

PUBLIC

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

MASIMO CORPORATION,
Patent Owner

IPR2024-00241 (Patent 10,687,743 B2)
IPR2024-00243 (Patent 10,722,159 B2)
IPR2024-00244 (Patent 10,722,159 B2)

Record of Oral Hearing

Held Virtually: April 16, 2025

BEFORE: ROBERT L. KINDER, RICHARD H. MARSCHALL,
DAVID COTTA, and ALYSSA A. FINAMORE, *Administrative Patent Judges*.

The above-entitled matter came on for hearing on April 16, 2025,
commencing at 1:00 p.m., via video teleconference.

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APPEARANCES:

ON BEHALF OF THE PETITIONER:

ANDREW PATRICK, ESQUIRE
Fish & Richardson P.C.
1717 Main Street
Suite 5000
Dallas, TX 75201
patrick@fr.com
(214) 747-5070

ON BEHALF OF THE PATENT OWNER:

ADAM POWELL, ESQUIRE
Knobbe Martens Olson & Bear LLP
2040 Main Street
14th Floor
Irvine, CA 92614
Adam.powell@knobbe.com
(858) 707-4000

ALSO PRESENT, OBSERVING:

Petitioner: Karl Renner, Usman Khan, and Rick Bisenius

Patent Owner: Brian Claassen, Perry Oldham, and Daniel Kiang

P R O C E E D I N G S

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JUDGE MARSCHALL: Okay. We're beginning the confidential portion of the hearing now. Each side has reserved 30 minutes for this portion of the hearing. Petitioner will start, and if you could let us know how much time, if any, you'd like to reserve for rebuttal, that would be great.

MR. PATRICK: Thank you, Your Honor. I was planning to reserve 10 minutes for rebuttal in the confidential discussion. As an administrative matter, I just wanted to ask, in terms of the amount of time allotted to each side, is it 30 minutes or were we reserving the time left over from the open session, as well?

JUDGE MARSCHALL: It's 30 minutes. If you need some more time, which I doubt -- but, you know, we'll be liberal in allowing you a few more minutes since you both did have maybe five minutes each or so extra that you didn't use, but for now, let's stick with the 30 and see if that's enough.

MR. PATRICK: Sure. Thank you, Your Honor.

JUDGE MARSCHALL: All right. So you've got 20 minutes, so roughly 3:30 is your stop time.

MR. PATRICK: Okay. Well, during the closed session of today's hearing, we'll discuss the testimony of Apple engineers and Masimo who, again, erroneously relies upon its attempt to contest that a person of skill would've had a reasonable expectation of success in implementing Sarantos' express teachings on measuring oxygen saturation at the wrist.

As we begin that discussion, we would like to briefly put that

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1 testimony in its proper context. Specifically, and as the Board
2 acknowledged in its Final Written Decisions addressing the same issue in the
3 earlier '745 IPR proceedings, the engineers were not asked to address the
4 issue presented and had instead only been asked about the challenges they
5 faced in developing an oxygen saturation determination feature and a future
6 iteration of the pre-existing Apple Watch product.

7 In that regard, the engineers faced various unclaimed constraints,
8 including, as we'll see, the need for reliable operation for measurements at
9 the outer wrist and for reliable measurements for a diverse range of Apple
10 users, despite the power and spatial constraints involved in integrating that
11 functionality into the Apple Watch product.

12 Masimo's arguments fail at least because they erroneously urge
13 Your Honors to look past the scope of the claims when considering
14 reasonable expectation of success and relatedly, alleged objective indicia of
15 non-obviousness. The testimony of Apple's engineers regarding their
16 subjective experiences and successes developing pulse oximetry for the
17 Apple Watch does not bear on the question of whether a person of skill
18 would've reasonably expected success in performing the claimed function of
19 determining a physiological parameter of a user, whether that physiological
20 parameter was oxygen saturation, pulse rate, or otherwise.

21 At Slide 110, we've reproduced, for instance, '159 patent claims 8
22 and 17, and '743 patent claims 11, 18, and 24, which simply recite that a
23 physiological parameter determined by the claimed physiological
24 measurement device is or comprises oxygen saturation without assigning to
25 that determination a degree of accuracy or any of the other just mentioned

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1 design constraints faced by the Apple engineers. Nor does the testimony of
2 Apple's engineers have bearing on whether a person of skill would've
3 reasonably expected success in modifying Iwamiya to measure oxygen
4 saturation at the wrist based on Sarantos, as the engineers were asked about
5 neither Iwamiya, nor Sarantos.

6 Unlike a person of skill who is presumed to know all of the
7 pertinent prior art and is charged with knowledge of all the contents of the
8 relevant prior art, there's no evidence to suggest that the testifying engineers
9 were even aware of Iwamiya and Sarantos as of the critical date. And that --
10 in other words, the engineers did not testify at the ITC from the perspective
11 of a person of skill.

12 And although Masimo has in these IPRs newly brought in evidence
13 that Apple produced in counter-part litigation, showing that the Apple
14 engineers were in possession of the Li, Cai, Maattala, and Pang references,
15 there's been no evidence to suggest that the engineers were even aware of --
16 as a person of skill would've been -- the majority of prior art references and
17 studies that have actually established the feasibility of determining oxygen
18 saturation proximate to the wrist or on the wrist, which is all that the
19 implicated claims require before Masimo's '159 and '743 patents.

20 Nor does the possession by the engineers of the few of the
21 references of record detailing from 2007 forward successful work in
22 demonstrating the feasibility of pulse oximetry at the inner wrist change the
23 basic fact that the concerns expressed by those engineers instead address the
24 far more difficult problem of integrating pulse oximetry technology that
25 would be highly accurate and reliable for all of Apple's users into a future

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1 iteration of the Apple Watch product to be worn at the outer wrist -- a
2 location not required by the claims.

3 In that regard, Masimo's arguments failed to place the testimony of
4 Apple's engineers in its proper context and instead cherry-picked sound bites
5 in support of a narrative that is both misleading and not reasonably related to
6 assessing reasonable expectation of success in a manner commensurate with
7 a broad scope of the physiological parameter features actually claimed in the
8 subject patents.

9 The challenges Apple's engineers overcame, they persisted and
10 succeeded in developing a pulse oximetry function for the Apple Watch, did
11 not merely entail determining an oxygen saturation parameter at the outer
12 wrist but were instead intimately related to developing a fully featured pulse
13 oximeter for a consumer device that would meet Apple's rigorous
14 performance and design standards across a range of uses not required by the
15 challenged claims.

16 In that regard, I'd like to ask Your Honors to turn with me to Slide
17 127. There we see Brian Land's testimony regarding the need to make a
18 product that checked all the boxes of low power, fit in this tiny form factor,
19 worked well across all the use cases, in addition to making sure that it was
20 beautiful and compatible with the look and feel of what the ID studio was
21 going for for the product vision, referring there to Apple's world famous
22 industrial design studio.

23 Mr. Land further explained that in the envisioned product, there
24 would be a powerful transmitter that needs to talk with cell phone towers
25 that are perhaps miles away, and that's a potential source of interference for

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1 all the sensors. Similarly, at the bottom right of Slide 128, we see Apple
2 engineer, Ueyn Block, explaining with respect to his work on the blood
3 oxygen feature in Apple Watch, that [REDACTED]

4 [REDACTED]

5 And at the left of the same slide, we see that Apple engineer,
6 Saahil Mehra noted that [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 Apple's engineers have retained these and other design constraints
14 that are not required by the claims, including, for example, as Dr. Venugopal
15 explains at upper right, [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 And as Steve Waydo noted in testimony reproduced at Slide 130,
19 in addition to all of the unclaimed challenges posed by the watch's small
20 form factor, limited battery power, signal interference, and so on, the
21 engineering team had to contend with the watch's fixed placement at the
22 outer wrist, a site with unpredictable tissue heterogeneity across a wide
23 range of users.

24 In doing so, Dr. Waydo testified that they tested the watch to the
25 same standards that are used to assess clinical grade devices, with the goal of

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1 meeting general accepted standards of accuracy for all users. In that regard,
2 Dr. Mannheimer noted in his testimony, reproduced at the right of Slide 131,
3 that [REDACTED]

4 [REDACTED]
5 [REDACTED]
6 [REDACTED]

7 But notably, Masimo's claims require nothing more than a
8 determination of oxygen saturation and the claims do not limit that
9 determination based on reliability, accuracy, or any of the other design
10 constraints that Apple's engineers overcame. Indeed, the challenges
11 involved in developing pulse oximetry for the Apple Watch extended far
12 beyond anything required by the '159 and '743 patent claims. And for at
13 least that reason, and as the Board previously found with respect to the same
14 issues in the '745 IPRs, the testimony of Apple's engineers does not address
15 the issues presented here.

16 For example, that testimony does not address whether a person of
17 skill would have reasonably expected success in modifying Iwamiya to
18 measure oxygen saturation at the wrist based on Sarantos, which is all that
19 the challenged claims pertinently require. What is relevant to that question
20 are the express disclosures of the prior art references that a person of skill
21 would've had in mind when assessing Sarantos' repeated and express
22 suggestion to include separate light emitting devices that are each able to
23 emit different wavelengths of light, for example, red and infrared, for use in
24 determining blood oxygenation levels.

25 Turning back to Slide 117, we can see that Sarantos is not alone in

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1 recommending measurement of oxygen saturation at the wrist and in
2 offering techniques for obtaining accurate pulse oximetry readings at those
3 locations. Indeed, a person of skill considering integration of Sarantos'
4 teachings into Iwamiya would have been aware of myriads of additional
5 third-party disclosures of success for measuring oxygen saturation at the
6 wrist.

7 For example, like Sarantos, each of Brady, Maattala, Li, Pang, Cai,
8 Rulkov, Sarussi, among other references of record, independently described
9 prior art solutions for performing pulse oximetry at the wrist and encouraged
10 measurement of oxygen saturation at that location.

11 For example, as shown on Slide 117, Maattala, a 2007 IEEE paper
12 describes a study that was done in order to solve the optimum place for
13 integrated pulse oximeter in case of a belt around human chest or wrist, so
14 that it would provide reliable oxygen saturation, SpO2 ratings, for non-
15 invasive constant health monitoring.

16 Maattala concludes that this study proves that a wireless integrated
17 pulse oximeter implanted in a chest belt or wristband is possible to achieve
18 with many benefits and practical applications. And as we can see on the
19 slide, Maattala, in particular, referenced four different potential locations of
20 the wrist that were tested -- marked 1, 2, 3, 4 -- and it specifically
21 recommended location 3 shown on the inner wrist for the placement of a
22 wristband pulse oximeter.

23 So as the Board previously found with respect to the related '745
24 patent IPRs, Maattala's disclosures indicate that as early as 2007, researchers
25 considered wrist based blood oxygen saturation determinations to be

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1 possible using red and infrared light. Although in that early timeframe,
2 many problems had not yet been overcome.

3 More specifically, Maattala indicates that those problems should
4 be overcome, that results were promising, and that an easy portable
5 monitoring device is possible and encouraged by these promising real world
6 results, proving that an integrated pulse oximeter implanted in the wristband
7 is possible to achieve with many benefits and practical applications, and by
8 the additional independent disclosures of Brady, Cai, Li, Pang, Rulkov,
9 Sarussi, among myriads of other prior art references. The person of skill
10 would more than reasonably have expected success in modifying Iwamiya's
11 pulse sensor to additionally perform pulse oximetry of the wrist, using red
12 and infrared LEDs, as expressly recommended by Sarantos.

13 As shown on Slide 115, Li an IEEE paper published in 2012
14 describes the design and testing of a high performance reflectance pulse
15 oximeter for use on the inner wrist. More specifically, the author
16 successfully used that oximeter to gather high integrity data at wrist
17 locations from a group of 48 subjects, and their experimental data from the
18 wrist confirmed suitable PPGs for measuring blood oxygenation at each of
19 the locations depicted at the bottom left of the slide.

20 And on Slide 116, we see yet another IEEE paper, Pang, which
21 was published in 2014. Pang specifically references both the earlier Cai
22 article as having illustrated the feasibility of reflectance oximetry based on a
23 sensor mounted onto a wristband, and the earlier Li article as having shown
24 a reflectance oximeter suitable for wearable and surface-based applications,
25 including at the wrist location.

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1 Pang then further describes the genuine wrist pulse oximeter
2 shown at the lower left of the slide, which, as confirmed with experimental
3 results, could efficiently detect the signals needed to calculate oxygen
4 saturation. And this and myriads of other ways, the evidence more than
5 establishes that a person of ordinary skill in the art would've had a
6 reasonable expectation of success in July 2015 of modifying Iwamiya's
7 wrist-worn device to determine both blood oxygen saturation and heart rate,
8 as expressly taught by Sarantos. And of course, being a prior art patent,
9 Sarantos' disclosures are presumed enabling, which further supports that a
10 person of skill would've expected success when following those disclosures.

11 But given the overwhelming weight of evidence on this record of
12 real-world success toward the development and implementation of wrist-
13 worn pulse oximeters from 2007 to 2014, Your Honors don't even need to
14 make that presumption to find in Apple's favor. The evidence more than
15 proves that a person of skill reading Sarantos' disclosures would've had
16 every expectation of success in determining oxygen saturation at the wrist.

17 Now, in that regard, I thought it might be useful to briefly look
18 together at some of those disclosures within Sarantos, as, you know, Masimo
19 has raised arguments suggesting that perhaps a person of skill would have
20 understood Sarantos differently from what it says. And in particular, in
21 these proceedings, they alleged that Sarantos might be understood as
22 teaching use of only one wavelength of light or another.

23 And if we were then to turn together to various portions of
24 Sarantos, I think we could see that that's just not a reasonable interpretation,
25 especially in view of the disclosures of the additional prior art references, of

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1 which a person of skill would've been aware and they would've had in mind
2 as they were reviewing this further recommendation by Sarantos. And in
3 that regard, for example, if you were to turn to column 13, lines 28 through
4 60, which has been extensively briefed in arguments, we see from Sarantos,
5 a recommendation for multiple light sources of different wavelengths -- red
6 or infrared -- for blood oxygenation measurement.

7 And I don't think it's reasonably disputed that a person of skill
8 would've understood that a blood oxygenation measurement requires at least
9 two different wavelengths, nor, given the disclosures of these various
10 references, is it reasonably disputed that red and infrared were commonly
11 recommended for that purpose. But that's not the only disclosure with
12 Sarantos along those lines. Earlier on, at column 2, lines 18 through 21,
13 Sarantos describes a plurality of light emitting devices, emitting light in
14 different wavelengths. At column 3, lines 58 through 62, there is a similar
15 disclosure.

16 At Figure 18, there's a depiction of -- within Sarantos -- an
17 embodiment having two emitters. In that case, one red, one green, but again,
18 making the point that depending on the type of measurement that you're
19 looking for, you would use LEDs of different wavelengths. And at column
20 18, 44 through 48, there's a repetition of the recommendation for red and
21 infrared light sources for determining blood oxygenation. It's simply all
22 over this reference and it wouldn't reasonably have been misunderstood,
23 given the body of prior art that we put into this record.

24 And in that regard, as well, I wanted to address a question Your
25 Honors asked which is pertinent here, additionally, which is, you know, how

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1 these records might differ -- the record of this IPR to the '745 IPRs and from
2 the '745 IPRs to the ITC.

3 And in that regard, colleagues at the Board, in writing the '745
4 Final Written Decision, expressly noted in their treatment, both of
5 reasonable expectation and success and the alleged objective indicia of non-
6 obviousness, that the records presented in the '745 IPRs were more fulsome
7 than what was before the ITC, which supported their decision and their
8 findings.

9 And here in these IPRs, it's again, more fulsome. You'll find
10 within the Petitioner Replies that in addition to describing Li, Cai, Pang, and
11 Maattala -- we devoted space to Brady -- that there is additional analysis in
12 Dr. Anthony's Declaration with respect to these references and that that's
13 referenced in our arguments, as well.

14 And so just as your colleagues found with respect to the '745 IPRs,
15 we believe that there is more than enough evidence of record here to prove
16 the points on reasonable expectation of success and also to demonstrate that
17 the evidence -- select evidence -- of objective indicia, that are put forward by
18 Masimo, that that evidence is weak.

19 And further along those same lines, as we've argued throughout
20 these proceedings, in terms of the disconnect between the testimony offered
21 by Apple's engineers and the subject matter of these claims, it's striking that
22 there hasn't been a serious attempt by Masimo to actually prove a nexus
23 between the claimed subject matter and that evidence.

24 And in that regard, we think Your Honors could quite comfortably
25 find in the same way as your colleagues did with respect to the '745 IPRs

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1 and with even further evidence in this proceeding. In that regard, unless you
2 have questions for me at the moment, I would reserve the remainder of my
3 time for rebuttal.

4 JUDGE MARSCHALL: Yes. No, I think we're all set for now.
5 You have two minutes left, so you've got about 12 minutes for your rebuttal.

6 MR. PATRICK: Thank you, Your Honor.

7 JUDGE MARSCHALL: Patent Owner, you can begin when
8 ready, but before you do so, if you would like to reserve some time for
9 rebuttal.

10 MR. POWELL: Yes, Your Honor. I plan to reserve 10 minutes
11 for rebuttal.

12 JUDGE MARSCHALL: Okay. So you have 20 minutes. So right
13 around 3:48 is your cut off time. Eastern.

14 MR. POWELL: Great.

15 JUDGE MARSCHALL: Thanks.

16 MR. POWELL: Thank you, Your Honor. I will begin. Let me
17 share my slides again here. Let's see. Again, I'll show you the house that I
18 wish that I had. Okay. So I'd like to start off here with Apple's -- actually,
19 before I reach there, I'll start off on the differences in these proceedings. I
20 think we've talked about that a little in the last proceeding -- or I'm sorry, in
21 the last session -- and then Counsel just spoke about it a little bit here.
22 There's a few differences here between each of the various proceedings.

23 In this particular case, there's new motivations to combine. There's
24 different references on this sort of expectation of success as compared to the
25 prior IPRs. There's new evidence that Apple knew about these references, as

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1 well, and there's a particular argument that I'll address in a little bit on
2 [REDACTED] which the prior Board felt very, very strongly about and
3 relied on quite extensively. That was an issue that was argued by neither
4 side, and so nobody got a chance to address that, and I'm going to explain
5 today why that particular issue of [REDACTED] actually proves our
6 point and we would respectfully think that the -- or submit that the prior
7 Board was incorrect on that issue.

8 So I'll start with the Apple evidence and then at the end, I'll address
9 some of these additional references that Apple has identified here, but let's
10 start with what Apple did at the beginning in 2013. Apple was trying to
11 measure SpO2. It desperately wanted to measure SpO2, and so it convened
12 this special project to find the "world experts" in the field. They wanted
13 engineers who had "been there done that" and they wanted a good sense for
14 what was likely to work and what failed, and why it failed. This was their
15 goal in 2013 and let's take a look at some of those engineers -- the people
16 that Apple employed to work on this project.

17 We have Dr. Paul Mannheimer first. He has a PhD in biomedical
18 engineering and 20+ years of experience in the pulse oximetry industry. He
19 worked at a company named Nellcor for 20 years and this company was the
20 original dominant player in the field. When Masimo entered the pulse
21 oximetry field, Nellcor had 90 percent of the market. They were the
22 absolute authority on pulse oximetry technology, and Apple hired Dr.
23 [REDACTED] Mannheimer for his extensive experience, and they hired him [REDACTED]

24 [REDACTED]

25 You know, today, Apple has told you that what Dr. Mannheimer

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■ was actually doing was [REDACTED]

■ [REDACTED]
3 [REDACTED] and that's really not what was going on here. Dr.

■ Mannheimier was hired to [REDACTED]

5 [REDACTED] and

6 I'll explain in a little bit and show why what we're dealing with in 2014 and

7 2015 was [REDACTED] what came -- all that extra stuff on battery life

8 that Apple likes to talk about, that came much, much later in the process.

9 But let's look at what Dr. Mannheimier said when they asked him to

10 prove feasibility. He said, my first gut reaction was rolling my eyes. Good

11 luck with that. He said, that's going to be a challenge. I don't know if it can

12 be done. And he explained why he thought it was so challenging. He said

13 the wrist is enormously different from all the other locations where SpO2

14 had been traditionally monitored. He said there's an environment that differs

15 enormously from the more conventional sites and the signal is enormously

16 weak. These were the words of a man who had been working in the industry

17 for 20 years and had a PhD in biomedical engineering. He far exceeded the

18 level of ordinary skill in the art and he didn't think -- he wasn't sure whether

19 it was possible at the time. And again, this is about feasibility, not fitting it

20 into the Apple Watch.

21 Let's take a look at Mr. Land. Mr. Land has a Master's in material

22 science and engineering. He is the lead engineer on Apple's health sensing

23 hardware team and he has 12 years of experience designing sensors. He said

24 at the time, the work they were doing to try to prove feasibility at the wrist

25 was unprecedented. He said there was no commercially available products

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1 that did blood oxygen sensing at the wrist.

2 So again, there's lots of people that wanted to be able to measure
3 blood oxygen at the wrist. I'll explain later how the references that Apple
4 was talking about -- they're aspirational. The reality is nobody could
5 actually do this. If this was so simple, one would expect that somebody
6 would've figured it out, but here's Mr. Land confirming that nobody did in
7 fact figure it out at the time. It was only until much, much later.

8 Next up is Dr. Stephen Waydo. PhD in control and dynamical
9 systems, four years of working on a very complicated device to try to
10 measure glucose non-invasively, and he's the director of Apple's health
11 algorithms team. He said that blood oxygen was extremely challenging, and
12 he said again, the wrist is one of the most difficult places on the body to do
13 almost every physiological measurement. He says 14

15 Those were the challenges. It wasn't about battery life
16 or form factor.

17 Tao Shui. Again, PhD, microelectronics, and electrical
18 engineering, 14 years of experience. He said, the 19 of
19 the work is related to the position of the Apple Watch blood oxygen sensor.
20 The wrist is well known for its lack of signal. Apple likes to talk about some
21 of these later things and say, oh, also, 22
22 but the thrust of his testimony was that the wrist -- calculating
23 oxygen saturation on the wrist -- that was a problem that nobody could solve
24 at the time.

25 Dr. Block. PhD in applied physics, six years of working on non-

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1 invasive optical measuring, and he said it was definitely very hard work to
2 figure out how to make it work on the wrist. So let's take a minute here.

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

6 [REDACTED]

7 This is the exact same combination that Apple is essentially
8 asserting a person skilled in the art would do. You'd take Iwamiya, you'd
9 slap on a red and infrared light, and magically, you would get pulse

oximetry. [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

17 [REDACTED]

18 Putting red and infrared lights on a device designed for pulse rate
19 doesn't lead to oxygen saturation. They said the wrist remains challenging,
20 and they said here -- here their conclusions and next steps at the time -- this
21 is at the time of the invention where Apple wants to tell you how simple and
22 easy this is. They said, Apple, with all of this knowledge and all these
23 people that are far beyond the ordinary skill in the art, they said the wrist is
24 challenging. Conventional sensing methods do not result in waveforms
25 consistent enough for SpO2 measurements.

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They said invention is required. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
4 [REDACTED]. Those are the types of techniques that Mr. Al-Ali developed,
5 because as Apple admitted, invention was required.

6 So let's take a look at some of Apple's arguments, and this is an
[REDACTED] argument here that -- [REDACTED]

8 [REDACTED]. You know, the Board in the prior proceeding raised this issue of
9 [REDACTED] and the parties didn't brief it. And I -- unfortunately, I
10 believe the Board got this incorrect and they misinterpreted the evidence.

11 The reason is that [REDACTED] showed a lack of
12 reasonable expectation of success. Apple engineers were told, go develop
13 SpO2 on the wrist. If it was so simple and they had a reasonable expectation
[REDACTED] of success, they would've continued developing it. [REDACTED]
[REDACTED]
16 [REDACTED]

17 The engineers questioned, [REDACTED] They said,
[REDACTED]
[REDACTED]
20 [REDACTED] And these are some of the
21 most experienced, intelligent engineers on the planet from a company that is
[REDACTED] the largest company on the planet with unlimited resources, [REDACTED]
23 [REDACTED]

24 Now, Apple also says that the engineers did not testify at the ITC
25 from a perspective of a person skilled in the art, but really, as we've

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1 discussed, their skill level vastly exceeded one of skill in the art. And the
2 fact testimony from these engineers, they actually worked on the problem.
3 That's far more probative than what an expert is going to decide years later
4 when they're paid to tell you that this is all so simple.

5 The people who actually worked on the problem are far more
6 reliable to know whether there was an expectation of success. And again,
7 I'll get to it in a little bit -- these people at Apple, they had access to those
8 particular references that Apple is now relying on, and we'll talk about those
9 references and how that impacts the combination of Iwamiya and Sarantos in
10 just a bit.

11 So that's this -- Apple says that its engineers were not even aware
12 of the cited references, and that was true in the prior IPR, and that was true
13 because Apple hid the evidence showing that its engineers were, in fact,
14 aware. In this IPR, we got that evidence and we put it into the record.

15 So we have Li. The engineers possessed Li's thesis with the same
16 information. We have the evidence on the Board here. Cai -- Apple cited
17 Cai [REDACTED]. Apple
18 engineers possessed the Maattala reference, and they even discussed the
19 Pang reference [REDACTED]. And so now we have evidence, what
20 the Board in the prior case lacked, showing that there wasn't a difference
21 here. The references that Apple is pointing to, they did in fact have.

22 Apple also made some arguments about how they said unlike the
23 Apple Watch, the claims do not require regulatory approval or measurement
24 during all or most daily activities. This is kind of an odd argument because
25 the Apple Watch doesn't have FDA approval either. It doesn't measure

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1 during most activities, and this wasn't about small measurement errors. We
2 have this in our Sur-reply, but [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 And then let's talk a little bit about these other form factors here.

8 So Apple likes to tell you, hey, the challenges we saw, this was about

9 Apple's really high standards, our form factors, industrial design, the types

10 of materials, we have to make this look pretty and beautiful. That's not what

11 this testimony was about back in 2015. Back in 2015, the testimony we just

12 went through and the evidence we went through was on the far left of this

13 slide.

14 [REDACTED]

15 [REDACTED] This wasn't about any of those later

16 challenges. [REDACTED]

17 [REDACTED] That came much later in the

18 process, and so all of that testimony that Apple is telling you about, it's

19 really a red herring.

20 What you need to focus on is what Apple believed -- what its

21 highly skilled engineers believed in 2015 at the time of the invention. And

22 at that time, they were doing [REDACTED] they had access to all

23 these references that Apple is now relying on, and they still had no

24 expectation of success. [REDACTED]

25 [REDACTED]

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1 All right. So let's talk a little bit, finally, about those references
2 that Apple is now relying on. And there's a couple things here. I'll talk
3 about each reference, but I'll start by saying that Apple -- you saw today that
4 they focus a lot on the inner wrist. Not the top of the wrist. They're focused
5 on the inside of the wrist and they say several of these references point to the
6 inner wrist, but that is contradicted by their combination. Their combination
7 is Iwamiya and Sarantos measuring at the top of the wrist.

8 So that's the issue here. Would you have a reasonable expectation
9 of success to combine Iwamiya and Sarantos? Not could someone measure
10 this on the inside of the wrist. And as we'll see here -- we'll go through each
11 reference very briefly -- there wasn't even an expectation of success on the
12 inner side of the wrist.

13 The parties have agreed that the claims in this case require actual
14 calculation of oxygen saturation. It's not enough to just get some of the data
15 that might be necessary. There's a lot of algorithms and steps that go along
16 there. You might be able to pull some data, but then you're looking at a ratio
17 of ratios and different sorts of manipulation of that data to get to an oxygen
18 saturation reading. The reality is none of these references actually
19 calculated oxygen saturation. They were aspirational saying that it would be
20 great if we could calculate oxygen saturation.

21 So let's go through that briefly. The Pang reference. It showed
22 separate red and infrared wavelengths, but it didn't calculate oxygen
23 saturation. It relied on simulated data. It wasn't even real data, and again,
24 Apple engineers knew about this reference. The Li reference, it showed
25 PPG signals. That's photoplethysmograph signals. That's just the wave

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1 form, and they only did it for one wavelength. They didn't calculate oxygen
2 saturation. And again, Apple's engineers knew about Li's Masters thesis,
3 which had that same information in it and they still couldn't figure it out.

4 Next step is Cai. Again, no determination of oxygen saturation on
5 the wrist, and again, Apple engineers knew about that. This additional piece
6 of evidence here of Apple engineers knowing about this, simply not
7 available with the prior Board. Now, let's look at Maattala. The authors
8 here "concentrated on studying SNR -- that's signal-to-noise ratio -- and
9 signal amplitudes instead of finding out actual SpO2 readings." So Maattala
10 is specifically saying, we didn't look at trying to calculate SpO2. We were
11 just looking at signal-to-noise and signal amplitude. Again, Apple engineers
12 knew about this one, too. Still couldn't figure it out.

13 And finally, Brady. This is a patent application that focused on
14 calculated burned calories. Doesn't demonstrate the existence of any wrist-
15 worn pulse oximeter, and again, Apple engineers had looked at devices. So
16 Brady's assignee is named Impact Sports, and Impact Sports had some
17 devices on the market. Apple engineers studied those and looked at them
18 when they were trying to calculate oxygen saturation. Still couldn't figure it
19 out.

20 So with that, I will end here, unless Your Honors have any more
21 questions. But the point, I think, that's most important here is that the record
22 from the prior IPR was incomplete. I don't think it was more fulsome even
23 than what the ITC Judges had. The ITC had actual testimony. There was a
24 trial and live witnesses. They got to see the Apple engineers stand up and
25 tell the proceeding how difficult this was. That's what the ITC got to listen

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1 to. They got to listen to the actual testimony of engineers saying, I didn't
2 think this was possible. This was unprecedented. I don't have any idea
3 whether I can do this because nobody has ever done it before.

4 That's the actual evidence that's most probative of what was
5 happening in 2015. Not a highly paid expert after the fact here in 2025 that
6 likes to tell you that these references supposedly show how easy this was
7 and everybody could do it. If that was true, it wouldn't have taken Apple so
8 long and it wouldn't have taken everybody else so long to figure this out. So
9 with that, I will conclude and reserve the remainder of my time for rebuttal,
10 unless the Board has any questions.

11 JUDGE COTTA: I did have one quick follow-up question. Can
12 you address the point that you -- the Petitioner made that you did not address
13 nexus?

14 MR. POWELL: Oh, the nexus issue. I don't think Petitioner
15 addressed the nexus issue either, but we did show nexus by showing the
16 claims recited oxygen saturation at the wrist. And let me see if I can get that
17 slide for you. I can put the language up. It's this language right here.

18 We have each of these claims. The independent claim requires the
19 measurement at the wrist, at the wrist, at the wrist. And the dependent claim
20 requires calculation of oxygen saturation. And again, it's not about accuracy
21 or working during motion. It's about getting an actual calculation of oxygen
22 saturation that -- and the parties don't have any dispute on that. It's not, can I
23 get a PPG signal. It's can I calculate oxygen saturation. The reality is the
24 evidence is pretty much undisputed and should be completely undisputed
25 that there was no expectation of success, and nobody could do that. Nobody

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1 could calculate oxygen saturation at the time of the invention. And that's
2 because, as Apple said, invention was needed.

3 JUDGE COTTA: And one other follow-up question. You
4 mention that there's new evidence that wasn't available in the prior IPR
5 proceeding that Apple was aware of these references. Is there any evidence
6 tying that to any of the individuals whose testimony you're relying on or is it
7 just -- are you just relying on the fact that that's -- that these references were
8 found in Apple's files?

9 MR. POWELL: Yes, there is evidence of that. I think what I can
10 do is maybe get you the specific evidence at the break in my next
11 presentation, if you don't mind.

12 JUDGE COTTA: Yes. That would be great, thank you.

13 MR. POWELL: But there is evidence tying to these specific
14 people.

15 JUDGE FINAMORE: This is Judge Finamore. I had a follow-up
16 question. You pointed out that it took Apple a long time to get their watch
17 to the market. I'm just curious, how long did it take Masimo to get its W1 to
18 market?

19 MR. POWELL: Masimo's W1 came to the market -- I'd have to
20 get the exact date for you -- but I don't think that's really the relevant issue
21 here because, you know, Masimo had a lot of different priorities at the time.
22 It wasn't working on that 100% of the time. And the other thing here is that
23 Apple was using our devices as a reference. They were tearing down our
24 devices when they were looking for feasibility.

25 So we are -- Masimo is the market leader in pulse oximetry

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1 technology and traditionally, had measured at other locations, like the finger
2 and the forehead. And so that's what Masimo was known for and it
3 continued to develop that technology, and then yes, it took several years for
4 the W1 to actually be commercially released.

5 But at the time, the invention that we have here is incorporated into
6 the W1 and the evidence does show that the reality is, Apple didn't think it
7 was possible. The issue here isn't so much how long it took Apple, but what
8 Apple thought in 2015. Did Apple have a reasonable expectation of
9 success -- or actually, I'm sorry -- did a person of skill in the art have a
10 reasonable expectation of success at measuring oxygen saturation at the
11 wrist in 2015? The answer is no.

12 JUDGE MARSCHALL: Okay, thank you. You've got about six
13 minutes left.

14 MR. POWELL: Thank you, Your Honor.

15 JUDGE MARSCHALL: Petitioner, you can begin when ready.
16 You've got about 12 minutes left, so that'll take you to about 4:04, if you
17 need it.

18 MR. PATRICK: Thank you, Your Honors. Before getting into the
19 bulk of the rebuttal, and I'm sure our colleagues on the other side will correct
20 me if I'm wrong, but to answer Judge Finamore's question, I believe the
21 Masimo W1 was released in 2023.

22 Okay. Now, among other things we just heard from Masimo that
23 are interesting, is the repeated attempt to take out of context the testimony of
24 Apple's engineers for purposes -- again, they're contesting issues to which
25 that testimony doesn't relate, including alleged secondary considerations and

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1 reasonable expectation of success.

2 So for example, Masimo's Slide 65 highlights a portion of Dr.
3 Mannheim's response to the question -- when you joined Apple, what was
4 your first assignment -- that Masimo alleges helps their case, but they leave
5 unhighlighted the front half of the same sentence, which provides the
6 context for everything that follows.

7 More specifically, Dr. Mannheim's complete answer to the
8 question, when you joined Apple, what was your first assignment, was "to
9 work on the blood oxygen app, [REDACTED]

10 [REDACTED] The key to that response is
11 that Dr. Mannheim was hired to work on the blood oxygen app. That is
12 the Apple app, with Apple targeting performance for the Apple Watch, worn
13 at the outer wrist, and with all the Apple Watches and their constraints.

14 And as we discussed, it was in that specific context that he and
15 other members of the Apple engineering team described challenges. Nor is
16 it credible to suggest, given the sheer number of prior art references of
17 record demonstrating feasibility and measuring oxygen saturation at the
18 inner wrist, that the testimony of Dr. Mannheim following that answer
19 indicates a more general skepticism with respect to doing just that.

20 In that regard and again, as shown at the right of Apple's Slide 131,
21 Dr. Mannheim specifically noted that [REDACTED]

22 [REDACTED]
23 [REDACTED] Notably, and

24 again, however, Dr. Mannheim added in that same response, that [REDACTED]

25 [REDACTED]

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And again, Masimo has failed to even attempt to demonstrate that

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the claims require

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or otherwise to establish that there's a nexus between the

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testimony of Apple's engineers and the far more rudimentary subject matter

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claimed by the '159 and '743 patents.

7

Turning back to Masimo's Slide 69. Dr. Shui specifically states

8

that the most challenging part of the work is related to the position of the

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Apple Watch blood oxygen sensor, and as shown, for example,

10

11

The outer wrist. Not the inner

12

wrist location specifically recommended by the prior art.

13

In that regard, Dr. Anthony explained in his Declaration submitted

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with our Replies and for example, paragraph 34, footnote 2, that some of the

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references observed that a strong signal could be obtained from the inner

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wrist, rather than the outer wrist where Apple thought to measure SpO2 in

17

the watch. And this further exemplifies how the experience of the Apple

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engineers in developing the watch is not probative of reasonable expectation

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of success with respect to the claims of the '743 patent, which do not require

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measuring from the outer wrist. And --

21

JUDGE MARSCHALL: Excuse me. Could you respond to Patent

22

Owner's argument that even though the claims don't require it to be on the

23

outer part of the wrist, your combination does, and therefore --

24

MR. PATRICK: Thank you, Your Honor.

25

JUDGE MARSCHALL: -- skepticism is relevant.

1 MR. PATRICK: I appreciate the question and it's a great question.
2 And in that regard, consistent actually with Dr. Anthony's testimony at that
3 same portion of the Declaration at which I was just speaking, again,
4 paragraph 34, footnote 2, a person of skill would've understood that Iwamiya
5 could easily have been worn either at the inner or the outer wrist.

6 And in that regard, what Dr. Anthony testified to at that portion of
7 his Declaration is that a POSITA would have known that the body of a
8 wristwatch case can be worn to contact either the inner or the outer portions
9 of the wrist. And so even if the user prefers to wear the wristwatch upwards
10 on the outer portion for ordinary use in telling time, it would be a simple
11 task to rotate the watch so that the back case could contact the inner portion
12 when the user desires to take an oxygen saturation measurement there. And,
13 you know, certainly if the goal is to be able simply to determine oxygen
14 saturation, which is all that the claims require, well, that's met through the
15 combination of Sarantos, the integration of its recommended red and
16 infrared LEDs into Iwamiya's device, which could be worn at either
17 location.

18 Now, contrary to that and as Dr. Anthony explained at that same
19 portion, the goal with respect to the Apple Watch was not to have users, you
20 know, fumbling the thing back and forth as they were going about their day
21 and using the Apple Watch for all the things that it's used for. They were,
22 instead, specifically looking at doing pulse oximetry at the position that Dr.
23 Shui was describing and [REDACTED] which
24 is specifically on the outer wrist.

25 And so in that regard, we do believe that this is a distinction that

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1 matters in terms of assessing the testimony of these engineers and whether
2 it's even relevant to the question at issue in these proceedings, which is
3 whether, for example, a person of skill would've reasonably expected
4 success in integrating the pulse oximetry recommendations from Sarantos
5 into Iwamiya. I hope that answered Your Honor's question, and if there are
6 follow-ups, of course I'd be happy to go into more detail.

7 JUDGE MARSCHALL: I'd like to hear the follow-up to -- or
8 response to the argument that, hey, all these references that supposedly show
9 that would work, well, Apple knew about these references when they
10 expressed their skepticism. So they don't really distinguish this record from
11 the ITC case or arguably, distinguishes the record from the 1291 Final
12 Decision, in that now we have new information that all these Apple
13 engineers knew about the supposedly promising secondary references, and
14 they still didn't think they could do it. What's your response to that
15 argument?

16 MR. PATRICK: Yes. Thank you, Your Honor. I appreciate your
17 question. In that regard, I would say, first of all, it is important to
18 understand the context with which the engineers were offering testimony, as
19 contrasted against the explanations provided in the Li, Cai, Pang, and
20 Maattala prior art, which I believe are specifically the references, you know,
21 of which Masimo is speaking. And in that regard, again, those disclosures
22 were talking about success and demonstrating feasibility over a course of a
23 number of years from 2007 to 2014 of measuring pulse oximetry at the inner
24 wrist. And we see that, you know, over and over again, actually in their
25 descriptions and then also in the figures.

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1 Beyond that, there are additional references here that were not
2 considered by ITC. The Brady reference, for example, provides another, I
3 believe, patent or patent application prior art reference showing the use of
4 red and infrared sensors actually on a wristband, and that's consistent with
5 some of that other art, as well. And again, not what the Apple engineers
6 were attempting to do and thinking about doing, and persisted and succeeded
7 ultimately in doing with respect to the Apple Watch itself.

8 And further in that regard, you know, Masimo said a number of
9 things about the [REDACTED]
10 [REDACTED], and in that regard, your colleagues at the Board with respect to 754
11 IPRs, they didn't rely on that extensively, but they did note that that [REDACTED]
12 [REDACTED] belied the notion that there was not any reasonable expectation of
13 success. That, you know, [REDACTED]

14 [REDACTED]
15 Regardless, it's not something that is relied upon. It's not the crux
16 of the case and certainly, there is more than enough additional evidence
17 described in that prior opinion and also available here for Your Honors to
18 reach a similar conclusion.

19 And again, with respect to the evidence that Apple produced in
20 counterpart litigation and that without even a need for motions practice, we
21 agreed, you know, for Masimo to bring into these proceedings. That
22 evidence, I think, is limited to Li, Cai, Pang, Maattala. And what it shows is
23 that some of these engineers, I believe, did have custodianship of some of
24 these references. I don't believe it says more than that, and where that really
25 leaves us, I think, is, you know, there are two possibilities that we might

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1 reasonably consider in that regard.

2 And the first is either Apple's engineers were aware of at least
3 some of the prior art of record -- those references demonstrating success and
4 implementing pulse oximetry at the inner wrist, and their offered testimony
5 instead related to the much more challenging context of integrating pulse
6 oximetry into the Apple Watch to be worn at the outer wrist, with the aim,
7 despite that, and various other expressed constraints of achieving Apple's
8 high standards of accuracy and reliability. Or Apple's engineers were not
9 aware of the relevant prior art of record and their statements were offered in
10 ignorance or teachings of prior art of which a person of skill legally defined
11 would have been aware and would have regarded as further supporting
12 Sarantos' expressed recommendations on implementing pulse oximetry of
13 the wrist. And either way, Masimo's attempt to diminish Sarantos'
14 teachings, which is a patent prior art reference, and presumed enabling,
15 failed.

16 So beyond that, I would like to address one more critical issue,
17 which is, you know, what probative weight, if any, should be given to the
18 testimony of individuals provided in their personal capacity with respect to
19 their subjective experiences in regards to the state of the art as revealed by
20 prior art references, like those on this record, about which those individuals
21 were not asked, and of which the hypothetical person of skill is presumed to
22 know. Masimo has brought to the record of these proceedings a bare
23 indication that the engineers were aware of a subset of the references of
24 record but has done nothing to demonstrate that that testimony of the same
25 engineers in any way diminishes the impact that the included disclosures of

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1 feasibility and performing pulse oximetry at the inner wrist would've had on
2 the person of skill's reasonable expectation of success and performing pulse
3 oximetry at that location.

4 And contextually, how can that testimony negate the strong
5 evidence of reasonable expectation of success from those third-party
6 references? And to be clear, we know that these are a group of engineers
7 tasked with a very particular challenge, producing not only a commercial
8 product, but a future iteration of the Apple Watch in all of its glory, and to
9 Apple's high standards, while addressing the particular constraints involved.

10 We respectfully submit that Apple has more than met the burden of
11 demonstrating obviousness, including reasonable expectation of success
12 based on Sarantos' disclosures and the many corroborating references of
13 record, and that Masimo's attempt to combat that demonstration with
14 irrelevant testimony taken out of context should be rejected.

15 And one other smaller point in terms of the discussion given by
16 Masimo with respect to different phases of development, and there having
17 been an earlier phase that eventually led toward product development.
18 There's no indication that the testimony of these engineers was actually
19 limited to that earlier phase or that that's really where the focus ought to be.
20 They would like it to be there, but I don't think they've proven that it ought
21 to be.

22 And in that regard, there's just one more item -- sorry -- that I'd like
23 to note regarding our response to Masimo's argument. The claim scope that
24 the claims they said require positioning on the outer wrist surface informs
25 the secondary consideration analysis. And beyond the fact that Masimo is

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1 wrong about the claim scope, the claims described proximate to the wrist or
2 on the wrist.

3 The scope does not inform secondary considerations. Rather,
4 performed properly and without improper hindsight, combinability of
5 references should be assessed based on the references, teachings, and
6 without regard for any particular claim limitation, which are thereafter
7 addressed when mapping a claim. And we've demonstrated through our
8 mappings, with respect to Iwamiya and Sarantos, for example, that these
9 claims are obvious over their prior art disclosures.

10 JUDGE MARSCHALL: Okay, thank you.

11 MR. PATRICK: Thank you, Your Honor.

12 JUDGE MARSCHALL: Our final session of the day. Patent
13 Owner, you're up.

14 MR. POWELL: Thank you, Your Honor. I'll start very briefly at
15 the question that I was asked at the end of the last session, which is does the
16 evidence of Apple's knowledge about these references, is that tied to some of
17 these employees that we quoted testimony from, and the answer is yes and
18 I'll give you the citations right now.

19 Dr. Block and Mr. Land knew about Exhibit -- the evidence is
20 Exhibit 1008, 2086 in the 243 proceedings. They both knew about those
21 exhibits. Dr. Han -- I'm sorry -- is a custodian of Exhibit 2101, [REDACTED]

22 [REDACTED] Dr. Block is
23 the custodian of 2103, the Maattala reference. [REDACTED]

24 [REDACTED]

25 So with that, I will address a few comments that Counsel just

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1 raised. We've heard a lot of focus today on the inner wrist versus the outer
2 wrist. That's kind of a new issue that I don't think was really the focus of the
3 argument before, but it's really incorrect and we didn't see a persuasive
4 response from Petitioner here about the problem that they're combining
5 Iwamiya and Sarantos, both of which measured on the outer wrist. And so
6 it's not a matter of the claim scope. I think they said that I misrepresented
7 the claims and I said they recited the outer wrist. I don't think I said that.

8 The issue is the combination is for the outer wrist. The claims say
9 proximate to the wrist. That's the language of the claims. The combination
10 is both, Iwamiya and Sarantos, on the outer wrist, and the only response that
11 we've heard from Petitioner -- their only answer is Dr. Anthony says that
12 you could put Iwamiya on the inner part of the wrist, if you wanted to, but
13 that's really just mere speculation. There's nothing in -- they haven't pointed
14 to anything in Iwamiya, anything in Sarantos, to suggest an inner wrist, and
15 it's not the combination that they proposed. The combination that they
16 proposed is Iwamiya and Sarantos, both on the outer wrist.

17 But again, none of these references they're citing to even worked
18 on the inner wrist. I didn't hear any response -- I went through each one of
19 these references and I showed that not a single one of them actually
20 calculated oxygen saturation. None of them. Every single one of them was
21 just some interim data and some aspiration belief that it would be nice to
22 calculate oxygen saturation, and Apple didn't respond to that. They had no
23 answer at all.

24 And a couple things here on those references. For Brady, Apple
25 said, well, I think they may have suggested they didn't know about Brady.

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1 This was on our Slide 80. You don't have to look at it now, but we indicated
2 that [REDACTED]

3 [REDACTED] And again,
4 that device didn't work.

5 We also have -- what's interesting about the ITC is, again, it had a
6 more fulsome record in some ways because Apple showed even other
7 references at the ITC, and Li's author -- Li is one of the references they're
8 relying on now -- that's Dr. Warren, Apple's expert. He testified live at the
9 ITC and the ITC Judge was allowed and able to look him in the eye and
10 evaluate his credibility on this very issue when he was the author of one of
11 these references that supposedly provided a reasonable expectation of
12 success. That's something very different about the ITC.

13 Two last points I'd like to make. Counsel said, okay, maybe they
14 knew about these references and there's only two possibilities. He indicated,
15 Apple either knew about the reference and was really focused on all of these
16 other issues, like battery life, or Apple didn't know about the reference and
17 that they just had custodial -- they had the reference, but didn't actually
18 know about it.

19 What about the third possibility? Apple had these references. It
20 knew about them. The evidence proves that Apple investigated many of
21 these same devices. Apple had the most skilled engineers on the planet, and
22 more resources than any other company on the planet and it still couldn't get
23 the job done because there was no reasonable expectation of success.

24 And the final point I'll make in closing here is we've focused
25 almost entirely on reasonable expectation of success here. There's a lot of

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1 other objective evidence that supports the patentability of these claims.
2 Particularly, the claims that depend on oxygen saturation. We went through
3 this in our Sur-reply and we showed that Apple did not contest any of that
4 objective evidence of non-obviousness, and they didn't contest any of it
5 today. They were really focused on reasonable expectation of success.

6 We didn't hear anything about those others that also failed, about
7 Withings, and you know, all of the other people in the industry that also
8 failed, and the industry skepticism. That sort of thing. So I just wanted to
9 remind the Board of that undisputed fact that also supports patentability.
10 And with that, I'll close, unless the Board has any further questions.

11 JUDGE FINAMORE: I have one question, if you happen to know
12 off the cuff. I don't have it in front of me right now, but did the ITC decision
13 find there was not a reasonable expectation of success?

14 MR. POWELL: Yes. Yes, it did.

15 JUDGE MARSCHALL: Okay. If there's nothing further from the
16 parties or the panel, that'll wrap up today's hearing. Thank you for your
17 time. This is very helpful and we'll issue decisions in due course, and thanks
18 for attending. This hearing is adjourned.

19 MR. POWELL: Thank you, Your Honor.

20 MR. PATRICK: Thank you, Your Honor.

21

22 (Whereupon the above-entitled matter went off the record at 4:17 p.m)

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FOR PETITIONER:

W. Karl Renner
Andrew Patrick
Usman Khan
Patrick Bisenius
Nicholas Stephens
FISH & RICHARDSON P.C.
axf-ptab@fr.com
patrick@fr.com
khan@fr.com
bisenius@fr.com
nstephens@fr.com

FOR PATENT OWNER:

Brian Claassen
Carol Pitzel Cruz
Perry Oldham
Irfan Lateef
Daniel Kiang
Jarom Kesler
KNOBBE, MARTENS, OLSON, & BEAR, LLP
2bcc@knobbe.com
2cmp@knobbe.com
2pdo@knobbe.com
2ial@knobbe.com
2dck@knobbe.com
2jzk@knobbe.com