Filed: March 28, 2025

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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 MASIMO CORPORATION'S SUR-REPLY

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2002	Expert Declaration of Vijay K. Madisetti in Support of Patent Owner's Preliminary Response
2003	Commission Opinion (Public), *Certain Light-Based Physiological Measurement Devices and Components Thereof*, Inv. No. 337-TA-1276, EDIS No. 808521 (ITC Oct. 26, 2023)
2004	Decision Denying Institution of Inter Partes Review, *Apple Inc. v. Masimo Corp.*, IPR2022-01271, Paper 15 (PTAB Jan. 24, 2023)
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2034	Petition for Inter Partes Review, *Apple Inc. v. Masimo Corp.*, IPR2022-01466

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2080	CONFIDENTIAL – ITC Exhibit CX-0289C – Designated Portions of February 10, 2022 Deposition of Dr. Paul Mannheimer

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2082	CONFIDENTIAL – ITC Exhibit CX-0295C – Designated Portions of February 11, 2022 Deposition of Tao Shui
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2105	Petition, Apple Inc. v. Masimo Corp., IPR2020-01722
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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	CONFIDENTIAL - Transcript of March 21, 2025 Deposition of Brian Anthony, Ph.D.

I. INTRODUCTION

The ’159 Patent claims are patentable over Apple’s Sarantos and Sarantos-Shie grounds. Apple previously admitted that Sarantos does not change the shape of light and does not disclose a diffuser. And the Board already found in a final, non-appealable decision that Apple failed to demonstrate a motivation to combine Sarantos and Shie. Apple’s admissions and the Board’s prior decision compel a finding of patentability.

II. GROUNDS 1A, 1C, 1D, and 1G (SARANTOS) FAIL

A. Sarantos Does Not Render Obvious Changing A First Shape To A Second Shape (Claims 1 and 19)

1. Apple No Longer Defends Its Inherency Theory

Apple does not dispute the Petition presented an ***inherency*** theory that light passing through Sarantos’s window 2226 in Figure 22 would “necessarily” change shape due to refraction. POR, 9-10. Apple presumably relied on inherency because it admitted in other IPR proceedings that Sarantos does ***not*** disclose a material “configured to change the first shape of light entering the material from the light source 2208 to a different second shape of light exiting the material towards the tissue.” EX2099, 18:14-21.[1]

[1] Apple argues it admitted a “lack of an express statement by Sarantos” not that Sarantos does not inherently disclose this feature. Reply, 7. That does not help Apple. It proves Apple is arguing inherency rather than any disclosure in Sarantos.

On Institution, the Board found Apple did ***not*** argue it was "obvious to modify Sarantos to include such a feature." Inst., 29. Rather, the Board found the Petition argued Sarantos's "translucent or transparent window material would ***necessarily*** change the shape of the light." *Id.*[2] The Board accepted the argument at the time, but invited the parties to address this issue during trial. *Id.*

The record has now demonstrated Apple's inherency argument, which formed the basis for institution, was incorrect. Masimo showed (1) light does not change shape due to refraction through a flat window like in Sarantos, (2) the prosecution history confirms that not all materials change the shape of light, and (3) Apple successfully argued in the ITC that its own optical material does not change the shape of light passing through it. POR, 9-18.

Apple does not dispute any of these arguments. Instead, Apple argues Masimo "misrepresents" Apple's position because Apple's ITC arguments concerned the Apple Watch while its arguments here concerned Sarantos. Reply, 1; *id.*, 7 (arguing estoppel does not apply for same reason). Not so. Here, Apple argued (a) Sarantos inherently discloses this element because light passing through ***any*** translucent or transparent material would ***necessarily*** change shape due to refraction. In the ITC, Apple successfully argued (b) its own translucent or transparent material did ***not*** change the shape of light. Those two statements (a) and (b) cannot both be

[2] All emphases added unless noted otherwise.

true. If Apple's translucent/transparent material does not change the shape of light then not all such materials change the shape of light.

Apple argues Masimo has not established the elements of collateral estoppel, including that the issue be ***adversely*** resolved against Apple and essential to final judgment. *See* Reply, 7 (citing *Ohio Willow Wood* and *Google*). Apple's inherency argument fails for several reasons discussed above that do not depend on estoppel. Regardless, Masimo need not establish those elements of ***collateral*** estoppel because it is not relying on collateral estoppel. Rather, Masimo asserts Apple's argument is barred by ***judicial*** estoppel. POR, 14-18. Collateral estoppel prevents re-litigation of the same issue whereas judicial estoppel prohibits a party from taking a position inconsistent with an earlier successful position. *New Hampshire v. Maine*, 532 U.S. 742, 749-750 (2001). Thus, judicial estoppel "inquire[s] whether the party has succeeded in persuading a court to accept that party's earlier position, so that judicial acceptance of an inconsistent position in a later proceeding would create 'the perception that either the first or the second court was misled.'" *Id.*, 750 (internal citation omitted).

Apple's position here (that all lenses necessarily change light shape) is plainly inconsistent with its position in the ITC (that its own lens did ***not*** change light shape). Indeed, Apple's IPR expert confirmed the inconsistency. He testified that, under Apple's theory in this IPR, the MLA in the Apple Watch ***does*** change the shape of

light. EX2107, 90:21-95:5, 97:13-99:3 ("[Y]ou had asked me a question whether [the Apple Watch is] changing the light. And I said, yes."). Apple ignores that inconsistency.

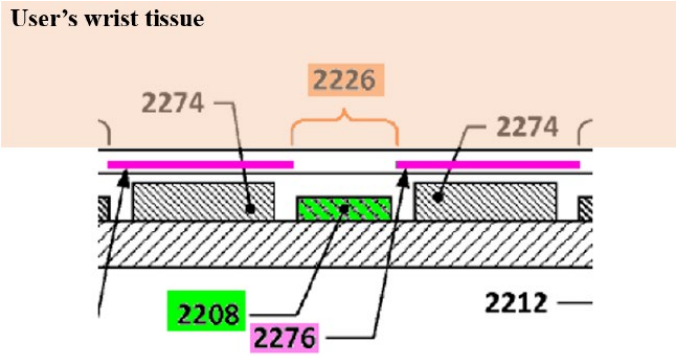
Apple does not dispute its position was the only reason the ITC did not find a Section 337 violation based on the '745 Patent. Nor does Apple dispute that it would gain an enormous unfair advantage and prejudice Masimo if the Board were to adopt Apple's inconsistent argument. Apple should not be allowed to now change course.

2. Apple's New In-Mold Label Theory Fails

Failing to defend its original inherency theory, Apple now presents a new theory: the shape is "defined by the in-mold label." Reply, 2, 5. But the Petition never argued the in-mold label was the claimed "material" that causes a shape change. Pet., 9-10. In fact, the Petition expressly identified Sarantos's acrylic window as the claimed material. *Id.*, 9-10, 28. Apple did so because Claim 9 requires the same "material" be made of plastic. *Id.*, 28. Thus, Apple's in-mold label theory is new and inconsistent with the theories it presented in the Petition. *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1368-69 (Fed. Cir. 2015) (improper to rely on "previously unidentified portions of a prior-art reference

to make a meaningfully distinct contention.").[3] Apple's new theory also fails on the merits.

First, Anthony's annotation of Figure 22 (below) demonstrates Sarantos's in-mold label 2276 does not satisfy the claim language.



Ex. 1003 ¶ 34. As shown above, the in-mold label is not positioned above the emitter 2208 and below the tissue (light orange). Rather, the in-mold label 2276 is positioned next to the emitter 2208. A different material (window 2226) is positioned between the emitter 2208 and tissue. Thus, the in-mold label is not "positioned ***between*** the plurality of emitters and a tissue measurement site."

Second, Apple's in-mold theory defeats its basis for challenging dependent Claim 9, which requires the same material that changes the shape of light be made of plastic. Apple does not assert the in-mold label 2276 is plastic. Nor could it

[3] Apple addressed this issue solely in Anthony's declaration, therefore waiving it as improperly incorporated by reference. EX1003, ¶35; 37 C.F.R. §42.6(a)(3).

because Sarantos describes the in-mold label 2276 as a "black" or "opaque" material "embedded within" the separate acrylic material. EX1005, 17:4-10.

Third, Apple offers nothing beyond speculation to show the in-mold label would change the shape of light. As Apple represented, "the relevant comparison is between the shape of light when it reaches the [material] and the shape of the light when it emerges from the [material]." EX2074, 65. Apple presents no such comparison. Instead, Apple's expert merely speculates about "different configurations for the shapes of the window." EX1079, ¶61. Apple did not make such arguments in the Petition and its Reply does not describe them with any particularity. EX1079, ¶61. Such speculation does not meet Apple's burden.

Apple's expert's speculation is also unreliable. POR, 36-38. For example, Anthony originally asserted a square light emitter would emit a square beam of light. EX1003, ¶111. On cross-examination, Anthony admitted the shape of light from a square emitter would be "unknown." EX2107, 110:19-111:14. On reply, Anthony asserted the shape of light from two square emitters would be an "elongated, oblong, shape" rather than two square beams of light, as his original opinion would have suggested. EX1079, ¶61. And Apple's ITC/Delaware expert, Sarrafzadeh, opined a square emitter would emit a circular beam of light due to Lambertian emission. EX2050, 160, 166-168; EX2098, ¶47, ¶¶229-230. Apple never reconciled these ***four different expert opinions*** on the same issue. Apple's inconsistent expert

opinions demonstrate why Anthony's speculation is insufficient to meet Apple's burden of proving Sarantos would change the shape of light.

Fourth, the Petition relied only on Sarantos's Figure 22, while Apple's Reply now argues "all possible ***combinations*** of light-emitting device arrangements and window region shapes that are not same geometric shape would have changed the light from a first shape to a different second shape." Reply, 6. But Sarantos does not describe even a single embodiment where the LED arrangement and window region shapes are different. Anthony argues the "window regions can have various shapes, including 'square' and 'non-square' configurations." EX1079, ¶61 (citing EX1005, 7:3-23, 9:1-28, 17:42-47, 13:34-14:1, 19:33-52). But Sarantos's references to "square" and "non-square" were to the shape of the photodetectors, ***not*** the window above an LED. EX1005, 7:3-23. Sarantos never describes the shape of the window above a light emitter. Thus, Sarantos cannot disclose any "combinations" of LED arrangements and window shapes.

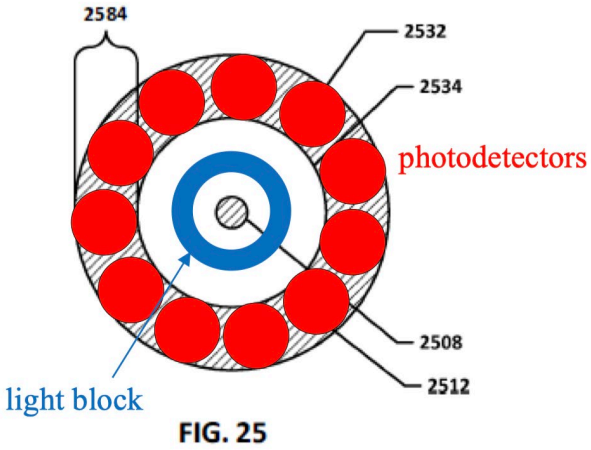
Even if Sarantos disclosed such a combination, Apple did not explain ***why*** a POSITA would have made such a combination to change the shape of light. Nor could Apple provide such an explanation in view of Apple's admission that Sarantos does ***not*** disclose changing the shape of light. EX2099, 18:14-21.

B. Apple Concedes Sarantos Does Not Disclose a Diffuser (Claim 14)

Claim 14 requires "a diffuser." Apple does not dispute that Sarantos does not disclose or render obvious a diffuser. *See generally* Reply; POR, 23-24. This alone defeats Ground 1G for Claim 14.

C. Sarantos Does Not Disclose A Plurality of Photodiodes In An Array that Corresponds To A Circular Light Block (Claims 5, 14, 25)

None of Sarantos's figures or descriptions described the claimed arrangement of detectors and light block. Thus, Apple relied on a multi-step modification that: (1) began with Sarantos's Figure 22 showing two detectors and walls 2274, (2) combined it with Figure 25 showing one annular detector but ***no*** light block, (3) modified the walls 2274 in Figure 22 to be a circular wall, and (4) broke up the single annular detector in Figure 25 into eleven smaller circular photodetectors. Pet., 18-23, 41-43, 68, 70. The result of Apple's extensive hindsight-driven modifications is shown below:



Pet., 21 (Apple's modified Sarantos Fig. 25).

Apple disputes its combination required multiple steps. For example, Apple disputes whether Figures 22 and 25 are "different embodiment[s]." Reply, 10-11. But Figure 22 has "***two HAR*** photodetector[s]" whereas Figure 25 has ***one*** "***non-HAR***" photodetector. EX1005, 19:22-35. They cannot be the same embodiment.

Apple argues that Figure 25's annular detector "can be implemented using a plurality of photodetector elements (depicted by [Apple's] red circles)" based on boilerplate language. Reply, 11-12 (citing EX1005, 20:52-57). But Apple never identified the source of its red circular detectors, which were never disclosed in Sarantos. Moreover, Apple identifies no motivation to break up Sarantos's annular detector into eleven smaller detectors. To the contrary, a POSITA would not have done so because, as shown in Apple's annotations, the smaller detectors create gaps that result in a loss of photodetector surface area and lead to decreased performance. *See* EX1005, 9:1-10:50, 19:22-52 (describing performance benefits when photodetectors are shaped to maximize light collection).

Apple argues alternatively that Sarantos discloses an arrangement of four HAR detectors. Reply, 13 (citing EX1005, 14:62-64). But that portion of Sarantos referred to Figure 16, which as explained in the POR, depicts a ***square*** array. POR, 21; EX2100, ¶70. Such a square array does not correspond to a circular light block.

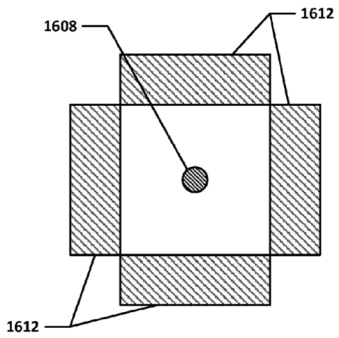


FIG. 16

EX1005, Fig. 16.

D. Apple Does Not Address Unique Aspects Of Claim 24

Apple admits Claims 12 and 24 are different but states that its Claim 12 arguments are "equally applicable to claim 24." Reply, 31. Apple is incorrect. Claim 12 concerns the dimensions of the "opening" in the dark-colored coating while Claim 24 concerns the "second shape" of light. Thus, Grounds 1G and 1H failed to demonstrate unpatentability for Claim 24.

III. GROUNDS 1B, 1E, 1F, and 1H (SARANTOS AND SHIE) FAIL

A. Sarantos-Shie Does Not Render Obvious Changing A First Shape Into A Second Shape (Claims 1 and 19)

1. Apple Is Estopped From Re-Raising Its Sarantos-Shie Grounds

Apple is collaterally estopped from arguing a motivation to combine Sarantos-Shie because Apple litigated and lost this issue in IPR2022-01465. POR, 25-31. Apple does not dispute the second element (actually litigated), third element (essential to final judgment), and fourth element (full and fair opportunity to litigate)

of collateral estoppel. Apple disputes only the first element (identical issues). Reply, 13-17. Apple is incorrect.

The issue in both IPRs is identical: whether a POSITA would have been motivated to combine Sarantos with some optical material from Shie to change the shape of light. *See* EX2036, 137-147. Indeed, Apple's Petition repeatedly represented that it presented "the ***same*** Sarantos-Shie combination" as in IPR2022-01465. Pet., 71; *see also id.*, 82–83.

Apple argues Masimo "misstate[d] the finding of the Board in IPR2022-01465." Reply, 13-14. Apple argues the prior decision was decided on a particular record, so Apple is only "estopped from arguing that ***the record in the IPR2022-01465 proceeding*** established a motivation to combine Sarantos with Shie." *Id.* (Apple's emphasis). Apple's argument is frivolous. Collateral estoppel still applies because ***every*** decision is necessarily decided on a particular factual record. *See SynQor, Inc. v. Vicor Corp.*, 988 F.3d 1341, 1354 (Fed. Cir. 2021)

In *SynQor*, the dissent raised a similar argument that collateral estoppel should not apply because the later proceeding included better evidence on the common issue. *Id.* The Federal Circuit disagreed, explaining "collateral estoppel applies 'even if new evidence exists.'" *Id.* at 1355 (internal citation omitted). "A losing party does not get a second bite at the apple simply because they can find a new and arguably more persuasive witness to present their evidence; this is ***precisely*** the type

of rematch that collateral estoppel is intended to foreclose to serve the interests of repose and finality."

Apple argues that collateral estoppel should not apply because the Board did not find a "fundamental incompatibility" between Sarantos and Shie such that they could never be combined. Reply, 14. But *SynQor* never suggests such a fundamental incompatibility is required. Instead, it explained "an 'issue' must be understood broadly enough 'to prevent repetitious litigation of what is essentially the same dispute.'" *SynQor*, 988 F.3d at 1355. The Federal Circuit broadly found the issues were the same even though the later decision purportedly contained better evidence showing no incompatibility between references. *Id.*

Apple argues collateral estoppel should not apply because its Petition was word-count limited in IPR2022-01465. Apple cites no case suggesting collateral estoppel does not apply if a party faces briefing constraints. Regardless, Apple had a reply ***and*** sur-sur-reply in IPR2022-01465. And Apple could have requested an oversized brief. 37 C.F.R. §42.24(b). Apple did not do so because the word limit was irrelevant. Indeed, Apple presented the same deficient Sarantos-Shie arguments in the IPR2022-01291 petition where it was ***5,000 words under*** the limit. *See* IPR2022-01291, Paper 2 at 30-35.

Apple also argues this Petition included "evidence that was not cited or discussed in the earlier IPR2022-01465 Petition." Reply, 15 (referring to EX1008,

EX1009, EX1016, EX1022, EX1023, EX1025). As discussed, "collateral estoppel applies 'even if new evidence exists.'" *SynQor*, 988 F.3d at 1355. Regardless, Apple ***did*** submit each of those exhibits in IPR2022-01465 as EX1074, EX1013, EX1053, EX1047, EX1046, and EX1049, respectively. Apple also discussed those exhibits in its reply and expert declaration in that proceeding. IPR2022-01465, Paper 39, 23-24; IPR2022-01465, EX1042, ¶¶60-63.

Apple also listed five bullet points of purportedly unique arguments in this IPR. Reply, 16. But it presented the first, third, and fifth bullet points in IPR2022-01465. *See* EX2036, 143-144; IPR2022-01465, Paper 3 at 40-41. And the remaining points merely elaborate on the other arguments. Pet., 32-33 ("increase[] the signal level" argument was elaboration on "precisely direct the light … to increase power efficiency"); EX1003, ¶74 (Anthony explaining the "tune the light intensity" argument was elaboration on the "first and second" reasons). Indeed, Apple's expert repeatedly presented ***three*** motivations. EX1003, ¶¶99-102; EX1079, ¶74. Regardless, Apple cannot escape estoppel by presenting new or better arguments. *SynQor*, 988 F.3d at 1355.

2. <u>Sarantos-Shie Fails On The Merits</u>

Even if the Board were to reconsider the merits, Sarantos-Shie fail to demonstrate obviousness.

First, Apple's Reply reinforces the Board's prior IPR2022-01465 decision that Apple failed to demonstrate a motivation to combine Sarantos and Shie. There, the Board reasoned that Apple failed to explain how any particular lens structure could provide the three alleged benefits of (1) directing light closer to the photodiodes, (2) increasing accuracy by directing light towards a larger area of tissue, and (3) obscuring the LEDs' appearance from the user. EX2036, 143-144. The Board found, "it 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.

Like before, Apple's Petition did not rely on any particular lens structure from Shie, but broadly cited to Shie's figures encompassing 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. Pet., 32 (citing EX1007, Figs. 1a-8b); POR, 32. And Apple's Reply again cites to a parabolic convex lens (Reply, 17), a lightpipe (Reply, 18, citing EX1007, 9:36-45)), a Fresnel lens, (Reply, 18), and a cylindrical lens (Reply, 18, citing EX1007, 1:20-24). Thus, even if Apple were not collaterally estopped, it clearly did not adjust its arguments to overcome the Board's previous reasoning.

Moreover, the Board found Dr. Anthony failed to demonstrate a motivation to combine "without the benefit of impermissible hindsight." EX2036, 144-145. In IPR2022-01465, Masimo demonstrated Anthony's declaration copied arguments from Apple's ITC briefing—including a citation to a document Anthony had never seen. EX2036, 144-145. Apple and Anthony never addressed that mistake. *Id.* Thus, the Board found Anthony's opinions were based on impermissible hindsight. Apple never addressed the issue, despite raising the same arguments again.

Second, Masimo's POR explained why Apple failed to demonstrate that Sarantos-Shie changes the shape of light. POR, 34-40. Apple's Reply does not address Masimo's arguments and merely refers back to its Petition. Reply, 19. Apple does not address Anthony's lack of credibility because his opinions are internally inconsistent and contradicted the opinions of Apple's other expert, Sarrafzadeh. *See* POR, 36-38.

Apple also does not dispute that the Petition failed to identify the "first shape" of light from the emitter or the "second shape" projected towards the tissue. POR, 38-40. Instead, Apple identified the light reflected ***out*** of the user's skin as the "first shape" and argued that shape would change to a "second shape." *Id.* Apple's Reply does not address this issue. Thus, Apple fails to demonstrate the claimed change in the shape of light.

B. Determining Oxygen Saturation At The Wrist Would Not Have Been Obvious

1. Sarantos Does Not Disclose Determining Oxygen Saturation at the Wrist

Apple argues Sarantos "expressly describes embodiments" that "measure blood oxygenation levels." Reply 19. It does not. Sarantos admitted its disclosures were "not tailored" for the wavelengths used for measuring oxygen saturation. EX1005, 18:42-51; EX2100, ¶108. At best, Sarantos contained a passing mention of oxygenation and guessed (wrongly) that it might use "an LED that predominantly emits light in the red ***or*** infrared spectrum." EX1005, 13:47-49, 13:55-58. That does not disclose an embodiment that determines oxygen saturation. EX2100, ¶108. Indeed, Apple conceded such a single-wavelength device cannot measure oxygen saturation. EX2099, 50:2-51:17.

Apple dismisses Sarantos's disjunctive "or," but ignores that the Board found the disjunctive "or" meaningful. Reply, 19; EX2035, 64 n.13. Apple does not dispute using red ***or*** infrared light is insufficient. EX2100, ¶107. Instead, Apple wrongly claims Sarantos discloses using "multiple light sources [that] would collectively emit red ***and*** infrared light." Reply, 19-20. Sarantos includes no such disclosure. Sarantos's only descriptions of multiple light sources were a green LED on the left side and a "red- ***or*** infrared-wavelength LED" on the right. EX1005,

13:53-58, 15:29-33. Apple does not argue a combination of green/red or green/infrared LEDs would be capable of measuring oxygen saturation.

Apple references a passage from the '159 Patent describing "one or more wavelengths" of light. Reply, 20 (citing EX1001, 1:54-2:1). That passage described techniques for measuring "oxygen saturation and pulse rate, among other physiological parameters." EX1001, 1:53-61. And Apple has already conceded that a single-wavelength device cannot measure oxygen saturation. EX2099, 50:2-51:17.

Apple also repeated the Petition's argument that "ratios/dimensions" of Sarantos's rectangular photodetectors could be optimized to detect red or infrared light. Reply, 20; Pet., 24. But Sarantos provided no guidance on how to optimize such ratios or dimensions. And neither Apple nor its expert explained how a POSITA could have done so without undue experimentation.

2. A POSITA Would Not Have Had a Reasonable Expectation of Success in 2015

Even if motivated, a POSITA would not have reasonably expected success in modifying Sarantos or Sarantos-Shie to determine oxygen saturation at the wrist in 2015. Apple quips that obviousness does not require "absolute predictability." Reply, 25. "While absolute certainty is not necessary to establish a reasonable expectation of success … ***there can be little better evidence negating an expectation of success than actual reports of failure***." *Boehringer Ingelheim Vetmedica, Inc.*

v. Schering-Plough Corp., 320 F.3d 1339, 1354 (Fed. Cir. 2003). Such is the case here.

a) Apple's Engineers Did Not Know If Oxygen Saturation Could Be Measured from the Wrist in 2015

Apple never seriously wrestles with the impact of its engineers' testimony and documents on reasonable expectation of success. Apple never explains why, if there were a reasonable expectation of success in 2015, Apple needed to hire an industry expert with decades of experience, Mannheimer, to research its ***feasibility***. Apple ignores that Mannheimer rolled his eyes at that assignment, thought "good luck with that," and told his boss he did not know if it could be done. POR, 45; EX2077, 1012:12-25; EX2080, 173:14-174:6. Apple also ignores that its engineers concluded after extensive research that [redacted] and "Invention is required" to measure oxygen saturation at the wrist. EX2085, 13; POR, 65-66.

Instead of confronting the evidence, Apple recycles arguments that unfortunately misled the prior panel. For example, Apple argued its engineers were testifying from their personal perspective, not from the perspective of a POSITA as an expert witness would. Reply, 28. But Apple's highly educated and experienced engineers indisputably exceeded the level of ordinary skill. If even they did not think they could succeed, then a less skilled individual would have had even lower expectations of success. Thus, their testimony is relevant to what a POSITA would

have understood and is evidence that a POSITA would not have had a reasonable expectation of success in 2015. POR, 52-53. Apple cites no authority suggesting such evidence is irrelevant and that only experts may address this issue.

Apple argues "there is ***no evidence*** that the engineers were even aware (as a POSITA would have been)" of the references Apple cited. Reply, 28. Apple is incorrect. Masimo's POR demonstrated—and Apple did not dispute—that Apple's engineers were aware of Apple's cited references and others like them. POR, 55-59; EX2100, ¶¶128-132; EX2101-EX2104. Apple apparently recycled this argument from IPR2022-01291, where it successfully hid this evidence behind a protective order. In this IPR, Masimo negotiated for months to use that evidence here. Apple has no basis for repeating its prior false representation that such evidence does not exist.

Apple further argues Apple's engineers [redacted] demonstrates a reasonable expectation of success. Reply, 27-28. Not so. The [redacted] demonstrates a ***lack*** of reasonable expectation of success. EX2085, 13. Apple's engineers [redacted] only after concluding conventional sensing methods did not work, that invention would be required, and [redacted] *Id.* Apple's engineers [redacted]

[redacted] because they did not know if they could succeed.

Moreover, [redacted] is a business decision. POR, 50-52. No evidence shows that Apple's engineers *actually* met with Apple's executives, what was discussed, or *why* approval was granted, if ever. Regardless, the question is whether a POSITA reviewing the cited references would have a reasonable expectation of success—***not*** whether the largest company in the world could dedicate extensive resources to try to solve [redacted] EX2085, 13.

Apple further argues the challenges were due to small form factor and limited battery power. Reply, 28-30. But Apple cites no evidence that form factor or limited battery power had anything to do with its engineers' conclusion that oxygen saturation was not feasible on the wrist. In 2015, Apple's engineers were not constrained by battery power because they were working with [redacted] EX2085, 12. Indeed, Apple's engineers highlighted problems due to wrist physiology—not battery life and form factor—as the "major challenges." EX2085, 6; POR, 44-49. And Apple's documents showed battery life and form factor become relevant only at ***later*** stages of development. POR, 53-54. Apple's Reply effectively conceded these facts by not addressing them.

Apple argues "Unlike the [Apple] Watch, the claims do not require regulatory approval" or "measurement during all/most daily activities." Reply, 29. But Apple knows the blood oxygen feature of its Apple Watch does ***not*** have regulatory approval and also is ***not*** capable of measuring during all/most daily activities. EX2078, 926:23-927:5, 927:19-928:8 (Apple's engineers [redacted]; EX2106, 2-3 (directing users to "hold as still as you can" during measurement).

Apple argues the Apple Watch requires "small measurement error," suggesting that Apple's engineers were merely struggling with accuracy. Reply, 29. But, in 2015, [redacted]—an impossibility because oxygen saturation is limited to 0%-100%. EX2094, 26:7-29:19; POR, 65; EX2085, 7-9. That is not an accuracy problem—the prototypes were not working at all. And it explains why references detecting PPG signals or showing modulation ratios without calculating oxygen saturation do not demonstrate a reasonable expectation of success. EX2100, ¶126.

Apple also introduces testimony from other engineers to suggest later development challenges were the reason they could not measure oxygen saturation at the wrist in 2015. Reply, 30 (Venugopal (EX1083), Mehra (EX1082), and Block (EX1084)). But Venugopal was not involved in the feasibility research. [redacted]

[redacted] EX1083, 824, 13-23. Mehra also was not involved in the feasibility research. He "joined the team around mid 2018 after the early prototyping feasibility had been established" and was tasked with "integrat[ing] this feature into a system in the Apple Watch." EX2029, 852:1-6. Block worked on both feasibility and commercialization, but testified he was most proud of his "very hard work" "figur[ing] out how to make [oxygen saturation] work on the wrist." EX1084, 902:13-19. Block's additional difficulty in integrating the feature into a final product is separate and distinct from Apple's earlier difficulties in calculating oxygen saturation at the wrist.

b) Sarantos, Pang, Li, Cai, Maattala, and Brady Do Not Demonstrate a Reasonable Expectation of Success

The Petition relied on Sarantos, Pang, Li, Cai, Maattala, and Brady for reasonable expectation of success. Pet., 25-26. None of those references disclosed an actual calculation of oxygen saturation from the wrist. POR, 54-60. Apple suggested the "evidence is equivocal concerning the *reason* why" no such device existed for years. Reply, 25-26. But Apple's Reply offered no explanation. *Id.* All evidence demonstrates oxygen saturation at the wrist was still an unsolved challenge in 2015.

c) Apple's Waived Arguments Fail to Demonstrate a Reasonable Expectation of Success

As explained in Masimo's motion to strike, Apple's Reply improperly raises new exhibits and arguments regarding expectation of success. Masimo's POR argued—and Apple did not dispute—that Apple's Petition waived those arguments by improperly incorporating them by reference. POR, 60; *generally* Reply.

Apple's Reply now raises those waived arguments. Reply, 20-21 (referencing "APPLE-1014–APPLE-1018, APPLE-1021, APPLE-1036, APPLE-1038, APPLE-1042–APPLE-1048"), *id.* at 24-25 (string-citing EX1017, EX1043, EX1044, EX1036, EX1045, EX1046, EX1038, EX1047, EX1048); *id.* at 23-24 (discussing Fontaine (EX1042)). But those arguments ***still*** violate the rule against incorporation by reference because Apple provided only single-sentence conclusions followed by string-citations to exhibits and numerous pages of declarations. Reply, 20-21 (string-citing above references and EX1003, ¶¶71-84 and EX1079, ¶¶72, 34-53); *id.* at 24-25 (string-citing above references and EX1003, ¶¶100-109 and EX1079, ¶¶35-38).

The Board rejected Apple's same tactic in IPR2022-01291. EX2035, 90-91; *see also Cisco Sys., Inc. v. C-Cation Techs., Inc.*, IPR2014-00454, Paper 12 at 7-10 (PTAB Aug. 29, 2014) (informative) (citing declaration to support conclusory statements not otherwise supported in the petition is improper); *Parus Holdings, Inc. v. Google LLC*, 70 F.4th 1365, 1371 (Fed. Cir. 2023) (improper to "throw[]

mountains of evidence at the Board without explanation or identification of the relevant portions of that evidence."). The Board should likewise ignore those string-citations here.

Regardless, Apple's string-citations do not withstand scrutiny. For example, Goldreich (EX1036) described a wrist-worn device where a user would place their ***finger*** on top to measure oxygen saturation. EX1036, [0126], Fig. 5 (SpO2 sensor 566 located on top of a watch-like device). Lindberg (EX1017) showed only PPG signals obtained from a single-wavelength device—which could not measure oxygen saturation. EX1017, 82 (showing PPG signals), 50 (explaining test device had six light sources all at 875 nm). Neither Apple nor its expert explain the relevance of any other string-cited exhibits.

Apple argues that Fontaine (EX1042) "demonstrates that in 2013, a group of undergraduates were able to accurately measure" oxygen saturation. Reply, 23-24. But Apple cites ***no evidence*** showing Fontaine was published in 2013 or reflects work in 2013. That document is completely undated. *See generally* EX1042; EX1087, 495:15-496:4. Moreover, Apple's reliance on EX1042 to establish the truth of the matter asserted (*e.g.*, successful oxygen saturation measurements) is classic hearsay not subject to any exception. Fed. R. Evid. 801. On its face, EX1042 appears to be nothing more than undated, unsigned, and ungraded schoolwork that does not inform whether a POSITA would have had a reasonable expectation of

success in determining oxygen saturation at the wrist in 2015. EX1087, 495:15-496:4. That is especially true given the extensive contrary evidence of record.

d) Apple's Enablement Arguments Are Irrelevant

Apple erroneously conflates two distinct legal concepts: expectation of success for prior art and enablement for the patented claims. Reply, 25-27. Obviousness ***requires*** a reasonable expectation that the combination of prior art would successfully achieve the claimed invention. *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1360 (Fed. Cir. 2012). In contrast, a POSITA's expectation of whether a prior art combination would succeed plays ***no*** role in the enablement analysis. *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988). Apple thus improperly injected enablement issues into this IPR.

Apple argues the '159 Patent only makes "passing reference to pulse oximetry at the wrist." Reply, 26. But the '159 Patent need not reiterate known ***challenges*** before providing a solution. The patent describes multiple advances that work together to facilitate oxygen saturation determinations from difficult-to-measure locations like the wrist. *See* EX2002, ¶¶39-44.

Apple argues that the '159 Patent "assumes that a POSITA would have known how to implement such measurements at the wrist despite the weaker signal." Reply, 26. Apple cited testimony from Masimo's different expert in IPR2022-01291, but that expert never agreed to any such statement. Instead, that expert explained that

the ’745 Patent disclosure enables the claimed inventions. EX1080, 17:19-22, 31:4-17, 48:17-22. Unlike every other reference Apple cited, the ’159 Patent and related patents resulted in an FDA-cleared device that measures oxygen saturation at the wrist. EX2093, 199-207 (ITC finding Masimo W1™ practiced Claim 18 of related ’745 Patent by successfully measuring oxygen saturation at the wrist).

C. Apple Does Not Dispute the Objective Evidence Showing Non-Obviousness

Apple’s Reply fails to address any of Masimo’s arguments that industry skepticism, failure of others, and long-felt-but-unmet need supported the patentability of Claims 8 and 17. POR, 61-66; *generally* Reply. Moreover, if the Board considers Apple’s waived evidence (*supra* Section III.B.2.c), that evidence only further demonstrates a long-felt-but-unmet need for a device that measured oxygen saturation at the wrist. *See* POR, 66; Reply, 24-25. The undisputed strong objective indicia of non-obviousness undermines Apple’s arguments.

IV. APPLE’S CRITICISMS OF DR. MADISETTI ARE BASELESS

Apple’s Reply argues Madisetti’s opinions were not sufficiently supported and conclusory. Reply, 31. Yet, Apple does not identify a single opinion that Apple contends was unsupported or conclusory.

Apple falsely argues Madisetti was non-responsive during cross-examination. Reply, 31-33. But Apple questioned Madisetti for hours on topics it admitted were outside the scope of his declaration, including enablement and written description.

EX1087, 384:12-385:11; 410:21-411:18. Madisetti answered counsel's questions and explained that he had not formed opinions on topics outside of his declaration. Apple was not entitled to cross-examine Madisetti on topics outside the scope of his declaration. Fed. R. Evid. 611(b); 37 C.F.R. §42.53(d)(5)(ii).

Apple falsely asserts Madisetti testified "he was only required to answer questions 'if asked by the court to do so.'" Reply, 32 (citing EX1086, 144:6-145:13). Madisetti explained he had not offered an opinion on that enablement-related issue, but that he would do so if asked in the future.

Apple asserts Madisetti would not opine on the meaning of "annular" or "circumference." Reply, 32. But Madisetti did precisely that. EX1087, 443:19-444:2 (explaining "annulus"); 461:4-463:8 (explaining "circumference"). Apple's criticisms are baseless.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: March 28, 2025

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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(c)(4). According to Microsoft Office Word 2010's word count, this document contains approximately 5,589 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.

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: March 28, 2025

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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 MASIMO CORPORATION'S SUR-REPLY** is being served electronically on March 28, 2025 to the e-mail addresses shown below:

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