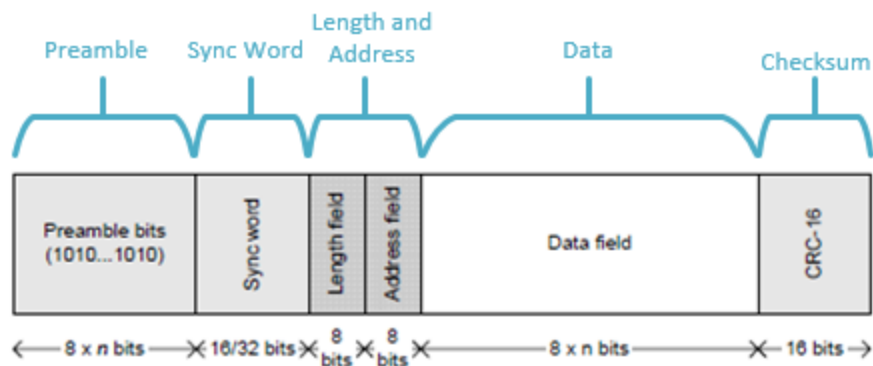


Figure 11: Packet Format

EX2033, 32; EX2002, ¶¶98. By requiring a microcontroller and transceiver on the sensor, Mendelson describes a different structure than claimed in the '507 Patent. EX2002, ¶¶99. This difference in structure is evident from the need for the Mendelson device to have three different power sources: (1) the battery of the “Sensor Module”, (2) the battery of the “Receiver Module;” and (3) the battery of the PDA. *Id.*

A POSITA would understand that Mendelson’s packetized “information” is not the photodiode “signal” under any construction of the term. *Id.* ¶¶100-101. Neither Apple nor its expert explain how Mendelson’s “information” is the claimed “one or more signals.” *See generally* Pet.; EX1003; EX2002, ¶100. And Apple’s district court expert disagrees with the fundamental argument Apple presents here. According to that Apple expert, after a photodiode output is “converted, filtered, and amplified,” it is not longer the claimed signal. EX2031 ¶¶361-368. Mendelson’s “Sensor Module” performs at least those steps. *See* EX1011, 2-3. Indeed,

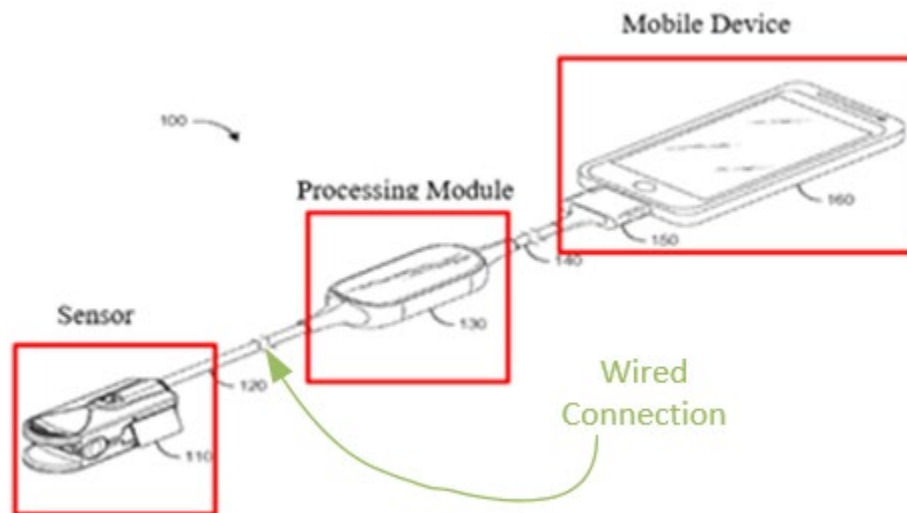
Mendelson explains “The Sensor Module contains analog signal processing circuitry.” *Id.*, 2. And Mendelson goes a step further by also including a microcontroller that performs at least some operations before the “information” is passed to the disclosed transceiver. *Id.*; EX2002, ¶100. Neither Apple nor either of its experts explain what happens to the “signal” within that Mendelson microcontroller. EX2002, ¶100-101. Simply ignoring the activity of the microprocessor does not establish that Mendelson teaches “one or more signals” as claimed by the ’507 Patent.

Thus, Apple failed to show that the Receiver Module is “configured to: receive one or more signals from the optical sensors” (Claim 1), or a processing board “receiving said one or more signals from the optical sensor” (Claim 13). *Id.*, 94-104.

As Duckworth explains, a POSITA would understand that the packet received by the Receiver Module is not a signal for at least two reasons. *Id.*, ¶101. **First**, the packet contains packet specific information like a checksum or a packet header that a sensor signal would not contain. *Id.* **Second**, a packet would contain multiple values derived from sensor data over a period of time. *Id.* A sensor signal does not contain multiple values collected over time. Further, Mendelson uses packets because it is a method for sending wireless information in a power efficient way, one of the goals of Mendelson. EX1011, 1; EX2002, ¶101. In contrast, a sensor signal

could be sent over a wired connection, allowing more instantaneous transmission without the data overhead for packets. EX2002, ¶101.

This understanding is consistent with the disclosure of the '507 Patent. *Id.*, ¶102. The '507 Patent discloses that its sensor is connected to its processing board via a direct, wired, connection:



EX1001 FIG. 1 (annotated). The '507 Patent does not teach transmitting data wirelessly from the sensor to the processing board. EX2002, ¶102. Accordingly, a POSITA would not consider Mendelson to disclose “an optical sensor” and a “processing board” where “the processing board [is] configured to: receive one or more signals from the optical sensors” (Claim 1) or “outputting, from an optical sensor . . . , one or more signals” and “via a processing board . . . receiving said one or more signals from the optical sensor” (Claim 13). *Id.*

Apple argues that the statement “[t]he information acquired by the Sensor Module is transmitted wirelessly via an RF link over a short range to a body-worn Receiver Module” in Mendelson discloses “outputting, from an optical sensor of an SpO2 measurement system, one or more signals.” Pet., 11. However, a POSITA would understand that when Mendelson says “the information” this refers to the packetized data output by the RF transceiver, and does not refer to a “signal.” EX2002, ¶103. Therefore, Apple fails to show that Mendelson teaches “outputting” one or more signals from the Sensor Module or receiving the one or more signals at the Receiver Module. *Id.*

Apple also relies on Mendelson’s statement that “[s]ignals acquired by the Sensor Module are received by the embedded microcontroller [at the Receiver Module]” to argue that Mendelson discloses these limitations. Pet., 11. But again, Apple misunderstands Mendelson. Duckworth, the author, explains that this language refers to how the signal from the photodiode is then turned into packetized signal data before it is transmitted to the Receiver Module. EX2002, ¶104. Outputting and receiving packetized data is not outputting or receiving a signal. *Id.* Accordingly, Apple does not show that Mendelson or any other cited art teaches this claim element. *Id.*, ¶¶94-104.

B. Grounds 1D And 2D: A POSITA Would Not Be Motivated To Combine The Teachings of D’Angelo With Mendelson To Render Claim 1 Obvious

Independent Claim 1 of the 507 Patent recites, in part, that the claimed processing board “is configured to draw power for operation from the mobile computing device.” EX1001, Claim 1. Apple does not argue that Mendelson teaches this limitation. *See* Pet., 42. Instead, Apple claims that D’Angelo teaches this limitation and that D’Angelo could be combined with Mendelson. *Id.*, 41-43. But, a POSITA would not be motivated to combine Mendelson with D’Angelo. EX2002, ¶¶105-107.

Apple asserts that D’Angelo teaches a management device that draws power from the smartphone to operate. *See* Pet., 37-38. Apple asserts that the teaching of D’Angelo would motivate a POSITA to modify the Receiver Module of Mendelson to draw power from a smart phone. However, such a modification would defeat the purpose of Mendelson’s design. EX2002, ¶107.

Mendelson describes the “initial bench testing of a *wireless wearable* pulse oximeter.” EX1011, 1 (emphasis added). Mendelson explains that the impetus of this design was the “development of compact, low-power, small-size, light- weight, and unobtrusive *wearable* devices” based on advancements in “physiological sensing, hardware miniaturization, and *wireless communication*.” *Id.* Mendelson further explains that these advances allow for “[t]elemetry of physiological

information via a short-range wirelessly-linked personal area network.” *Id.* Such a design would be useful “for firefighters, hazardous material workers, mountain climbers, or emergency first-responders operating in harsh and hazardous environments.” EX2002, ¶108.

To accomplish its stated goal Mendelson describes a “Receiver Module” that communicates via “bi-directional wireless communications” with a PDA. EX1011, 2. Mendelson also describes that its authors chose a specific PDA in its design because “it can support both 802.11b and Bluetooth™ wireless communication.” *Id.*, 3. The PDA contains a GUI that allows it to monitor “multiple wearable devices” at the same time. *Id.* Mendelson also explains that the Receiver Module’s wireless design “allows the PDA to communicate with a remote unit that is beyond the PDA’s wireless range. The ad-hoc network would therefore allow medical personnel to quickly distribute sensors to multiple casualties and begin immediate triage, thereby substantially simplifying and reducing deployment time.” *Id.* Further Mendelson explains that its authors spent significant time on “lowering the power consumption” to allow for a wearable wireless pulse oximeter. *Id.*, 3-4; EX2002, ¶110.

Modifying the Receiver Module to require it to draw power from the PDA, instead of a battery, would defeat the purpose of the Mendelson design. EX2002, ¶¶111-113. Such a change would prevent the Receiver Module from being

wearable and prevent the PDA from connecting to multiple receiver modules at the same time. *Id.* Further, such a change would vitiate the efforts that the Mendelson authors spent on reducing the power consumption of their receiving module to allow it to be a wearable device that can transmit information wirelessly. *Id.*

Indeed, Duckworth, Mendelson’s author, explains neither he nor the team working on the Mendelson design would have ever changed the Receiver Module to draw power from a wired connection to the PDA because it would have defeated the purpose of the design. *Id.*, ¶113. Duckworth explains that he and his colleagues deliberately designed a battery powered Receiver Module that connected *wirelessly* to a PDA. *Id.*, ¶112. This allowed the Mendelson authors to meet their design goals of making the Receiver Module Wearable and allowing the PDA to connect to many Receiver Modules at one to form an ad-hoc network. *Id.*; EX1011, 3.

Accordingly, a POSITA would not have been motivated to modify Mendelson as described in Apple’s petition. EX2002, ¶¶105-113; *Polaris Indus. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1069 (Fed. Cir. 2018) (finding error in the Board’s failure to consider evidence that a proposed combination would result in a modification “which would run contrary to one of [the reference’s] stated purposes”); *Plas-Pak Indus., Inc. v. Sulzer Mixpac AG*, 600 F. App’x 755, 758-60 (Fed. Cir. 2015) (finding a change in the reference’s principle of operation is unlikely to motivate a person of ordinary skill to pursue a combination with that reference).

X. DEPENDENT CLAIMS OF THE ‘507 PATENT ARE VALID

Each of the dependent claims of the ‘507 Patent depends, directly or indirectly, on one of the independent claims 1 or 13. As discussed above, the art cited by Petitioner fails to render each of claims 1 and 13 invalid for anticipation or obviousness. EX2002, ¶115. For at least those reasons, each of the ‘507 Patent’s dependent claims is valid. *Id.*, ¶116.

XI. 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.

XII. CONCLUSION

As explained above, the Petition is facially deficient and Masimo respectfully requests that the Board deny institution.

IPR2024-00294

Apple Inc. v. Masimo Corp.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: March 28, 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 8,820 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: March 28, 2024

/Brian C. Claassen/

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

Customer No. 64,735

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 2001-2036** are being served electronically on March 28, 2024, to the e-mail addresses shown below:

W. Karl Renner, Reg. No. 41,265 Fish & Richardson P.C. 60 South Sixth Street Minneapolis, MN 55402 Tel: 202-783-5070 Fax: 877-769-7945 Email: IPR50095-0135IP2@fr.com	Patrick J. Bisenius, Reg. No. 63,893 Andrew B. Patrick, Reg. No. 63,471 Grace J. Kim, Reg. No. 71,977 Fish & Richardson P.C. 60 South Sixth Street Minneapolis, MN 55402 Tel: 202-783-5070 Fax: 877-769-7945 Email: IPR50095-0135IP2@fr.com
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Dated: March 28, 2024

/Brian C. Claassen/

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

Attorney for Patent Owner
Masimo Corporation