Trials@uspto.gov
571-272-7822

Paper No. 71
Entered: December 13, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

MASIMO CORPORATION,
Patent Owner

IPR2022-01291 (Patent 10,687,745 B1)
IPR2022-01465 (Patent 10,687,745 B1)

Held: November 17, 2023

BEFORE: JOSIAH C. COCKS, GEORGE R. HOSKINS, and ROBERT A. POLLOCK, Administrative Patent Judges.

MASIMO 2099
Apple v. Masimo
IPR2024-00243

APPEARANCES:

ON BEHALF OF THE PETITIONER:

NICK STEPHENS, ESQUIRE
Fish & Richardson P.C.
60 South 6th Street, Suite 3200
Minneapolis, MN 55402
612-335-5070
nstephens@fr.com

W. KARL RENNER, ESQUIRE
Fish & Richardson P.C.
1000 Maine Avenue SW
Washington, D.C. 20024
202-626-6447
renner@fr.com

KIM LEUNG, ESQUIRE
Fish & Richardson P.C.
12860 El Camino Real Suite 400
San Diego, CA 92130858-678-4713
leung@fr.com

ON BEHALF OF THE PATENT OWNER:

JEREMIAH HELM, ESQUIRE
Knobbe, Martens, Olson, & Bear, LLP
2040 Main Street, 14th Floor
Irvine, CA 92614
jeremiah.helm@knobbe.com
949-760-0404

The above-entitled matter came on for hearing on November 17, 2023, commencing at 1:00 p.m., via video teleconference.

P R O C E E D I N G S

- - - - -

JUDGE HOSKINS: This is Administrative Patent Judge George Hoskins. We're here today for oral argument in two related IPR proceedings that are challenging the same patent. So the proceedings are IPR2022-01291, and IPR2022-01465. And the Patent is U.S. Patent Number 10,687,745. Our Petitioner here today is Apple Inc., and our Patent Owner is Masimo Corporation. And I am joined by my two panel colleagues, Judges Josiah Cocks, and Robert Pollock today. So, with that introduction, let me get some introductions into the record from our parties. And we'll start with counsel for Petitioner, please.

MR. STEPHENS: Thank you, Your Honors. This is Nick Stephens from Fish & Richardson on behalf of Petitioner, Apple Inc. I'm here with my colleagues, Karl Renner, and Andrew Patrick. And Kim Leung is joining us remotely from our San Diego office.

JUDGE HOSKINS: Thank you, Mr. Stephens and welcome to the Board, well, re-welcome to the Board this afternoon. And so, an appearance from Patent Owner, please.

MR. HELM: Hello, Your Honor. Jeremiah Helm on behalf of Masimo. I'm from the firm of Knobbe, Martens, and I'm here with Carol Pitzel Cruz, Brian Claassen and Daniel Kiang, my partners here at Knobbe.

JUDGE HOSKINS: Thank you, Mr. Helm, and also welcome to the Board here today. So, I guess particularly with respect to Mr. Helm, we intend to do this afternoon under the same procedure that we did this

1 morning. And so, I'm not inclined to go through the whole procedure, but
2 even though it was the same firm from Patent Owner here this morning, it
3 wasn't you. So do you have any questions or concerns about how we're
4 going to proceed today?
5 MR. HELM: No, Your Honor. If I may just confirm my
6 understanding, the first session will be the public session, and then we'll
7 move on to the confidential session. In each case, Patent Owner will go
8 second.
9 JUDGE HOSKINS: That is correct.
10 MR. HELM: Thank you very much, Your Honor.
11 JUDGE HOSKINS: And also importantly, we're not going to ask
12 for a reservation of time up front for either the reply portion of Petitioner's
13 argument in each session, or up front now for a reservation for the second
14 session. We're just going to let you talk and when you want to stop, you can
15 stop, and then whatever is left over, you have then left over for the
16 remaining sessions. The difference, I guess, from this case to the case this
17 morning was you each have 75 minutes in this case as opposed to 60 in the
18 morning. So, with that, let me just -- I think we're ready to go and I can turn
19 it over to Petitioner unless, Mr. Stephens, you have any questions about how
20 procedure-wise we're going to proceed today.
21 MR. STEPHENS: No questions. Thank you, Your Honor.
22 JUDGE HOSKINS: Okay. Well, then, when you are ready to
23 begin, you may begin. And, you know, please keep track of your own time.
24 We'll also be keeping track of your time. And when you do begin, we'll start
25 the clock on our end. So, thank you very much.

1 MR. STEPHENS: May it please the Board. Good afternoon, Your
2 Honors. I'll be starting the open session today on behalf of Petitioner,
3 Apple. As I mentioned earlier during our appearances, Kim Leung is also
4 with us. And Kim, I'll be transitioning to Kim for the second half of our
5 open proceeding. And then during the closed session, we intend to, for Karl
6 Renner to present with respect to issues involving confidential information.
7 The 1291 Petition challenges three Independent Claims of the '745
8 Patent. Claims 1, 15, and 20. Specifically, Grounds 1A through 1B,
9 challenge Claim 1 as obvious based on Iwamiya and Sarantos, and Claims
10 15 and 20 are challenged as obvious based on the combination of Iwamiya,
11 Sarantos, and Ventkatraman. The 1465 Petition then challenges claims that
12 depend from each of these Independent Claims and thus addresses
13 obviousness of the limitations of 1, 15 and 20 in the same manner as the
14 1291 Petition. During trial, Masimo's not disputed that almost all of the
15 limitations in Independent Claims 1, 15 and 20 are disclosed or rendered
16 obvious by the applied prior art. We'd be happy to address any questions
17 from Your Honors today regarding the prior art mappings or any of the
18 limitations, but unless there's specific questions, we intend to focus our time
19 on the limitations that have been disputed, and we'll leave our arguments
20 with respect to the other limitations and Dependent Claim 25 to the papers.
21 So, with that, I'd like to turn to slide 11 of our demonstratives.
22 And the first limitation that's been disputed appears in both Independent
23 Claims 1 and 20. These claims require a surface comprising a dark-colored
24 coating, the surface configured to be positioned between the plurality of
25 photodiodes and the tissue when the physiological monitoring device is in

1 use. We show that this limitation would be obvious based on the teachings
2 of Iwamiya in view of Sarantos. Turning to slide 12 of our demonstratives,
3 we can see that Iwamiya discloses a light-shielding frame 18 to surround a
4 light-receiving unit 9. The light-shielding frame being highlighted in pink in
5 the figure depicted on slide 12, and the light receiving unit 9 in yellow.
6 While a single light receiving unit 9 is shown in this figure, the text also
7 explains that photodiode 9 would consist of -- include a plurality of
8 photodiodes 9. Slide 13. Sarantos teaches a dark colored coating to shield
9 light. For the details of materials with optical properties that would achieve
10 Iwamiya's desired light shielding function, the Petition explains that a
11 POSITA would turn to these teachings in Sarantos. And we can see that
12 Sarantos discloses in Figure 22 the use of a dark colored coating 2276 that
13 Sarantos refers to as an in-mold label, which may be black or otherwise
14 opaque, and which is also positioned between the photodiodes 2212 and the
15 patient's tissue in use. And Sarantos explains that the in-mold label prevents
16 light from entering or exiting the PPG sensor except through window
17 regions 2226, and it also prevents stray light from other sources, e.g.,
18 ambient light, from reaching the photodetector elements.
19 Slide 14. With respect to the combination, the Petition and Dr.
20 Anthony explained that it would be obvious to combine the teachings of
21 Iwamiya and Sarantos, specifically by integrating an in-mold label or other
22 black or opaque material as disclosed by Sarantos in the light shielding
23 frame 18 of Iwamiya to serve the purpose indicated by the component's
24 name, shielding the photodiodes 9 from stray light and thereby ensuring the
25 accuracy of the sensor. And on slide 16, we see the analysis from Dr.

1 Anthony's declaration, where he indicates that the in-mold label, or a dark
2 color coating as taught in Sarantos, would be obvious to apply further for
3 limiting reflections in the device of Sarantos -- of Iwamiya. And limiting
4 reflections is an important benefit that would be achieved by the use of a
5 dark color coating as taught in Sarantos. If we go to slide 15, there's a figure
6 depicted, a cross-section of Iwamiya's sensor, and we can see that around the
7 exterior of the light-shielding frame 18, highlighted in red on slide 15,
8 there's a cavity in which light that reflects from the tissue may be directed to
9 this cavity surrounding the light-shielding frame 18. So, one of the reasons
10 that a POSITA would look to a dark-colored coating, as taught in Sarantos,
11 to be applied to the exterior of the light shielding frame 18 would be to limit
12 reflections and thereby mitigate the effect of multiple scattering that could
13 occur with an otherwise reflective material, for example. So, any light that
14 is initially reflected from the patient's tissue into the cavity surrounding the
15 light shielding frame 18, with the use of a dark-colored coating, the light
16 would be absorbed and there would be less opportunity for that light to
17 reflect back to the patient's tissue and then again in through the optical filter
18 to the photodetector.
19 The concept of multiple scattering was known long before the '745
20 Patent. Slides 18 and 19, sorry 17 and 18, we've provided various pieces of
21 corroborating evidence that disclose this concept. It's also discussed in the
22 background section and elsewhere in the '745 Patent. And Dr. Anthony
23 explained again that the application of a dark-colored coating to the light
24 shielding frame would both provide a material that would be obvious to
25 serve the function indicated by the name of the light shielding frame, but

1 also to reduce the reflections and multiple scattering. We would briefly just
2 note that Masimo has contested whether there would be any benefit to the
3 use of a dark-colored coating as applied to Iwamiya. But if we look at the
4 evidence they've submitted to that effect, Dr. Duckworth failed to account
5 for the possibility, this is on slide 19, I apologize, for the possibility of
6 multiple scattering in Iwamiya's device. So, he was focused on light that
7 would simply reflect within the cavity and be directed solely through the
8 optical filter 17. But what we see beneath, the optical filter 17, shaded in
9 blue, is what Iwamiya refers to as the scattered light taking unit 8. And
10 that's simply a transparent lens made out of glass or a plastic resin. That
11 would allow light not just to reflect from the cavity back, you know, to the
12 photo detector 9 through the filter, but also back to the patient's tissue,
13 rendering it susceptible to multiple scattering.
14 Next, I'd like to turn to slide 23. And as to Independent Claim 15,
15 as highlighted on this slide, claim 15 requires a plurality of photodiodes,
16 where the plurality of photodiodes are arranged in an array having a spatial
17 configuration corresponding to a shape of the portion of the tissue
18 measurement site encircled by the light block. Claim 6 and 26, which are
19 challenged in the 1465 Petition, include similar language as we see in claim
20 15.
21 Turning to slide 28. In mapping this element of claim 15, we -- the
22 Petition cited to Iwamiya's teaching at column 14, lines 32 to 41, regarding
23 the plurality of light receiving units 9 being two-dimensionally disposed on
24 the same circumference centered on an optical axis of the scattered light-
25 taking unit 8. So, given a plurality of light receiving units 9 that are two-

1 dimensionally disposed on a, you know, quote, same circumference as
2 taught in Iwamiya. Iwamiya disposes and renders obvious an array having a
3 spatial configuration corresponding to the circular light block, exactly as
4 claim 15 describes.
5 JUDGE HOSKINS: Mr. Stephens, --
6 MR. STEPHENS: Yes.
7 JUDGE HOSKINS: -- this is Judge Hoskins. Can you point --
8 what is the light block in Iwamiya according to your mapping?
9 MR. STEPHENS: Yeah, thank you, Your Honor. The light block
10 is formed by the reflective layers 13 and 15 that surround the annular light
11 guiding unit 7. And I'm looking through our demonstratives to see if we
12 have a good figure of that available. Slide 15, for example. Looking at
13 Figure 4 in Iwamiya, you see the structure that's denoted 7, which contains
14 two components, there's an upper portion 11, and a lower portion 12. That
15 upper portion 7 is a formed of a transparent material like glass or plastic
16 resin, again. But the lower portion is kind of a milky resin that diffuses
17 light. But it's for the purpose of guiding the light from the LEDs to the
18 tissue. And --
19 JUDGE HOSKINS: So, if it's a block, the block is the outer layer
20 that we see there around those light carrying portions. I can't remember -- I
21 can't remember the number. But so, what shape is that? Because the claim
22 says that the array of our photo detectors have to have a -- I don't know if
23 shape is the right word, but a configuration that corresponds to the
24 configuration of the light block. And so those two, I'm having trouble
25 comparing those two things when I look here at Figure 4 of Iwamiya. So,

1 help me with that, please.

2 MR. STEPHENS: Certainly, Your Honor. The shape is circular.
3 If you look at the top view of the sensor, Iwamiya's sensor is a circular
4 sensor, and so that cross-sectional structure of the light block, those
5 reflective layers around the annular light-guiding unit 7, that's circular, and
6 that's how we get the circular shape. And that's the portion, so as a result of
7 that circular shape, the light from Iwamiya's LEDs are diffused or irradiated
8 around the tissue in a circular shape. And when we look at claim 15, the
9 language in claim 15 talks about a plurality of photodiodes being arranged in
10 an array, having a spatial configuration corresponding to a shape of the
11 portion of the tissue measurement site encircled by the light block. That
12 shape is simply circular.

13 JUDGE HOSKINS: How does the light block encircle in
14 Iwamiya? How does Iwamiya's light block encircle tissue?

15 MR. STEPHENS: Certainly. The -- in Figure 4, for example,
16 Iwamiya. The outer coating, for example, of that lower structure 12, the
17 ring, a radiating ring portion is, again, is in a circular shape. It's an annular
18 shaped ring that directs the light in a circular fashion onto the tissue. And so
19 that light line --

20 JUDGE HOSKINS: Annular, right, because it's got an inside
21 radius and an outside radius. So, right where the light comes out from our
22 device and goes into the tissue with those arrows that are pointing down,
23 that's an annular shape, correct?

24 MR. STEPHENS: That's correct, Your Honor.

25 JUDGE HOSKINS: Thank you.

1 MR. STEPHENS: Referring back to slide 28, we were looking at
2 Iwamiya's disclosure of the plural light receiving units 9 being two-
3 dimensionally disposed on the same circumference. And Masimo has
4 attempted to distinguish this disclosure by arguing that the disclosure of
5 plural light receiving units 9 is insufficient in Iwamiya because, their view,
6 at least six photodiodes would be required to correspond to a circular shape.
7 And this argument is premised on the prosecution history of an ancestor
8 application in this family. If we look at claim 25, or slide 25, apologies, the
9 top clip on slide 25 is the portion of the prosecution history of an ancestor
10 that Masimo relies upon for the notion that at least six photodiodes would be
11 required to demonstrate correspondence between the arrangement of the
12 photodiodes and a circular portion of the tissue measurement site. And it is
13 true, at one point the applicant did state with respect to a limitation in that
14 application that for example, six or more detectors could be arranged in an
15 annular shape and meet the recited limitation. But what Masimo did not
16 bring forward was that in that same response, the very next page, the
17 applicant argued to the examiner that the prior art the claim distinguished the
18 prior art that the examiner had applied because the prior art did not include
19 more than three detectors. So again, they're inconsistent. The -- Masimo was
20 arguing for six, but we looked in that same response and the applicant
21 identified as only three being necessary. Not only that, if we go to slide 26,
22 at the very end of that response in bold text, there's a very clear proclamation
23 of no disclaimers or disavowals. So to the extent that Masimo is relying on
24 the prosecution history to tell us that this limitation in Claim 15 requires at
25 least six photodiodes, that's inconsistent with the argument that they made

1 elsewhere in that same response, and it certainly doesn't constitute a
2 disclaimer or disavowal given the ambiguity, and the office action response
3 itself, as well as the applicant's own intent for it not to be a disclaimer in that
4 context. Nonetheless, that leaves us with the ordinary -- plain and ordinary
5 meaning of the word correspond. On slide 27 we've shown that correspond
6 means conform to be in agreement with. And Iwamiya's disclosure of plural
7 photodiodes disposed on a same circumference clearly shows that the
8 photodiodes conform and are in agreement with a circular shape. Indeed, we
9 look at Iwamiya's disclosure and it talks about the plural photodiodes 9
10 being two-dimensionally disposed on, you know, quote, a same
11 circumference, which is the circumference being a circular shape.
12 Finally, on slide 29, I'd note that both Dr. Anthony and Dr.
13 Duckworth in this proceeding illustrated how Iwamiya's plural photodiodes
14 9 would be disposed on a same circumference in a manner that meets the
15 claim limitations. On the left-hand side, we see Dr. Anthony's drawing
16 where he was showing how Iwamiya would render obvious the claim
17 limitation even if six photodiodes were required. And then Dr. Duckworth
18 in his sur-reply declaration put in the figure at the right where he actually,
19 drew four photodiodes disposed on the same circumference according to
20 Iwamiya's teachings. Next slide is to turn to slide 31. And with respect to
21 Dependent Claims 2, 9, 18, and 27, in the 1291 proceeding we've challenged
22 Dependent Claims 9 and 18, each of these requiring that the physiological
23 parameter referred to in the Independent Claims comprises oxygen
24 saturation. And relatedly in the 1465 proceeding, that claims 2 and 27 refer
25 to a device having photodiode or emitters that emit light at both the first

wavelength and a second wavelength.

JUDGE HOSKINS: Mr. Stephens?

MR. STEPHENS: Yes, Your Honor.

JUDGE HOSKINS: I think you've challenged claim 27 in the 1291 proceeding as well, is that right?

MR. STEPHENS: You are correct, Your Honor. I apologize for that.

JUDGE HOSKINS: Okay. I just want to make sure. Thank you.

MR. STEPHENS: Nine, eighteen and twenty-seven, in the 1291 proceeding.

JUDGE HOSKINS: Thank you.

MR. STEPHENS: Your Honors, I intend to address just a few initial points at this time, regarding the combination of light to address these claims. But absent questions after this discussion, we'll reserve the balance of our time to address issues related to reasonable expectation of success in the closed session in light of the confidential material that's implicated by that issue.

I refer to slide 37. In addressing these Dependent Claims, the Petition proposed to integrate Sarantos' teaching of wrist-based pulse oximetry into Iwamiya's wrist-based monitoring device so that the modified Iwamiya device would perform the type of wrist-based SpO2 measurements that are disclosed in Sarantos. So specifically, Iwamiya's original device was designed to measure pulse rate using a single wavelength of light. And Sarantos explains how it was known to use two wavelengths for calculating blood oxygenation levels. And the combination integrates that teaching

1 from Sarantos into Iwamiya. The motivation for doing so is stated by Dr.
2 Anthony on the clip shown on slide 37, which would be to expand the range
3 of physiological parameters measured by Iwamiya's sensors, thereby
4 improving the functionality and utility of the sensor. We're improving the
5 device by allowing Iwamiya not just to measure pulse rate, but also oxygen
6 saturation levels. Masimo challenges the combination, the motivation to the
7 combination, on several fronts. They first contend that Iwamiya teaches
8 away from adding a second wavelength. And the record doesn't support that
9 contention. On slide 33, you would note that Iwamiya focuses on red light
10 at 940 nanometers for the detection of pulse rate. And because pulse rate
11 requires only one wavelength, Iwamiya could naturally filter all of its light
12 below 900 nanometers. And indeed, it wanted to do so to obtain the cleanest
13 signal possible for just measuring pulse rate. All you need is the 940-
14 nanometer measurement. But Iwamiya never criticizes or disparages the use
15 of red light or other wavelengths of light for purposes of measuring oxygen
16 saturation levels. So, adding red light to expand the capabilities of
17 Iwamiya's device to measure not just pulse rate, but also oxygen saturation,
18 would be obvious and not contrary to Iwamiya's teachings.
19 Slide 34.
20 JUDGE HOSKINS: Mr. Stephens? Sorry.
21 MR. STEPHENS: Yes?
22 JUDGE HOSKINS: What does that portend then for the filter in
23 Iwamiya in terms of if you're going to do this, you're going to modify
24 Iwamiya to have the red and the infrared that seem to be required to measure
25 oxygen saturation. What does that portend for the filter in that Figure 4 of

1 Iwamiya?

2 MR. STEPHENS: Yes, Your Honor. The filter would need to be
3 adapted in some way to accommodate for the addition of a second
4 wavelength. As in Iwamiya's original design, we know that, that filter is
5 designed to cast light of only the infrared band above 900 nanometers. And
6 again, Iwamiya only needed to do that because it's only using a single
7 wavelength of light. But the filter is not critical to the operation of
8 Iwamiya's device. And we have evidence to that effect. If we look at Dr.
9 Anthony's declaration, supplemental declaration, that's Exhibit 1042, in
10 paragraphs 24 and 25, he talks about how it was known to have -- to
11 measure pulse rate and perform pulse oximetry even without filters. You
12 can get a sufficiently clean signal without the filter. But even if you were to
13 use a filter, which would, you know, enhance the performance, you can
14 adjust the cutoff frequency of that filter to encompass not just infrared and
15 red, you can also -- there were known solutions for multi-bandpass filters, so
16 you could effectively narrowly pass through just red band wavelength light
17 and infrared band wavelength light. But these were all known solutions to a
18 POSITA, and it certainly wouldn't render the device inoperable or teach
19 against the combination.

20 JUDGE HOSKINS: So if you widen up the filter's passage to
21 something below 900, how does that then interface with the written
22 description in Iwamiya that says, you know, wavelengths around 600 are
23 problematic, relying on wavelengths around 600 nanometers are problematic
24 because of the melatonin in dark skin that absorbs that light so you don't get
25 it out. How do you throw that into how a POSITA would tackle this

1 problem?

2 MR. STEPHENS: Good question, Your Honor. I don't think it
3 interferes with that teaching at all because what we're doing with adding the
4 oxygen saturation capability into Iwamiya's device is adding a second
5 wavelength. We're not changing the original wavelength that was needed to
6 measure pulse rate per Iwamiya's teaching. So, we can still continue to use
7 940 nanometers for measuring pulse rate, just as Iwamiya envisioned. It's
8 just that we can use the combination of infrared light at 940 nanometers and
9 red light to expand the capability and, also, doing blood oxygen saturation
10 measurements. I'd also note, so beyond the optical filter, Masimo has also
11 challenged whether POSITA would know how to integrate LEDs that would
12 be necessary for a second wavelength of light. Dr. Anthony, with
13 corroborating evidence before the critical date of 745, explained how a
14 POSITA would know how to do this. So, we're looking at Iwamiya's device
15 being a circular sensor. In the original design, the infrared 940 nanometer
16 LEDs being placed at the 3:00 and 9:00 positions, we could integrate the
17 second LEDs for the red wavelengths in a variety of ways, whether it's
18 adjacent to the infrared LEDs at the 12:00 and 6:00 positions or otherwise.
19 So, in short, Masimo's challenges to the motivation to combine Iwamiya and
20 Sarantos to determine oxygen saturation are unfounded. But as noted, we'll
21 return to the reasonable expectation of success issue in the closed session.

22 JUDGE HOSKINS: Mr. Stephens, before we turn away from the
23 motivation issue, my recollection is in the ITC, both of those issues went in
24 Patent Owner's favor. The ITC found that they're -- that Apple had not
25 established a motivation and Apple had also not established reasonable

1 expectation of success. Do I have that correct in terms of the result of the
2 ITC?
3 MR. STEPHENS: It's a good question, Your Honor. I'd like to
4 look at exactly how the ITC characterized their finding. I would note here
5 that we have a different record and evidence available to us that shows that,
6 whatever challenges Masimo received in adding a second wavelength, those
7 are challenges that a POSITA would have known how to overcome in terms
8 of, like you mentioned earlier, the optical filter, for example.
9 JUDGE HOSKINS: It's the same art, though. It's the same
10 combination. It's Iwamiya and Sarantos. So, how does this record really
11 differ from the record that was presented to the ITC?
12 MR. STEPHENS: I believe the ALJ's writing in the record
13 presented to the ITC said that the evidence that had been presented was
14 insufficient to demonstrate that a POSITA would know how to modify the
15 device accordingly. And so, we've had Dr. Anthony come in and explain in
16 detail in response to those allegations by Masimo in its Patent Owner's
17 response, which shows that indeed, you know, not just, don't take Dr.
18 Anthony's word for it. Many pieces of corroborating references show that
19 this was, these were adaptations that a POSITA would know how to do. I
20 would also note on slide, excuse me, slide 39 that when we look at the broad
21 scope of these claims, which only indicates that the physiological parameter
22 is oxygen saturation, it's not calling for specific modifications to the
23 structures of the device itself. So, it's sufficient to look at the teachings of a
24 secondary reference like Sarantos that teaches measuring blood oxygenation
25 levels, and a POSITA knows how to integrate that teaching into the primary.

1 But to the extent there's any doubt, we have shown with detailed explanation
2 as to how a POSITA could do that.
3 With that, if there are no further questions on Ground 1, I'll turn it
4 over to my colleague Kim Leung to discuss Ground 2.
5 JUDGE HOSKINS: Okay. Thank you.
6 MS. LEUNG: Thanks Nick. Thank you, Your Honors. So, I'm
7 going to be discussing the issues on the Sarantos-Shie combinations, and
8 we'll be starting with slide 48. So, the only dispute with respect to
9 Independent Claims 1 and 20 is whether the Sarantos-Shie combination
10 renders obvious changing a first shape to a different second shape. And the
11 specific claim language at issue is highlighted on slide 49, which recites, the
12 material configured to change the first shape into a second shape by which
13 the light emitted from one or more of the plurality of light emitting diodes is
14 projected towards the tissue. So, on slide 50, we see that Sarantos describes
15 a translucent or transparent material in the region 2226 between the light
16 source 2208, which is highlighted in green, in the Figure 22 on the right, and
17 the tissue, which is above the region 2226. But Sarantos doesn't describe the
18 material as configured to change the first shape of light entering the material
19 from the light source 2208 to a different second shape of light exiting the
20 material towards the tissue. And so, turning to slide 51, we see that Shie
21 describes such material. Specifically, Shie describes various optical
22 elements that provide diffusing and shaping of the light output from a light
23 source. So, on this slide, for example, you can see that Shie repeatedly
24 describes that its optical elements shape the light output. And this is
25 underlined in four of the excerpts on this slide. Shie also discloses, as

1 shown in the middle excerpt in the left column, that a conventional
2 cylindrical lens spreads light in one direction, which in some instances,
3 which we'll talk about later, changes the shape of the light. So, with respect
4 to Shie, Masimo never argued that Shie is not analogous art. And so, it is
5 proper to use it in an obviousness combination. The motivations need not be
6 found from the references. They don't need to be found from Sarantos or
7 from Shie, and can come from common sense or elsewhere, which we have
8 shown through corroborating evidence, some of which we'll discuss in a
9 little bit.
10 Now, turning to slide 52, based on Sarantos and Shie's disclosure,
11 Dr. Anthony concluded that it would have been obvious to a POSITA to use
12 a light-shape-changing material of Shie in the wristwatch sensor of Sarantos
13 in the region 2226 between LEDs 2208 and the user's wrist tissue. Now,
14 Sarantos describes at least one example that in combination where Shie
15 meets these limitations of Claims 1 and 20, and would benefit from a
16 cylindrical or Fresnel lens, which Shie also describes, that changes the shape
17 of emitted light by, for example, spreading the light in one direction through
18 a cylindrical lens, or changing the shape to direct more light to the detectors.
19 Now, you can see on slide 53, here's one example. Dr. Anthony stated that a
20 POSITA knew that a conventional cylindrical lens, as described in Shie,
21 would change Sarantos' circular-shaped light beam, entering the cylindrical
22 lens into an ellipse-shaped light beam exiting the lens. And we've shown
23 that in the figure on the left bottom where a circular-shaped light source,
24 which emits a circular-shaped light, the dark shadow portion representing
25 the light in the tissue, and that would be changed to an ellipse shape, a

1 second shape. Now, if this cylindrical lens were applied to Sarantos' Figure
2 14 embodiment, which is shown on the lower right, the shape of the light
3 from the light source 1408 in that Figure 14 embodiment would change from
4 a circle, because it's a circular LED, to an ellipse, as shown in Figure 6 on
5 the left, and be spread to direct more of the light to the detectors 1412. On
6 the next slide, 54, we show another example of a cylindrical lens changing a
7 square-shaped light beam, which we see in Figure 18 here, there are two
8 square-shaped LEDs. Sarantos describes these as emitting light alternately,
9 so each one would emit a square-shaped light beam. And it would change
10 that emitted light into a different rectangle-shaped light beam. Not shown
11 here, but we know that a cylindrical lens spreads the light in one direction,
12 and therefore the square-shaped would become a rectangular-shaped light
13 beam.
14 Turning to slides 55 and 56, we provide on those slides examples
15 using a Fresnel lens to change the shape of a light beam from a first shape to
16 a different second shape. And on slide 55, we can see a square shaped
17 Fresnel lens would change Sarantos' circular shaped light beam and turn the
18 Fresnel lens into a square shaped light beam exiting the lens. And we can
19 see that on the left-hand figure, Figure 6 of Sarantos. And that would
20 similarly be beneficial to Sarantos' Figure 14 embodiment, changing the
21 circular shaped light beam from the circular LED 1408 into a square shape
22 to spread more of the light to the photo detectors 1412. And another
23 example shown on slide 56, circular shaped Fresnel lens would change
24 Sarantos' square shaped light beams of Figure 18 and turn the Fresnel lens
25 into a circle shaped light beam exiting the lens and therefore spread the light

1 in a more circular pattern to spread the light for a larger detection area for
2 the photo detectors. Now, Dr. Duckworth doesn't dispute that a Fresnel lens
3 having a particular shape would provide a light beam having the same shape
4 as the lens. Now turning to slide 57, Dr. Anthony explained that there are
5 multiple reasons that would have motivated a POSITA to use a light shape
6 changing material. Now he provided several reasons in his first declaration,
7 which we've shown in slides 58 through 60, are each corroborated by
8 additional evidence that Dr. Anthony provided in response to a dispute by
9 Masimo.
10 Now, turning to slide 58, with respect to the first motivation, which
11 is to increase power efficiency by precisely directing the light toward the
12 tissue, Dr. Anthony explains that, excuse me, that directing the light emitted
13 toward the tissue to shine light closer to the photodiodes is one way of
14 increasing the signal level of the light detected by the photodiodes. That
15 also minimizes power consumption while still providing adequate radiated
16 power for pulse oximetry. Now, various references that we have here on the
17 right side of the slide corroborate Dr. Anthony's testimony, explaining that
18 focusing emitted light and directing light closer to the photodetector so that
19 the photodetector receives a maximum amount of scattered light from the
20 tissue. Turning to the second motivation offered by Dr. Anthony, which is
21 addressed on slide 59, Dr. Anthony states that a POSITA would have been
22 motivated to combine Sarantos and Shie to increase accuracy of the
23 measurements by directing light to a larger area. And Dr. Anthony explains
24 that this is because a POSITA would have understood that pigments and
25 dyes present on the skin may cause measurement errors. And so,

1 illuminating a larger pulsatile vascular bed would reduce the effect of
2 pigments, dyes, moles, and other skin aberrations and enhance the quality of
3 the measurements. And here again, Dr. Anthony's testimony is corroborated
4 by references stating that skin pigments and dyes may cause error, and
5 illuminating a larger pulsatile vascular bed can enhance the quality of the
6 PPG signal.
7 And as a third motivation for combining Sarantos and Shie, Dr.
8 Anthony explains on slide 60 that a POSITA would have been motivated to
9 conceal the electronic components from a user's view. And an optical
10 element with diffusing and shaping characteristics would obscure the LED's
11 appearance from the user while also shaping the light transmission toward
12 the tissue. And as seen on the right of this slide, those in the field have used
13 a Fresnel lens to obscure internal components. And as explained earlier, a
14 Fresnel lens can also change the shape of the light. And then on slide 60,
15 Dr. Anthony explains that the Sarantos-Shie combination is consistent with
16 Sarantos' goal of providing an improvement in the amount of light
17 measurable by the photodetector. So, it's in no way inconsistent with what
18 Sarantos is trying to achieve. In fact, it's completely consistent with it and
19 provides an improvement.
20 And turning to slide 62, I'll discuss the next claim element issue,
21 which involves Independent Claim 15. And this claim element is claim, is
22 element 15.3, which recites a light block having a circular shape. So on
23 slide 64, referring to the top left excerpt and Figure 22 that's shown on the
24 top right, we can see that Sarantos' device includes walls 2274, which is
25 colored in blue, that prevents light from the light source 2208, colored in

1 green, from reaching the photo detector elements 2212, which is colored in
2 yellow, through paths completely within the housing of the sensor. So, the
3 light -- the walls ensure that the light goes through the tissue before it
4 reaches the photo detectors. So, the wall forms a light block that separates
5 the light source 2208 from the photo detector elements 2212.
6 JUDGE HOSKINS: Ms. Leung, you know, one of the issues here
7 is the interplay between these two figures, Figures 22 and 25. And so,
8 Patent Owner is telling us that they're different embodiments, and so this
9 kind of correspondence that you're trying to draw. And for example, we
10 don't see a wall, I guess, in the depiction of Figure 25. So, help me
11 understand Petitioner's position on the interplay between these two figures
12 and how they help Petitioner get to a circular-shaped wall.
13 MS. LEUNG: Sure, I'll definitely be going into that. So if you
14 look at the next slide, 65, Sarantos explicitly states that Figure 22 and Figure
15 25 can be combined, and therefore explicitly discloses an implementation
16 that includes features of Figures 22 and 25. And if you look, if you compare
17 the two figures which I've shown here, I've laid them one above the other,
18 you can see where the photodiodes -- the photo -- let me get my numbers
19 straight again, sorry. The lights are 2208, okay, photo detector elements
20 2212. You can see where the photo detector elements in Figure 22, elements
21 2212 line up here with the photo detector element 2512. And you can see
22 they both have the same ending two numbers, which is 12. And Sarantos
23 does explain that when the two ending numbers are the same, they are
24 similar elements. And so, the annular photo detector 2512 lines up with the
25 photo detector element 2212 in Figure 22, and the light source 2508 in

Figure 25 would line up with the Figure 22, light source 2208. And again, those have the same two ending numbers. And so, taking that --

JUDGE HOSKINS: And so, why don't we see a 2574?

MS. LEUNG: Sarantos says that many of those permutations and combinations will not be discussed and are illustrated separately herein. And so, Sarantos understood that a POSITA would have known that the two figures can be combined and features of the figure --

JUDGE HOSKINS: Now we're in the realm of obviousness rather than disclosure, right?

MS. LEUNG: Well, I think Sarantos does explicitly disclose that they -- that they can be their implementations that employ them in combination. It's just Sarantos doesn't show it.

JUDGE HOSKINS: Thank you.

MS. LEUNG: And so, considering this disclosure of Sarantos, that Sarantos says there are --

JUDGE COCKS: Ms. Leung?

MS. LEUNG: Yes.

JUDGE COCKS: This is Judge Cocks. Just to follow on my colleague's question, and maybe this is semantics, but is what you're offering us here is that it is actually a combination of the annular or the circular structure of Figure 25 that's being combined with the structure of 22, or are you using 25 as some sort of evidence to suggest that the 2212 structures in Figure 22 are actually circular? Which one is the better way to characterize your position here?

MS. LEUNG: Figure 25 indicates that the structures in Figure 22

1 could be circular. That is one implementation. There are others, of course,
2 that Sarantos describes with different configurations of photo detectors. But
3 because Sarantos says that implementations may employ combinations of
4 various other implementations, Figure 22 -- one implementation of Figure 22
5 would be that the photodiodes 2212 is an annular shaped photodiode. I hope
6 that answers your question.
7 JUDGE COCKS: You did. I seem to be having some difficulty
8 unmuting myself. But no, I think I understand your answer. Thank you.
9 MS. LEUNG: Okay, thank you. And then turning to slide 66, Dr.
10 Anthony, reviewing Sarantos' disclosure that, you know, there are
11 implementations that employ combinations of, you know, various aspects
12 described in Sarantos. He concluded that a POSITA would have viewed
13 Figure 25 as incorporating the features of Figure 22, or, you know, it could
14 be that Figure 22 incorporates features of Figure 25. So, you know, looking
15 at, back at these figures for a minute on slide 65, we can see that each wall,
16 2274, the walls colored in blue, spans the majority of the space between the
17 photo detector, 2212, and the light source, 2208. So, it's a pretty, you know,
18 tight fit in there. It spans the majority of the space that's separating the
19 photodiode and the light source. And in that situation, a POSITA would
20 have found a circular-shaped wall to be the best fit and make the most sense
21 because with the limited amount of space between the light source and the
22 photo detector, a circular shape would be the best fit. And on slide 67, we
23 see that Dr. Anthony confirms this, and he states that, given the annular
24 configuration of detectors around a circular LED, the small form factor and
25 the limited space in Sarantos' PPG sensor described in Figures 22 and 25, a

1 POSITA would have found a circular-shaped lightbulb to be a reasonable
2 design choice. And although Dr. Duckworth says that there's no reason why
3 it must be circular, Masimo and Dr. Duckworth hasn't given you any
4 evidence that any other shape would be used in the Figure 25 configuration.
5 I mean, they do draw a square shape in there, but they haven't provided any
6 other evidence that that would be a suitable shape to utilize in such a
7 configuration.
8 And then turning to slide 68, we see the exact configuration with a
9 circular light block between the annular ring of photo detectors and LEDs
10 being used by others in the field, which is shown by Fontaine and Takatani.
11 So, Fontaine-Takatani, you can see here there's an annular configuration of
12 photo detectors with LEDs in the center, and a circular-shaped light block
13 between them.
14 And turning to slide 70, I'd like to address the second element in
15 dispute regarding claim 15, and that's element 15.4, which is the photodiodes
16 are arranged in an array having a spatial configuration corresponding to the
17 shape of the portion of the tissue measurement site encircled by the light
18 block. As we discussed earlier, this light block is a circular shape. And so,
19 Sarantos explicitly contemplates multiple photo detectors arranged in a
20 circular array, and discloses this claim meaning, this claim language under
21 its plain meaning. So, looking at slide 71, we can see that Sarantos
22 explicitly says, photo detector elements arranged in a circular array. And
23 you can see that highlighted in the top left excerpt on this slide. And then
24 Sarantos also says that any of the implementations discussed above, which
25 includes the Figure 25 that we had just been discussing, can be implemented

1 using a plurality of photo detector elements arranged about the light source.
2 And so Dr. Anthony, on slide 72, you can see from reviewing Sarantos'
3 disclosure, he says that a POSITA would have understood that the annular
4 photo detector element 2512 as Figure 25, can be implemented using a
5 plurality of photo detector elements arranged about the light source in an
6 annular configuration and illustrated an example of this configuration, which
7 is shown on the slide on the right. And Dr. Anthony also explains that, you
8 know, each photo detector could be a square shape. It doesn't have to be
9 circular shaped like he illustrated, which again is the configuration being
10 used by others in the field. And if you look on slide 68, once again, we can
11 see that those photo detector elements are square shaped and arranged in an
12 annular configuration around the light block and the LEDs. And I'd be
13 happy to take any additional questions Your Honors may have on these
14 issues. Okay, with no further questions, thank you again for your time.
15 We'd like to reserve the remainder of our time for rebuttal on these issues
16 and for the reasonable expectation of success and any secondary
17 consideration issues, which we will address in the closed session of the
18 hearing.
19 JUDGE HOSKINS: Thank you very much. So, I have, I clocked
20 you in for the initial presentation at 50 minutes. So, you then have now 25
21 minutes remaining to address, you know, either in reply with respect to the
22 public information, and then additionally with respect to the non-public
23 session. So, thank you very much. So, with that, Mr. Helm, feel free to
24 begin your argument when you are ready. Thank you.
25 MR. HELM: Thank you, Your Honor. Let me first share the

1 presentation that we have today. And may it please the Board. The '745
2 Patent is a result of a research project at Masimo in the 2014 timeframe that
3 was dedicated to identifying ways to measure oxygen saturation of the wrist.
4 Part of that research project gave rise to innovations related to the way you
5 would express light and shaping the emitted light, the way the light passed
6 through the body, and the way you would, ultimately monitor that light once
7 it was received at the photo detectors. As you can see on slide 7, Masimo
8 incorporated this technology into its wrist-worn oxygen saturation sensor.
9 And notably, Masimo's sensor is the only wrist-worn oxygen saturation
10 sensor that can monitor oxygen saturation through motion, which is a
11 problem that is exceptionally difficult and which other companies don't even
12 try to tackle. There are --
13 JUDGE HOSKINS: Mr. Helm, do I take it from that that Apple
14 doesn't have a device that does this?
15 MR. HELM: That is correct. And I'm happy to discuss that in the
16 confidential session, the details of what their device does or does not do.
17 But that is correct, Your Honor.
18 JUDGE HOSKINS: Okay. Thank you.
19 MR. HELM: To give a little context and background here on slide
20 9, you see a timeline of the proceedings between the parties. What I'd like to
21 highlight are two things. First, when Masimo asserted the '745 Patent
22 against Apple at the ITC, there was an evidentiary record that was
23 developed. There was a hearing in June 2022, and post-hearing briefing was
24 completed in July 11, 2022. The Petitions that we're discussing here today
25 were not filed, until weeks later. So, when the Petitions were filed, Apple

1 had possession of all the evidence that Masimo relied on, and all the
2 arguments that Masimo relied on, demonstrating patentability of the claims
3 asserted at the ITC in view of the Sarantos and Iwamiya combination. The
4 Petitions did not address that evidence, and instead there was a strategic
5 choice to try to exclude that evidence from these proceedings. The ITC
6 issued its decision affirming the patentability of the claims in the ITC
7 proceeding in January 2023, and that was recently affirmed in October 2023
8 by the full commission. I want to just point out one piece of the ITC's
9 findings that's public. We'll deal with a lot of the evidence that was
10 developed later in the confidential session. But what was found by the ITC
11 judge in view of live testimony, and assessment of credibility of witnesses,
12 dealing with, essentially the same arguments presented by Apple today was
13 that the record contains testimony from multiple Apple engineers expressing
14 skepticism regarding the implementation of pulse oximetry in a wrist-worn
15 device. Three names, Mannheimer, Waydo, and Shui. We'll see them again
16 later. Now, the reason why I raise this is twofold. First, I want to give the
17 Board assurance that this testimony and evidence that we're going to discuss
18 later in the confidential session was evidence that was competent. Second, I
19 want to point out that Apple was aware of this evidence that gave rise to this
20 finding; yet did not address it until its reply. The consequences of the reply
21 is overloaded with new ideas and new arguments. If I can go to slide 14,
22 you'll see some of the claim constructions that we're talking about here
23 today. One is determine oxygen saturation. Now, both of the experts agree
24 that this claim requires a device to actually calculate oxygen saturation. And
25 for a little bit of context, oxygen saturation is not merely obtaining a red or

1 infrared signal or even both. Calculating oxygen saturation requires
2 calculating different ratios of ratios and passing it through specific sets of
3 calculations. And, whether or not those calculations were well known, they
4 require certain types of waveforms, for example, being in phase or having a
5 certain quality. And absent that, there is no determination of oxygen
6 saturation. An example, a random number generator that simply spits out
7 random numbers, as a result of measurements, does not determine oxygen
8 saturation. Another example, most people have in their normal states an
9 oxygen saturation around 98 percent. A sensor that just spits out 98 percent,
10 regardless of anything else, is not determining oxygen saturation. It requires
11 more. I put here Apple's position on this. In their response to expert
12 testimony, which was the third paper that Apple filed, they say no
13 construction is necessary. But that's an attempt to expand the scope of these
14 claims. Their reply talks about rudimentary functions, no idea what that
15 means. And it says, you might not even need to have a measurement. The
16 reason for this position is that the evidence that they've marshaled in support
17 of their expectation success here, which, by the way, does not expand upon
18 what they did at the ITC. It is the same type of art just in different guise,
19 and in many cases are corresponding to the same art that they cited at the
20 ITC. That art does not actually determine oxygen saturation. What it does
21 is it's optimistic, it's aspirational, and hopeful. What you might think of as
22 academic puffery that says, we have measured a red signal at the wrist. We
23 have obtained an infrared signal at the wrist. And we are on our way.
24 What's telling is that those references never, ever were followed up with
25 anything reporting a successful oxygen saturation determination at the wrist.

JUDGE HOSKINS: Mr. Helm?

MR. HELM: Yes.

JUDGE HOSKINS: Are you saying that in order to satisfy this claim element of determine oxygen saturation that we have to have a disclosure in the prior art of doing ratio of ratios specifically? As I understood the claim construction issue on this front, yes, we have to have an oxygen saturation determination. I think the claims are pretty clear on that. Are you pressing for something more than that from a claim construction perspective?

MR. HELM: What I'm highlighting here in terms of the construction is that what is suggested as rudimentary functions, or non-measurements, cannot meet this claim and cannot give a reasonable expectation of success. That's the position that I want to make here.

JUDGE HOSKINS: So, what is the claim construction you're proposing? I'm talking claim construction here.

MR. HELM: Because the claim construction that was proposed is that the device actually calculated oxygen saturation consistent with the expert's testimony.

JUDGE HOSKINS: Okay. Thank you.

MR. HELM: But that is, Your Honor, just to be clear, that's part of the what would be typically understood for this claim limitation. And so, to the extent that you're formally construing the claim, that's only one aspect. That is an aspect of what that would require, so.

JUDGE HOSKINS: Well, that goes to reasonable expectation of success, it goes to motivation, it goes to all those other things, but I don't

1 understand how it goes to claim construction.
2 MR. HELM: The how it goes to -- how the requirement that
3 determine oxygen saturation; actually, requires some sort of determination
4 or calculation of oxygen saturation. We think -- we only raise it because the
5 arguments that have been made by Apple are predicated on the idea that
6 determinations that are not oxygen saturation may nevertheless fall within
7 the scope of the claim, or --
8 JUDGE HOSKINS: Now, we're talking about Iwamiya then if I
9 understand it correctly. Because one of the things they say is, I would agree
10 with you on that, that Iwamiya determines oxygen saturation. So, is that the
11 context for this claim construction dispute?
12 MR. HELM: Well, the context for the claim construction dispute
13 does include Iwamiya. So, one aspect of the claim construction dispute is
14 the understanding that you must take one measurement in the infrared
15 spectrum and one measurement in the visible light spectrum, red light for
16 example. And so, that is an aspect of the disclosure of the prior art, not just
17 Iwamiya, but also Sarantos, which mentions oxygen saturation but we will
18 see later on, leaves a lot of the difficult work undefined and expressly states
19 that its disclosure was not tailored to those vastly or dramatically different
20 wavelengths of red or infrared light. So that's the context for bringing up
21 this issue. And, of course, as you mentioned, it all gets tied back into the
22 reasonable expectation of success, as well as secondary considerations of
23 obviousness, or non-obviousness. If there's no further questions on that, I'm
24 happy to move on.
25 JUDGE HOSKINS: Yes, please proceed. Thank you. Yes.

1 MR. HELM: Let me proceed to the second point, which has to do
2 with the spatial configuration of the array of photodiodes. Now in the
3 prosecution of a parent application, Masimo discussed a very similar
4 limitation with analogous limitations, a similar claim with analogous
5 limitations. I want to be clear what these claims are about. They require a
6 specific arrangement of photo detectors or photo diodes compared to the
7 light block and the tissue. It's not a specific number. Apple treats it and
8 makes an argument that this is some optimization of numbering. That's not
9 the point. What Masimo explained in the prosecution history is that as a
10 factual matter, a certain number of photodiodes cannot match or correspond
11 to, for example, a circular shape. That is irrespective of whether they fall on
12 the same circumference. Example from that prosecution history. Two photo
13 detectors are a line. We also know that two points can define a diameter of a
14 circle. However, in the claim which requires a correspondence between the
15 array and the light block itself, that is not what is being discussed. So, as a
16 factual matter, despite the fact, that two photo detectors do indeed fall on a
17 circumference, you cannot say they are corresponding to a circular shape.
18 Second example from the prosecution history. Three photo detectors. If you
19 have an equilateral triangle, you can certainly draw a circle through all three
20 of those points. They are all on the same circumference. But that does not
21 define a circular shape as required by these claims. That was the point of the
22 prosecution history. And we'll discuss --
23 JUDGE HOSKINS: Where are you getting circular shape in claim
24 15 of the '745 Patent?
25 MR. HELM: Absolutely. Claim 15 refers to encircling. So, let

1 me look exactly. A portion of a tissue measurement site encircled by the
2 light block. And so, that's where the circle aspect comes in. Other claims
3 may allow different shapes, but claim 15 is specifically to a circling shape, a
4 circle.
5 JUDGE HOSKINS: So, you think it requires a circle shape to
6 encircle something? If you had a rope that was in a square shape
7 surrounding something, that would not be encircling the something?
8 MR. HELM: I think in the context of these claims which are
9 discussing a structural and spatial relationship to each other, I think you
10 should take the claim language as word and encircle means a circle. I think
11 there might be other situations and there are other claims that are not defined
12 by that encircling language, but I do think that it's fair in this instance with
13 claim 15 that that's the requirement.
14 JUDGE HOSKINS: Thank you.
15 MR. HELM: Part of the reason why this claim construction is
16 important is because in the context of the combination with Iwamiya and
17 Sarantos, the idea of Iwamiya's disclosure of a circumference is different
18 than the spatial arrangement of the photodetectors relative to another
19 element. And if we can go to slide 20. You can see this is the figure that
20 they provide to us on reply. The Petition didn't explain how that disclosure
21 of a circumference would yield the claim limitations of the corresponding to
22 the light block. Here we see there's six photo detectors. And in the
23 prosecution history, it was mentioned that six photo detectors could be
24 enough to form a circular shape. Of course, it could correspond to a circular
25 shape. I do want to make clear, it's not the number of detectors, because if

1 you put those detectors into a different shape, they would not correspond to
2 a circular shape. So, it's not the number that matters, it's the shape and the
3 relationship to the other structural feature that's the issue. But they have
4 provided in their reply this proposal. Now, what we explain in the sur-reply
5 is that that is a disastrous change with no offsetting benefits. It's not a
6 design choice. It is a pure destruction of Iwamiya's sensor. On the left, you
7 can see in green Iwamiya's original detection area. Second, you can see
8 Iwamiya's red detectors, the change to red detectors that was proposed in the
9 reply. Only the space inside those red boxes is detection area. The third
10 figure shows you in yellow all of the detection area that is now lost as a
11 result of this change. It's particularly salient because the justification for this
12 change was an increase in the surface detection area, an increase in the light
13 sensitivity accordingly, because the detection area and the light sensitivity
14 are, of course, related. That is as a factual and as a geometric matter are just
15 wrong in Iwamiya's device. You can see the basis for that argument came
16 from a different detector arrangement, which you can see on the right, which
17 has a peripheral set of detectors. And so, as you add detectors into that
18 circle, you are increasing the surface area detected. That is not possible in
19 Iwamiya's sensor. And the result is a 50 or 75 percent decrease in the
20 surface area. That is not a modification that would be understood by a
21 skilled artisan when reading Iwamiya. And we've provided you with this.
22 Iwamiya says, if you're not going to use our one big detector, if you're going
23 to instead use multiple detectors, make sure they're on the same
24 circumference. That defines the relationship of the detectors to each other,
25 not to a different feature. And you can see on the left, it is a square shape

1 that takes up the same space as Iwamiya's one big detector. That's what
2 Iwamiya is discussing when it talks about a circumference. It's not saying
3 do what's on the right, destroy the signal that you obtain by decreasing the
4 surface area of detection by 50 or 75 percent or more. That is not
5 contemplated by Iwamiya. So, Iwamiya does not disclose the type of
6 arrangement illustrated on the right. It discloses the type of arrangement
7 illustrated on the left. And that is a square, irrespective of whether those
8 detectors are able to be placed on the same circumference, because it is the
9 arrangement of the detectors in a spatial sense that matters. That does not
10 correspond to the light block. And there's a reason for that, because
11 Iwamiya is frankly taking a different approach than what the '745 Patent did.
12 So, it's not surprising that Iwamiya would not recommend the same types of
13 changes that the '745 Patent discloses and claims. This is slide 23 by the
14 way which shows Iwamiya telling an artisan to do this and not this.
15 I'd like to move on to the oxygen saturation limitations in the
16 Iwamiya and Sarantos combination. And part of the issue here is, whether
17 or not Iwamiya is teaching --
18 JUDGE HOSKINS: Mr. Helm, I apologize for asking you to go
19 back, but I had a question that I forgot. So, if we --
20 MR. HELM: I am here, as always, at the pleasure of the panel.
21 So, please.
22 JUDGE HOSKINS: Well with respect to claim 15, what is the
23 written, structurally, what is the written description support you have in the
24 '745 Patent for this array configuration that we're talking about?
25 MR. HELM: I will tell you, Your Honor, I don't have that. Let me

1 get that information. I'm happy to provide it to you. If you don't mind, may
2 I provide it on the reply?
3 JUDGE HOSKINS: That would be great. Yes, feel free to defer,
4 but I'm curious as to that. Thank you.
5 MR. HELM: Absolutely. I will take and I will identify that
6 information, and I will have it at my fingertips, first thing.
7 JUDGE HOSKINS: Thank you.
8 MR. HELM: No worries. Thank you. This is the oxygen
9 saturation claims 9 and 18. Now, the issue of teaching away comes up in the
10 context, and there's several things in Iwamiya that teach away from oxygen
11 saturation determinations. The first one is that Iwamiya talks about visible
12 light, and it's in the context of a sensor, it talks about that visible light is
13 weak light and cannot be sufficiently received. Therefore, biological
14 information, such as a pulse wave cannot be detected. So, that is a teaching
15 way because it discourages an artisan from using light in the visible
16 spectrum, for example, in the red or green spectrum. But, the fact of the
17 matter is, is that I think all the parties agree, you do require light in the
18 visible spectrum to take pulse oximetry measurements. It would be frankly
19 strange for Iwamiya to discuss pulse oximetry at all, and it certainly doesn't,
20 notwithstanding any assertions that were made in the Petition. It certainly
21 doesn't discuss pulse oximetry at all, and it would be very strange if it did,
22 given that it talks about the inability to obtain even a pulse wave signal using
23 that weak light in the visible spectrum. And there's a reason for that.
24 Iwamiya provides you with a scientific basis for that, which is there's a
25 relationship between the melanin, and the different spectra of light. And you

1 can see that there is a relative maximum at infrared, and a minimum for the
2 melanin. And that's what Iwamiya seeks to take advantage of. That's on the
3 right. In contrast, you can see in the visible spectrum, either the melanin, is
4 either extremely high or there's a big gap between them. And so that's what
5 Iwamiya is trying to avoid with its disclosure.
6 One issue that we raised in our Patent Owner response was that the
7 combination as proposed was inoperable, and that was because Iwamiya
8 includes this optical filter that filters out all light below 900 nanometers.
9 During Apple's presentation, you heard some things about how you could
10 just remove this. Now, I will point out that Iwamiya does, contrary to what
11 Apple argued, does view this as an important piece of the innovation
12 because the optical filter allows it to filter out sunlight or other external light
13 and only allow that special infrared signal to reach the detector in the light
14 receiving unit. So Iwamiya does disclose a specific function for that light
15 filter that is beneficial in Iwamiya's device, and that cannot be duplicated by
16 creating, for example, a light filter that is much broader to allow, and again,
17 it's unclear that this filter even exists or where this filter would come from,
18 but a light filter that allows a whole range of wavelengths to come through.
19 Once you're allowing light in the visible spectrum, first, that's the external
20 light. Second, that's weak signal. And so that's why it doesn't even make
21 sense. Another point about the filter. The filter does not stand alone. It has
22 the corresponding light shielding frame. One of the things that was
23 proposed during the argument was to merely eliminate the filter. But, of
24 course, that would eliminate the light shielding frame as well, and with it the
25 entire basis for the dark-colored coating. That type of retrospective

1 rationalization is clear hindsight, driven by the expediency of the claims and
2 desire to meet the claim limitations, and not by what an artisan would do
3 looking forward. Looking forward, given Iwamiya's teaching of very weak
4 signals that cannot even render pulse waves as biological information, given
5 its teaching of a filter that is used for the beneficial purpose of filtering out
6 external light, including sunlight, all of that together would be read by an
7 artisan as teaching away. There's more in our briefing that I'm not going to
8 go into here, having to do with the sensitivity of the photo detector, but all,
9 of the different pieces of Iwamiya work together specifically to enhance
10 measurements at the infrared spectrum to the exclusion of measurements in
11 the visible spectrum.
12 I want to point out that this is in direct conflict with Sarantos. So,
13 the combination is also suspect because Sarantos discusses its concepts
14 primarily with respect to light sources that emit green light. That's the light
15 that Iwamiya said, do not use. And if I may, for the record, I was just
16 discussing slides 27, 28, 29, and now I'm on slide 30. Thank you for your
17 patience with that, Your Honors.
18 Sarantos discusses its embodiments primarily with respect to light
19 sources in the green spectrum, visible light. That is what Iwamiya says, do
20 not, use in our sensor because it does not produce a viable signal.
21 Incidentally, that illustrates that different sensors have different results. For
22 Sarantos, green light is beneficial, but for Iwamiya, it's not. That is an
23 important teaching and understanding as well, is that these are not merely
24 mix and match sensors with features that can be tugged out of one to the
25 other. I'm looking at the slide 30, the final highlighted section. Light

1 sources emitting light in the green spectrum are particularly well suited for
2 photoplethysmographic techniques, that is a mouthful, usually called PPG
3 signals, for measuring heart rate. So, again, what Sarantos is teaching is that
4 green light should be used with its sensor. What Iwamiya teaches is visible
5 light does not produce a viable signal.
6 On slide 31, I want to call out Sarantos' discussion of red and
7 infrared light.
8 JUDGE HOSKINS: So, Mr. Helm, let me stop you there. So are
9 you saying that Iwamiya's -- how do you reconcile those two things? If
10 Iwamiya is saying never use green light, why is Sarantos telling us to use
11 green light? Help me understand.
12 MR. HELM: I'm happy to reconcile it. The reason why is they're
13 fundamentally different sensor designs. For example, Iwamiya, we heard
14 earlier, uses a milky substance which has obvious impact on the light that
15 passes through it in terms of the strength or weakness of the light. Iwamiya
16 has a completely different detector arrangement. It has features that look
17 completely different from Sarantos. That is one of the fallacies of Apple's
18 argument, which is that what's good for the goose is good for the gander.
19 Iwamiya isn't even the same species as Sarantos, other than the fact that
20 they're both physiological monitors.
21 JUDGE HOSKINS: They both measure pulse, right?
22 MR. HELM: They both measure pulse, but they do so in a
23 completely different way. Sarantos emits light into the tissue, and it
24 monitors a band, a circular band of light that expands outwards. Iwamiya
25 uses these diffusing elements to direct light into the tissue. That is a

1 different --

2 JUDGE HOSKINS: What does any of that have to do with

3 whether the light is green or some other color?

4 MR. HELM: Oh, that is because the different wavelengths of light

5 will propagate in different ways. So, a green wavelength of light is

6 physically different. This is not to get into wave-particle duality, but it is a

7 physically different phenomenon. It will penetrate the tissue in different

8 ways. You'll get a different result than if you use infrared light, for example.

9 And certainly, that's what Iwamiya was showing in its figure that I

10 highlighted on one of the slides, slide 27. It shows that the light interacts

11 with the body and let me go back to that slide briefly just to illustrate this.

12 The light interacts with the body in a fundamentally different way. So, with

13 Iwamiya's, Iwamiya's concern here has to do with monitoring the signal and

14 getting a signal for its device, which it says do in the infrared. But certainly,

15 the light wavelength is very important. Frankly, that's why people select

16 specific wavelengths for pulse oximetry. Apple, one of their arguments

17 seems to be that they're relying on, for example, Sarantos just for the general

18 disclosure that pulse oximetry existed. It's a strange idea because certainly,

19 pulse oximetry was known to exist. Also, strange because it was known to

20 need visible light, the red, and infrared light. It's not teaching anything that's

21 beyond what was known, not any of the specifics. And that's something that

22 was shown in the slide I was just on here, which is that Sarantos, when it

23 talks about its device, you can see the difference in light wavelength comes

24 up here, too. It talks about the dramatically different wavelengths that are --

25 its device is tailored for green or yellow, perhaps, but the disclosure is not

1 directed to those dramatically different wavelengths of red or infrared. So,
2 you can see here at the end, the aspect ratios and dimensional values
3 discussed herein are tailored based on the green-red light spectrum and are
4 not tailored for use in other spectrums such as the red or infrared spectrum.
5 That's because different light reacts in different ways with the body, and you
6 need to have different solutions. Sarantos doesn't tell you those solutions.
7 And, in fact, Sarantos doesn't tell you at all how you would implement them
8 to effectively obtain oxygen saturation. This is very, very much in line with
9 asking the artisan to go ahead and figure it out. And we know from what
10 happened with Fitbit, which is Sarantos' assignee, is that it took many years
11 for them to figure this out. And you can see what we understood is that that
12 took until 2020. And even in 2020, you can see on slide 32, and now on
13 slide 33, you can see this article from the Washington Post, where Fitbit's
14 director of research in 2020 said, in terms of, with respect to measuring
15 oxygen saturation at the wrist, it's a pretty hard technical problem to measure
16 SpO2, that's oxygen saturation, on the wrist. I also direct you to the
17 subheading of this Washington Post article. Both the Apple Watch Series 6,
18 the first Apple Watch to include a pulse oximetry feature, and Fitbit Sense
19 have new blood oxygen apps. They're mostly useless. We'll get into this
20 later on, but frankly, the fact that five years later, the blood oxygen sensors
21 released by two leaders in these type of wearable technologies, Apple, and
22 Fitbit, are mostly useless, hardly suggests that they were so well-known as to
23 be routine, which is a theory advanced by the Petitioner.
24 I want to go back briefly to slide 17. And in slide -- and Your
25 Honor, I just want to make sure. I appreciate that perhaps I got a little bit

1 carried away there. Did that answer your question about why the
2 wavelength matters in terms of Iwamiya or Sarantos?
3 JUDGE HOSKINS: I welcome you to go and proceed to where
4 you were going to go. Thank you.
5 MR. HELM: Thank you, Your Honor. This is the dark-colored
6 coating limitation. And again, if, as Apple proposed in their reply, you
7 simply remove the filter, there is no place for this dark-colored coding to go.
8 Now, I'm going to make a more general point here. The more general point
9 here is that the argument about a dark-colored coating, how it is something
10 that acts in the same way, is not correct. A dark-colored coating has the
11 same property, whether it's used in Sarantos, or as to modify Iwamiya. The
12 property is that the dark-colored coating will absorb light. That's a property
13 of a dark-colored coating. The function of the dark-colored coating,
14 however, differs between those references. In Sarantos, as we heard them
15 explain, Apple explain, the dark-colored coating is on the external surface of
16 the device before light enters into the measurement cavity. The proposed
17 change, however, is different. Here, the dark-colored coating is on a feature
18 that is within the measurement chamber after light has already passed
19 through the tissue and emerged. It's a homogenous light mixture, and there's
20 no reason to discount the light that passes immediately through the filter
21 versus light that would be passing through the filter upon reflection. And on
22 the reply and sur-reply, there was no dispute. That's why on their response
23 to expert testimony, they came up with a new theory, which is that this dark-
24 colored coating feature is to prevent light from passing back through the
25 lens, back into the body, which was never mentioned before. And I note, as

1 support, they cite the '745 Patent, which is not allowed. They can't look to
2 the Patent itself to invalidate it or render it obvious.
3 If I may, I'd like to turn to the Sarantos-Shie combination, if there
4 are no questions on the Iwamiya combination. Much of what we're going to
5 discuss with respect to the pulse oximetry claims, and also the Claims 2 and
6 27 about multiple LEDs will also be discussed in the confidential section.
7 JUDGE HOSKINS: Mr. Helm, let me interrupt because I have a
8 question, I want to make sure I don't forget to ask like I almost did before.
9 MR. HELM: Yes, please. Of course.
10 JUDGE HOSKINS: One of the things that Petitioner said during
11 their presentation is that you don't argue non-analogous art with respect to
12 this ground. And I would say that there is some argument in the Patent
13 Owner response that could be construed as a non-analogous art argument,
14 although it's not stated as such in fairness to Petitioner. So, I'm wondering,
15 are you arguing that Shie is non-analogous art?
16 MR. HELM: We are not making that argument, but we do want to
17 make this point, however, is highly relevant. I mean, the non-analogous art
18 argument, I think that we actually -- I think we did raise it in our Patent
19 Owner response. But --
20 JUDGE HOSKINS: Then let me say this. I'm giving you a chance
21 to cite us the best pages for that in the Patent Owner response if you want to
22 maintain that as an active issue.
23 MR. HELM: I'm happy. I'm happy to take and not maintain, as an
24 active issue because really the argument is, I just want to be clear, really the
25 argument is that Shie has no disclosure relevant to physiological monitoring.

1 And so, the combination relies on a series of motivations, and we're going to
2 see in a second a quirk in that motivational analysis provided with the
3 Petition. It relies on a series of motivations that are not supported by
4 Sarantos, which has no mention of the such features, or Shie, which mostly
5 is talking about things -- it talks about, to paraphrase, this isn't the exact
6 quote, but it is something similar, anything under the sun, and car taillights.
7 So, it's not giving any information that would allow an artisan to understand
8 why this would be useful in combination or how they would even be
9 implemented. That's the gravamen of our argument, so. I'm at slide 40 right
10 now. And I wanted to highlight something which is that the Petition
11 provided no details for the combination of Shie and Sarantos. So, what they
12 said was a general statement. Shie describes a diffuser that has a light
13 diffusing and shaping advantage and changes the first shape of light into a
14 second shape. Now, particular to this issue, changing the shape of light
15 requires not just changing the size. Two different size circles, or two
16 different size circular shapes are not enough. That is what the parties argued
17 in the ITC, or what Apple argued in the ITC. Now, the problem is that Shie
18 has plenty of different functionality, and in particular, the description of a
19 diffuser suggests, that maybe this is just light spreading. Indeed, some of the
20 things that are cited on their slides in support of Shie, disclosure of shaping,
21 have to do with spreading, which is a change in size, not a change in shape.
22 So, there was a problem in terms of it was unclear what the combination
23 even relied on. And there was also a problem because it was unclear how
24 that would actually be implemented in Sarantos. And we'll see some aspects
25 of Sarantos that might go the other way. So, we were left with, after the

1 Petition, this -- something like this. The combination of Sarantos and
2 something, maybe one of these, maybe something else altogether, unknown
3 but certainly not necessarily meeting the claim limitation of the first shape,
4 second shape. And I'll note that claim 15 requires a diffuser. I alluded to
5 this. There's no dispute that a change in size is not a change in shape. Dr.
6 Anthony's initial declaration and his initial opinions were apparently
7 rendered from a misunderstanding of this particular limitation. On reply,
8 after institution, and after Masimo pointed out these problems, you can see
9 the Petition relied on a diffuser, and specifically the light-shape-changing
10 material of Shie. The reply abandoned that position. It does not rely on Shie
11 anymore. And instead, it relies on lenses. So, this is a material change of
12 the position advocated for by the Petitioner in the Petition versus the reply.
13 I want to show you the motivations that they use. These arose in
14 the initial argument. Precisely direct light emitted towards the tissue, direct
15 light towards a larger area. As we pointed out in our papers, completely
16 opposite to each other. They can't do one and then do the other. And the
17 third one was obscure the LED's appearance, which is an aesthetic choice.
18 It's unclear why that would be relevant to an artisan, but I have some things
19 to say about that as well. The Petition relied solely on Dr. Anthony for
20 support of these motivations. And the problem was that the corresponding
21 part of Dr. Anthony's declaration was a cut and paste from Apple's attorney
22 arguments at the ITC. It is a verbatim replication, with the exception, of
23 maybe a word, of attorney arguments. Not a piece of evidence from the
24 ITC, but the attorney arguments from the ITC, that Dr. Anthony apparently,
25 had not seen at the time and was unaware of what the support for his opinion

1 was. Now, he called this a collaborative writing effort. But I do submit that
2 taking attorney arguments from a brief submitted at the ITC and putting
3 them into a declaration do not make them competent evidence.
4 I want to address the motivations here because, remember, these
5 are the motivations that were supported only by the cut and paste of an
6 attorney argument from the ITC briefing. First is this motivation of the need
7 to direct light towards the tissue, which doesn't make sense for Sarantos
8 because the LED is already proximate to the tissue. It's unclear how this
9 would even be implemented, and Apple provides no details. On slide 48,
10 Sarantos discourages the type of spreading that Apple advances because it's
11 set up its detectors specifically to capture a distinct distribution of light.
12 Spreading is contrary to Sarantos' teaching. And the cited art does not talk
13 about fixing a problem of tattoos or nail polish. It talks about by spreading
14 light with a diffuser, it talks about increasing the brightness of the LED.
15 There is no support for this. I also want to point out Apple relied on these
16 figures to show the shape of the light, first shape, second shape. These are
17 reflected light. This cannot provide the evidence because what the parties
18 agreed on at the ITC was that the first shape and second shape have to be
19 measured at the material. This is slide 49. And this is shown on slide 50.
20 At the ITC Apple argued, the relevant comparison is between light when it
21 reaches the material and emerges from the material. The figures on slide 49
22 are not that. That cannot provide evidence sufficient to demonstrate the
23 presence of that feature. A note about the Fresnel lens. First, Apple tried
24 and failed to implement Fresnel lenses in their devices, specifically with
25 oxygen saturation. This is the type of thing where they're advancing a

1 theory in terms of the modifications that would be made without
2 acknowledging that they know that these modifications don't work. The
3 conclusion after trying to retrofit a pulse device with an LED, that's exactly
4 what they're proposing here for both Sarantos and for Iwamiya, was that
5 innovation is required. And ultimately, they, had to eliminate the Fresnel
6 lens because it created problems.
7 I want to touch briefly on slide 53 on the light block issue. I only
8 want our papers to deal with this, but I do want to just raise the fact that
9 Sarantos does not in any way teach a circular array of small detectors. These
10 do not correspond to the shape of the light block, regardless of how Sarantos
11 refers to these on the right, these embodiments on the right, as a circular
12 shape. That does not correspond to the feature, which is what is claimed.
13 The final thing I want to raise here, there's some evidence here that
14 is related to oxygen saturation. On this timeline, you can see in late 2014,
15 Apple hired Dr. Paul Mannheimer, who is a world expert in oxygen
16 saturation, to investigate oxygen saturation at the wrist. Many years later,
17 Apple finally announced that functionality. Same with Sarantos. I'm going
18 to skip over a couple of slides here and focus on -- focus on one piece of
19 evidence that Apple introduced, but then abandoned, and that's on slide 60.
20 This is the Withings device. Part of the argument that Apple makes against
21 the evidence in their engineer's testimony is that somehow their engineers
22 were not informed of the state of the art, or just didn't understand. This
23 appears to be a reference that Apple identified by searching for pulse
24 oximetry in wrist, and they introduced that at Dr. Duckworth's deposition.
25 They did not realize, however, that this Withings Pulse O2 device, which

1 was in April 2014, roughly contemporaneous with the work Masimo was
2 doing in the field, discloses an oximeter that cannot measure oxygen
3 saturation from the wrist, and instead must be removed and used on your
4 finger. The description is a seriously annoying design. This is Exhibit 1057
5 in slide 60. And I will advance that there is a very extreme difficulty
6 squaring Apple's position that pulse oximetry measurements at the wrist so
7 well-known as to be trivial in 2015, when this was the type of commercial
8 solution that was available just months earlier. Ultimately, what we'll see in
9 the confidential section is evidence at the time, contemporaneous evidence
10 from Apple's engineers and their own experiences in the field. We'll see
11 testimony from those engineers, often elicited by Apple's own attorneys, and
12 we'll see how that supports accountability. On the other side we have
13 Apple's expert whose never worked on these problems, specifically pulse
14 oximetry on the wrist. And with that I would like to stop and reserve the rest
15 of my time.
16 JUDGE HOSKINS: Okay. Thank you for that, Mr. Helm. Let's
17 see. I have that, as 46 minutes for your initial presentation, so that leaves
18 you with 29 minutes. Does that sound right with you from your end?
19 MR. HELM: It sounds swimmingly, Your Honor. Thank you very
20 much. But hopefully, we can move in a sprightly fashion through the
21 confidential material. I do think it is very, very interesting. So, I think the
22 time will go faster, but thank you.
23 JUDGE HOSKINS: Okay, no worries. So, then we have to -- now
24 we go back to Petitioner for their reply on the public aspects of this case.
25 So, with that, I invite Mr. Stephens or whoever's going to speak for

1 Petitioner to begin the reply when you're ready.
2 MR. STEPHENS: Thank you, Your Honor. Just a brief point, and
3 we'll want to reserve as much time as we can for the closed session. During
4 direct, there was a suggestion that Apple's position is that Iwamiya alone
5 teaches blood oxygen measurements. I just wanted to clarify, to the extent
6 there's any confusion, that's not the case. Iwamiya is a heart rate sensor, and
7 we've never contended otherwise. It's the combination when we bring in the
8 teachings from Sarantos, where you add the capability for measuring oxygen
9 saturation to Iwamiya's device.
10 JUDGE HOSKINS: Let me just push back a little bit on that. I
11 understand that one of your arguments is it's coming from Sarantos, but don't
12 you also argue that Iwamiya discloses measuring oxygen saturation?
13 MR. STEPHENS: I'm not aware of that argument, Your Honor.
14 Our position is that Iwamiya, the way we read it, has a single wavelength of
15 light, which would allow you to do pulse rate measurements. It's the
16 addition of the second wavelength based on the teachings of Sarantos that
17 would allow you to expand the capabilities of Iwamiya's device so that in the
18 combination you could not just measure pulse rate but also do blood oxygen
19 saturation measurements.
20 JUDGE HOSKINS: Understood. Could you turn to page 19 of
21 your Petition, please, in the 1291 case?
22 MR. STEPHENS: Certainly, Your Honor. One moment. Can you
23 repeat the page number? I apologize.
24 JUDGE HOSKINS: Nineteen, so one, nine.
25 MR. STEPHENS: Okay, I'm there.

JUDGE HOSKINS: So right here under -- so I'm looking at the bottom where you've got a heading for nine point -- limitation 9.0. And then this first paragraph says, in the combination, Iwamiya discloses a sensor that detects biological information which includes oxygen saturation and provides the example of a pulse rate or heart rate wherein oxygen saturation comprises heart rate sensing at different wavelengths. How else am I supposed to understand that sentence other than one of your positions is Iwamiya discloses oxygen saturation determination?

MR. STEPHENS: Thank you for raising that. I think the work here is being done by the first three words in the combination. So, that may have been, we could have stated that more clearly, Your Honor. But to be clear --

JUDGE HOSKINS: Well, counsel, to the extent, even if, let's -- I guess that part really doesn't matter. You're saying now, for the oral argument stage, that you're relying only on Sarantos for disclosure with respect to measuring oxygen saturation at the wrist.

MR. STEPHENS: That's correct, Your Honor.

JUDGE HOSKINS: Okay. Thank you.

MR. STEPHENS: I'd like to just make a few brief points on -- with respect to the points that Masimo made regarding claim 15. Masimo suggested that Apple is relying on a modification of Iwamiya's sensor to meet the limitation about a plurality of photodiodes being arranged in a configuration corresponding to that circular shape. That's just not true. Iwamiya itself discloses the plurality of photodiodes as an alternative embodiment to the figure that's depicted with having a single larger

1 photodiode. So, it doesn't require a modification to go from that single
2 photodetector to multiple photodetectors. Iwamiya says that you can have
3 multiple photo detectors, two-dimensionally disposed on the same
4 circumference. There was some discussion about the disclosure for this
5 limitation and the specification for the limitation in Claim 15, regarding the
6 configuration of photodiodes. I refer Your Honors to slide 24 of our
7 demonstratives. And we highlight on this slide disclosure from the '745
8 specification at column 11, lines 36 to 43.
9 JUDGE HOSKINS: Sorry, can you give the slide number again on
10 that?
11 MR. STEPHENS: Slide 24.
12 JUDGE HOSKINS: I'm not sure. I'm looking at Patent Owner's --
13 I'm sorry, I'm looking at Patent Owner's. So, it's slide 24 of Petitioner's
14 demonstratives.
15 MR. STEPHENS: That's correct, Your Honor.
16 JUDGE HOSKINS: Okay, sorry about that. Thank you.
17 MR. STEPHENS: And we actually asked Masimo's expert, Dr.
18 Duckworth, about this disclosure. And we asked him during his deposition
19 to review the specification and identify any more pertinent disclosure than
20 what's clipped here. And he took time to review the spec, didn't identify
21 anything else besides this. And you can see here, there's just disclosure of
22 plural photodiodes. Nothing about what's required for correspondence.
23 Nothing about six photodiodes being required. You know, I would submit
24 that Iwamiya's disclosure is more robust than what's in the '745 specification
25 insofar as it discloses plural photodiodes disclosed on the same

1 circumference, which is absent from this disclosure, it doesn't even say
2 corresponding to a shape of the irradiated portion area.
3 And the last point I would make, there's -- Your Honors asked
4 counsel, whether Masimo had argued in the record that Shie is not analogous
5 art. We went back to the Patent Owner's response and saw no such
6 argument. Thank you.
7 JUDGE HOSKINS: Thank you for that. So, let me do some math
8 here, please. So, I have 19 minutes left now for petition -- oh, were you
9 going to keep on arguing? I apologize. I thought you were done.
10 MR. STEPHENS: I'm done. I was, well, we were going to ask for
11 the time, so I appreciate that.
12 JUDGE HOSKINS: No worries. Okay. So, it looks like you have
13 19 minutes left for our next phase. Is that in accord with your calculations
14 there?
15 MR. STEPHENS: That sounds right to us. Thank you, Your
16 Honor.
17 JUDGE HOSKINS: Okay. Thank you. So, you know, we've
18 been -- so with this morning's sessions, we've been going for a little bit
19 today. So, we're going to take a little bit of a five-minute break here. We
20 will, you know, talk to our staff, and get the public lines, you know, cut off
21 so that we can talk about the confidential information. But we're going to
22 take a little bit of a five-minute break here. So, we'll be back in about five
23 minutes, okay?
24 (Whereupon, the above-entitled matter went off the record at 2:50
25 p.m. and resumed at 2:57 p.m. EST)

JUDGE HOSKINS: Let's go back on the record and before I turn it over to counsel, let me see, I forgot Mr. Helm, I should have given you a sur-reply on the non-confidential portions of the argument. I am going to do that now.

MR. HELM: Okay, I --

JUDGE HOSKINS: If you don't want to use the time, that's okay, I just, I forgot so here's your chance.

MR. HELM: Not --

JUDGE HOSKINS: Would you like to do that?

MR. HELM: Not a problem, I am happy to go very quickly, so whenever you're ready.

JUDGE HOSKINS: Okay, please begin when you're ready and I've got your time at 29 minutes so that's what we'll start with you, thank you.

MR. HELM: Okay, the first issue I wanted to address was the written description issue, I promised you I would come up with a cite and I wanted to deliver. So I think that counsel directed you to one portion of the record here at the '745 patent, roughly around column 9, lines 25 to 30, but I will also direct you to, for example, Figure 7B, which shows the circular light block and the irradiated portion the tissue is all our part and parcel and disclosure. But I think that the description of the spatial array corresponding to the irradiated surface area tracks very nicely with what is claimed.

Point two, on the non-analogous art issue, let me just direct you to our sur-reply where we discussed the fact that Shie doesn't have anything to do with physiological monitoring, that's what we alluded to earlier. The

1 argument here is about how Shie provides no details or no explanation, and
2 no information for implementation. No suggestion that would be directed to
3 a physiological monitor at all, instead has automotive applications like trailer
4 lights, in addition to the catch-all of anything under the sun. Last --
5 JUDGE HOSKINS: The legal issue where that comes up then is
6 motivation to combine and perhaps reasonable expectation of success as
7 opposed to analogous art, correct?
8 MR. HELM: That is correct. We're not seeking to exclude Shie
9 from consideration altogether, but what we are saying is that you better have
10 some reason because it doesn't come from the references themselves. And
11 what we would posit is that the initial Petition declaration, which was copied
12 from the attorney arguments at the ITC, did not provide that in a competent
13 manner. And in addition, further what they deem corroborating evidence
14 that was introduced for the first time on reply does not actually support the
15 motivations in any coherent way. I wanted to make one quick point, very
16 quickly, about the wavelengths of light, and that was merely to say, tie back
17 in the Sarantos disclosure about the fact that it tailors for specifically green
18 or yellow wavelengths, not red or infrared wavelengths. Again, yet another
19 reason why the Sarantos and the Iwamiya designs are very, very dissimilar.
20 But even Sarantos recognizes you'll have to change how you design your
21 system to measure different wavelengths of light because they move through
22 the body in different ways. So, that's yet another reason why there are
23 differences that hinge on the wavelength and why Sarantos and Iwamiya do
24 obtain different results or have different experiences. And with that, I'm
25 happy to wait for the confidential session.

JUDGE HOSKINS: Thank you. Okay. So now you have 27 minutes left. So, for the purposes of the record, we're now moving -- the public lines have been cut, so the public was unable to hear the sur-reply argument that we just had from Mr. Helm. That's my fault. But the public lines have been cut, so we are now going to move toward the confidential portion of our argument today. And we'll start with Petitioner. And I understand Mr. Renner is arguing this part for Petitioner --

MR. RENNER: That's correct, Your Honor.

JUDGE HOSKINS: Okay, great. That's fine. And so, you have -- Petitioner has 19 minutes left. And so when you begin talking, we'll start the 19 minute clock. Thank you.

MR. RENNER: And I should clarify the issue that I'll be addressing is reasonable expectation of success as it relates to the thermal, the issue of pulse ox on a wrist, which seems to be the root of the primary argument there. But to the extent there are other arguments, we may end up having Mr. Stephens join us again.

So, with that, I will begin us with slide 83 if I may. And this goes to the scope. The first part of my presentation will go to the scope. It's my understanding that there are reasonable expectation of success arguments as it relates to pulse ox on a wrist, they really -- they don't implicate claims 2 and 27. When you look at Claims 2 and 27 that are reproduced here alongside of 9 and 18, you'll notice that all that you recite is LEDs of differing wavelengths with the contention that there may be, as a consequence of this, the combination brings LEDs of differing wavelengths into the combination. These -- the only allegations of reasonable

1 expectation of success, which relate to the wrist-based detection of an
2 oxygen saturation, it simply wouldn't apply to these claims, and this makes
3 sense.
4 JUDGE HOSKINS: But your argument though -- but your
5 argument is the reason to use two wavelengths is oxygen saturation. So,
6 isn't it the same thing?
7 MR. RENNER: Well, Your Honor, we think that the claim doesn't
8 require that particular motivation. And we think that there could be a variety
9 of reasons you might integrate them. To your point, that it would relate to
10 that argument, but not to the claim itself.
11 JUDGE HOSKINS: What other arguments do you have for
12 modifying Iwamiya, for example, to use two wavelengths?
13 MR. RENNER: Your Honor, it's a structural combination where
14 you may change the LEDs. And we posited that you could integrate LEDs
15 from the secondary reference and the state of (INDISCERNIBLE) as you
16 mentioned it is to help us with that type of a measurement. But we still
17 maintain there are other reasons that might motivate that combination.
18 JUDGE HOSKINS: Have you provided any such reasons on the
19 record?
20 MR. RENNER: I can go back and look. I think it was more of a
21 generic statement that they could come in. And then there were the specific
22 motivations that as you've noted are really about trying to get to all pulse ox
23 on wrist.
24 JUDGE HOSKINS: Okay. Thank you.
25 MR. RENNER: Slide 8, if I go back to slide 8, I'm going to make

1 a similar point, but perhaps a little more. This has to do with the -- our
2 understanding of the questions of reasonable expectation success here don't
3 apply to all, of the grounds that are implicating of the claims, its 2A and 2B,
4 as well as 2A and 2C. They have Sarantos as a base reference, you'll notice.
5 Masimo's contentions, again, are limited on reasonable expectation of
6 success to criticisms of the wrist-based pulse oximetry in the center there.
7 And you'll recall that Sarantos, we've established, we believe, and we've
8 certainly argued that it discloses a wrist-based pulse oximeter. The
9 arguments over that have already been addressed. We were talking about
10 those in the public session. They center on, in particular, Sarantos'
11 disclosure at 13, 34 to 50 and other areas of it. But Sarantos is being
12 brought into the combination with the proposed changes, not actually
13 making modifications to Sarantos in this respect. So, a reasonable
14 expectation of success, we don't think can focus on whether confidence
15 exists in the wrist-based pulse oximetry, which is already demonstrated by
16 Sarantos. Rather, it would properly be focused on whether a POSITA would
17 reasonably expect success in the proposed integration of those features from
18 the secondary reference, of different features in the secondary reference.
19 And to complete the point --
20 JUDGE HOSKINS: Do you have a good case citation for that?
21 MR. RENNER: No, Your Honor, it's not normally alleged in a
22 circumstance like this is what we note. That the reasonable expectation of
23 success is normally at the point of the combination. It's when you bring two
24 references together, you doubt they'll fold together. Is there's some reason to
25 believe they won't come together? It's not about whether one or the other

1 teaches what it says it teaches. That's a contention that would come in more
2 on, and we've already heard some arguments on that, as to the sufficiency of
3 the teaching itself. And that's kind of, our point. And we think that this
4 turns around as well when you look at Sarantos even as a backup reference
5 because as the pulse ox on wrist, we're simply integrating exactly what
6 Sarantos already says it does. It's already teaching the world that you can
7 integrate the pulse ox on wrist. The question isn't that. The question is
8 whether or not a modification to the sensor of Iwamiya is a reasonable to
9 expect success type of a modification. And in that question, you don't have
10 the same kinds of (INDISCERNIBLE) arguments and questions that they've
11 raised here. Instead, it's a more focused inquiry and one that frankly hasn't
12 even been alleged.
13 Now, that being said, I wanted to go ahead and deal with what has
14 been alleged in terms of the argument itself. And that is you're being asked
15 by Masimo to look past the record of PTAB evidence and focus on evidence
16 that's imported from the ITC record. But a reasonable expectation of
17 success is assessed, as we've discussed even today, from the perspective of a
18 POSITA, and a POSITA is charged with the knowledge of the art and the
19 level of knowledge that exists in the art. The PTAB record before you
20 doesn't look at all, well, it doesn't look complete, if you will, of the ITC
21 record. The ITC record is one thing, this record is quite another and it has a
22 significant amount of information that was not given to the ITC and not part
23 of the decision-making fabric there. Specifically relating to determining
24 oxygen saturation at the wrist, and establishing that it was known, many
25 authors have been presented many papers to this point. And we're going to

1 talk about some of that with our limited time together. As the record details,
2 in briefing, four references in particular, the Cai and the Li and the Pang and
3 the Maattala references, and we see that Dr. Anthony, he cites to many more
4 in corroborating his testimony, which is and remains that pulse ox on wrist is
5 not beyond the reach, not something that people of skill would have had
6 difficulties in thinking they might accomplish at this time. Now, this is with
7 respect to a POSITA, of course, fully aware of the state of the art. We
8 therefore had expected some success in simply applying Sarantos in
9 whatever manner Sarantos is already disclosed. The saturation detected by
10 that wrist-worn sensor. And this is true, we believe, despite some industry
11 participants suggesting that challenges exist in sensing pulse ox on wrist.
12 Sweat of the brow has never really been the test for measuring real-world
13 expectations of success, nor is the knowledge of any particular engineer or
14 person, even one that happens to be employed by Apple as an engineer by
15 Apple. None of us know everything there is to know about technology. No
16 person in technology knows everything and the hypothetical standard of a
17 reasonable expectation of success, of a POSITA, sorry, is established well
18 and it's somebody that is charged with the knowledge of that which is in the
19 field, a hypothetical person, it's said.
20 So, if I could take us to the slide 84 with that, those preparatory
21 remarks. Here you can see Masimo's expert, we believe exposed by the
22 record. As mentioned in the proceeding, Apple has furnished evidence
23 unseen by the ITC demonstrating that a POSITA would have had reasonable
24 expectation of success in seeking to deploy a wrist-based oxygen saturation
25 sensor. And simply said that wrist-based oxygen sensor has been shown to

1 have existed prior to the '745 Patent. Here you can see that Dr. Anthony
2 reviewed countless references in coming to that decision or coming to that
3 conclusion. And the In Re Carlson decision; is the one that I'm referring to
4 where we know that POSITAs are charged with the knowledge of industry
5 reference material. Now, the four references that are highlighted most
6 significantly, we're going to talk about in the slides that follow, and we go to
7 slide 85 that will start us out. The Cai reference, we know it tells us, this
8 quote here, experimental results have confirmed. This is not the language of
9 someone writing about a theoretical thing. The results have confirmed the
10 feasibility of the wrist-based oximeter. Again, results have confirmed
11 feasibility. This is the College of Biological Sciences and Medical
12 Engineering, Southeastern University. The next site on the same page, Li.
13 The sensor has demonstrated, past tense, has demonstrated an ability to
14 gather high integrity data at the wrist. This sensor, it's talking about a
15 sensor, has demonstrated, past tense, done it, an ability to gather this kind of
16 data. This is an IEEE transactions on biomedical circuits and systems, 2012.
17 Pang says, we present another wrist-based oximeter that has been developed
18 in our laboratory. Has been developed in our laboratory. Not just theorized,
19 not just imagined. The Department of Electrical and Electronic Engineering,
20 the University of Hong Kong. And Maattala, pulse oximeter implants
21 implanted in a wristband is possible to achieve with many benefits and
22 practical implications can possible to achieve, they're confessing that it is,
23 they're not making up, but they think it might happen. And this is an article
24 titled, Optimum Place of Measuring Pulse Oximeter Signals in Wireless
25 Sensor Belt and/or Wrist Band, International Conference on Convergent

1 Information Technology.

2 And I'd like to go through these in a little more detail, just to give
3 you the confidence that we have, and that Dr. Anthony emerged with. I
4 would of course encourage that, yourself as well. But 86, slide 86, if we
5 could look at that for a moment, it's a Cai reference on that in the next slide.
6 This paper was entitled Pulse Oximeter Based on Wrist Band Sensor.
7 Experimental results indicate that the system can effectively delete, I'm
8 sorry, detect, the change of oxygen saturation. It's on page four. It's in the
9 highlight. That ends with a confidence-inspiring conclusion, and that
10 conclusion says, this paper describes the system design of a wrist band pulse
11 oximeter and completes the prototype fabrication. So, we're talking about
12 the end of a study, completion of a prototype fabrication, and we're talking
13 about the paper professing that there is in fact a system designed for a wrist
14 band pulse oximeter. And the oximeter can contain oxygen saturation we're
15 told by the same author in the same paper. In fact, it says the wristband
16 pulse oximeter offers an effective means of home monitoring oxygen
17 saturation. The next slide 87, we see Dr. Anthony confirming his
18 understanding, testifying that as a POSITA, that this paper demonstrates the
19 feasibility of collecting pulse ox data at the wrist and using it to quantify
20 changing oxygen levels as a part of the pulse ox measurement process.
21 Pulse Lightning, we wanted to show you here the questions offered to Dr.
22 Duckworth to see if he might think otherwise or at least explain why that's
23 not true. We gave him an opportunity to correct the understanding, he
24 refused to answer. Before going further, we think that's the law there, or at
25 least --

JUDGE HOSKINS: Mr. Renner?

MR. RENNER: Yes?

JUDGE HOSKINS: It seems to me as though you and Dr. Anthony are applying a standard of what one of ordinary skill in the art would consider feasible, but you're saying, maybe that Patent Owner is talking about what is the standard for commercial operability and reliability in a particular device. Is that correct?

MR. RENNER: I think that's a way to characterize that is perhaps not unfair. We think feasible and somebody having a reasonable expectation, right, if you have an expectation, what does that mean? It doesn't mean it actually doesn't require you to have built it in a commercializable way. That said, I'm not sure these papers stop short of demonstrating that it could be commercialized. When you look at the body of work that we'll go through, we think it actually rises higher than just a reasonable expectation, but instead shows you the people have been looking at this and figuring out that you can have oxygen saturation measured on the wrist. I'll continue and say that we think that the Cai reference itself does the job. Of course, we continue to move on. Slide 88 gets us to the Li reference. And the Li reference is a really interesting reference. It's one that we spent some time in, and this slide really, our time together doesn't do us, I don't think, enough justice today to go through this one. But in the upper left abstract it starts out in a pretty meaningful way in its abstract. It says, describing a small, low-cost pulse oximeter design appropriate for wearable and surface-based applications. And this sensor has demonstrated, it tells us, an ability to gather high-integrity data at the wrist. Now, you've got to

1 unpeel this one, because if you look at the Figures 13 and 14, which are
2 reproduced, you can actually see a picture of a left wrist with LEDs and
3 photodiodes imposed on it. It offers wrist data, resolved using those sensors.
4 But the real magic of this reference is when you dig into what the sections of
5 it say. And it's got three primary sections. And it begins with methods, they
6 call it. And in that section, it presents a design for a filter-free reflectance
7 pulse oximeter, but it tells us that it's not going to go in the methods section
8 for the design of the actual device. It tells us that will happen later in the
9 device prototype section. And then it tells us before turning to that
10 prototype section, in its section, subsection F of this section 2, it describes
11 determining an SpO2 value, that would be a saturation value. And I'll quote,
12 an overall SpO2 value is achieved by calculating the median or mean of 40
13 consecutive R values in a 20 second segment and inserting the result into a
14 predetermined linear calibration equation. Before this, it gives a bunch of
15 details on exactly how you go about doing some of the math and the
16 computations that it's doing. But this is not a reference. It's even leaving it
17 to the imagination. PPG information is computed and ultimately resolved
18 into saturation measurements. Then they go on to talk about prototypes.
19 They reference the fact that that method was done by a prototype that they
20 show pictures of. And they end up with a results and discussion section
21 following that section four. The results and discussion section, it tells the
22 pulse oximeter prototypes were used to acquire hundreds of PPG records
23 from 48 different subjects. And as Figure 13 displays experimental data
24 from the wrist at three placement locations that you can see on the slide.
25 Signal quality in location two, interestingly, is said to be lower relative to the

1 signal to noise ratio at locations one and three. So, it's recognizing that you
2 might actually get divergent signal-to-noise ratios in different places. But it
3 says all three are suitable PPGs for the purpose of the pulse oximeter
4 saturation. And it says, since the subjects demonstrate a variety of different
5 arterial locations and depths of the wrist, it tells us, sensor placement
6 flexibility is essential to acquiring commendable data sets at the body
7 location that you're talking about. This reference is, it can do as it talks
8 about putting some pressure on the device, it talks about changing the
9 placement of it to improve results if you think that's necessary. One is this is
10 enabling that you can do these device sensing criteria. You can actually get
11 these sensing off of a wrist-based device, and it doesn't limit itself in ways
12 that the claim require. There's no limitation that you don't apply pressure.
13 There's no limitation that you resolve a single location all the time in the first
14 instance. Those are, like you said, I think, well, Judge Pollock, those are
15 commercializable design choice type considerations that are left to the
16 engineers, we're told by, actually Masimo's experts or witnesses.
17 JUDGE HOSKINS: Mr. Renner, you're kind of coming -- you've
18 got about, I think, three or four minutes left. Just to let you know.
19 MR. RENNER: Yeah. Okay. Thank you. I would, time
20 permitting, walk us through in detail Pang and Maattala, the 10 patents that
21 are cited by Anthony. If we look at the next few slides, you can see in slide
22 90, it's Maattala, slide 91, it's -- it should be Pang there. Or I'm a little off
23 my slides. Pang is on 89, Maattala is on 90. There's a host of patents that
24 deal with pulse ox that Anthony cites in corroborating his testimony that this
25 is not a magical science, it's escaping people. And I will say to you in slide

1 93, importantly, we see testimony from Dr. Duckworth about the '745
2 Patent. Why am I talking about that? You'll see where he's acknowledging
3 that as enabling and not only enabling but establishing a reasonable
4 expectation of success and implementation. If that disclosure, as thin as it is,
5 is good enough to give a reasonable expectation of success, our contention is
6 so too is Li. They kind of, given us a measuring stick here with this
7 testimony as to what we're looking for on these terms.
8 And finally, I would say just as to the Apple engineer testimony
9 which we again had framed up for ourselves. I'll just go back to the Dr.
10 Mannheimer slide 105, and I'll say that in here you can see reference to a
11 variety of different implementation details that would be important to any
12 engineer trying to consider whether they can or should or can build
13 something. And these are engineers that are not shown to be aware of any of
14 the material we just talked about. That record was bare thread of it, and
15 there's no indication that they, when they gave their testimony, had any of it
16 in mind, that they knew about any of it. And so what you have here is not
17 testimony we think that represents a POSITA's knowledge. It's
18 representative of an individual's knowledge, which we know is deficient of
19 what this use of standard is. I'm happy to take questions. I know time is
20 short. Maybe I'll just reserve what little there is for a rebuttal.
21 JUDGE HOSKINS: Thank you. I do have one question for you.
22 And I want to be kind of clear about my question. So, it has to do with the
23 ITC investigation. So, we just had the full commission decision in late
24 October. What I want to know is, if you can tell me, you may not know this,
25 what's the next deadline in the proceeding? I'm assuming it's an appeal to

1 the Federal Circuit. But what I, and the reason, let me just tell you why I'm
2 asking, we've got a statutory deadline and to some extent, I want to keep tabs
3 on what's going on in the ITC. And so I'm wondering when I need to be
4 looking. So can you help me out? Just, I'm not asking what you're going to
5 do, what Apple's going to do, what Apple's not going to do. I'm just asking
6 for what's the deadline, the case schedule.
7 MR. RENNER: I will profess to you that I don't actually know,
8 the answer to that confidently and I wouldn't want to misguide you. I'm
9 happy if my colleague knows he might inform the Board. Otherwise, we can
10 get together and get you an email just factual, just gives you that after the
11 hearing if that's not something that comes out of his session for you.
12 JUDGE HOSKINS: I would appreciate that very much. Thank
13 you.
14 MR. RENNER: Of course. And just one word on that. We
15 obviously want that to be something you have to consider. Our only
16 concern, I think it might have been apparent through the email traffic, was
17 there's a lot of issues and evidence that are not briefed here and that are not
18 in this record. And it gets, we believe, to be an unmanageable record if we
19 all, of a sudden, are importing different records without the process it has as
20 to, you know, when and how and briefing, and those kinds of things that
21 might come along with. So, we're happy to have that, of course, in your
22 hands. But when we talk about the supplemental information, I'm not even
23 sure what its implications would be there. Our real driving concern is
24 knowing what the case -- what the boundaries of the case are, and importing
25 in another litigation what it is, felt like a little bit potentially unmanageable.

1 JUDGE HOSKINS: Okay. Thank you. So, we'll give you two
2 minutes for your rebuttal on that, which I think, is pretty generous based on
3 where we are. Okay, so two minutes just so you know as you listen, you
4 know what you're going to be given.
5 MR. RENNER: Greatly appreciate it. Thank you for your time.
6 JUDGE HOSKINS: Thank you. So, okay, so Mr. Helm, are you
7 continuing now for Patent Owner? Do we have somebody?
8 MR. HELM: I am. I am continuing, Your Honor. And if you are
9 prepared, I am happy to continue now.
10 JUDGE HOSKINS: Begin when you are ready. Thank you.
11 MR. HELM: Thank you. Now, one of the things that I find most
12 surprising is that in this confidential section, we heard almost nothing, and in
13 fact, perhaps nothing at all about the confidential information that is
14 absolutely the most probative information and evidence with respect to the
15 oxygen saturation determinations at the wrist. It is very surprising. Every
16 single thing, that was argued could have been presented in the public session
17 and could have been dealt with in the public session. I want to make a few
18 clarifying points before I get into the confidential information, and
19 unfortunately this is going to implicate that non-confidential arguments that
20 were made. First is the idea that an artisan is charged with knowledge.
21 Absolutely true as a matter of law. The artisan is in the room with every
22 single prior art reference. That is different from what Apple alleged in its
23 Petition and which it has tried ever since to support. The idea that
24 determining oxygen saturation at the wrist was so well-known as to be
25 routine and not even require a thought in terms of the expectation of success.

1 Second point, there was a question about whether our arguments are related
2 to the commercial embodiments or whether it is related to a commercial
3 device. The answer is no. And we will go into that in the confidential
4 material shortly. Our argument is that there is no expectation of success, and
5 there was no expectation of the success at the time, even at the feasibility
6 stage, not the commercial stage. And I am very excited to present that
7 information to you. A third point is about Sarantos. I think there was much
8 made about Sarantos' very sparse disclosure. We looked earlier about the
9 parts of Sarantos that said expressly what we're disclosing is not tailored for
10 red or infrared, so it can hardly have been found to disclose oxygen
11 saturation determinations. The part that they rely upon in Sarantos that
12 mentions oxygen saturation determinations is one of those happy, optimistic
13 statements in patents that you see, for example, saying that it may, you may
14 want to use it. It does not necessarily say you may want to use this for
15 oxygen saturation at the wrist, but I will merely note that the implementation
16 is not in Sarantos itself. Another point, briefly, where I think that Apple has
17 advanced a legally incorrect argument that equates enablement with an
18 expectation of success to unrelated issues. Enablement does not depend on
19 any expectation by the artisan. It depends on whether it actually works.
20 And we know that it actually works in this case, the '745 Patent, because, as
21 the ITC found, that technology is incorporated into Masimo's watch, and it
22 helps facilitate the measurements of Masimo's oxygen saturation at the wrist.
23 In fact --
24 JUDGE HOSKINS: So, Mr. Helm, can you help me understand, if
25 this was so hard, what is it about the disclosure of the '745 Patent that breaks

1 the logjam in that respect?

2 MR. HELM: Well, I will tell you that I think where they struggle
3 in their combinations has to do with the light-shaping element used in
4 conjunction with a specific array of detectors. Those are the arguments that
5 we highlighted during the public session and the deficiencies we perceived
6 in that. And I think that's where it breaks the logjam. So, there's a reason
7 why they don't have references that disclose that or squarely or cleanly
8 demonstrate the obviousness of that result. But certainly, with respect to the
9 oxygen saturation, I think that the reasonable expectation of success
10 evidence is very, very clear. I want to just one last piece in the -- of the
11 public information that was discussed, and it was this long discussion of one
12 of the references. And I just want to note that that reference, I think it's Cai,
13 it's actually not measuring oxygen saturation. If you look at the figure that
14 they've included on slide 86 of their demonstratives, it's an R value. That's
15 not oxygen saturation. If you look at how it describes it, it looks, this is one
16 of these academic optimism. It can obtain oxygen saturation information.
17 Yes, there were references that measured red or infrared light, but that is not
18 determining oxygen saturation, nor is this mysterious R value in Figure 6.
19 And I'm going to show you some information from Apple's engineers having
20 to do with that.

21 So, at this point, let me share my slides for the confidential session.
22 Here's the timeline I showed you earlier. Filled in are some additional
23 details. Late 2014, Apple hires Dr. Paul Mannheimer, who is a world expert
24 in the field of pulse oximetry. We'll see him in a second. The reason they
25 hired was to determine the feasibility of obtaining oxygen saturation

1 measurements at the wrist full stop. This goes to the question about
2 commercial versus feasibility. Absolutely, the evidence we're sharing with
3 you here has to do with feasibility, the idea that it could be done at all, not
4 the idea that it was a commercial product. Apple deflects and provides
5 excuses, citing evidence that is about their commercial product. But the
6 evidence that we're sharing with you has to do with the feasibility stage of
7 the development, whether it could actually be done at all and not much later
8 stages. You'll see in one of our slides that those were distinct inquiries at
9 Apple.
10 [redacted] The fact of the matter is Apple knows that there is no
14 and was no reasonable expectation of success at the time. These are exactly
15 the right timeframe. The evidence we're going to present is exactly the right
16 timeframe and directly relevant to the issues we see.
17 I'm going to direct you to slide 65. [redacted] These are not people, as
21 Apple suggests, who were unaware of the art, couldn't Google oxygen
22 saturation and wrist together and find the papers. [redacted] The
25 suggestion that if only these engineers had had these sparse disclosures that

1 they cite in support of reasonable expectation of success, they might have
2 had a different view is incorrect. One of the things that I want to highlight is
3 that Apple did not just hire people, they actively explored what was already
4 known in the field at the time. For example, one of the things that Apple did
5 during its project was to [redacted] Masimo's existing pulse oximetry sensor.
6 To be absolutely crystal clear as to the relation of the parties involved in this,
7 Masimo has been an innovator in the field of pulse oximetry for decades.
8 Apple sought to enter that field in 2013. And when they did, they examined
9 Masimo's device because they knew we were the leader in the field. [redacted]
[redacted] This is
11 Dr. Paul Mannheimer. I referenced him several times. And if you recall
12 way back at the beginning of this proceeding, this discussion we've had
13 today, there was findings that I highlighted from the ITC decision, and he
14 was first in line in the citations. He has a Ph.D. in biomedical engineering,
15 but more than that, 20 plus years in pulse oximetry experience, including at
16 the medical device company Nellcor, which was a leader in the pulse
17 oximetry field in the early days of development. Dr. Mannheimer, the idea
18 that he was somehow unaware of what was happening in the field is absurd.
19 In fact, he was hired in 2014 [redacted]
[redacted] And when he was hired, this is what he said. When you joined Apple,
21 what was your first assignment? To work on the blood oxygen app
22 essentially to prove feasibility that blood oxygen, SpO2, those are
23 synonymous terms, could be measured on the wrist. This is not a
24 commercial product. And I'm going to show you a few slides later that's
25 going to really hammer that home for you. But the hiring of Dr.

1 Mannheimer right around when Masimo was carrying out the work that gave
2 rise to the '745 Patent, was to prove feasibility that blood oxygen saturation
3 could be determined at all at the wrist, not for a commercial device. Here's
4 his testimony, and we've cited this in the briefing, and it is really wonderful.
5 When he found out what the assignment was in 2014, my first reaction when
6 actually hearing about it was internally to my head, rolling my eyes, thinking
7 like, good luck with that. [redacted]
[redacted] That's not something so well known in the field as to necessarily
10 convey a reasonable expectation of success, which is Apple's position here.
11 [redacted] So, the wrist is just enormously different
13 from a physiological perspective. Your Honor, this goes as well to the
14 issues, various issues of different wavelengths and different arrangements.
15 Because of the specific physiological issues associated with the wrist, you
16 need different solutions. [redacted] the signal is just enormously weak. By the way, I
19 note that Iwamiya also reports that enormously weak signal. Here is another
20 one of Apple's engineers that worked on this project, Brian Land. He, again,
21 well qualified, as a person of skill in the art. He was Apple's lead engineer
22 on the health sensing hardware team, and he has many years of experience
23 designing sensors. If you recall, I put up that scale at the end of the public
24 session weighing the understanding, which is merely Dr. Anthony's
25 reproducing what was in a reference versus the actual experience of people

1 who were artisans at the time working directly on this problem. Here's what
2 Mr. Land said. [redacted]
4 He viewed it as unprecedented as of [redacted] Now again, this is not an indication that there's
8 commercial requirements that we're baking into this. This is an indication
9 that it was not well known, further buttressed by that Withings device that I
10 showed you that undertook the seriously annoying step of removing the
11 device from your wrist and putting it on your finger. Dr. Waydo, again,
12 directly involved, has relevant experience, well able to speak to the problems
13 that Apple had at the time of the invention. Was it a challenge to develop
14 the blood oxygen feature? It was extremely challenging. [redacted] And this, I think,
17 is particularly important because it really puts paid to the argument that they
18 made about these aspirational references. [redacted] And what I pointed out in the discussion of
23 claim construction is if you have a device that just gives you noise, that does
24 not determine oxygen saturation at the wrist. This is confirming that that is
25 not determining oxygen saturation at the wrist. [redacted]

1 [redacted] Yet more. There's this kind of wrinkle about the
2 algorithm and whether it was you could just immediately process it. It's
3 actually quite a complicated processing. And I just highlight this as a note
4 that 20 or 30,000 hours of engineering time just on the algorithm
5 architecture. Now, this is, it encompasses other things, but I do think it is
6 interesting how different it is from the position Apple took in these
7 proceedings.
8 Slide 76. Apple engineer Tao Shui. [redacted] The wrist is
11 well known for its lack of signal. Exactly. All of this testimony is directing
12 you to the understanding that this problem was incredibly challenging.
13 Apple's engineer, Dr. Block, [redacted] First, this
16 is the contemporaneous evidence that I discussed. [redacted] I highlight this slide, this evidence on slide 81.
24 [redacted]

[redacted]

2 [redacted]

[redacted] That a skilled artisan would understand is not enough

10 and is completely inconsistent with the arguments that they made about

11 references that obtained a red or an infrared signal, conveying an expectation

12 of success.

13 [redacted]

[redacted] Conventional sensing methods do not

15 result in waveforms that are consistent enough for SpO2 measurements at

16 the wrist. The argument Apple has made is it is so, so well-known as to be

17 routine. How can they make that argument when they are faced with their

18 own experience that is so challenging that conventional sensing methods

19 cannot work? Invention is required. [redacted]

[redacted] And, Your Honor, you asked how did the '745 Patent break

22 the loggerheads? [redacted]

[redacted] And those are what are claimed. [redacted]

[redacted] Third, the

25 developmental timeline was --

1 JUDGE HOSKINS: Can we back up a second for that please?
2 MR. HELM: Absolutely, Your Honor.
3 JUDGE HOSKINS: Well, Iwamiya has those things, doesn't it?
4 It's got the diffuser in between the light emitter and the skin.
5 MR. HELM: Two points, Your Honor. One, it does not have a --
6 it does not -- Iwamiya does not tell you, in fact, teaches away from any sort
7 of implication with oxygen saturation. So, no, it cannot teach in any way
8 those things. Now, the idea that there's a diffusing material was in existence
9 is a different issue as to whether or not the design would be useful or give
10 you a reasonable expectation of success for determining oxygen saturation.
11 Second, Iwamiya does not have the shaping of the array of detectors that's
12 not present in Iwamiya. There are two different things.
13 JUDGE HOSKINS: So, the first point is on Claim 1, the second
14 point is on Claim 15, correct?
15 MR. HELM: There are Dependent Claims as well that add in
16 limitations to those independent claims. But yes, that's correct, Your Honor,
17 so.
18 JUDGE HOSKINS: Okay. Thank you.
19 JUDGE POLLOCK: Mr. Helm?
20 MR. HELM: Yes, Your Honor?
21 JUDGE POLLOCK: A minute ago, you were talking about Cai.
22 MR. HELM: Yes.
23 JUDGE POLLOCK: I believe that's Figure 86 in Petitioner slides.
24 MR. HELM: Correct.
25 JUDGE POLLOCK: And you seem to disparage Cai for

1 describing R values rather than SpO2, for example, in millimeters of
2 mercury. What is R in this context, and don't you need to know the
3 underlying SpO2 value to calculate it?
4 MR. HELM: No, Your Honor. That's -- first of all, I will say that
5 it's not clear what R represents in the context of that particular reference.
6 But I will answer your question more squarely if I may. What they are
7 reporting there, what I think, and as I said, it is not squarely disclosed. It
8 does not really describe that. What I believe that is reporting has to do with
9 some comparison between the red and the infrared. Pulse oximetry is not a
10 mere comparison between red and infrared, it's a ratio of ratios plus a lot
11 more. So, Cai is, even if that's disclosing a ratio of red and infrared values,
12 that's not determining oxygen saturation. And to be clear, I don't mean to
13 disparage anything. I merely observe the limitations of that disclosure as
14 directed to red and infrared, obtaining red and infrared signals, but which
15 never gets past that point, as Dr. Duckworth explained, to publish anything
16 that actually confirms oxygen saturation determinations, not just the
17 information that is necessary but not sufficient. And if I go on to slide 84 in
18 my presentation, I'm going to get to that point in just a second. This
19 feasibility phase that we've been talking about all involves determining
20 whether oxygen saturation works at the wrist at all. [redacted] Again, this
22 completely inconsistent with the positions they've taken in the IPR. And the
23 excuses for their expert testimony don't make any sense. [redacted]

trying to measure oxygen saturation [redacted]

Masimo's watch is the only one that does that. [redacted] I want to just conclude on slide 93 that the objective -- there's also objective evidence of non-obviousness here, industry skepticism, on slide 94 the failure of others, including Apple, and slide 95 long felt an unmet need. At this point, I will reserve the rest of my time but leave you with one parting thought. At the very least, Masimo has been consistent throughout all of these proceedings. And I do not think the same can be said for the way Apple has treated its engineers versus what is disclosed in the art. And with that final thought, I am happy to reserve my time.

JUDGE HOSKINS: So, I do have one question for you which is a legal question, I think. With respect to the second Ground 2, their principal reference is Sarantos. So, I understand kind of your argument about the prophetic nature of what Sarantos is disclosing in your view with respect to measuring oxygen saturation. But I have a kind of, a legal question for you

1 relating to that.

2 MR. HELM: Yes.

3 JUDGE HOSKINS: Is the issue there reasonable expectation of
4 success, or is it enablement of the prior art? And the reason I'm asking is it's
5 the primary reference. And so, whatever it has, it has.

6 MR. HELM: Yes, I'm happy to answer that question. I'm sorry to
7 cut you off. I started answering before it brought me back to being in third
8 grade. So, yes, Your Honor, the answer is that it's reasonable expectation of
9 success because even if you have all of the claim elements in one reference,
10 that's not necessarily anticipation or anticipatory. It's an obviousness
11 combination. And what we know from Sarantos is, in particular, the
12 disclosure there is that you have to make some sort of modification to tailor
13 it to red or infrared wavelengths. No dispute that you would have to do that
14 in order to determine oxygen saturation. The question must remain;
15 however, would you have a reasonable expectation of success in making
16 those modifications, particularly not just with Sarantos. You cannot exercise
17 that alone and find reasonable expectation of success for any particular piece
18 of the disclosure. Would you find reasonable expectation of success in
19 combining it with Shie after the modification into something not disclosed in
20 Sarantos, different ratios, different detector arrangements, unknown. So,
21 yes, reasonable expectation of success is directly related. It is not a
22 disclosure of a sensor. I will say once again, I think I've made this clear, but
23 Sarantos does not disclose an arrangement that measures red and infrared
24 light, and it specifically distinguishes its disclosure and says, you're going to
25 have to figure it out. And in addition to you're going to have to figure it out,

1 you're going to have to figure it out and, also figure out how it works in
2 conjunction with other features to determine oxygen saturation. The
3 reasonable expectation --
4 JUDGE HOSKINS: It says to use green light, red light, and
5 infrared light. Maybe I have a disagreement with you on that, but I think it
6 clearly says you can use those three lights in one device. Now, so the
7 question is how do you -- no, let me finish. The question is how do you get
8 to that to a device, and the legal question is, what's the prism we answer that
9 question from? Is it reasonable expectation of success or is it enablement?
10 Because it clearly discloses doing both of these things, pulse, and oxygen
11 saturation in one device.
12 MR. HELM: So, it talks about oxygen saturation. It does not say
13 measure oxygen saturation at the wrist. I don't believe. I may be wrong.
14 But what also is clear is that the things that you do with --
15 JUDGE HOSKINS: What do you do with Figure 1A then in
16 Sarantos?
17 MR. HELM: Your Honor, I think that what Sarantos says is that
18 what we've disclosed here is not tailored for measuring red and infrared
19 signals. I think it's very clear, that what it says is what it's supposed to do.
20 And then it says you may want to consider doing these things. And that's
21 not a --
22 JUDGE HOSKINS: And the device is disclosed in Sarantos,
23 right? And the thing, it's Figure 2, actually, but it's a wrist-worn device.
24 MR. HELM: It's a wrist-worn device, but you have to make the
25 modifications. And just, I want to make clear that the reasonable

1 expectation of success is gauged against the claimed elements. So, you have
2 to take Sarantos and then further modify it and have an expectation of
3 success with that further modification. But I do disagree that Sarantos is
4 disclosing a device that measures red and infrared. It may have a teaching in
5 there that says you could consider these wavelengths. But that's different
6 from disposing an actual device that includes those features. And I don't
7 mean to, I'm not trying to be technical here.
8 JUDGE HOSKINS: I'm not, so I'm not disagreeing with you. The
9 question I have is what is the bridge that Petitioner has to get across? And is
10 that bridge reasonable expectation of success or enablement?
11 MR. HELM: Reasonable expectation of success. That's final
12 answer. So, I mean, it's a reasonable expectation of success issue because it
13 is an obvious -- you have to make modifications to Sarantos even to get to
14 those red and infrared detectors. So, there is a reasonable expectation of
15 success issue there.
16 JUDGE HOSKINS: Okay. Thank you. I think we've let you -- let
17 me pause to make sure my colleagues don't have any further follow-up.
18 JUDGE POLLOCK: I have no questions.
19 JUDGE HOSKINS: We were a little bit generous on Petitioner's
20 side in terms of giving them two minutes for their reply that we're about to
21 do. So, I will give you two minutes on your sur-reply, and I won't forget to
22 give it to you this time, so.
23 MR. RENNER: I appreciate it, Your Honor, and thank you.
24 JUDGE HOSKINS: Okay. Thank you. So, with that, Mr. Renner,
25 you may begin when you are ready.

1 MR. RENNER: Thank you, Your Honor. Just three points. One,
2 slide 97. We heard for 20 plus minutes there about individuals, good as
3 they may be, they're not, clearly not representative of a, and I quote from the
4 Carlson case, hypothetical person of ordinary skill in the art charged with
5 specifically knowledge of all of the relevant art. That is not who you heard
6 from. Two, the Cai mischaracterization I want to go into. It does not stop
7 with oxygen saturation information. It clarifies very specifically otherwise.
8 Page three, column two, second column, like the fourth paragraph after
9 Figure 5, the heart rate is measured by calculating cycle of pulse wave signal
10 and the oxygen saturation is deduced by computing the ratio of the light
11 intensity change rates under two different wavelengths. Also in its
12 conclusion, similarly, I quote, the paper describes a system design of a
13 wristband pulse oximeter and completes the process of prototype fabrication.
14 This oximeter can obtain oxygen saturation.
15 As to R-value, you asked my counterpart, you look right above
16 that, the very end of the article, pointing at a figure that shows you R-value
17 and T under experimental results. At the end of it, it says, importantly, this
18 is right before the conclusion, the experimental results indicate, so it's what
19 do you get from them, that this system can effectively detect the change of
20 oxygen saturation. And that is using the R-values, which is a fairly well
21 understood what R-values are. The third point is, Judge Hoskins, it probably
22 wasn't lost on you here, but you asked a probative question at the beginning
23 of my colleague's presentation about what is it about the patent specification
24 '745 that makes it able to give people what they need to have in order to get
25 both enablement and reasonable expectation of success for the testimony

1 that we saw. And there wasn't an answer because there isn't an answer. The
2 disclosures we have here, and in the countless other references that were
3 referred to by Dr. Anthony should say otherwise. They said there's a lot
4 more information out there that shows you at the time, the critical time,
5 people of skill had access to more. I appreciate you indulging. I'm sure that
6 I've taken my two minutes. I would be happy to take questions if you had
7 any for me.
8 JUDGE HOSKINS: Okay, hearing none, I have none. So, thank
9 you very much. So, Mr. Helm, you may begin when you are ready.
10 MR. HELM: Thank you, Your Honor. And of course, thank you
11 for your time today. It's been, I know, a long session for a lot of you. I want
12 to point out that the language my friend on the other side quoted from Cai, it
13 measured the pulse rate, but it deduced the oxygen saturation. That's
14 consistent with all of the disclosures in that reference, where they're
15 inferring something about oxygen saturation. And if we go back to what I
16 talked about the claim construction at the beginning, those, I suppose, are the
17 type of rudimentary features that they seek to sweep into the claim. But
18 knowing that your oxygen is going up or down is not determining oxygen
19 saturation. The discussion of all the relevant art charged to an ordinary
20 skilled artisan, that's not relevant to the reasonable expectation of success,
21 particularly what the allegation is in this proceeding is that it was so well-
22 known that anyone would know it. And we've paraded many different
23 people of ordinary skill in the art far exceeding those qualifications.
24 Sometimes you're worried that the level of skill is too high, they might know
25 too much. But in this case, it argues the other way, that these people did not

1 know or did not have a reasonable expectation of success is very, very
2 probative and the idea that they would be charged with all knowledge and
3 that somehow undermines their testimony is not legally supported and I
4 think would be a legal error.
5 Finally, once again conflating enablement and the expectation of
6 success, there is no expectation of success required to demonstrate
7 enablement. In fact, under Apple's argument, the idea that someone would
8 look at the '745 Patent and the claims and say, I don't know if this will work.
9 I don't know if this can determine oxygen saturation at the wrist is probative
10 evidence supporting accountability. It's called skepticism. So, the argument
11 that they have made is legally wrong. And unless there are any questions,
12 I'm happy to wish you a good afternoon.
13 JUDGE HOSKINS: Thank you, Mr. Helm. So, I want to thank
14 counsel for the time today in presenting this case to us. We have quite a bit
15 of evidence to go through in this case and we appreciate the time and effort
16 helping us do so today. So, we're going to adjourn, but I want everybody to
17 hold the line for a few moments to give the court reporter a chance to ask
18 about any spellings or those kinds of things that the court reporter may need.
19 So, we're going to adjourn, but please hold on for a second and I'll turn it
20 over. Oh, Mr. Helm, yes.
21 MR. HELM: One quick point of clarification. I believe you asked
22 earlier what the next point in the ITC was. I apologize, I did not raise it, but
23 I believe it is the Presidential review. So, it sounds lofty, but that is the next
24 step.
25 JUDGE HOSKINS: And is that a precursor to the Federal --

potential Federal Circuit do you know?

MR. HELM: I, believe that is the precursor and after that takes place, the Presidential review, the next step is an appeal. And the review, I believe, is before the end of the year.

JUDGE HOSKINS: Okay. Thank you. I really appreciate --

MR. HELM: And pending -- I am well aware of the frailties of government at times, having spent some time in it myself. So, you know, but that is the schedule.

JUDGE HOSKINS: I appreciate that. Thank you.

MR. RENNER: Would you like to have more specific on the actual date? I believe that Mr. Helms is right about that. As, long as, you're good on the dates, we can --

JUDGE HOSKINS: I have what I need. I appreciate the question. I have what I need. Thank you.

MR. HELM: Okay.

JUDGE HOSKINS: Okay. So, with that, we will adjourn.

(Whereupon, the above-entitled matter went off the record at 3:59 p.m.)

IPR2022-01291 (Patent 10,687,745 B1)
IPR2022-01465 (Patent 10,687,745 B1)

PETITIONER:

W. Karl Renner
Nicholas Stephens
Andrew B. Patrick
Kim Leung
Patrick J. Bisenius
Patrick J. King
FISH & RICHARDSON P.C.
axf-ptab@fr.com
nstephens@fr.com
patrick@fr.com
leung@fr.com
bisenius@fr.com
pking@fr.com

PATENT OWNER:

Brian C. Claassen
Carol Pitzel Cruz
Daniel C. Kiang
KNOBBE, MARTENS, OLSON, & BEAR, LLP
2bcc@knobbe.com
2cmp@knobbe.com
2dck@knobbe.com