

UNITED STATES INTERNATIONAL TRADE COMMISSION

In the Matter of:	)	Investigation No.
CERTAIN SMART WEARABLE DEVICES,	)	337-TA-1398
SYSTEMS, AND COMPONENTS THEREOF	)	

OPEN SESSIONS

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1 UNITED STATES INTERNATIONAL TRADE COMMISSION
2 Washington, D.C.
3 BEFORE THE HONORABLE DORIS JOHNSON HINES
4 Administrative Law Judge

5 _____
6 In the Matter of:) Investigation No.
7 CERTAIN SMART WEARABLE DEVICES,) 337-TA-1398
8 SYSTEMS, AND COMPONENTS THEREOF)
9 _____

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12 International Trade Commission
13 500 E Street, S.W.
14 Washington, D.C.

15

16 Tuesday, December 17, 2024

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18 EVIDENTIARY HEARING - VOLUME V

19

20 The Hearing commenced in Courtroom A, pursuant to the
21 notice of the Judge, at 9:03 a.m. Eastern.

22

23 Reported by: Karen Brynteson, FAPR, RMR, CRR

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1 P R O C E E D I N G S

2 (9:03 a.m.)

3 JUDGE JOHNSON HINES: Good morning, everyone.
4 Please be seated.

5 All right. Before we get started, and we will
6 shortly, I just have a few quick things.

7 First, on the word counts the parties proposed
8 yesterday, I agree with those. So we'll have initial
9 post-hearing briefs for Complainants at 25,000 words, for
10 Respondents at 15,000 words, and for the Staff at 30,000
11 words. And responsive post-hearing briefs at 15,000 words
12 for the Complainants, 25,000 words for the Respondents, and
13 10,000 words for the Staff.

14 So assuming I got that correctly, that's what we
15 will do.

16 I would like the parties to send an e-mail to the
17 case e-mail address with the names of the NEXT advocates
18 that have participated in the hearing. And if you could do
19 that before the lunch break, I would appreciate it.

20 Yesterday I asked for a copy of JX-11, which I
21 received, which wasn't what I thought it was going to be,
22 which was a copy, I think, of the claim construction order.
23 One, I'm not sure why the claim construction order got a JX
24 number, but so be it.

25 In Respondents' prehearing brief, on page 14

1 JX-11C is cited twice. I don't know what that is. That's
2 what I wanted. So if someone can send me that.

3 Yes, Mr. McCrum.

4 MR. MCCRUM: We'll get that to you, Your Honor,
5 before the next break.

6 JUDGE JOHNSON HINES: Okay. Thank you.

7 MR. MCCRUM: Thank you.

8 JUDGE JOHNSON HINES: I also received the time
9 estimates. Thank you, Ms. Capolino. And they look fine.

10 So unless there is anything else we need to
11 discuss before we get the witness on, if there's any other
12 general matters, we can take those afterwards.

13 MR. POWELL: We have one issue.

14 JUDGE JOHNSON HINES: Can you -- do you have a
15 microphone or can you get near one?

16 MR. POWELL: There's one issue, but we can take
17 it up after the witness goes.

18 JUDGE JOHNSON HINES: All right. Thank you.

19 MR. HERTKO: Good morning, Your Honor.

20 JUDGE JOHNSON HINES: Good morning.

21 MR. HERTKO: RingConn calls Min Wang. And
22 Mr. Wang will be testifying in Chinese through an
23 interpreter.

24 JUDGE JOHNSON HINES: All right. And where is --
25 the interpreter is by video also?

1 MR. HERTKO: The interpreter is here.
2 JUDGE JOHNSON HINES: Oh, I'm sorry.
3 THE INTERPRETER: Your Honor, the interpreter is
4 here.
5 JUDGE JOHNSON HINES: I apologize, the screen is
6 in the way.
7 So it's Dr. Wang, correct?
8 MR. HERTKO: It is Mr. Wang.
9 JUDGE JOHNSON HINES: Mr. --
10 MR. HERTKO: Mr. Wang.
11 JUDGE JOHNSON HINES: Mr. Wang.
12 MR. HERTKO: Yes.
13 JUDGE JOHNSON HINES: Would you raise your right
14 hand, please. Would you -- I want to swear the witness
15 first.
16 THE WITNESS: Do I have to stand up?
17 JUDGE JOHNSON HINES: No, you can remain seated.
18 Can you raise your right hand, please.
19 Whereupon--
20 MIN WANG,
21 having been first duly sworn/affirmed, was examined and
22 testified through the interpreter as follows:
23 THE WITNESS: I swear.
24 JUDGE JOHNSON HINES: Thank you.
25 And for the interpreter -- and I'm sorry I didn't

1 catch your name.

2 THE INTERPRETER: My name is Niyuan Meggers.

3 JUDGE JOHNSON HINES: Thank you, Ms. Meggers.

4 Can you raise your right hand.

5 (Interpreter sworn.)

6 THE INTERPRETER: I swear.

7 JUDGE JOHNSON HINES: Thank you. Please be
8 seated.

9 Thank you, counsel.

10 DIRECT EXAMINATION

11 BY MR. HERTKO:

12 Q. Good evening, Mr. Wang. Can you please introduce
13 yourself.

14 A. Hello. My name is Wang Min. I work at RingConn
15 as its VP. I'm in charge of hardware development.

16 Q. And when did you join RingConn?

17 A. When RingConn was established in July 2021, I
18 joined the company.

19 Q. When did you begin working on Smart Rings,
20 Mr. Wang?

21 A. Around 2014 to 2015.

22 Q. Are you comfortable reading in English?

23 A. Yes, I can.

24 Q. Mr. Merisier, could you please pull up RX-219.
25 Mr. Wang, do you see RX-219 on the screen?

1 A. Yes.

2 Q. Do you recognize this document, Mr. Wang?

3 A. I can recognize this document. It is a paper I
4 coauthored with Professor Guoxing Wang, and it was published
5 in a conference in Italy in 2017. It is IEEE Biomedical
6 Circuits and Systems Conference.

7 Q. What is the subject matter of RX-219, Mr. Wang?

8 A. It is about Smart Ring system development and
9 then Smart Ring-based blood pressure technology.

10 Q. And if you look at Figure 2 there on RX-219, can
11 you describe what is shown there, Mr. Wang?

12 A. The left-hand side of Figure 2 is our Smart Ring
13 system prototype, as you can see, a black ring worn by the
14 subject in its index finger. The right-hand side is the
15 circuit board of our Smart Ring.

16 Q. Mr. Wang, are you familiar with the manufacturing
17 process for the RingConn Smart Ring?

18 A. Yes, I'm familiar with it.

19 Q. How are you familiar with the RingConn
20 manufacturing process?

21 A. Because this manufacturing process was
22 established by my team and I from scratch.

23 MR. HERTKO: Your Honor, at this point, I think
24 we need to go on the confidential RingConn record.

25 JUDGE JOHNSON HINES: All right. Thank you.

1 (Whereupon, the hearing proceeded in confidential
2 session.)
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1 O P E N S E S S I O N

2 THE WITNESS: Can I just be disconnected?

3 JUDGE JOHNSON HINES: Yes. Thank you.

4 THE WITNESS: Thank you.

5 JUDGE JOHNSON HINES: All right. There was an
6 issue that we were going to talk about before we get to the
7 next witness. So why don't we do that first.

8 MR. POWELL: Thank you, Your Honor. Two things.
9 One, we have a printout of the exhibit that you requested.
10 Can I bring it up?

11 JUDGE JOHNSON HINES: Sure. Thank you.

12 MR. POWELL: And the second issue is I believe
13 yesterday we were instructed to meet and confer about the
14 potential briefing on the motion for sanctions that
15 Complainants have brought up. We were prepared to meet and
16 confer, but unfortunately that didn't occur last night or
17 this morning. And we would just like to know what the
18 grounds are and what the authority is for the sanctions
19 motion, so that we can know what briefing would be
20 appropriate and when it should occur.

21 JUDGE JOHNSON HINES: All right. That makes
22 sense to me. And there should be that type of meeting and
23 conferring before any motion is filed, before any type of
24 motion is filed. And I think it's particularly appropriate
25 here where there's a suggestion for a motion for sanctions.

1 I assume, Mr. Anderson, you don't disagree with
2 that?

3 MR. ANDERSON: I do not disagree at all, Your
4 Honor.

5 JUDGE JOHNSON HINES: All right. Now, I
6 understand in -- while trial has been going on, that having
7 the opportunity for that type of meet and confer might not
8 have been available. So I'm not suggesting that, you know,
9 the fact that it didn't happen between yesterday and today
10 is necessarily a problem.

11 I do suggest that the parties meet and confer and
12 discuss and, you know, and hopefully come to a resolution
13 without any kind of further motion or briefing. I'm not
14 telling you, Mr. Anderson, that Complainants cannot. You
15 know, obviously if the parties can resolve issues, that's
16 probably better for everyone overall.

17 So what -- what are you asking me to do, or is
18 this just an FYI?

19 MR. POWELL: It was more of a -- because you had
20 requested the parties do something, I was concerned that it
21 hadn't already happened.

22 JUDGE JOHNSON HINES: All right.

23 MR. POWELL: And we wanted to know what -- we
24 were very interested in knowing what the relief was going to
25 be. And then there's, perhaps, an overarching issue.

1 There's an implication that somehow we -- and by "we," I
2 mean the Cadwalder lawyers -- had misrepresented to the
3 Court. And I want to be crystal clear, we have not.

4 And part of the briefing and part of the meet and
5 confer process was going to be, you know, explaining how
6 that can -- how it's absolutely untrue that we did and
7 defusing the implication. So, you know, the charges that
8 were raised and the argument that was presented Monday
9 morning was serious, and we take those allegations very
10 seriously. And we want to just put it in proper context.

11 JUDGE JOHNSON HINES: All right. I understand
12 that. And it sounds to me as if there needs to be
13 additional discussions between the parties before anything
14 else is brought to my attention.

15 So I would suggest that that take place. The --
16 and I understand, and I hear what you are saying. And I do
17 think they are, you know, serious issues that were raised.

18 What the implications of that, at least at this
19 point, are a little unclear to me. One, because while there
20 may have been issues with respect to certain demonstratives,
21 whether there is an actual issue when those demonstratives
22 are not presented at trial is something else entirely.
23 Right?

24 And I think that, Mr. Anderson, you should keep
25 that in mind.

1 So I'm not prejudging anything. I understand the
2 parties' positions. I understand your position, counsel,
3 particularly that there should be a complete meet and confer
4 process.

5 And I think that any motion for sanctions,
6 whether it's under Commission rule, Rule 11, or some other
7 basis, there should be a full airing between the parties
8 before there is any decision to move forward. So, that is,
9 you should know exactly what is being alleged and what the
10 request is before any motion is filed.

11 I also -- Mr. Anderson, in having further meet
12 and confers or a meet and confer with counsel for
13 Ultrahuman, I would suggest whether there's a possibility of
14 what Ultrahuman could possibly do to cure the issue that you
15 raised. Is there that possibility now? And your answer to
16 that may be no, but it may be yes.

17 And so if that is a possibility, then I think
18 that the parties should discuss that and address that as
19 well.

20 MR. ANDERSON: Fully agreed, Your Honor. And
21 that's precisely what we said yesterday to them, that we
22 need more time. This issue requires, at our firm, general
23 counsel, in-house general counsel approval and client
24 approval. They kept demanding, what's your relief, what's
25 your relief. I kept explaining we need time to research

1 this.

2 This hasn't -- we've begun researching this, but
3 we don't have an answer. We proposed a specific date for a
4 meet and confer on Monday, and we promised to send them the
5 proposed relief in advance of that. I don't understand why
6 we are burning precious trial time now, and I think that
7 this time should be counted.

8 JUDGE JOHNSON HINES: All right. Is that
9 correct, counsel?

10 MR. POWELL: Well, on Saturday they said we're
11 moving for sanctions. Then we asked them on Sunday, on what
12 grounds are you moving? They didn't tell us. We asked
13 Monday morning, what grounds are you moving for? They
14 didn't tell us. Then we asked again last night.

15 I think "sanctions" is a word that shouldn't be
16 used lightly. If -- if there's a motion for sanctions, the
17 relief should be known beforehand.

18 JUDGE JOHNSON HINES: I don't disagree with that,
19 but what Mr. Anderson seemed to just be saying was that at
20 least at some point, and maybe it was in the last
21 communication, there was an articulation of when a meet and
22 confer could happen and an articulation of when Mr. Anderson
23 and his team would be identifying the relief requested. Is
24 that correct?

25 MR. POWELL: We -- after the meet and confer that

1 we had about all the issues, there was an e-mail from
2 Mr. Anderson about 10:30 and he said we need to get -- talk
3 to our general counsel and our client before we can tell you
4 our relief. So, yeah, that's correct, that e-mail was sent.

5 JUDGE JOHNSON HINES: Okay. All right. Okay.

6 Mr. Anderson, do you have anything else to add?

7 MR. ANDERSON: No, Your Honor. There is a
8 dispute about whether all this time counts or not. And I
9 think it should count, Your Honor. I think that, you know,
10 we're burning precious daylight here.

11 JUDGE JOHNSON HINES: All right. I'm not going
12 to make a decision on that yet, and we're going to see how
13 the day goes, okay?

14 MR. POWELL: Thank you, Your Honor.

15 JUDGE JOHNSON HINES: Does Staff have anything to
16 add on this?

17 MR. WINSTON: No, Your Honor.

18 JUDGE JOHNSON HINES: All right. Have you been
19 involved in the meet and confer process?

20 MR. WINSTON: Yes, Your Honor.

21 JUDGE JOHNSON HINES: All right. Thank you.

22 I would encourage you to keep Staff involved.
23 Thank you.

24 MR. POWELL: We will, Your Honor. Thank you.

25 JUDGE JOHNSON HINES: Mr. Schultz?

1 MR. SCHULTZ: Your Honor, shall I move the
2 contraption?

3 JUDGE JOHNSON HINES: You know, I think we're
4 okay for now. I can see the witness, so when we take our
5 morning break, we'll see if we can get it moved, either that
6 or during lunch.

7 MR. SCHULTZ: Thank you. Your Honor,
8 Complainants call Dr. Tajana Rosing.

9 JUDGE JOHNSON HINES: Let me ask counsel for the
10 Staff, is the placement of the screens here a problem?

11 MR. WINSTON: It's a little weird, but --
12 (Laughter.)

13 MR. WINSTON: -- it's not ideal, Your Honor, but I
14 can mostly see the witness.

15 JUDGE JOHNSON HINES: All right. Why don't we do
16 this: Why don't we take our morning break and why don't we
17 see if we can get everything moved, then.

18 MR. WINSTON: Thank you.

19 JUDGE JOHNSON HINES: So we'll reconvene at
20 11:05.

21 (A recess was taken at 10:50 a.m., after which
22 the proceedings resumed at 11:05 a.m.)

23 JUDGE JOHNSON HINES: You may be seated.

24 MR. SCHULTZ: Good morning, Your Honor.

25 JUDGE JOHNSON HINES: Good morning. Before you

1 sit down, would you raise your right hand, please.

2 Whereupon--

3 TAJANA S. ROSING,
4 having been first duly sworn/affirmed, was examined and
5 testified as follows:

6

7 THE WITNESS: I do.

8 JUDGE JOHNSON HINES: Thank you. Please be
9 seated and welcome.

10 DIRECT EXAMINATION

11 BY MR. SCHULTZ:

12 Q. Good morning, Dr. Rosing.

13 A. Good morning.

14 Q. State your name, please.

15 A. My name is Tajana Simunic Rosing.

16 Q. What do you do for a living?

17 A. I'm a professor at UCSD.

18 Q. And I have a set of slides you prepared, CDX-5.

19 Would you mind telling me -- telling the Court your academic
20 and teaching experience, please?

21 A. Yes, I will be happy to. So I have my Bachelor's
22 in electrical engineering from Northern Arizona University
23 which I got back in '92. I did my Master's at the
24 University of Arizona in electrical and computer engineering
25 in '93. And then in parallel, I pursued Master's and

1 engineering management, as well as Ph.D. in electrical
2 engineering at Stanford University. I graduated in 2001.

3 I have been distinguished professor at UCSD in
4 both department of computer science and also electrical and
5 computer engineering. I arrived to UCSD in 2005. So it has
6 been almost 20 years now.

7 Q. And are you published?

8 A. Yes. I have published over 400 peer-reviewed
9 publications. Most of my work has focused on energy
10 efficient computing, on distributed and embedded systems and
11 also some work focuses on computer architecture. I have
12 lots of publications in the field of embedded computing and
13 I also have some patent applications.

14 Q. And what is your experience outside of academia?

15 A. I spent a decade in industry. First between my
16 Master's and Ph.D., I worked as a design engineer at Altera
17 Corporation. Altera is now owned by Intel. I was involved
18 in design of the first family of S-RAM-based products for
19 FPGA at Altera and I just looked up yesterday, they are
20 still sold to this day, which is exciting.

21 Then after that, when I started my Ph.D., I also
22 was offered first an internship and then a permanent
23 position at HP Labs. There I worked as a research
24 scientist, primarily focused on mobile and media systems.
25 So I was looking at issues related to power management,

1 battery design, design of low power systems and circuits.
2 And also on operating systems and software interfaces for
3 those circuits.

4 During this time and since then, I have been a
5 named inventor on 11 patents, many of which involve managing
6 and optimizing power consumption.

7 Q. And, Doctor, the patent in this case is about
8 wearable electronic devices. Do you have any experience in
9 that area?

10 A. Yes, I do. So a few years ago, I was a director
11 of IBM-funded center for healthy aging. As a part of this
12 center, we instrumented both the environment and we put
13 on-body sensors on older individuals. Our goal was to
14 figure out if we could detect early signs of cognitive
15 decline because it turns out if you can detect those early
16 signs, you can actually come up with treatments to slow down
17 the decline.

18 We actually have a really nice demonstration that
19 was shown to IBM that was involved older adults and set up
20 within a normal home. And adults involved these on-body
21 sensors that older adults were using.

22 More recently, I have been working on in-ear
23 multi-modal sensing and neurofeedback system. So this is
24 actually sort of looks like a hearing aid, but it's much
25 more capable than that. It fits right inside the ear canal.

1 It is able to detect EEG waves, your brain waves. It can
2 also detect EKG and we're working with Center For Wireless
3 Systems with faculty there that is enabling collection of
4 some of the chemical data from the skin.

5 My personal part of this was to take the signals
6 that were being sensed through EEG and we designed a chip
7 that you can see on the right here. It is labeled PIM-ASIC.
8 This chip was taped out a few years ago with TSMC and it
9 actually enables realtime analysis of brain waves.

10 And it provides classification on whether there
11 is a problem that's being detected or not. This information
12 is then used to play a specialized sound back that it turns
13 out that certain types of sounds can actually be used to
14 treat some issues, such as sleep apnea in individuals.

15 I also am currently leading 56 and a half million
16 dollar center that focuses on next generation system design.
17 And part of the work that I'm doing there also involves
18 designing in-brain sensing, so this is more brain machine
19 interface types of devices where we collect data from
20 multiple electrodes, not just a few that we had in the ear,
21 but these days we're looking at between 10 to 100
22 electrodes.

23 And my part of this work is looking at how do I
24 design extremely low power chip that can do analysis and
25 prediction of what is going on and that also stays within

1 the body temperature, so -- because when you put the chip
2 next to the brain, you don't want to heat up the brain.

3 So you have to be very careful with power
4 consumption.

5 Q. Doctor, the multi-modal ear sensor you just
6 talked about, does that have a battery in it?

7 A. Yes, it does have a battery. And actually the
8 sensor is specifically molded to fit into the ear. And
9 battery has to be designed to both provide enough energy for
10 the whole system to operate, and this includes, as I said,
11 also actuation, meaning it includes being able to play a
12 sound back.

13 And it needs to be able to provide power to
14 gather the data, amplify it sufficiently so we can analyze
15 it, and the power to make chip.

16 Q. So suffice it to say you have experience in both
17 power systems and battery in the context of wearable
18 devices?

19 A. Yes, I have plenty of experience.

20 Q. What about your awards or have you received any
21 awards in your career?

22 A. Yes. I have been named both IEEE and ACM fellow.
23 And in both cases, it was for my work on power and thermal
24 management. I also have gotten a number of awards, I wanted
25 to highlight only a few. Just a few years ago, I was named

1 the top university researcher by Semiconductor Industry
2 Association. This is an award given to only one individual
3 worldwide. Semiconductor Industry Association represents
4 98 percent of all semiconductor companies worldwide.

5 So I was really excited when they gave me that
6 award.

7 Q. And, Doctor, you should have Exhibit 11 -- C-1131
8 in your binder. Can you -- it should be your CV. Can you
9 identify that for the Court?

10 A. Yes. This does look like my CV.

11 Q. Thank you.

12 MR. SCHULTZ: I tender the witness as an expert
13 in the field of wearable electronic devices.

14 JUDGE JOHNSON HINES: Any objection?

15 MS. TULLY: No objection, Your Honor.

16 JUDGE JOHNSON HINES: Thank you.

17 MR. WINSTON: No objection, Your Honor.

18 JUDGE JOHNSON HINES: Thank you. So tendered.

19 BY MR. SCHULTZ:

20 Q. Dr. Rosing, could you briefly describe the '178
21 patent at a high level for me, please.

22 A. Yeah. '178 patent is about a wearable computing
23 device in the shape of a ring. It dates from 2013. And in
24 this particular case, we have been looking at claims 1, 2,
25 and 12 through 14.

1 Q. What were you asked to do in this case?

2 A. I was asked to analyze the validity of this
3 patent.

4 Q. You were asked -- more specifically, you were
5 asked to look at the validity issues raised by Respondents;
6 is that right?

7 A. Yes, that is correct.

8 Q. And in evaluating validity, did you evaluate from
9 the perspective of a person of ordinary skill in the art?

10 A. Yes, I did. And --

11 Q. Is that shown on -- is that skill shown on slide
12 11?

13 A. Exactly. And I believe it's the same description
14 as the other slide presented.

15 Q. And what about claim constructions, did you apply
16 any claim constructions in your analysis?

17 A. I did. I applied the claim construction that the
18 Court provided and that is shown in this slide.

19 Q. Thank you. So let's talk about the conclusions
20 you came to, Doctor, if any.

21 Can you summarize those for me.

22 A. Yes, I will be happy to. So I found that claims
23 1, 2, and 12 through 14 of '178 patent are not invalid as
24 anticipated or as obvious. Specifically, they are not
25 invalid as anticipated by Niwa, and they are also not

1 invalid as obvious over Niwa in view of Schroder.

2 In addition to that, I saw that claim 12 is not
3 invalid as obvious over Niwa, combined with Henderson,
4 Webster or GMBPower. And I also looked at some secondary
5 considerations.

6 Q. Let's talk about the basis for these opinions,
7 Doctor.

8 Could you describe the state of the art leading
9 up to the '178 patent for me?

10 A. Yes, I would be happy to. So some of the early
11 work in rings, specifically Smart Rings, was done by MIT
12 group led by Asada. And you can see here that the types of
13 rings that they actually built included sandwich-like
14 stacked PCB boards on top of the ring.

15 And there was a really good reason for this.
16 This was done specifically because they needed long enough
17 battery lifetime, which they could get only with these
18 larger size coin cell shaped batteries. And also they
19 needed to be able to fit a bunch of components. And at that
20 time, they could not fit these components inside the ring.

21 You can also see that they were using sensors
22 based on LEDs. And in the Figure 2 that is shown on my
23 slide, the sensor is pasted on top of the ring housing.

24 Q. So Asada had a patent; is that right, or at least
25 one patent?

1 A. Yes, Asada did have a patent.

2 Q. And I assume that the figure to the left,
3 CX-1134, is that a figure from one of his patents?

4 A. It looks like a figure from one of his patents.
5 And you can see in this figure that he clearly described the
6 ring as having a battery on top, because he realized that
7 you can't fit a coin-cell shaped battery inside of the ring
8 as of that time. It is also clear in this figure that this
9 is just an illustration because a bunch of other components
10 are kind of thrown about the ring.

11 So he didn't really know at that point how to
12 design a ring that would fit all of the components inside
13 the housing.

14 Q. So the items to the right, the actual what look
15 like actual prototypes, were those Asada's attempts to
16 reduce to practice the ideas in his patent?

17 A. Yes, I believe that's as good as it got at the
18 time that Asada was building these rings. And as I said, a
19 lot of it had to do with the way that he wanted to power
20 this device and all the functionality that he wanted. In
21 order to make that happen, the only thing he could do is
22 build a sandwich of PCB boards and place the components on
23 that.

24 Q. And who was Asada?

25 A. Asada is an MIT professor.

1 Q. So let's talk about the first reference, Niwa.
2 Did you come to any conclusions about whether Niwa
3 anticipates claim 1?

4 A. Yes. It's clear to me that Niwa does not
5 anticipate claim 1.

6 Q. Is this summarized on your slide 12?

7 A. Yes, it is.

8 Q. What does the red highlighted material of claim 1
9 indicate?

10 A. I highlighted the components of the claims that I
11 think Niwa definitely does not anticipate.

12 Q. Okay. Let's talk about Niwa.

13 And there's some figures of Niwa displayed on
14 slide 13. Could you give an overview of what you're showing
15 here?

16 A. Yes. I would be happy to. First, if you see the
17 front page of Niwa's patent application, it's clear that the
18 application is all about how to design a PPG sensor. And,
19 furthermore, you can see in Figure 3 at Niwa, he was
20 concerned about how to place the LEDs that are going to
21 shine the light on to the finger and where should you place
22 the sensor that's in the middle, that's the rectangle
23 labeled PD. So that way he gets really good signal and he
24 can hopefully get really good results by using this PPG
25 measurement.

1 And he went into a lot of details on what the LED
2 should fire when, what kinds of wavelengths they should use,
3 but in all cases, he places the sensor at the bottom right
4 underneath the ball of the finger or underneath the flesh on
5 the third joint. And there's a good reason why he does
6 this.

7 This is described in Figure 22 and the sensor is
8 actually inside the first unit that I labeled. And notice
9 how this first unit labeled 10 is abutted directly at the
10 skin. This is because he really needs to be that close to
11 the skin to be able to get the solid signal back from
12 bouncing the light through the flush and back into the
13 sensor PD.

14 He also, in order to accomplish all this, he
15 needed a pretty good size battery. He also needed wireless
16 connectivity. And he needed a bunch of charging and also DC
17 conversion circuitry to power the whole system. Most of
18 that is placed in the second unit, which is on top. And
19 this is also why that second unit is rectangular and fairly
20 tall relatively speaking to the rest of the ring.

21 The way he connects the second unit and the first
22 unit is by using just a standard cable. And I think one of
23 the figures, I want to say between Figure 24 and 26, shows,
24 actually, a detailed drawing of multiple wires going into
25 the second unit.

1 Q. So Niwa's approach is similar to Asada in that he
2 piles components on top of the ring and he puts the sensor
3 at the bottom of the ring; is that correct?

4 A. Yes. In fact, there are a couple of figures that
5 zoom in on exactly what's in the first unit and the second
6 unit. Perfect. Thank you.

7 And as you can see in Figure 27, this is what's
8 at the bottom of Niwa. You can see clearly that he has a
9 substrate. And on that substrate there is a processor on
10 one side. On the other side is a sensor, which is a little
11 rectangle shown in orange. And on top -- and that sensor
12 directly abuts to the window, which then directly abuts to
13 the finger flesh.

14 So Niwa spends a lot of time talking about the
15 sensor really needs to be as close as possible because he
16 needs to get really good data that way. He also makes a big
17 deal out of separating the sensor from the wireless
18 communication circuit, which is on top, and from all of the
19 power sources. This has to do with noise that he is
20 concerned about. He doesn't want any noise to cause
21 problems with the sensor that he places at the bottom.

22 And when you look at the top, which is in Figure
23 28, you see two substrates that are separated by a
24 connector, which is labeled 26. On the very top of the
25 design is wireless communication circuit. This is by design

1 because he really needs to have good access to air to send
2 the data through the wireless medium.

3 In the middle, he has a power source circuit.
4 This is generally a DC/DC conversion circuit, which takes
5 the voltage of the battery and puts it at the level that's
6 appropriate for the rest of the components. One such
7 component is memory, which is right next to the DC
8 converter. The other component is down below. And you can
9 see that in Figure 27, processor and also sensor need power
10 appropriately adjusted for their needs.

11 And then underneath the first substrate is a
12 battery, which in Niwa is described as needing to be highly
13 flat. And there is actually a good reason for that as well.

14 First of all, batteries that are flat --

15 JUDGE JOHNSON HINES: Can I ask you to slow down
16 just a little bit?

17 THE WITNESS: Yeah, sure.

18 JUDGE JOHNSON HINES: Thank you.

19 THE WITNESS: No problem.

20 Batteries that are flat actually have higher
21 energy density than batteries that are curved. So from
22 Niwa's perspective, in order to be able to power all of the
23 components, he is choosing a highly flat battery in order to
24 have effectively enough energy.

25 BY MR. SCHULTZ:

1 Q. Dr. Rosing, I hate to interrupt. We have -- your
2 slide 15 refers to Niwa's highly flat battery and shows the
3 portion of the specification; is that right, that refers to
4 it?

5 A. Yes. And you can see that I highlighted the fact
6 that he needs a highly flat battery. He also explains that
7 he needs highly flat battery because he wants to have better
8 affinity with PPG sensor. And I think what he's saying
9 there is he wants to make sure that the sensor is oriented
10 correctly in vertical direction and that it directly abuts
11 the skin as much as possible, so he can get really good
12 reading.

13 The last reason why he actually creates this
14 stack on top is because he wants to reduce the consciousness
15 of the examining varying this PPG sensor. And I think what
16 he's talking about there is instead of placing everything on
17 a single substrate and causing that substrate to be quite
18 wide, and to basically get into the neighboring fingers when
19 wearing the ring, he instead stacks it up. And this is very
20 similar to what Asada also did, because that way he gets
21 space for big enough battery. He also gets space for
22 memory, for DC conversion, and then on top, he has good
23 access to air to send the data using wireless communication
24 device.

25 Q. So would a person of ordinary skill in the art at

1 this time, at the time of the '178, understand the
2 advantages of using a highly flat battery as taught by Niwa?

3 A. Oh, yes. And this is why you saw both -- all of
4 Asada's prototypes and all of Niwa, this discussion of flat
5 batteries because the flat batteries have higher energy
6 density. And they all want the rings to last long enough so
7 you don't have to continually be recharging them and be
8 connected to a charger.

9 And the way that they solve that problem is by
10 stacking on top of the ring.

11 Q. Now, Mr. Alarcon yesterday testified that -- and
12 this is an approximation of his testimony -- but, in effect,
13 that curved batteries have more capacity than flat
14 batteries. Do you agree with what he said yesterday about
15 that?

16 A. No. I actually strongly disagree. For the same
17 volume, the flat battery generally will have a better energy
18 density than the curved battery.

19 Q. And a quick question about these figures. So we
20 have looked at -- and I am on slide 13 -- Figure 22 and you
21 have talked about Figures 27 and 28.

22 Are those part of the same example of Niwa?

23 A. Yes, they are.

24 Q. Thank you. Now, Niwa also talks about stacked
25 components as you show here on slide 16; is that right?

1 What are stacked components?

2 A. What he is talking about here is the fact that he
3 has multiple substrates. So in Figure 28, he shows
4 substrate 21 and substrate 27 that he is using to stack
5 components on top of each other.

6 And he specifically says that he does this, and
7 you can see that right after my yellow, he says "therefore,
8 the largeness of the second unit 20 can be restrained not to
9 protrude from the third joint of the finger 2."

10 And, as a result, also, he said, consciousness of
11 the examinee for wearing the PPG sensor can be reduced. So
12 it is a design decision to stack components on top of each
13 other.

14 Q. So, in effect, just for nomenclature's sake,
15 substrate is referring to a PCB here?

16 A. So the interesting thing about Niwa is that he
17 doesn't actually call it PCB. He does know about circuit
18 boards because I believe at some point in the patent he
19 mentions circuit board. I don't remember exactly where.

20 But here he specifically calls it the substrate.
21 I'm not exactly sure why. My inclination is that he calls
22 it a substrate because it's much simpler than a standard
23 PCB. All he has is a couple of components per layer, and
24 that single connector, 26, that connects the two substrates
25 to each other.

1 This looks a lot like what I saw in Asada, with
2 the yellow connectors connecting the boards to each other.

3 Q. Doctor, does the '178 patent stack substrates on
4 top of one another?

5 A. '178 patent does not stack in this way.

6 Q. Would a person of ordinary skill in the art
7 understand the advantages of using a stacked arrangement as
8 taught by Niwa?

9 A. I think it is pretty clear why Niwa chose the
10 stacked arrangement. He tells us that he chooses it because
11 he wants to make sure that it doesn't -- the design doesn't
12 protrude beyond the third joint of the finger. He doesn't
13 mind it being taller. He also tells us that he needs a
14 highly flat battery, which tells us that he needs space for
15 that highly flat battery.

16 And he tells us that he needs all of these
17 components, which he needs to put somewhere. So the best
18 solution for him is, in fact, to stack the way he has
19 designed it.

20 Q. And what are you showing on slide 17 here,
21 Doctor?

22 A. So I wanted to illustrate what Niwa actually
23 says, how big the stack is. And this actually is to scale.
24 I love Cheerios. I have four kids, so I live with Cheerios.
25 One single Cheerio is about a centimeter tall. So Niwa in

1 his patent discloses thickness of the second unit of up to
2 20 millimeters, which is essentially two Cheerios worth of
3 height.

4 The minimum height that he discloses, which is
5 shown at the top of the dotted line that's labeled 40 is
6 about half a Cheerio in height. So what you see here is the
7 actual size that Niwa is designing.

8 Q. You actually drew the Cheerios to scale with
9 respect to what is shown in the Niwa ring?

10 A. To the best of my ability.

11 Q. To show the range of thickness that Niwa
12 specifically discloses, correct?

13 A. Yes.

14 Q. What is your conclusion with respect to Niwa and
15 whether it anticipates claim 1?

16 A. I do not think that Niwa anticipates claim 1.

17 Q. And why not?

18 A. The biggest reason is that Niwa does not have
19 either internal or external housing components. Niwa does
20 mention and label housing. And this is in paragraph 191.
21 And, in fact, this is the only place where he specifically
22 talks about the construction.

23 But he doesn't tell us anything beyond this on
24 how the housing is actually designed. And he never mentions
25 anything about any housing components.

1 Q. And let me go back to -- so Figure 22 and Figure
2 28, those are different views of Niwa?

3 A. Yes. That's the same design.

4 Q. Okay. And what are the two different views?

5 A. So in Figure 22, the view was actually from the
6 front, so as if you cut your finger in half this way
7 (indicating). 28, the view is from the side. Notice that
8 in 28, it's an illustration of the housing.

9 And notice also that in this illustration, he
10 draws this trapezoidal shape on top. The reason why it is
11 trapezoidal is because he realize he has a stack that's very
12 flat and that's rectangular in shape. So he needs some way
13 to cover it and to protect it.

14 Q. Okay. Let's continue.

15 What are you showing on slide 20 with respect to
16 whether Niwa discloses an internal and external housing
17 component?

18 A. So as I mentioned a second ago, Niwa doesn't
19 really talk much about how to design housing. Niwa is
20 really concerned about how to design this PPG sensor. So in
21 Figures 24, 25, and 26, he actually uses see-through
22 illustrations. And you can see in the paragraph, 205, he
23 very clearly tells us that Figure 24 is a see-through
24 illustration, Figure 25 is a see-through illustration, and
25 Figure 26 is a see-through illustration.

1 Meaning he's really focusing on what is
2 underneath the housing, these printed circuit boards. And
3 on these figures, both in Figure 24 and 25, you can see
4 clearly multiple wires that constitute the cable that he
5 labels 30.

6 You can also see the very rectangular design of
7 the substrate with components on it.

8 Q. So Niwa refers to in the specification Figure 22,
9 27, and 28 as construction examples. What does that mean?

10 A. Usually in a construction example, the designer
11 is trying to tell you this is how you would build something.
12 On an illustration, they are just telling you this is sort
13 of what it looks like, I'm really focusing on some detail.

14 Q. So Niwa is really trying to show what the
15 components look like on the finger rather than the specifics
16 of the housing in this -- in these Figures 24 through 26; is
17 that fair?

18 A. Yeah, that seems pretty clear to me, both from
19 the text and also from the way the figures are shown.

20 Q. Are there any other elements of claim 1 not
21 disclosed by Niwa?

22 A. Yes. Niwa does not anticipate claim 1[c].

23 Q. Okay. And these are the limitations highlighted
24 on slide 21 that are not shown by Niwa?

25 A. Yes.

1 Q. Okay. And on slide 22, what are you explaining
2 here?

3 A. So here I'm showing that battery is not
4 positioned between internal and external housing components.
5 And that's for an obvious reason. Niwa does not have
6 internal or external housing component.

7 Niwa just says it has housing and doesn't provide
8 us with any further information about how to build such
9 housing.

10 Q. And what about slide 23, what are we showing
11 here?

12 A. It is also clear to me that no part of Niwa
13 battery is positioned between two circumferential surfaces.
14 Specifically, Niwa actually tells us very clearly that
15 battery is formed as highly flat and is located right above
16 the finger.

17 And he draws it in Figure 28, again, as very flat
18 and as a part of this rectangular-type structure that sits
19 on top of the finger. So it's clear that Niwa's battery is
20 not positioned between circumferential surfaces.

21 Q. So you have outlined the -- you have used dashed
22 lines on Figure 28 on slide 23 to show the housing, correct?

23 A. Dashed lines are what Niwa actually uses to
24 illustrate housing.

25 Q. But the dashes in red, that's your annotation,

1 correct?

2 A. Yes.

3 Q. And what does that show about a circumferential
4 surface?

5 A. Well, you can see here that both lines are very
6 straight and flat, just as a battery has to be highly flat.

7 Q. And that's with respect to Figure 22 as well,
8 correct?

9 A. Yes.

10 Q. So this unit 20 on top of Niwa, it's essentially
11 a -- maybe not a perfect cube, but a cube-type -- it's flat
12 in both dimensions?

13 A. It looks like a box. If we look at the previous
14 slide where he shows see-through illustrations, you can see
15 that it looks kind of boxy. And that's for good reason,
16 because he requires this flat construction.

17 Q. Okay. And moving on, limitations 1[d] and 1[e]
18 on slide 24, does Niwa anticipate those limitations?

19 A. Niwa does not anticipate 1[d] and 1[e].

20 Q. And why not?

21 A. So in Niwa, PCB is not between the internal and
22 external housing component because, again, Niwa does not
23 have internal and external housing component. And,
24 secondly, you can see that sensors are placed in Niwa at the
25 bottom. And they actually are connected directly to the

1 window. They are described as having to be in a very flat
2 region that directly abuts the finger.

3 They do not acquire data about user through the
4 internal housing component because we do not have an
5 internal housing component.

6 Q. And what does your summary here on slide 26 show?

7 A. I just wanted to summarize and show that Niwa
8 does not anticipate independent claim 1.

9 Q. What about dependent claims 2, 13, and 14 shown
10 on slide -- referred to on slide 27?

11 A. So because Niwa does not anticipate independent
12 claim 1, it cannot anticipate claims 2, 13, and 14.

13 Q. And on slide 28, you're talking about dependent
14 claim 12 in more detail?

15 A. Yes. I wanted to focus on dependent claim 12
16 because I was asked to evaluate whether it is obvious, so
17 whether Niwa in view of Webster or Henderson or GMBPow is
18 obvious for dependent claim 2. And I found that it is not.

19 Q. So you're addressing Niwa's -- Respondents'
20 obviousness combinations combining Niwa with Webster,
21 Henderson, and GMBPow here, correct?

22 A. Yes. And specifically regarding the curved
23 battery section.

24 Q. Of claim 12?

25 A. Of claim 12, correct. So here I wanted to,

1 again, show you --

2 Q. Here is slide 29, correct?

3 A. Yes. My slide 29. I just wanted to draw your
4 attention back to the fact that Niwa specifically wants
5 battery to be highly flat. And that he very specifically
6 locates it right above the finger and that he also
7 specifically places two very flat substrates right on top of
8 the finger.

9 So he says he does this because it enhances
10 affinity of the sensor and reduces consciousness of the
11 examinee for wearing the ring. In addition, this highly
12 flat battery has a better capacity. So there are many
13 reasons why he would actually want to have a flat battery on
14 top of the finger.

15 So there is no real reason for Niwa to want to
16 modify this flat battery. He has from his perspective
17 solved the problem that he was after.

18 Q. Let's talk about the references in particular.
19 What are you showing on slide 30?

20 A. So on slide 30, I wanted to really bring home the
21 point that there was no reason for Niwa to include curved
22 batteries. There's a good reason why he wanted a flat
23 battery. So if you look at what was available at that time,
24 GMBPower battery is designed to work on watches, sports
25 bracelets, and wrist straps. It was not designed for rings.

1 Webster's battery is a vaginal ring. And having
2 delivered four kids, I can tell you that, you know, the
3 circumference of vaginal ring is much larger than a
4 finger-worn ring.

5 And then, Henderson is designed to be a
6 wristband, which is also much larger in diameter. And, as a
7 result, you know, you cannot expect it to fit into a
8 finger-worn ring.

9 Q. And Henderson was considered by the examiner in
10 the '178 patent; is that right?

11 A. Yes.

12 Q. Are you familiar with the Nike FuelBand?

13 A. Yes, I believe I saw an illustration of Nike
14 FuelBand.

15 Q. Is that what Henderson is talking about?

16 A. That was one example linked with Henderson.

17 Q. Is this a Nike FuelBand?

18 MS. TULLY: Your Honor.

19 JUDGE JOHNSON HINES: Yes.

20 MS. TULLY: This was not disclosed to us, the use
21 of this demonstrative.

22 JUDGE JOHNSON HINES: Counsel?

23 MR. SCHULTZ: I will withdraw it, Your Honor.

24 JUDGE JOHNSON HINES: All right, thank you.

25 BY MR. SCHULTZ:

1 Q. The FuelBand is described in Henderson; is that
2 right?

3 A. Yes.

4 Q. Thank you. And let's talk about Henderson in
5 more detail on slide 31.

6 A. So on slide 31, first I wanted to highlight that
7 Henderson is about wearable bands such as a wrist band. So
8 this means, again, fairly large form factor. Secondly, if
9 you look at Figure 6, you see two places where Number 142 is
10 shown, one on the left and one on the right. That is
11 because it has two batteries inside of it.

12 So Henderson realized that he really needed more
13 capacity and he designed a large wristband that had two
14 batteries to support what he needed to do. So I don't see
15 any reason why a POSITA at that time could expect to shrink
16 this larger-size wristband with two batteries into a finger
17 form factor.

18 Q. And, in addition to whether the POSITA would want
19 to do that, would a person of ordinary skill in the art --
20 let me ask another question.

21 Does Henderson teach a person of ordinary skill
22 in the art how to take these large batteries, 142, and fit
23 them into a ring?

24 A. No, he doesn't.

25 Q. And does Niwa teach that?

1 A. No, Niwa does not.

2 Q. Okay. Let's talk about Webster on slide 32.

3 A. So Webster, again, is a vaginal ring that is --
4 has a battery that is flexible. However, being a vaginal
5 ring, it is up to 4 inches in diameter, in order to fit the
6 mature human woman.

7 Trying to shrink something from four inches in
8 diameter to a finger size is not a small task. I don't see
9 how somebody seeing Webster's vaginal ring would think: Oh,
10 I can actually make this more wearable on a finger.

11 Q. And what about GMBPow, what is that about?

12 A. So GMBPow, were I believe some of the smallest
13 curved batteries in the market at the time of this patent.
14 And you can see that the smallest of the ones they had is
15 about 2 millimeters by 10 and by 20 millimeters. So
16 effectively the size of two Cheerios stacked on top of each
17 other, which is plenty big when you consider having to try
18 to put it inside of a ring.

19 There is actually another problem here, and the
20 problem has to do with the way these batteries are rated.
21 So the battery's rated capacity is 25 milliamp hours, but
22 this charge current, which you see on the right, is rated at
23 0.2C. This actually means that you can pull out of this
24 battery only 5 milliamps.

25 So that basically means that you're going to have

1 to really severely limit what you put together with this
2 battery because otherwise you won't be able to provide
3 enough power. Just as illustration, Bluetooth itself
4 consumes much more power than that.

5 So at that size, it would be very difficult to
6 actually get sufficient amount of electronics power and
7 definitely not something the size that Niwa is asking for.

8 Q. The inventor testified about the discharge
9 current of GMBPower, didn't he?

10 A. Yes, I believe he did.

11 Q. And he said that wasn't a sufficient discharge
12 current to power the Smart Ring?

13 A. Yes, which makes sense to me, that he would be
14 also concerned.

15 Q. And what conclusion did you come to with respect
16 to whether Niwa combined with GMBPower, Henderson, or
17 Webster renders obvious claim 12?

18 A. I believe that Niwa in view of GMBPower,
19 Henderson, or Webster does not render obvious dependent
20 claim 12.

21 Q. Okay. The next obvious combination is Niwa in
22 view of Schroder.

23 You were here in Court when we talked about
24 Schroder somewhat yesterday. What is Schroder about?

25 A. So Schroder is actually designed for security

1 applications. And I believe I gave a better illustration on
2 the next set of slides.

3 He specifically says he proposes a method for
4 operating an external secure unit, not for healthcare
5 applications. If you go to the next slide, you can see how
6 he actually designs it.

7 Q. Let me ask you a question about security
8 applications that Schroder is talking about. So he mentions
9 RFID and NFC?

10 A. Yes.

11 Q. What are those?

12 A. So Near Field Communication is what we use when
13 we pay with smart cards. And it's a passive method of
14 providing security, similar to RFID. So NFC typically has a
15 range of centimeters. RFID, depending on the size, can have
16 range up to meters.

17 And both actually can operate in a passive
18 manner, meaning that you don't need a battery. They get
19 energy from the EM waves that they are exposed to. And
20 that's sufficient energy for them to provide some form of ID
21 back.

22 And this is exactly what Schroder is actually
23 after. What he wants is a ring that an individual will be
24 always wearing that would be used to essentially ID that
25 individual to any particular application that you may want

1 to use with such a secure ring.

2 Q. Let's get into the specifics of Schroder. You
3 have two figures on your slide 37.

4 What is Schroder showing here?

5 A. So Schroder, because he is really focused on this
6 passive security application, has a very simple design. He
7 uses an inlay on which he places a chip module, which is
8 labeled 10, and an antenna coil, which is labeled 8.

9 And he places this inlay inside of the ring.
10 Inlay is actually super thin material. And all he places on
11 top of that material is antenna. Antennas for NFC and RFID
12 communication are very, very thin, on the order of 10 to 100
13 microns.

14 He places a chip module on top of the ring for
15 multiple reasons. One reason is that he wants the chip
16 module to be replaceable. This is why he also has a hinge
17 cover that is labeled in Figure 3 at Number 14.

18 Now, notice that this inlay in Figure 3, which I
19 highlighted in green, is shown just as a thin line. And
20 that is, again, because he wants super lightweight design
21 and this inlay, all it has on it is tens of microns worth of
22 antenna wire. That's it.

23 And this inlay then perfectly fits inside of a
24 ring housing. So there is no reason to have any space,
25 other than space that inlay fits into.

1 Q. So yesterday, Doctor, Mr. Alarcon testified that
2 he would have to do some modeling to tell me how thick that
3 antenna wire would be. But you just mentioned amount of
4 microns; is that right?

5 A. Yes. I have actually done work with NFC and also
6 with RFID. So I have experience in how big these things
7 are.

8 And this is actually fairly well-known in the art
9 as well, if you have worked with these kinds of devices.

10 Q. Okay. Let's talk more about Schroder.

11 What are you showing here in Figure -- in slide
12 38?

13 A. So here I wanted to also highlight the fact that
14 Schroder placed the chip module on top of the ring because
15 he wanted it to be replaceable. And this is a quote from
16 column 8.

17 He also protected it against outside influences
18 by a cover. And, again, this cover has to be hinged in
19 order for the chip module to be replaceable. Now, one would
20 ask: Why would you want to replace this chip module?

21 Well, one obvious reason might be that when you
22 buy a ring, you would probably want that ring to be
23 programmed with your personal ID, if you're using it for
24 security applications.

25 Q. So there is an advantage to having a chip with a

1 cover that's replaceable, correct?

2 A. Exactly. There's a good reason why you would do
3 it this way.

4 Q. And that would be recognized by one of ordinary
5 skill in the art?

6 A. Yes. As I said, there's a good reason why he
7 also just has an inlay. It is because he is using this
8 passive method and because he wants to have a very thin ring
9 that people would actually want to wear.

10 Q. So Respondents are saying that it's obvious to
11 use Schroder's housing with Niwa's ring. What's your
12 response to that?

13 A. I don't see why one would take Schroder's housing
14 with Niwa's ring because they are very different
15 applications. Niwa is all about PPG sensing. So he
16 specifically has multiple substrates that are stacked. He
17 tells us that he needs to have a sensor at the bottom of the
18 finger directly touching the skin, as much as possible.

19 He tells us he wants a highly flat battery. He
20 also tells us he needs wireless communication, he needs DC
21 conversion, he needs charging circuitry, memory. So there's
22 a lot of components that have to be stacked.

23 In contrast, Schroder tells us that he just needs
24 an inlay, which is very thin, and that only has an antenna
25 deposited on it. These antennas, as I said, are microns

1 thick. They are not big substrates that you have to stack.

2 And he is very concerned about wanting to make
3 sure that this ring is lightweight enough and that it
4 provides ability to replace the chip module when needed.
5 And that is why he places a chip module on top.

6 And so I don't see why one would want to combine
7 these two, but even if one, for whatever crazy reason, did
8 want to do it, there is no reason why they would succeed
9 because these are very different applications and very
10 different designs.

11 So you can see on this slide on the left, inlay
12 is shown to be disposed throughout the ring. And that's,
13 again, for good reason, because this is very thin material
14 and he needs this inlay to hold just the antenna. On top of
15 the inlay sits the chip module and it is exposed so it can
16 be replaceable.

17 You can also see in Figure 4, notice the Number
18 18 that is labeled. And I highlighted that in yellow. That
19 actually comes from Figure 5, which shows you the specific
20 cut. And this Number 18 is the left side of the ring,
21 effectively.

22 And the other side is the right side of the ring.
23 On Figure 22, which is out of Niwa, you can see a very
24 different design. You see a design that has a very large
25 protrusion. And it's as high as 2 Cheerios stacked on top

1 of each other. This protrusion has to be highly flat
2 because Niwa wants a highly flat battery.

3 The bottom protrusion also has to be flat because
4 he needs a good affinity of the sensor to the skin. And
5 then he has to have a cable. And you have seen multiple
6 wires in his illustrations.

7 This cable connects battery and the DC/DC
8 conversion circuitry to the circuitry on the bottom of the
9 ring.

10 Q. And what are you showing in slide 41, Doctor?

11 A. So what I'm highlighting here is that one would
12 really want to have a lot of hindsight to try to combine
13 these two pieces together. You know, I just mentioned all
14 the different circuitry that Niwa's second unit has.

15 He also has specifically this stacked
16 construction. And the stacked construction, again, is so
17 that he can fit all of the circuitry in a way that does not
18 cause a problem for the neighboring fingers. So it doesn't
19 take too much area horizontally.

20 And, in contrast, Schroder wants a very
21 lightweight ring that is used primarily for security
22 applications. And that is thin enough to just hold this
23 very simple inlay that only has antenna deposited on it.

24 He also wants the chip module that is
25 replaceable, which is why he places it on top of the ring.

1 So a POSITA would not have considered fitting these
2 components into a housing such as those disclosed by
3 Schroder. So I don't see why you would want to even try to
4 take the whole stack of Niwa and try to somehow squeeze it
5 into Schroder.

6 Q. So you're -- so you're saying even if one were to
7 try and combine these teachings, one would take the
8 components of -- the stacked components of Niwa and put them
9 where the chip module is or next to the chip module or above
10 the chip module as taught by Schroder?

11 A. So when you look at figures in Schroder, what you
12 see in all figures is that inside of the ring housing, inlay
13 completely fills that space. There is no example that I
14 remember seeing where inlay isn't completely filling it.

15 Inlay being something very thin, does not leave
16 any space for any other component. And if you look at what
17 was the state of the art at that time, a great example was
18 actually Asada's prototypes, people typically stacked things
19 on top. You see the same thing in Niwa.

20 So if you want a highly flat battery, you want a
21 chip module, you also want wireless communication and all
22 the rest of the circuitry, a logical place is to put it on
23 top. And I think I illustrated that on one of the next
24 slides.

25 Q. Okay. Here you're talking about the battery of

1 claim 1, correct?

2 A. Yes. And, specifically, even if Niwa was
3 combined with Schroder, the combined system would not render
4 obvious claim 1.

5 Q. And on slide --

6 A. And I highlighted here the aspects.

7 Q. I want to make a record of what slide you're on.
8 You're referring to slide 42 and the limitations you opine
9 are not met in the combination?

10 A. Yes.

11 Q. Is that fair?

12 And slide 43, what are you showing here?

13 A. So Schroder actually discloses in only one place
14 an optional battery that's connected to chip module 10, but
15 why does he need this battery? You can see that actually
16 towards the bottom of paragraph, he wants more capable
17 antennas in order to support more capable wireless
18 communication.

19 And the example he gives is wireless LAN.
20 Wireless LAN consumes between 100 to 500 milliamps.
21 Remember those GMBPower batteries we talked about their
22 discharge current is only 5 milliamps. So this tells you
23 how far off those batteries are. In order to support
24 wireless LAN they would need to have at the least 20 times
25 the capacity.

1 So the only reasonable way to do this is to put a
2 bigger battery on top of the chip module, in order to both
3 support enough power and to make the battery replaceable,
4 just the same way as the chip module.

5 Q. Is that what you're showing in slide 44?

6 A. Yes. That's exactly what I show here. So I show
7 an optional battery in green. If you actually wanted to
8 support wireless LAN, that battery would have to be
9 significantly taller in order to provide enough capacity.

10 But I think this is the most logical place to put
11 it, given that it needs to be connected to chip module, it
12 needs to have high capacity, and you want this to be
13 replaceable, so that you can replace both the chip module
14 and the battery when needed.

15 Q. So a person of ordinary skill in the art reading
16 Schroder would not -- let me ask you.

17 Would a person of ordinary skill in the art
18 understand that this battery would be placed in the inlay or
19 outside with the chip module?

20 A. The person of ordinary skill in the art would
21 understand that when the word inlay is used, it is usually
22 meant that it's a very thin material that maybe has an
23 antenna on it, but not many components.

24 And, in fact, Schroder specifically tells us to
25 put the chip module on top. So it is logical for a person

1 of ordinary skill in the art to place the battery also on
2 top of the chip module or with the chip module.

3 Q. What about limitation 1[e], shown on slide 45?

4 A. So limitation 1[e] is about sensors. And I
5 believe that Niwa in view of Schroder does not render
6 obvious any 1[e] claim.

7 Q. And could you explain why not on slide 46?

8 A. Yes. So here I just wanted to remind all of us
9 that Niwa actually does not talk about either internal or
10 external housing component. Schroder, on the other hand,
11 doesn't actually talk much about sensors. There is only
12 really one section that discusses biometric sensor.

13 However, this biometric sensor is used as an
14 external security unit, as a part of this unit to
15 authenticate individual. And, specifically, this is done by
16 using infrared diodes and infrared sensors. It is used to
17 capture vein images of the ring finger and it wants to
18 capture these images from all possible angles. So here
19 we're talking about a lot of different images.

20 And notice if you're trying to collect all these
21 different images, you're going to have to analyze all of
22 those images and compare them to whatever is the secure
23 version of the actual ring holder that's authenticated. To
24 do this computation, this is not simple. This requires
25 quite a bit of power.

1 So in order to make this happen, you're going to
2 have to have, again, a fairly large battery. When you look
3 at Schroder, he doesn't tell us where the sensors are. He
4 also doesn't tell us how do you actually build it so it
5 works. How do you support it?

6 Q. And what conclusion did you come to with respect
7 to whether Niwa in view of Schroder renders claim 1 obvious?

8 A. I believe that Niwa in view of Schroder does not
9 render obvious independent claim 1.

10 Q. And that's what you summarize here on slide 47,
11 correct?

12 A. Yes, that is correct.

13 Q. What about dependent claim 12?

14 A. I don't believe that Niwa in view of Schroder
15 renders obvious dependent claim 12.

16 Q. And why not?

17 A. Well, first of all, Niwa requires a battery to be
18 highly flat. And they talked about multiple reasons why
19 this is the case.

20 Schroder, on the other hand, mentions battery
21 only in one place. He does not talk about where this
22 battery should be, what shape it should be, or what size
23 exactly it should be.

24 And from what I have just described, it seems to
25 me that the most logical place to put a battery would be to

1 put it outside of the ring, right together with the chip
2 module. So that both are replaceable.

3 I would not expect inlay of Schroder to
4 accommodate battery, and much less a curved battery. As I
5 said, it's known to people in the art that when the word
6 inlay is used, it is usually associated with a very
7 lightweight material that generally will just hold an
8 antenna, mostly for these kinds of passive NFC and RFID-type
9 applications.

10 Q. And, Doctor, you're also here to talk about
11 secondary considerations of non-obviousness?

12 A. Yes.

13 Q. What did you consider with respect to that
14 subject?

15 A. So I saw that there was a long-felt but
16 unresolved need for compact wearable monitoring systems,
17 that allowed 24-hour monitoring of health conditions in the
18 form of the ring. I also saw a lot of examples of industry
19 praise that Oura Ring has received.

20 And as we have already seen, a number of other
21 people have tried and failed to make Smart Rings in a very
22 compact form factor.

23 Q. And so let's talk about long-felt need. What did
24 you find with respect to that secondary consideration? And
25 what are you showing here on slide 51?

1 A. So I just wanted to show where state of the art
2 was. First of all, people really wanted to be able to
3 monitor people 24 hours a day continually for multiple days
4 at a time.

5 And this is why Asada used the coin-cell battery.
6 He wanted multiple days' worth of energy in order to be able
7 to get good information about what's going on with an
8 individual.

9 And this is also why all of the prototypes of
10 Asada have these sandwich-style printed circuit boards that
11 also include coin batteries on top. Similarly, in Niwa, you
12 see a similar situation where he needs a highly flat
13 battery. He has multiple substrates that contain multiple
14 different components, which enable then Niwa to actually get
15 better reading using PPG sensor.

16 So there was clearly a need for a smart wearable
17 that is more comfortable than bracelets and larger devices
18 that people were using, but that could also be worn around
19 the clock.

20 Q. What do you mean by around the clock monitoring?
21 You're showing -- and what are you showing on slide 52?

22 A. So I'm just showing some examples that I saw that
23 illustrate what people were looking for. They really wanted
24 to be able to monitor what's going on 24 hours a day without
25 having to be continually aware of it.

1 So it turns out that, for example, people felt
2 that ring became second nature. You know, people generally
3 when you wear a ring, you kind of forget that it's on your
4 finger. But if you wear a bracelet or a watch, you tend to
5 take it off every day.

6 And I think the goal of the Smart Rings is to be
7 that forgotten element that continually watches and monitors
8 what's going on with you.

9 Q. And these are -- what are you quoting from here
10 on slide 52, are these articles?

11 A. Yes, these are articles that I saw from a bunch
12 of industry, describing what is going on. Similarly, there
13 are a number of articles I saw that there was a need for
14 long battery lifetime in wearables. And, you know, this is,
15 I think, not big news to anybody.

16 It is much nicer if you can have a ring which
17 doesn't have to be recharged every single day, if you can
18 just wear it multiple days at a time.

19 Q. Again, on slide 53, you're referring to and
20 quoting from industry articles?

21 A. Yes.

22 Q. Is that fair?

23 A. Yes, I provided a bunch of quotes.

24 Q. And what are you showing on slide 54?

25 A. Here I am showing a contrast between what

1 wearables were a few years back, which were kind of bulky
2 and not something you really wanted to wear all the time,
3 and the fact that Oura Ring is so much nicer and sleeker and
4 something that actually one can get used to and want to wear
5 all the time.

6 Q. And on slide 55, you have a title "Others Have
7 Tried and Failed." What are you talking about here?

8 A. Well, we have already talked about both Niwa,
9 which puts a very large rectangular protrusion on top of a
10 finger, the size of a couple of Cheerios, and Asada, who
11 dreams of a ring but what he actually builds is a stacked
12 sandwich of PCB boards with a flat coin cell style battery.

13 Q. And on slide 56, what are you showing here?

14 A. I'm showing just some of the awards that Oura
15 Ring has received from industry.

16 Q. And, finally, Doctor, could you summarize the
17 conclusions you have come to?

18 A. Yes. My conclusion is that Niwa does not
19 anticipate any claim, that the claims are not obvious when
20 Niwa is combined with Schroder or when Niwa is combined with
21 Webster, Henderson, or GMBPower.

22 And for secondary considerations I showed you the
23 fact that there was a long-felt but unresolved need, there
24 was quite a bit of industry praise, and still is, a lot of
25 industry praise for Oura Ring, and that others have tried

1 but failed to create the ring like an Oura Ring.

2 Q. And those -- slide 56, these awards and articles,
3 you relied on those in arriving at your opinion with respect
4 to industry praise; is that right?

5 A. Yes, I believe I quoted them in my expert report
6 as well.

7 MR. SCHULTZ: Nothing further, Your Honor.

8 JUDGE JOHNSON HINES: All right. Thank you.

9 CROSS-EXAMINATION

10 BY MS. TULLY:

11 Q. Good morning, Dr. Rosing. My name is Danielle
12 Tully, representing Ultrahuman.

13 A. Nice to meet you.

14 JUDGE JOHNSON HINES: Counsel, are there binders
15 for the cross?

16 MS. TULLY: There are. Can we please have them
17 brought up? And I believe that there are slides that should
18 be passed out as well.

19 JUDGE JOHNSON HINES: Thank you.

20 BY MS. TULLY:

21 Q. Mr. Merisier, can we please bring up RX-0411 at
22 paragraph 273.

23 Dr. Rosing, this is from your expert report,
24 correct?

25 A. Yes.

1 Q. And I note paragraph 273 is long, so we will zoom
2 in on certain portions as we go.

3 The first portion I want to zoom in on is where
4 you wrote "Figure 28 is a cross-sectional view of the ring
5 sliced in half through a plane that contains the ring's
6 axis, as demonstrated below on Figure 22."

7 Do you see where you wrote that?

8 A. Yes.

9 Q. And below that statement, you've illustrated
10 Figure 22 next to 28, correct?

11 A. Yes.

12 Q. And you agree that in Figure 22, 40 is the
13 housing?

14 A. In Figure 22, 40 is labeled as housing.

15 Q. Okay. And you also wrote in the paragraph below
16 that, "as shown in Figure 22, both the portions above and
17 below the second unit 20 are flat surfaces."

18 Do you see that?

19 A. Yes.

20 Q. And the portions that are above and below the
21 second unit 20 are part of the housing 40, correct?

22 A. If you're referring to the black line above the
23 rectangle labeled 20, they look like they are part of the
24 housing.

25 Q. And below as well, correct?

1 A. Yes.

2 Q. Okay. I want to move further through this
3 paragraph.

4 You also state "and although Mr. Alarcon points
5 to Figure 26 as showing the outer circumferential surface,
6 Figure 26 fails to indicate the presence of the shoulders
7 (indicated by red dashed lines on Figure 28 below) of the
8 raised portion of the ring surface to which he points."

9 Do you see that?

10 A. Yes.

11 Q. And you see the image below that?

12 A. Yes.

13 Q. Okay. And what you have labeled in red on Figure
14 28 indicates the shoulders as you have stated?

15 A. Are you talking about the dotted line?

16 Q. Yes.

17 A. Yes.

18 Q. Okay. And next to that image, you also have 26,
19 correct?

20 A. Yes.

21 Q. And you say that the shoulders are not indicated
22 in 26, correct?

23 A. I don't see them in 26.

24 Q. Okay. So let's go to slide 1. And we see here
25 paragraphs from Niwa, correct?

1 A. Yes.

2 Q. You see that paragraph 23 -- I'm sorry, paragraph
3 213 says "Figure 28 is a cross-section diagram illustrating
4 a construction example of the second unit 20 of the
5 implementation example 2 schematically."

6 Did I read that correctly?

7 A. Yes.

8 Q. Okay. And it says, Figure 28 is a construction
9 example, correct, just like Figure 22?

10 A. It does say that Figure 28 is a construction
11 example.

12 Q. Okay. And if we could go back to the image on
13 slide 3, that's great. This is a representation -- a
14 reproduction of the image that was in your report. We just
15 put it on a slide to make it easier to reference back and
16 forth.

17 But if we go to this image, we see that Figure 28
18 has dashed lines, correct?

19 A. Yes. So for Figure 28, it said it's a
20 cross-section diagram illustrating a construction example of
21 the second unit 20. And you can see that second unit 20 is
22 actually described in details here. It is not talking about
23 the construction of the housing.

24 Q. That's not what I -- what my question was,
25 Doctor. My question was we see dashed lines in Figure 28,

1 correct?

2 A. There are dashed lines in Figure 28.

3 Q. Thank you. And Figure 28 uses dashed lines just
4 like the Figure 26 on the left, correct -- on the right,
5 correct, excuse me, correct?

6 A. There are dashed lines in both figures.

7 Q. And you called Figure 26 a see-through figure,
8 correct?

9 A. I did not call it a see-through figure. The
10 patent described it as a see-through illustration.

11 Q. Okay. Understood. But both Figure 28, which is
12 called a construction example, uses dashed lines, and Figure
13 26 uses dashed lines, correct?

14 A. Yes.

15 Q. So let's go back to slide 2.

16 You see paragraph 214 of the spec all the way at
17 the bottom highlighted in yellow? It says "therefore, the
18 largeness of the second unit 20 can be restrained not to
19 protrude from the third joint of the finger 2. Furthermore,
20 a consciousness of the examinee for wearing the
21 plethysmogram sensor 1 can be reduced."

22 Do you see that?

23 A. Yes.

24 Q. So can we go back to slide 3, thank you.

25 The area 2 is underneath what you have labeled in

1 red as the shoulders, correct?

2 A. I'm sorry, can you say that again?

3 Q. I'm sorry. Unit 20, unit 20 is underneath the
4 area that you have labeled as the shoulders, correct?

5 A. So unit 20 is kind of above the finger and under
6 the dotted line that's labeled 40.

7 Q. It's not under the area that you have labeled in
8 red?

9 A. It's kind of to the side and under.

10 Q. Looking --

11 A. The area in red is basically sloping down.

12 Q. You don't think that unit 20 is under the area
13 that you have indicated in red with those red arrows and red
14 dots?

15 A. Are you talking about the filled arrows or the
16 dashed lines on the side?

17 Q. I'm talking about the annotation that you added
18 to this figure.

19 A. Oh, the one that says not indicated?

20 Q. Yes.

21 A. So it's partly under. I mean, the annotation has
22 an arrow also pointing to 26. It's not under that piece of
23 it, right?

24 Q. That's not my question, Doctor.

25 A. Oh.

1 Q. In Figure 28, do you see unit 20 under the area
2 that you have called the shoulders in Figure 28?

3 A. So you're talking about dashed lines, red dashed?

4 Q. I am talking about what you have called the
5 shoulders. Is Figure -- is unit 20 within the area that you
6 have labeled the shoulders?

7 A. So unit 20 within these sloping shoulders is kind
8 of below and to the left or right of it.

9 Q. You would not call that within what you have
10 labeled the shoulders?

11 A. I don't know what you mean by "within" because
12 this is not about how housing is designed. This is actually
13 about how components are stacked above the finger.

14 Q. Can we bring back up slide 2?

15 Let's go back to paragraph 214. "Therefore the
16 largeness of the second unit 20 can be restrained not to
17 protrude from the third joint of the finger 2."

18 So now if we go back and look at the figure that
19 we were just looking at on slide 3, do you see where unit 20
20 is?

21 A. Yes.

22 Q. And you agree that Niwa says the largeness of
23 that second unit 20 can be restrained not to protrude from
24 the third joint of the finger 2, correct?

25 A. That is what Niwa said.

1 Q. Okay. And that unit 20 appears within the area
2 that you have indicated in red on Figure 28, correct?

3 A. Niwa is describing this particular figure as a
4 cross-section diagram that illustrates construction, example
5 of the second unit 20.

6 Q. That was not my question.

7 A. And it specifically says that this unit 20 is
8 placed right above the finger and that it has this highly
9 flat battery and multiple substrates. He does not talk
10 about the housing design of unit.

11 Q. Dr. Rosing, I did not ask you whether or not Niwa
12 talks about the housing design. I asked you whether unit 20
13 is right underneath where you have labeled in red the
14 shoulders of Figure 28?

15 A. As I said earlier --

16 Q. It's a yes-or-no question.

17 A. The shoulders of Figure 28 are kind of to the
18 left and right of unit 20. So I'm not really clear what
19 you're getting at.

20 Q. So you can't answer my question with a yes or no,
21 is that your answer?

22 A. I think I don't quite understand your question.

23 Q. Okay. Let's move on.

24 So let's go back to the previous slide, slide 2.

25 And on the left we see paragraph 206 from Niwa,

1 correct?

2 A. Yes.

3 Q. And paragraph 206 is referring to Figures 24
4 through 26 as perspective diagrams illustrating a situation
5 where the pulse sensor 1 of the implementation example 2 is
6 worn on a third joint of the finger respectively.

7 Do you see that?

8 A. Yes.

9 Q. And it also says Figure 26 is a see-through
10 illustration. Do you see that?

11 A. Yes.

12 Q. And that's what you testified to earlier,
13 correct?

14 A. I believe so.

15 Q. Okay. And we see the last sentence, "As
16 illustrated in these diagrams, to not let the examinee have
17 a consciousness for wearing the plethysmogram sensor 1
18 (i.e., not let the examinee have an uncomfortable feeling)
19 it is desirable to restrain the largeness of the first unit
20 10 and the second unit 20 not to protrude from the third
21 joint of the finger 2."

22 Did I read that correctly?

23 A. Yes.

24 Q. Can we go back to slide 3. Again, we see unit 20
25 on the top portion of Figure 26, correct?

1 A. Yes. Unit 20 is right above the finger.

2 Q. And it is within the housing 40, correct?

3 A. Housing 40 here is illustrated and, as I said
4 earlier, the housing 40 is not the topic actually of this
5 figure. The topic of this figure is how to place and stack
6 the components on top of a finger, so that it is not too
7 large.

8 Q. That was not my question, Doctor.

9 My question was you see in Figure 26, it labels
10 housing 40, correct?

11 A. Yes, there is a label 40 on there.

12 Q. Okay. Thank you.

13 And area 20 is within that housing, correct?

14 A. Area 20 is shown kind of above the finger and
15 below the line that's labeled 40. And also to the left and
16 right of the sloped shoulders that I indicated with red
17 dotted line.

18 Q. But there are no red shoulders in Figure 26,
19 correct?

20 A. In Figure 28 is what I was looking at.

21 Q. I'm not talking about Figure 28. I'm talking
22 about Figure 26. There's no red shoulders there, correct?

23 A. Well, there's a red line you drew, I believe.

24 Q. But no shoulders?

25 A. But not shoulders.

1 Q. Are those shoulders?

2 A. No.

3 Q. Okay. And you would agree that Figure 20 is
4 within the housing, correct? I'm sorry, not Figure 20.
5 That component 20 is within housing 40, correct?

6 A. So I see a label for housing 40.

7 Q. Yes.

8 A. But it is not clear is how this housing is
9 designed from this illustration.

10 Q. Not my question. Again, not my question.

11 A. And I also see the second unit 20 drawn right on
12 top of the finger there.

13 Q. Not my question. My question is: Do you see
14 component 20 within housing 40 in Figure 26?

15 A. Here I see an illustration, see-through
16 illustration that shows placement of how -- of 20 right on
17 top of the finger.

18 Q. And so you can't answer my question with a yes or
19 no as to whether you see component 20 within housing 40 in
20 Figure 26?

21 A. I believe I did answer already.

22 Q. It's a yes-or-no question, Doctor. Do you see
23 component 20 within housing 40 in Figure 26?

24 A. So what I see here is a see-through illustration
25 that labels 20, which is a second unit, that also labels 40.

1 Q. So you can't answer that question with a yes or
2 no.

3 Can we please pull up Niwa, which I believe is
4 CX-1133 at paragraph 29.

5 Do you see about four lines up from the top, "and
6 the second unit is contained within the finger ring type
7 housing to be located -- I will start earlier in this
8 sentence.

9 "A finger ring type housing to containing the
10 first unit and the second unit, wherein the first unit is
11 contained within the finger ring type housing to be located
12 at the ball side of the finger, when the finger ring type
13 housing is worn on the third joint of the finger, and the
14 second unit is contained within the finger ring type housing
15 to be located at the back side of the finger when the finger
16 ring type housing is worn on the third joint of the finger."

17 A. Yes, I see that.

18 Q. And from this, you can't tell whether or not the
19 components are located within the housing of Niwa?

20 A. It says that the first unit is contained within
21 the finger ring type housing and the second unit is
22 contained within the finger ring type housing.

23 Q. So we're in agreement that the units 20 and 10
24 are within the finger ring type housing in Niwa?

25 A. Here it says that first unit is within the finger

1 ring type housing and the second unit is within the finger
2 ring type housing.

3 Q. Can we go back to slide 2.

4 If we look at paragraph 213, we see that 20 is
5 called the second unit in this paragraph, correct?

6 A. Yes.

7 Q. So do we agree that the second unit is within the
8 housing of Niwa?

9 A. So in the previous paragraph you read, it said
10 specifically that first unit and the second unit are in the
11 finger ring type housing.

12 Q. So then do we agree that the first and the second
13 units are within the housing of Niwa?

14 A. I believe the issue at stake isn't whether there
15 is a housing in Niwa. The problem is whether it has
16 internal and external component.

17 Q. Dr. Rosing, I understand, but please, I'm on a
18 constricted time here. I would appreciate an answer to my
19 question.

20 Do you agree that the first and second units are
21 located within the housing 40 of Niwa?

22 A. Niwa does say that second unit, 20, and first
23 unit 10, are within a housing.

24 Q. Okay. Thank you.

25 Can we please bring up RX-0411 and go to

1 paragraph 277.

2 Okay. And in this paragraph you write,
3 "Mr. Alarcon in his report points to the first unit 10-S
4 substrate 11 as the printed circuit board. But as shown in
5 Figure 22, the first unit 10 is disposed in a region of the
6 ring that has a flat (i.e., not circumferential) protrusion
7 from the inner surface of the ring to contact the finger."

8 Do you see that?

9 A. Yes.

10 Q. If we could go to slide 2 again.

11 Going back to paragraph 206, you see that
12 paragraph 206 of the specification says, "As illustrated in
13 these diagrams, to not let the examinee have a consciousness
14 for wearing the plethysmogram sensor 1 (i.e., not to let the
15 examinee have an uncomfortable feeling) it is desirable to
16 restrain the largeness of the first unit 10 and the second
17 unit 20 not to protrude from the third joint of the finger
18 2."

19 Do you see that?

20 A. Yes.

21 Q. Okay. And can we please go to slide 4.

22 And, again, here in Figure 27 that you annotated
23 in your report, we see unit 10 right there in -- at the
24 bottom highlighted in red, correct?

25 A. Yes.

1 Q. And as we just saw in the spec, Niwa expressly
2 discloses that the largeness of this area can be restrained
3 and that it is desirable to restrain the largeness of first
4 unit 10 to not protrude from the third joint of the finger
5 to reduce consciousness of the ring, correct?

6 A. I didn't quite catch all of that but if you're
7 reading from that previous paragraph, then yes, that is what
8 it says.

9 Q. Okay. We can take this down.
10 Curved batteries existed by November 2013,
11 correct, Doctor?

12 A. Yes.

13 Q. Okay. And curved batteries were used in rings by
14 then as well?

15 A. That I'm not sure of.

16 Q. Are you familiar with the Slady reference?

17 A. I think I saw it at some point.

18 Q. Was it a curved ring?

19 A. I honestly don't remember the details.

20 Q. Okay. Mr. Merisier, can you please bring up
21 CDX-5.39.

22 Dr. Niwa (sic), earlier you testified the rings
23 of Niwa and Schroder have different functions, correct?

24 A. Sorry, can you say that again.

25 Q. Earlier your first bullet point here, you

1 testified that the rings -- a POSITA would not have been
2 motivated to combine Schroder's housing with Niwa's ring
3 because the rings have different functions, correct?

4 A. Yes.

5 Q. You went on to provide testimony on secondary
6 considerations where you said that it was desirable for
7 people to have -- to be able to wear rings for 24 hours a
8 day and have reduced consciousness about those rings,
9 correct?

10 A. That sounds approximately right.

11 Q. I'm sorry?

12 A. That sounds about what I said.

13 Q. Okay. And the opinion that a POSITA would not
14 have used Schroder's housing with Niwa's ring is based on
15 your review of those two references, correct?

16 A. If you're talking about opinion written on this
17 slide, it is based on my review of those references and on
18 my knowledge of what a POSITA would think.

19 Q. Okay.

20 A. And review of documents that I already referred
21 to in my reports.

22 Q. Thank you, Doctor.

23 Can we go to slide 5.

24 On the screen on the left is an excerpt -- are
25 excerpts from Niwa. Do you see that?

1 A. Yes.

2 Q. They are from the Niwa specification. We have
3 paragraphs 11 and paragraph 197 up there.

4 And you agree that paragraph 11 says "in
5 consideration of the aforementioned problems discovered by
6 -- and it says inverters, but I believe they meant inventors
7 -- of this application, a purpose of this invention is to
8 provide a plethysmogram sensor which can measure the
9 plethysmogram with accuracy independent of the difference of
10 the measurement state (i.e., measurement condition) or
11 personal difference, and also to provide a plethysmogram
12 sensor which can measure the plethysmogram without
13 restricting the behavior of the examinee."

14 Do you see that?

15 A. Yes.

16 Q. And in paragraph 197, it says, "moreover with
17 respect to the plethysmogram sensor 1 of the finger ring
18 construction, the consciousness of wearing the plethysmogram
19 sensor can be reduced for the examinee, even in case of the
20 continuous plethysmogram measurement for a long period
21 (i.e., few days to few months), excess stress can be avoided
22 for the examinee."

23 Did I read that correctly?

24 A. Yes.

25 Q. Niwa references continuous measurements?

1 A. He's talking about measuring PPG for longer
2 periods.

3 Q. Okay. And if we look on the right, we see
4 disclosure from Schroder's spec. Do you see it at the top?

5 A. Yes.

6 Q. Okay. And Schroder says "a further advantageous
7 embodiment example of the invention is that the external
8 secure unit is a finger-ring, which consists of at least two
9 components, with an electronic component being inserted into
10 at least one component. This has the advantage that the
11 external secure unit can always be taken along with one. It
12 can thus not be forgotten, e.g., at the workplace since it
13 is always located on one's body."

14 Do you see that?

15 A. Yes.

16 Q. So, again, Schroder is referencing continuous
17 wear, correct?

18 A. Yes, and he talks about how to actually build it
19 to be continuously worn. This is why he uses that thin
20 inlay. And this is why he uses chip module on top of the
21 ring so it can be replaced easily and why he is focused on
22 passive security kind of application.

23 Q. And you agree Schroder tells you how to build a
24 housing?

25 A. Schroder talks about very specific kind of

1 housing into which he places an inlay. Inlay, as I said
2 earlier, is a very thin material that is quite different
3 from what we see in the patent '178.

4 Q. Aside from the inlay, does Schroder disclose how
5 to build housing components?

6 A. Schroder does talk about how to build housing for
7 his application.

8 Q. Thank you, Doctor.

9 And then if we move on to the bottom of slide 5,
10 we see a disclosure from the '178 patent. Do you see that,
11 the bottom right?

12 A. Yes.

13 Q. And that says "this invention overcomes the
14 disadvantages of the prior art by providing a wearable
15 computing device (WCD) in the shape of a ring. The wearable
16 computing device can be worn for extended periods of time
17 and can take many measurements and perform various functions
18 because of its form factor and position on the finger of a
19 user."

20 Do you see that?

21 A. Yes.

22 Q. Again, the '178 patent references being able to
23 wear the ring for extended periods of time and the ability
24 to take many measurements over that period of time, correct?

25 A. Yes, it does.

1 MS. TULLY: Thank you, Doctor. I have no further
2 questions.

3 JUDGE JOHNSON HINES: Thank you.

4 EXAMINATION BY COUNSEL FOR ITC

5 BY MR. WINSTON:

6 Q. Good afternoon, Doctor. I just have a few
7 questions for you.

8 You're a full professor at UC San Diego, correct?

9 A. Yes.

10 Q. And you understand that a person of ordinary
11 skill in the art of the '178 patent would have had at least
12 three years of experience with research or development of
13 health or medical devices or consumer products and a related
14 degree, for example, at least a Bachelor's degree in
15 mechanical, industrial, or electrical engineering or a
16 related field, correct?

17 A. Yes.

18 Q. Through the course of your academic career --
19 excuse me. Let me strike that.

20 You began teaching at UC San Diego in 2005,
21 correct?

22 A. Yes.

23 Q. Through the course of your academic career, have
24 you interacted with graduate students?

25 A. Yes, many.

1 Q. In what capacities?

2 A. Both as instructor of the graduate courses, also
3 as a mentor for Ph.D. and Master's theses. And in the
4 conferences and interviewing and as a general faculty job.

5 Q. Have you worked with graduate students in
6 conducting your research?

7 A. Yes. I have a currently group of almost 30 Ph.D.
8 students.

9 Q. Does your work with graduate students at UC San
10 Diego help inform your opinions regarding how a person of
11 ordinary skill in the art at the time of the invention would
12 understand the issues in this case?

13 A. So in this particular case, I applied the Court's
14 definition of POSITA when analyzing. And I actually do have
15 a lot of experience of working with students who are at the
16 level of undergraduate electrical engineering degree and I
17 have also worked with some students who have mechanical
18 engineering degree.

19 So I did apply the Court's definition.

20 Q. And does working with graduate students help you
21 or help inform your opinions regarding what a person of
22 ordinary skill in the art would understand as they analyze
23 -- if they were analyzing the issues that you have opined
24 on?

25 A. Graduate students, I believe, are not defined as

1 a POSITA here. So I applied the POSITA definition that we
2 have all agreed upon.

3 MR. WINSTON: Thank you. I have no further
4 questions.

5 JUDGE JOHNSON HINES: Thank you. Any redirect?

6 MR. SCHULTZ: Nothing further, Your Honor.

7 JUDGE JOHNSON HINES: All right. Can we excuse
8 Dr. Rosing?

9 THE WITNESS: Thank you.

10 JUDGE JOHNSON HINES: Yes. Thank you for your
11 time.

12 (The witness stood down.)

13 MS. CARLAN: Your Honor, we're ready to proceed
14 with our next witness.

15 JUDGE JOHNSON HINES: Thank you.

16 MS. CARLAN: We call Carla Mulhern.

17 Whereupon--

18 CARLA MULHERN,
19 having been previously duly sworn/affirmed, was examined and
20 testified as follows:

21 JUDGE JOHNSON HINES: Good afternoon.

22 THE WITNESS: Good afternoon.

23 JUDGE JOHNSON HINES: You remain sworn from the
24 other day.

25 THE WITNESS: Okay.

1 MS. CARLAN: May we proceed?

2 JUDGE JOHNSON HINES: Yes. Thank you.

3 DIRECT EXAMINATION

4 BY MS. CARLAN:

5 Q. Good afternoon, Ms. Mulhern.

6 A. Good afternoon.

7 Q. You testified earlier in this investigation; is
8 that right?

9 A. Yes, that's right.

10 Q. And earlier you provided testimony related to the
11 economic prong of the domestic industry requirement and also
12 remedy, bond, and public interest. Is that right?

13 A. Yes, that's right.

14 Q. And you were provided to give some other analysis
15 in this investigation as well?

16 A. Yes, I was asked also to opine on economic issues
17 related to commercial success.

18 Q. Okay. And were you asked to respond to anything
19 that Mr. Alarcon said regarding commercial success?

20 A. Yes, as part of that assignment I was asked to
21 respond to Mr. Alarcon's opinions on commercial success.

22 Q. Did you submit a rebuttal report in this
23 investigation on this topic?

24 A. I did.

25 Q. All right. Again, I'm not asking to pull up on

1 the screen, but in your binder, you have some exhibits that
2 start with CX-0955C, and they go through 960C.

3 A. I see them.

4 Q. And could you tell me what these exhibits are?

5 A. These are exhibits that were attached to my
6 rebuttal expert report in this investigation. And they
7 describe some of the underlying calculations that I'll be
8 presenting today.

9 Q. Okay. Great.

10 And did you prepare demonstratives to help with
11 your testimony today?

12 A. I did.

13 Q. Okay. And is that what we have here on the
14 screen?

15 A. Yes, it is.

16 Q. Now, looking at the first slide, can you give me
17 a summary of your opinions related to commercial success?

18 A. Yes. Based on my review of the evidence, the
19 '178 patented invention is a commercial success. I base
20 that on a two-part analysis. First, from an economic
21 perspective, the DI product, the Oura Ring and application,
22 have been successful in the marketplace.

23 And, second, my review of the technical evidence
24 indicates that there is a nexus between that success, that
25 marketplace success, and the asserted patent claims.

1 Q. Now, did you analyze Mr. Ramon Alarcon's opinion
2 on commercial success and do you agree with it?

3 A. I did analyze it and I do not. We have some
4 areas of disagreement.

5 Q. Okay. And could you tell me about those areas of
6 disagreement?

7 A. So as I understand Mr. Alarcon's opinion, I
8 understand him to opine that there is no nexus between any
9 success -- the success of the Oura Ring and the '178 patent
10 because the success of the Oura Ring is due to excessive
11 marketing spending. I disagree with that opinion.

12 As well, I think he fails to account adequately
13 for contributions of the ring form factor to the marketplace
14 success.

15 Q. Now, let's turn to the first part of your
16 analysis.

17 And if we go to slide 2, what is your conclusion
18 related to the marketplace success of the Oura Ring?

19 A. So from an economic perspective, the evidence
20 shows that the DI product has achieved success in the
21 marketplace. And I base that on three primary types of
22 evidence: Sales and growth in sales, the contribution of
23 the DI product to company performance overall, and the
24 performance of the Oura Ring relative to competition.

25 Q. And before we go into all of that, does

1 Mr. Alarcon agree with your opinion that the DI product has
2 been successful in the marketplace?

3 A. I think so. If I heard him correctly yesterday,
4 I think he agrees that the product has been successful.

5 Q. Okay.

6 MS. CARLAN: So at this point, I'd like to go to
7 the Complainants' confidential record.

8 JUDGE JOHNSON HINES: All right.

9 (Whereupon, the hearing proceeded in confidential
10 session.)

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1 O P E N S E S S I O N

2 BY MS. CARLAN:

3 Q. Let's now go to your opinion related to nexus.
4 If we look at slide 3 -- I'm sorry, 6, slide 6, what was
5 your conclusion related to nexus?

6 A. So I understand that Dr. Sarrafzadeh has
7 testified that the DI products are the commercial embodiment
8 of the asserted claims of the '178 patent and that he will
9 testify that the DI product is coextensive with the asserted
10 claims.

11 So my understanding is, then, that from a legal
12 perspective, I understand that there's a presumption, then,
13 of nexus, given those conditions apply. So my understanding
14 is that condition is met.

15 Q. And did you do an independent economic analysis
16 of nexus to determine the extent to which the patented
17 benefits were drivers of demand of the Oura Ring?

18 A. I did not. For my opinion on nexus, I am relying
19 on Dr. Sarrafzadeh's opinions.

20 Q. All right. And, now, did you hear Mr. Alarcon
21 testify here in this investigation?

22 A. Yes, I did.

23 Q. And did you analyze any of his opinions, other
24 than those he testified to on commercial success?

25 A. No, I didn't.

1 Q. All right. Now, let's go into your opinions
2 related to his opinions on commercial success.

3 Did you hear him testify regarding the failure of
4 the Motiv Ring, commercial failure of the Motiv Ring as some
5 kind of evidence that there is no nexus between the success
6 of Oura and the asserted patent?

7 A. I did hear that testimony.

8 Q. And do you agree with that?

9 A. No, I don't. I think, you know, from an economic
10 perspective, there can be a lot of contributors to the
11 success or failure of a product in the marketplace. So I
12 think even two products that practice the same patent can
13 have very different marketplace experiences, depending on
14 this variety of factors.

15 So I think from an economic perspective, the
16 performance of the Motiv Ring in the marketplace is not
17 particularly illuminating when answering the question or
18 seeking to answer the question regarding the commercial
19 success of the Oura Ring.

20 Q. Did you conduct an independent analysis of the
21 marketplace success or failure of the Motiv Ring?

22 A. No, I didn't. I don't think it would have been
23 illuminating, as I just testified.

24 Q. And were you here last week to hear the testimony
25 of Mr. von Badinski where he testified about the performance

1 of the Motiv Ring in the marketplace?

2 A. Yes, I heard that.

3 Q. Did you hear him testify about any reasons that
4 the Motiv Ring may not have reached their expectations?

5 A. I did. I heard him testify, consistent with my
6 understanding, that there can be lots of contributing
7 factors, that one of the reasons that the Motiv Ring may
8 have failed to meet their expectations is that they had
9 burned through most of their funding by the time they were
10 able to launch the product and that they had some
11 difficulties after the launch of the product in terms of
12 product quality. I think he referred to melting chargers.
13 I think he also mentioned and referred to some management
14 challenges, which he referred to as, I think, internal
15 management turmoil or something like that.

16 And I think he said that all of these things made
17 it difficult to convince investors to continue funding
18 Motiv, and that contributed to its failure to meet
19 expectations and the ultimate sale of the company.

20 Q. Okay. And all of those reasons that you just
21 listed, did any of those have anything to do with the '178
22 patent?

23 A. No.

24 Q. Mr. Alarcon also opines that, to the extent the
25 Oura Ring has achieved success in the marketplace, it's just

1 due to significant marketing spend by Oura. And before we
2 explore that further, let me just ask you this: What's the
3 purpose of a company marketing its product?

4 A. So marketing expenditures are used to help a firm
5 educate the market and consumers about the benefits of a
6 product. So marketing expenditures by themselves, even
7 significant marketing spending, doesn't undermine a finding
8 of nexus.

9 Q. All right.

10 MS. CARLAN: Before we go into the actual
11 marketing expenditures, I'd like to go back on to the Oura
12 confidential record, please.

13 JUDGE JOHNSON HINES: All right. Thank you.

14 (Whereupon, the hearing proceeded in confidential
15 session.)

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1 O P E N S E S S I O N

2 BY MS. STITT:

3 Q. Ms. Mulhern, could you turn and could we pull up
4 RX-389.

5 Now, you generally find The New York Times to be
6 a reliable source; would you agree with that?

7 A. I think that's fair.

8 Q. And do you recognize RX-389 as an article that
9 you were also shown during your deposition in this case?

10 A. I do recall this article.

11 Q. And you didn't rely on this article in forming
12 your commercial success opinions in this case, correct?

13 A. That's right.

14 Q. We can take that one down.

15 Ms. Mulhern, now, you talked a little bit about
16 the Motiv Ring during your direct. And I want to clarify,
17 you're not offering and you have not offered an opinion
18 regarding whether the Motiv Ring was commercially
19 successful. Do I have that right?

20 A. That's right. I don't think it would be relevant
21 for the reasons I testified about on direct.

22 Q. Right. And, in fact, in rendering your opinions
23 in this case, you didn't ask for any information about the
24 Motiv Ring because you didn't think it would be relevant to
25 your commercial success opinions. Do I have that right?

1 A. You do.

2 Q. Ms. Mulhern, you also testified that, in your
3 belief, Mr. Alarcon's analysis didn't account for the
4 contribution of the form factor, the ring form factor, to
5 certain benefits like data collection and analysis.

6 Do I have that right?

7 A. Yes, you do.

8 Q. And, now, you don't know whether the claims of
9 the '178 patent are directed to improving the accuracy of
10 data collection, correct?

11 A. I haven't done a detailed analysis of the claims
12 of the '178 patent.

13 Q. And you can't go through and tell me which claim
14 limitations relate to any features of the Oura Ring that you
15 contend drive demand. Is that fair?

16 A. That's correct. I haven't done a technical
17 analysis of the claims.

18 Q. Thank you.

19 MS. STITT: I have nothing further.

20 JUDGE JOHNSON HINES: All right. Thank you.

21 MR. WINSTON: No questions for the Staff, Your
22 Honor.

23 JUDGE JOHNSON HINES: All right.

24 MS. CARLAN: No further questions for the
25 witness. She may step down.

1 JUDGE JOHNSON HINES: Thank you, Ms. Mulhern.
2 You're excused.

3 (The witness stood down.)

4 JUDGE JOHNSON HINES: All right. We seem to be
5 moving right along. So my question for you is, do we take
6 the break for lunch now or do we continue with
7 Dr. Sarrafzadeh?

8 MR. VIDWAN: We don't expect him to be up there
9 for more than ten minutes on direct, Your Honor.

10 JUDGE JOHNSON HINES: All right.

11 MR. VIDWAN: So I'll defer to you.

12 JUDGE JOHNSON HINES: Then why don't we proceed.

13 MR. VIDWAN: We re-call Dr. Sarrafzadeh.

14 JUDGE JOHNSON HINES: Thank you. Could you also
15 take away the ones from -- the previous ones? Thank you.
16 Whereupon--

17 MAJID SARRAFZADEH,
18 having been previously duly sworn/affirmed, was examined and
19 testified as follows:

20 JUDGE JOHNSON HINES: And, Doctor, you remain
21 under oath from your previous testimony. So I don't need to
22 swear you again.

23 THE WITNESS: I appreciate it. Thank you.

24 JUDGE JOHNSON HINES: Thank you.

25 DIRECT EXAMINATION

1 BY MR. VIDWAN:

2 Q. Good afternoon, Dr. Sarrafzadeh. And welcome
3 back.

4 A. Good afternoon.

5 Q. You last week testified about infringement and
6 domestic industry technical prong. Do you recall that?

7 A. I do.

8 Q. And what brings you back to today?

9 A. I have provided an additional report talking
10 about indicia of non-obviousness, and specifically I would
11 like to talk about copying.

12 Q. Okay. And you provided slides for your
13 presentation today, correct?

14 A. I have.

15 Q. Okay. Let's start with your summary of opinions.
16 What are those?

17 A. I believe that Oura Ring Gen. 3 and Gen. 4 are
18 commercial embodiments of claims 1, 2, 12, 13, 14 of the
19 '178 patent and the commercial products are coextensive with
20 the claims. That's my first opinion.

21 My second opinion is that both Ultrahuman accused
22 products and RingConn accused products copied the claimed
23 feature of the '178 patent that are embodied in Oura Ring
24 Gen. 3.

25 Q. You talked about coextensive. What does

1 "coextensive" mean to you?

2 A. It basically means the product covers the claims
3 of the patent as opposed to part of it.

4 Q. And do you understand "coextensive" is how much
5 it covers or do you have any --

6 A. I understand it to mean to cover a lot or almost
7 all of it, as opposed to if you have a complex phone, the
8 pinch feature of it might be covered by a patent, that's
9 just a part of it. And there might be 50 others patents
10 that cover other features of the phone. This is not that.
11 This is almost the same thing.

12 Q. And on the next slide, which is CDX-6.3, you talk
13 about nexus. What does nexus mean?

14 A. So, again, I believe that the claimed '178 patent
15 includes the ring form factor as the foundation of a system
16 that collects data for analysis that provides information to
17 the user. The nexus is that previously conducted by myself,
18 as I presented last week, the element-by-element analysis of
19 Oura Ring Gen. 3 against asserted claims.

20 Q. And we won't go back through those, that again,
21 but is it your opinion that Oura Gen. 3 is covered by the
22 asserted claims of the '178 patent?

23 A. As I proved last week, absolutely.

24 Q. Going to the next slide, which is CDX-6.4, what
25 are you illustrating here?

1 A. Here is a diagram of the two accused products,
2 Ultrahuman and RingConn in the middle and right. And to the
3 left is Oura Ring Gen. 3. The reason I put these
4 side-by-side is to demonstrate that they look very similar
5 or there is an external housing that is metallic in nature.

6 We see partly the battery and the PC board in
7 here, and we also see the inner housing component or the
8 potting that is used inside of all these. So the ring look
9 very similar. As I testified last week, when I look at all
10 these rings in front of me, I have a hard time to pick which
11 is which. I really need to look at it in details to be sure
12 of that. So they look very similar.

13 Q. And if you see, on Oura Gen. 3, there's domes.
14 What are those domes?

15 A. So as I mentioned last week, we have LEDs that
16 shine light through the finger. That interacts with the
17 tissue, and the data is received back from the tissue.
18 These domes collect the data. And the reason there is a
19 protrusion is to minimize what we call light piping.

20 We don't want the light to go every which way
21 around your finger. We want it to be collected by the
22 photodetector. That's what you see on the domes.

23 Q. And do you see the same domes on the photodiodes
24 for the RingConn accused product?

25 A. It's the exact same dome and roughly in the same

1 place.

2 Q. Going to the next slide, what are you
3 illustrating here?

4 A. Here is the blowup diagram by Oura Ring Gen. 3,
5 by Ultrahuman and RingConn. Again, this demonstrates an
6 external housing component. The outer part when you wear
7 the ring, that's what you see. You see the inner part,
8 which is what really touches the tissue. And in the middle
9 -- for all these products that's what you see.

10 And in the middle, you see a battery that's
11 side-by-side gets connected to the printed circuit board.

12 Q. So all three products, Oura, Ultrahuman, and
13 RingConn, illustrate their products basically in the same
14 way?

15 A. Correct.

16 Q. And going to the next slide, why are you showing
17 the CT scans?

18 A. These are CT scans that I performed, so you can
19 actually -- without breaking the product into pieces, you
20 can see what is going on. Let me describe that for a
21 moment, please.

22 So in all these products, you see a layered
23 battery. If you go around, when the layered battery is
24 finished, you see a connector that connects the battery to
25 PC board. You keep going, you see the PC board being curved

1 and going around. That's in common in all the products.

2 You see the external housing component, the outer
3 band that you see, and you see the potting material that is
4 inside the ring. As you can see visually, that's in common
5 between -- among all these three rings that I have shown,
6 the two accused products of RingConn and Ultrahuman and Oura
7 Ring Gen. 3.

8 Q. And which company was the first to -- out of
9 these three, to come up with this design?

10 A. Oura was.

11 Q. And, now, could it not be coincidence that
12 everybody so happened to -- the rings look the same using
13 the external housing, the potting inside, the same kind of
14 structure for the battery? Can just that be coincidence?

15 A. So there are 640 different types of batteries.
16 They all use these layered battery. When you do collection
17 of data through optics from a ring, you have two choices.
18 You can use what is called transmittive, so you transmit the
19 LED, for example, on top; you receive it on the bottom.
20 That's one option. And most product that was available by
21 Noonan, by Masimo, by a number of companies use that
22 technique. That was the standard way of doing it.

23 The other technique is reflective. You shine
24 light through the finger, and you receive it back from the
25 same site.

1 Now, you see all of these are using the exact
2 same technique of reflective design. They all use a metal
3 external ring. They all use a potting material. They all
4 use a specific kind of curved battery. They all use a
5 printed circuit board that is curved and glued to the back
6 of the ring. I don't think that's all a coincidence.

7 The probability, roughly, is 4 out of 10,000, is
8 the probability of having two aces in a deck of cards.

9 Q. And were you here last week and today where the
10 Respondents witnesses testified about purchasing the rings,
11 tearing them down, and analyzing those rings?

12 A. I was here for the presentation of both Mr. Kumar
13 and Mr. -- or Dr. Hao. They did mention that.

14 Q. How does that testimony inform your opinion of
15 whether or not there was copying by the Respondents of the
16 Oura Ring Gen. 3?

17 A. For one thing, Dr. Kumar said he was sorry that
18 all the components were not labeled, would have made it
19 easier for him to, I guess, copy or whatever he was
20 insinuating. Also the fact that they took this apart. They
21 mention that they did it for competitive analysis.

22 As I mentioned to you, I have formed five
23 companies of my own. Four of them have been sold. And I've
24 worked at IBM and Motorola. We do competitive analysis in
25 all of them. And in my research group for the past 35

1 years, we do that. The process is the following: You get a
2 number of products, 10 of them, 15 of them, whatever it is
3 you actually think is relevant. You go through each of them
4 one by one. You do pros and cons analysis of them. And you
5 report that. That's part of your company.

6 Then again, you come up with a summary table.
7 Rows are all the products; columns are all the features.
8 You put checkmarks or weight on them. I have not seen any
9 evidence of that from either of these two companies.
10 Somebody who does competitive analysis, as opposed to
11 copying, you would expect that.

12 That's not the end of the story. You take this
13 chart that you come up with, you present that either to the
14 Board or to your engineering team or to your marketing team.
15 And you get everybody's feedback. So it's a long process to
16 perform competitive analysis. It's a documented process
17 until you come up with a design that you're happy with.

18 I have not seen a shred of evidence from either
19 Ultrahuman or from RingConn on the competitive analysis.

20 Q. And were you in Court today when there was
21 testimony that RingConn from the time of its foundation to
22 the time of the launch was 18 months?

23 A. Yes.

24 Q. Is that possible if they were not copying Oura
25 Ring Gen. 3?

1 A. Again, everything that I mentioned, going through
2 the analysis, doing a comparison would take longer than
3 that.

4 Q. And were you here last week when Mr. Kumar
5 testified that, well, their product was inspired by Lazy
6 Company AINA Ring?

7 A. Yes.

8 Q. What are your thoughts on that?

9 A. First, let's look at it visually. The AINA Ring
10 looks very different. It's what you call the Superbowl
11 ring. Going from that to Ultrahuman or Oura Ring is not a
12 simple task. Even if there was such an evolution to go from
13 Oura Ring to Ultrahuman accused products, again you would
14 need to document that. You need to show the evolution. The
15 evolution is absolutely missing. I have not seen any
16 document that says: Okay, we started from AINA Ring. We
17 did the following analysis. We did the next version and the
18 next version, and finally we arrived at the Ultrahuman
19 accused product.

20 All of that analysis is missing. So it's highly
21 unlikely, in my opinion, that there is an evolution between
22 AINA Ring and Ultrahuman accused products.

23 Q. So based on everything that you have seen, what
24 is your conclusion with respect to the Respondents' accused
25 products and whether there's evidence of copying?

1 A. My analysis shows that there is a strong evidence
2 of copying, both by Ultrahuman and RingConn.

3 Q. Thank you, Dr. Sarrafzadeh.

4 MR. VIDWAN: I'll pass the witness.

5 JUDGE JOHNSON HINES: Thank you.

6 CROSS-EXAMINATION

7 BY MR. McCRUM:

8 Q. Good afternoon.

9 A. Good afternoon.

10 Q. It's nice to see you again?

11 A. Same here. Good to see you.

12 Q. Now, Dr. Sarrafzadeh, I want to start by making
13 sure I understand exactly what you were asked to evaluate
14 when it came to the issue of copying. Okay?

15 A. Sure.

16 Q. You were asked -- I'm going to quote from your
17 expert report. You were asked: "To evaluate whether
18 there's evidence of copying of the claimed invention."

19 Those were your words, right?

20 A. Sure.

21 Q. And when you say "the claimed invention," what
22 you're talking about is the invention that is set forth in
23 the claims of the '178 patent here, right?

24 A. Correct.

25 Q. You understand that the '178 patent did not issue

1 until January 9th, 2024, right?

2 A. Correct.

3 Q. So it follows that the issued claims in the '178
4 patent also did not exist until January 9th, 2024, right?

5 A. That's fair.

6 Q. You understand, sir, RingConn launched its
7 accused products in 2023 before the '178 patent issued,
8 right?

9 A. Date-wise, that's correct.

10 Q. Likewise, the accused Ultrahuman products, were
11 launched before the 2024 issue date of the '178 patent,
12 right?

13 A. Correct, but I also looked at copying --

14 Q. Sir, I'm on the clock here. If your counsel has
15 a question, they will come up and ask you.

16 A. Sure.

17 Q. What that means is that both Respondents' accused
18 products were introduced prior to the issuance of the
19 claimed invention in the '178 patent; isn't that right?

20 A. That's correct.

21 Q. And yet, you come here today testifying under
22 oath that the accused products launched before the claimed
23 invention, nonetheless, copied that claimed invention.
24 That's your testimony today. Do I have that right?

25 A. No. My testimony is about the Oura Ring

1 product --

2 Q. Okay.

3 A. -- the copying of that.

4 Q. Now, Mr. Kumar testified he didn't learn about
5 the asserted Oura patents until Ultrahuman was sued, right?

6 A. I do not recall that testimony.

7 Q. You don't dispute it, do you?

8 A. I do not.

9 Q. All right. Could we have slide 6 of
10 Dr. Sarrafzadeh's demonstratives.

11 Your heading here is that the structural design
12 of Respondents' accused products is identical to the Oura
13 Ring Gen. 3?

14 A. Correct.

15 Q. You wrote this heading?

16 A. I did.

17 Q. You chose the word "identical," didn't you?

18 A. And the word "structural design," yes.

19 Q. Correct. That heading is a false statement,
20 isn't it?

21 A. For what I described as structural design is, no.
22 That's absolutely correct. And I described a few minutes
23 ago what that is. External housing product -- component,
24 internal housing component, curved battery, curved PC board,
25 that's what I define as a structural design.

1 Q. Okay. Well, let's look at the products, sir.

2 A. Yeah. Please.

3 Q. The RingConn product has two charging contacts
4 that appear as light rectangles on this slide, right?

5 A. It is.

6 Q. Those charging contacts extend through the
7 potting material and they're exposed to air, right?

8 A. They do.

9 Q. Your ring does not have those charging contacts,
10 does it?

11 A. Whose ring?

12 Q. The Oura Ring Gen. 3 does not have those charging
13 contacts, does it?

14 A. No.

15 Q. All right. So let's move on to some other
16 differences. The Oura Ring Gen. 3 in this image is a
17 perfect circle. Correct?

18 A. Almost.

19 Q. The RingConn accused product has a different
20 shape, correct?

21 A. Slightly. Yes. And these are not part of a
22 structural design, yes.

23 Q. The outside of the ring that's made of metal is
24 not part of the structural design?

25 A. Not the way I define that, very clearly.

1 Q. Okay.

2 A. Neither is the color that you put on the ring.
3 That's not part of the structural design.

4 Q. Your testimony under oath today is that the
5 metallic outer band in these products is not part of the
6 structural design. Is that your testimony today under oath?

7 A. Absolutely. And the way I define the structural
8 design, outer ring, potting material, curved PCB, curved
9 battery, potting material, glue all the way in the back
10 which is structurally different from a potting material.

11 Q. Okay. I think I understand what you're saying,
12 sir.

13 A. Thank you.

14 Q. The RingConn accused product, the thickness of
15 the wall, right, of the external housing component, that
16 varies as you travel around the perimeter of it, right?

17 A. It does.

18 Q. And the Oura Ring Gen. 3 product, the thickness
19 of that wall is the same, right?

20 A. More or less, correct.

21 Q. All right. I think we're up to three differences
22 that we've talked about. Let's talk about another one.

23 A. No structural difference so far. Please proceed.

24 Q. You agree that the RingConn product has a flat
25 surface on what you call the internal housing component at

1 least between the charging contacts, correct?

2 A. I don't believe I have opined on that.

3 Q. Okay. Well, do you want to look at the product?

4 It's on the screen in front of you, sir. Between --

5 A. It depends on how you define flat. It has less
6 of a curve as I usually can see.

7 Q. Okay. Well, the shape between the external --
8 those two charging contacts in the RingConn product, you
9 don't see that same curvature in the Oura Ring Gen. 3, do
10 you?

11 A. That's fair.

12 Q. All right. Another difference between the
13 structure of the Oura Ring and the RingConn product is that
14 the RingConn accused product is lighter. Are you aware of
15 that?

16 A. That's your definition of structural, not mine.
17 Are you using a different term or are you using my
18 definition of structural?

19 Q. I'm talking about the structural components that
20 appear in your slide here, sir, on the screen that we're
21 looking at. Those are the ones I'm talking about. Are you
22 talking about a different set of structural features?

23 A. Yes. I define structural very clearly as a term.
24 If you're using my term, you're talking about having an
25 external housing component, potting material, curved

1 battery, curved PC board, connection between a curved PC
2 board and the curved battery. This is what I define as a
3 structural design.

4 Q. I see. So you --

5 A. So maybe you want to use some other term?

6 Q. No. I think I understand now. So you
7 selectively decided to look only at those structures that
8 you found that were the same and decided only to focus on
9 those, to the exclusion of those that were different? I
10 think that's what I'm hearing you say today.

11 A. No. I'm defining the structures that are
12 relevant here.

13 Q. Okay. All right. Now, you testified that the
14 Respondents' teardown and analysis of Oura Ring's products
15 support your opinions of copying, right?

16 A. Correct.

17 Q. Can we bring up RX-403.15. That's
18 Dr. Sarrafzadeh's expert report. We'll go to paragraph 31.

19 In your expert report, you relied on Mr. Kumar's
20 testimony that he purchased an Oura Gen. 2 in 2017 and 2018,
21 right?

22 A. Correct.

23 Q. You're not offering any opinion, though, that the
24 Oura Gen. 2 embodies the claims of the '178 patent, are you?

25 A. I have not provided an opinion on that.

1 Q. It's not relevant if anyone copied a product that
2 you're not even alleging practices the claimed invention.
3 Do you agree with that?

4 A. Please repeat.

5 Q. I'll move on in the interest of time.

6 A. Okay.

7 Q. You only opined that the Oura Gen. 3 and Gen. 4
8 embody the claims, correct?

9 A. The copying is on Gen. 3 and Gen. 4. And
10 embodiment, last week I showed is for Gen. 3 and Gen. 4,
11 correct.

12 Q. Let's look back at paragraph 31 here from your
13 report. You also opined that Ultrahuman reviewed public
14 teardowns of an Oura Ring as early as 2020, right?

15 A. That's what I say.

16 Q. Your Gen. 3 that you say Respondents copied
17 wasn't released until October of 2021, right?

18 A. That's correct.

19 Q. You're not opining that every time a company
20 tears down a product that they're copying that product,
21 right?

22 A. Not every time, but the evidence here shows, as I
23 described.

24 Q. I understand. That wasn't my question.

25 A. Not every time, no.

1 Q. Not every time. You yourself have torn down
2 products, competitor products, right?

3 A. Absolutely.

4 Q. It wasn't for the purpose of copying a claimed
5 invention, was it?

6 A. That's correct.

7 Q. Let's look at the evidence that you did rely on.
8 I've got your binder right here. And you're welcome to look
9 at it.

10 A. Sure.

11 Q. There's nine documents in it, right?

12 A. Are you saying CX-0046 being the first document?

13 Q. Let me try to short-circuit this, sir. Today you
14 brought with you three CT scans that you say support your
15 evidence of copying?

16 A. Correct.

17 Q. The remaining six documents that you rely on
18 include pictures of Smart Rings from the Internet and social
19 media posts, right?

20 A. Well, the document speaks for itself. I have a
21 variety of pictures and documents, correct.

22 Q. Okay. What you didn't bring with you today is a
23 single document created in the ordinary course of business
24 from Respondents' files that even discuss Respondents'
25 teardowns of the Oura product, right?

1 A. Repeat your question? I don't follow you at all.

2 Q. I'll try to slow down.

3 A. Please.

4 Q. What you didn't bring with you today is a single
5 document from Respondents' files that discuss Respondents'
6 teardowns of an Oura product, correct?

7 A. I'm not sure what you're referring to.

8 Q. Do you want to point to me a document in that
9 binder that discusses where Respondents discuss teardowns of
10 an Oura product? You won't be able to do that, will you?

11 A. Would you like me to go over them? I haven't
12 looked at every single one right now.

13 Q. These are the exhibits you decided to bring with
14 you today, right?

15 A. Absolutely, yes.

16 Q. You don't know what's in them?

17 A. I absolutely do, but I'd like to review if you
18 like a response.

19 Q. If you think you can find a document in there,
20 sir, from Respondents' files that talks about these
21 teardowns, please let me know. That's my question.

22 A. I don't believe there is any among these nine.

23 Q. In fact, you didn't bring a single document with
24 you today from Respondents' files that even mentions Oura,
25 let alone the Oura Gen. 3, correct?

1 A. I think that's fair.

2 MR. MCCRUM: I have no further questions.

3 THE WITNESS: Thank you.

4 JUDGE JOHNSON HINES: All right, thank you.

5 MR. WINSTON: No questions for the Staff, Your

6 Honor.

7 JUDGE JOHNSON HINES: All right. Any redirect?

8 MR. VIDWAN: No redirect, Your Honor.

9 JUDGE JOHNSON HINES: All right. We can excuse

10 Dr. Sarrafzadeh.

11 Thank you very much for your time.

12 (The witness stood down.)

13 MS. CARLAN: And Dr. Sarrafzadeh is our last

14 witness.

15 JUDGE JOHNSON HINES: All right. Okay.

16 So what I would like to do now is take a break so

17 that the parties can consult on exhibits. If there are no

18 more witnesses, we are done. Am I missing something? Yes?

19 I'm not hearing anything.

20 MR. MCCRUM: That's correct from the Respondents'

21 side, Your Honor.

22 JUDGE JOHNSON HINES: All right. Thank you.

23 All right. So what I'd like to do is I'd like to

24 take a break so the parties can consult on exhibits and we

25 can get the last of the exhibits in and close the record.

1 Yes? Counsel?

2 MR. POWELL: I realize --

3 JUDGE JOHNSON HINES: Come to a microphone,
4 please.

5 MR. POWELL: I realize that the binder that I
6 passed up may have had some notes in it, and we have a clean
7 copy here.

8 JUDGE JOHNSON HINES: Let me give you your notes
9 back. Thank you. No worries.

10 All right. Is there anything else we need to
11 discuss other than getting the remaining exhibits admitted?

12 MS. CARLAN: Nothing from Complainants, other
13 than the exhibits.

14 JUDGE JOHNSON HINES: All right.

15 MR. McCRUM: Nothing from Respondents, Your
16 Honor.

17 JUDGE JOHNSON HINES: All right.

18 MR. WINSTON: We are discussing import
19 stipulations. I'm not sure what the status of those may be,
20 but that may be another issue that we need to -- that we can
21 close the loop on.

22 JUDGE JOHNSON HINES: All right. Does that need
23 to be done before the record is closed?

24 MR. WINSTON: I don't believe so, Your Honor.

25 JUDGE JOHNSON HINES: I don't think so either.

1 So to the extent there is an importation stipulation, that
2 can be filed as a stipulation. It does not need to be given
3 an exhibit number, because it would be filed. So if the
4 parties can agree to that, that would be great.

5 As I said at the very beginning, I can't force
6 you all to stipulate to something, but if there is an
7 agreement, file a stipulation.

8 All right. Anything else?

9 MR. WINSTON: Nothing for the Staff, Your Honor.

10 JUDGE JOHNSON HINES: All right. So I'm going to
11 suggest that we reconvene at 2:15. Hopefully, that gives
12 you enough time. I have said less time in the past and then
13 been wrong. So I want to give you plenty of time to do what
14 you need to do with respect to the exhibits.

15 I do understand there was a list sent this
16 morning. Unfortunately, I was already on my way down here,
17 so I didn't see it, so we didn't address it. So there's no
18 reason to combine the lists. We can do them separately for
19 what was sent this morning. And I will take a look at that
20 when we're on the break.

21 So before we break, I expect that not everyone
22 that's here will be here when we reconvene, which is fine.
23 So before we take the break, I wanted to thank everyone for
24 their hard work and their professionalism this week. I
25 understand this process is difficult. So I appreciate

1 everyone working together as well as you all did to get
2 everything done.

3 I also want to specifically thank the company
4 representatives that came here for the hearing. I
5 understand that some of you traveled from quite far, and I
6 understand that and appreciate the time and attention that
7 you took out from the many other things that you have to do.
8 So thank you for that.

9 And thank you for everyone's respect of the
10 process.

11 The only other thing I wanted to mention at this
12 point was my very first trial was in an ITC case in 1992 in
13 front of Judge Saxon. And at the end of the trial, she said
14 a number of things, but one of them stuck with me and I
15 wanted to pass it along for whatever it's worth.

16 She told a story about how in colonial days,
17 because there weren't TVs or movies or any other -- well,
18 when she made the statement, there certainly weren't
19 iPhones, there was less entertainment. And so people would
20 go to court for entertainment and to see good counsel
21 present cases. And as Judge Saxon told the story, when good
22 counsel were going to come, exceptional counsel, to give --
23 and, in particular, she noted cross-examinations, that in
24 town they would ring a bell, and that would tell people to
25 come to the court to see the good cross-examinations.

1 And I wanted to mention here, as she did then,
2 that someone here would have rung a bell. So thank you for
3 that. I particularly appreciate a good cross-examination.
4 And I saw that across the board this week. And I do
5 appreciate the hard work and attention that goes into that
6 and everything else that you all did this week. So thank
7 you very much.

8 We'll reconvene at 2:15.

9 (A recess was taken at 1:30 p.m., after which the
10 proceedings resumed at 2:20 p.m.)

11 JUDGE JOHNSON HINES: Please be seated.

12 All right. Thank you, everyone.

13 First, I received this morning before we started
14 a list of exhibits that I understand the parties agreed to
15 based on testimony from yesterday and that there were no
16 objections. Correct?

17 MR. MCCRUM: Correct from Respondents' side, Your
18 Honor.

19 MS. CAPOLINO: Yes, from Complainants, Your
20 Honor.

21 MR. WINSTON: That's correct for the Staff.

22 JUDGE JOHNSON HINES: All right. Ms. Capolino,
23 if you could provide that list to the court reporter and
24 those will be admitted.

25 (Exhibits, as submitted by counsel and reflected

1 in the attached index, were received into evidence.)

2 MS. CAPOLINO: Thank you. We will.

3 JUDGE JOHNSON HINES: Next, I appreciate the
4 e-mail I received identifying the NEXT advocates,
5 Ms. Capolino, Mr. Breetz, and Mr. Augelli. I hope I said
6 your name correctly.

7 Thank you for participating. You all did an
8 exceptional job.

9 The program is important to me and I know the
10 other Judges share that view. So I appreciate the hard work
11 you all put in. And thank you as well to the people that
12 helped you do such a good job because I'm sure there were
13 people that did that. So thank you for spending the time to
14 train up people to do the great job that they did. So I
15 appreciate that.

16 That's all I have, except for hearing about where
17 we are in exhibits.

18 MS. CAPOLINO: Yes, Your Honor. So we have a few
19 updates on exhibits. The first is that we do have the
20 physical exhibits here for the Court all together in a box.

21 JUDGE JOHNSON HINES: All right. You can leave
22 them there. Thank you.

23 MS. CAPOLINO: Those are the exhibits from
24 everybody, Complainants and Respondents.

25 JUDGE JOHNSON HINES: Thank you.

1 MS. CAPOLINO: And the second is that I do
2 believe that we have an agreed-upon list of exhibits to be
3 admitted from today with Your Honor's approval.

4 JUDGE JOHNSON HINES: Okay.

5 MS. CAPOLINO: And I am happy to -- we kind of
6 signed off on it, so happy to send an e-mail to the case
7 e-mail address or read them into the record, whichever your
8 preference is.

9 JUDGE JOHNSON HINES: I will ask the counsel for
10 Respondents, have you seen the list and do you agree with
11 it?

12 MR. MCCRUM: Yes, Your Honor. We have seen the
13 list and we do agree with it.

14 JUDGE JOHNSON HINES: All right.

15 MR. WINSTON: And, yes, Your Honor, the Staff has
16 seen the list and has no objection.

17 JUDGE JOHNSON HINES: Okay. I don't need to see
18 it. Again, if you can provide the list to the court
19 reporter and I will deem those exhibits as admitted.

20 (Exhibits, as submitted by counsel and reflected
21 in the attached index, were received into evidence.)

22 JUDGE JOHNSON HINES: Is there anything else we
23 should take up at this time?

24 MS. CARLAN: Not from Complainants.

25 MR. MCCRUM: No other issues from Respondents,

1 Your Honor.

2 JUDGE JOHNSON HINES: All right.

3 MR. WINSTON: No further issues from the Staff,
4 Your Honor.

5 JUDGE JOHNSON HINES: Great. I do think there
6 may be something in the ground rules about if it's necessary
7 to file a motion for any corrections to the transcript, so
8 take a look at that. I think there's a time frame for that.

9 And if you find that you missed an exhibit, file
10 a motion, hopefully joint, to have it admitted if one got
11 corrected, so I do intend to close the record, but that
12 doesn't mean that -- I understand mistakes happen. So if
13 something needs to be corrected, we can correct that.

14 All right. So the record is closed and we're
15 adjourned. Thanks a lot.

16 (Whereupon, at 2:23 p.m., the Evidentiary hearing
17 concluded.)

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1 C O N T E N T S

2

3	WITNESS	DIRECT	CROSS	REDIRECT	RE CROSS	STAFF
4	MIN WANG	1147	1159	1178		
5	TAJANA S.	1189	1232			1251
6	ROSING					
7	CARLA MULHERN	1254	1272			
8	MAJID	1276	1285			
9	SARRAFZADEH					

10

11

12 CONFIDENTIAL SESSIONS

13 1150 - 1181

14 1258 - 1261

15 1266 - 1273

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1 E X H I B I T S
2 EXHIBIT LISTS SUBMITTED FOR ADMISSION:
3 12/16/24 Exhibits
4 CX-1122
5 CX-1133
6 CX-1134
7 CX-1135
8 CX-1136
9 CX-1137
10 CX-1139
11 CX-1141
12 CX-1391C
13 CDX-0008
14 RX-0018
15 RX-0025
16 RX-0028
17 RX-0032
18 RX-0036C
19 RX-0039
20 RX-0040
21 RX-0043
22 RX-0044
23 RX-0047
24 RX-0049
25 RX-0119

1 RX-0123C
2 RX-0266
3 RX-0275
4 12/17/24 Exhibits
5 CDX-0005
6 CDX-0006
7 CDX-0007C
8 CX-0387C
9 CX-0584
10 CX-0585
11 CX-0591
12 CX-0594
13 CX-0596
14 CX-0598
15 CX-0599
16 CX-0600
17 CX-0603
18 CX-0609
19 CX-0618
20 CX-0622
21 CX-0625
22 CX-0630
23 CX-0640
24 CX-0649
25 CX-0802

1 CX-0862
2 CX-0869
3 CX-0944
4 CX-0956C
5 CX-0957C
6 CX-0959C
7 CX-0960C
8 CX-0962
9 CX-0963
10 CX-0964
11 CX-0965
12 CX-0966
13 CX-0967
14 CX-0969
15 CX-0970
16 CX-0971
17 CX-0972
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19 CX-0974
20 CX-0975
21 CX-0976
22 CX-0977
23 CX-0978
24 CX-0979
25 CX-0980

1 CX-0981
2 CX-0982
3 CX-1121
4 CX-1123
5 CX-1127
6 CX-1131
7 RDX-0002
8 RDX-0003C
9 RDX-0012
10 RDX-0013
11 RX-0347
12 RX-0387C
13 RX-0389C
14 RX-0030
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1 CERTIFICATE OF REPORTER

2 TITLE: Certain Smart Wearable Devices

3 INVESTIGATION NO: 337-TA-1398

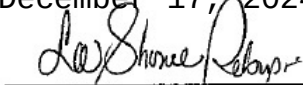
4 HEARING DATE: December 17, 2024

5 LOCATION: Courtroom A

6 NATURE OF HEARING: Evidentiary Hearing

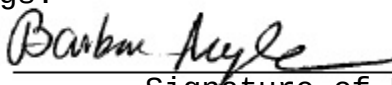
7 I hereby certify that the foregoing/attached
8 transcript is a true, correct and complete record of the
above-referenced proceedings of the U.S. International
Trade Commission.

9 Date: December 17, 2024

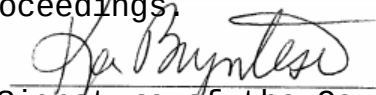
10 SIGNED: 

11 Signature of the Contractor of the
Authorized Contractor's Representative
12 1220 L Street, N.W., Suite 206
Washington, D.C. 20005

13 I hereby certify that I am not the Court Reporter
14 and that I have proofread the above-referenced transcript
of the proceedings of the U.S. International Trade
15 Commission, against the aforementioned Court Reporter's
notes and recordings, for accuracy in transcription in the
16 spelling, hyphenation, punctuation and speaker
identification and did not make any changes of a
17 substantive nature. The foregoing/attached transcript is a
true, correct and complete transcription of the
18 proceedings.

19 SIGNED: 
Signature of Proofreader

20 I hereby certify that I reported the above-referenced
21 proceedings of the U.S. International Trade Commission and
caused to be prepared from my tapes and notes of the
22 proceedings a true, correct and complete verbatim recording
of the proceedings.

23 SIGNED: 
24 Signature of the Court Reporter

25