

PUBLIC VERSION

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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 IPR2024-00243
U.S. Patent 10,722,159

PATENT OWNER'S SUPPLEMENTAL BRIEF

EXHIBIT LIST

Exhibit No.	Description
2001	Curriculum Vitae of Vijay K. Madiseti
2002	Expert Declaration of Vijay K. Madiseti in Support of Patent Owner's Preliminary Response
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)
2007	Decision Denying Institution of Inter Partes Review, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01274, Paper 15 (PTAB Jan. 24, 2023)
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
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

Exhibit No.	Description
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)
2022	Notice of Refund, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-1273, Paper 19 (PTAB June 20, 2023)

Exhibit No.	Description
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
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)

Exhibit No.	Description
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
2044-2049	RESERVED
2050	Apple Inc.'s Post-Hearing Brief (Public Version), ITC Inv. No. 337-TA-1276
2051-2055	RESERVED
2056	Excerpts of File History of App. No. 16/532,065
2057	Excerpts of File History of App. No. 15/195,199
2058-2068	RESERVED

Exhibit No.	Description
2069	Eric W. Weisstein, <i>Annulus</i> , Wolfram MathWorld (Dec. 1, 2022, 3:20 pm), https://mathworld.wolfram.com/Annulus.html
2070-2071	RESERVED
2072	Excerpt of Webster's II New College Dictionary (2001)
2073	RESERVED
2074	Nonconfidential Excerpt of Page 65 from June 6-10, 2022 Hearing Transcript, ITC Inv. No 337-TA-1276
2075	RESERVED
2076	CONFIDENTIAL – Transcript of Testimony of Brian Land from June 6-10, 2022 Hearing Transcript, <i>Certain Light-Based Physiological Measurement Devices and Components Thereof</i> , Inv. No. 337-TA-1276
2077	CONFIDENTIAL – Transcript of Testimony of Dr. Paul Mannheimer from June 6-10, 2022 Hearing Transcript, <i>Certain Light-Based Physiological Measurement Devices and Components Thereof</i> , Inv. No. 337-TA-1276
2078	CONFIDENTIAL – Transcript of Testimony of Dr. Stephen Waydo from June 6-10, 2022 Hearing Transcript, <i>Certain Light-Based Physiological Measurement Devices and Components Thereof</i> , Inv. No. 337-TA-1276
2079	RESERVED
2080	CONFIDENTIAL – ITC Exhibit CX-0289C – Designated Portions of February 10, 2022 Deposition of Dr. Paul Mannheimer
2081	CONFIDENTIAL – ITC Exhibit CX-0299C – Designated Portions of February 18, 2022 Deposition of Dr. Stephen Waydo

Exhibit No.	Description
2082	CONFIDENTIAL – ITC Exhibit CX-0295C – Designated Portions of February 11, 2022 Deposition of Tao Shui
2083	CONFIDENTIAL – ITC Exhibit CX-0007C – Email from Brian Land to Paul Mannheimer et al.
2084	CONFIDENTIAL – ITC Exhibit CX-0175C – Apple Organization Chart
2085	CONFIDENTIAL – ITC Exhibit CX-0177C – Apple Presentation
2086	CONFIDENTIAL – ITC Exhibit CX-0185C – Apple Presentation
2087	RESERVED
2088	ITC Exhibit CX-1616 – Fowler, Geoffrey, “The new Apple Watch says my lungs may be sick. Or perfect. It can’t decide.” Washington Post, September 23, 2020 (https://www.washingtonpost.com/technology/2020/09/23/apple-watch-oximeter/)
2089	CONFIDENTIAL – ITC Exhibit CX-1793C – Apple Presentation
2090	RESERVED
2091	William, Andrews, “Fitbit Update Lets You Quickly Check Your Blood Oxygen Saturation.” Forbes, Sept. 9, 2020 (https://www.forbes.com/sites/andrewwilliams/2020/09/09/fitbit-update-lets-you-quickly-check-your-blood-oxygen-saturation/?sh=5d6ecb55e76a)
2092	“Track Your SpO2 to Uncover Changes in Your Wellbeing,” Fitbit, Sept. 7, 2020 (https://blog.fitbit.com/track-your-spo2/)
2093	CONFIDENTIAL – ITC Final Initial Determination (Public version filed as Exhibit 2043)

Exhibit No.	Description
2094	CONFIDENTIAL – Transcript of November 7, 2023 Deposition of Dr. Paul Mannheimer, <i>Apple Inc. v. Masimo Corp. et al.</i> , Nos. 22-1377-MN-JLH, 22-1378-MN-JLH (D. Del.)
2095	Stein, “Withings Pulse O2 review: Fitness band plus heart rate monitor checks blood oxygen, too,” CNET.com (April 25, 2014), https://www.cnet.com/reviews/withings-pulse-o2-review/ (Previously filed as APPLE-1057 in IPR2022-01291)
2096	CONFIDENTIAL - Final Written Decision, <i>Apple Inc. v. Masimo Corp.</i> , IPR2022-01291 (Jan. 30, 2024) (Public version previously filed as EX2035)
2097	Excerpt of C. A. Bennett, <i>Principles of Physical Optics</i> , John Wiley & Sons, Inc. (2008)
2098	CONFIDENTIAL - Excerpt of December 15, 2023 Expert Report of Majid Sarrafzadeh, Ph.D. Regarding Non-Infringement of U.S. Patent Nos. 10,687,743 & 10,722,159, <i>Apple Inc. v. Masimo Corp.</i> , C.A. Nos. 22-1377-MN-JLH, 22-1378-MN-JLH (D. Del.)
2099	Transcript of Hearing Held November 17, 2023 in IPR2022-01291, -01465 (Public Version)
2100	CONFIDENTIAL - Declaration of Vijay K. Madiseti, Ph.D. in Support of Patent Owner’s Response
2101	Document produced by Apple in related litigation bearing production numbers APL-MAS_00117783-877
2102	CONFIDENTIAL - Excerpt of document produced by Apple in related litigation bearing production numbers APL_DEL03985999-6078
2103	Document produced by Apple in related litigation bearing production numbers APL_MAS_ITC_00311268-73

Exhibit No.	Description
2104	CONFIDENTIAL - Document produced by Apple in related litigation bearing production numbers APL-MAS_01812072-78
2105	Petition, <i>Apple Inc. v. Masimo Corp.</i> , IPR2020-01722
2106	“How to use the Blood Oxygen app on Apple Watch,” Apple Inc. (https://support.apple.com/en-us/120358)
2107	Transcript of October 28, 2024 Deposition of Brian Anthony, Ph.D. and Deposition Exhibit 1 Thereto
2108	Chris Stokel-Walker, “A Stand-Out Health Tracker: Masimo W1 Medical,” TIME, Oct. 30, 2024 (https://time.com/7094688/masimo-w1-medical)
2109	Declaration of Daniel C. Kiang in Response to Petitioner’s Objections to Evidence (Served Only)
2110	Email Chain Between Masimo and Apple re Cross-Use (Served Only)
2111	Transcript of March 21, 2025 Deposition of Brian Anthony, Ph.D.
2112	CONFIDENTIAL - Patent Owner Masimo’s Trial Hearing Demonstratives
2113-2120	RESERVED
2121	CONFIDENTIAL – May 26, 2023 Declaration of R. James Duckworth (originally filed in IPR2022-01291 as Exhibit 2070)
2122	CONFIDENTIAL – October 2, 2023 Declaration of R. James Duckworth (originally filed in IPR2022-01291 as Exhibit 2100)

For the Board's convenience, Masimo also provides the following table providing the numbering for Apple's exhibits referenced in this brief that are common to IPR2024-00241, -00243, -00244, and IPR2022-01291:

Exhibit	IPR2024-00241	IPR2024-00243	IPR2024-00244	IPR2022-01291
Pang	1014	1014	1014	1050
Brady	1028	1028	1021	1052
Lindberg	1088	1017	1017	1054
Goldreich	1092	1036	1036	1062
Rulkov	1033	1043	1043	1058
Scharf	1038	1038	1038	1038
Ackermans	1044	1044	1044	1011, 1062
Shmueli	1045	1045	1045	1063
Sarussi	1046	1046	1046	1064
Kondo	1047	1047	1047	1065
Fraser	1048	1048	1048	1066
Aguilera	1037	1037	1037	1070
Faber	1039	1039	1039	1071
LeBoeuf	1041	1041	1041	1080

Masimo submits this supplemental brief pursuant to the Board’s authorization (EX3007). As ordered, Masimo hereby makes available testimony from Dr. Madisetti in IPR2024-00243 (EX2120) and Dr. Duckworth in IPR2022-01291 (EX2121 and EX2122). Masimo elected not to file an expert declaration addressing Apple’s new arguments, so the record is now closed. EX3007 (authorizing deposition and Apple statement only if Masimo submits such a declaration).

I. APPLE’S NEW REFERENCES DO NOT DEMONSTRATE A REASONABLE EXPECTATION OF SUCCESS

Dr. Duckworth’s testimony from IPR2022-01291 concerning the related ’745 Patent is now available in this IPR proceeding. That testimony disproves several of Apple’s new Reply arguments. As explained below, Duckworth showed that, far from showing an expectation of success, Apple’s new Reply exhibits demonstrate a long felt **but unmet** need to measure oxygen saturation at the wrist.

First, Apple’s Reply falsely argued “Masimo’s expert [Duckworth] in the related ’745 Patent IPR agreed” that the common specification for the ’745 and ’159 Patents “assumes that a POSITA would have known how to implement [oxygen saturation] measurements at the wrist despite the weaker signal.” Reply, 21 (citing EX1080). Duckworth did no such thing. Duckworth explained the specification enabled the claims of the ’745 Patent—not that a POSITA had a reasonable expectation of success in modifying the prior art to determine oxygen saturation at the wrist. EX1080, 17:19-22, 31:4-17, 48:17-22. Indeed, Duckworth considered

every reference Apple introduced on reply here and explained that no reasonable expectation of success existed. See EX2121, ¶¶40-43; EX2122, ¶¶65-81.

Second, Anthony (but not Apple’s Reply)¹ opined that Goldreich describes a “wrist-mounted device” for measuring oxygen saturation. EX1079, ¶38. As Duckworth explained, Goldreich described a wrist-worn device that required the user to place their *finger* on top of the device to measure oxygen saturation. EX2122, ¶76; Sur-Reply, 22; EX1036, [0126] (“To perform SpO2 measurement, the user presses a finger against sensor 566...”), Fig. 5 (SpO2 sensor 566 located on top of watch-like device, not facing the wrist). Thus, Goldreich measured from the *finger*, not the wrist. Apple simply mischaracterized Goldreich here. Reply, 19; EX1079, ¶38.

Third, Anthony (but not Apple’s Reply) opined that Lindberg “shows the successful measurement of PPG signals.” EX1079, ¶37 (citing EX1017, Fig. 17). But Duckworth explained that Lindberg described a wrist-worn device with six LEDs *all at the same 875 nm wavelength*. EX2122, ¶77; Sur-Reply, 22; EX1017, 49-50, 80-81. Thus, the PPGs shown in Lindberg’s Figure 17 were produced by a *single-wavelength* device that could not have been capable of determining oxygen saturation. EX2122, ¶77; EX1017, 49-51, Fig. 17.

¹ Apple’s Reply string-cited Goldreich and other references and asserted without explanation that they showed a reasonable explanation of success. Reply, 19.

Fourth, Duckworth explained that one of the other string-cited references (Scharf) described a sensor design with an unusual choice of two green wavelengths at 560 and 577 nm. EX2121, ¶¶40-41; EX1038, 2:34-52. Scharf’s two-green-wavelengths disclosure has no bearing on Apple’s proposed combination of adding red light to Iwamiya—which taught away from using green light. EX2121, ¶43; EX1004, 1:62-2:6, 10:34-43, 11:43-54. And nothing suggests Scharf’s approach would measure oxygen saturation at the wrist. EX2121, ¶42.

Fifth, Duckworth explained the other string-cited references (Rulkov, Ackermans, Shmueli, Sarussi, Kondo, and Fraser) were patent references with passing mentions to oxygen saturation. EX2122, ¶76. None of references show a device that could **actually** calculate oxygen saturation at the wrist before July 2015. They date back to the late 1990s or early 2000s. As Apple’s lead engineer testified, devices that could measure oxygen saturation at the wrist were still “unprecedented” much later in 2015. EX2076, 964:2-6. Thus, Duckworth’s testimony demonstrates that Apple’s references show a long-felt-but-unmet need—not a reasonable expectation of success. EX2122, ¶81; EX2100, ¶128; Sur-Reply, 24.

II. APPLE’S NEW COMBINATIONS TO CHANGE OR REMOVE IWAMIYA’S FILTER FAIL

Apple’s Reply conceded that modifying Iwamiya to measure oxygen saturation would have required significantly more changes and combinations than identified in the Petition. Reply, 12-13; Sur-Reply, 12. For example, Apple argued

for “adapting [Iwamiya’s] optical filter to pass both red and infrared light (or implementing an oximeter without a filter).” Reply, 12-13. Apple apparently relied on Aguilera (EX1037), Faber (EX1039), and LeBouef (EX1041) to supply the changed filter, but provided no explanation or motivation to combine those references with Iwamiya and Sarantos. Duckworth’s testimony shows no such motivation exists.

As Duckworth explained, Aguilera described a manufacturing process for a “two band filter” but provided an example of a filter that passes 2500 nm and 4000 nm light only, not red and infrared light in the 660 nm to 940 nm range. EX2122, ¶36; EX1037, 12:23-26.² Duckworth also explained that Faber described a “filter wheel” which is a *rotating object* powered by a motor. EX2122, ¶36; EX1039, [0055]-[0056]. Apple never explained how Iwamiya’s optical filter could be modified with a rotating wheel. Duckworth also explained that LeBouef merely described “optical filters” without further detail and not in the context of a structure like Iwamiya. EX2122, ¶36, EX1041, [0137] (describing an “earpiece”). Thus, Aguilera, Faber, and LeBouef do not demonstrate how Iwamiya could be modified to measure oxygen saturation at the wrist.

² Duckworth’s testimony in IPR2022-01291 referred to Aguilera, Faber, and LeBouef as EX1070, EX1071, and EX1080, respectively.

Apple also argued that Iwamiya's filter could be removed entirely. Reply, 12-13. But Duckworth explained the purpose of Iwamiya's light shielding frame was to hold the filter. Sur-Reply, 12; EX2122, ¶35. Thus, Apple's suggestion of removing the filter contradicts Iwamiya's repeated teachings that seek to block visible light. EX2122, ¶35. It also eliminates the reason for the light shielding frame that Apple relied upon for a dark-colored coating. *Id.* Duckworth showed that Apple fails to coherently explain how Iwamiya could have been modified to measure oxygen saturation with any expectation of success.

III. APPLE MISCHARACTERIZED DUCKWORTH'S TESTIMONY REGARDING IWAMIYA'S LIGHT SHIELDING FRAME

Apple cited Duckworth's deposition to support its argument that Iwamiya "lacks [] express disclosure of materials that would be suitable to achieve the desired 'light shielding' function of frame 18." Reply, 4 (citing EX1080). Duckworth said no such thing. He explained that Iwamiya taught the use of reflective materials to provide the "light shielding" function of frame 18. EX2121, ¶59; EX2122, ¶¶12-15. Apple also cited Duckworth's deposition to support its argument that "[a] POSITA also would have found the selection of a light-absorbing material for frame 18 to involve a merely routine design choice[.]" Reply, 5-6. But Duckworth expressly disagreed with that argument at length. EX2122, ¶¶12-23. Duckworth's testimony was consistent with Masimo's arguments here. POR, 12-18.

IV. CONCLUSION

For at least the reasons above and as explained in Masimo’s prior briefing and oral argument, Masimo respectfully requests the Board uphold the validity of the challenged ’159 Patent claims.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: May 2, 2025

/Adam B. Powell/

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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'S SUPPLEMENTAL BRIEF** is being served electronically on May 2, 2025 to the e-mail addresses shown below:

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Dated: May 2, 2025

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