

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

SOTERA WIRELESS, INC.,)
)
 PETITIONER,)
)
 v.)
)
 MASIMO CORPORATION,)
)
 PATENT OWNER.)

CASE IPR2020-00912
U.S. PATENT 10,213.108

CASE IPR2020-00954
U.S. PATENT 9,788,735

CASE IPR2020-01015
U.S. PATENT 9,795,300

CASE IPR2020-01054
U.S. PATENT 9,872,623

VIDEOTAPED DEPOSITION OF GEORGE YANULIS, PH.D.
VOLUME III (PAGES 264 TO 312)
TAKEN REMOTELY VIA ZOOM VIDEOCONFERENCE
MONDAY, FEBRUARY 1, 2021

Reported by Audra E. Cramer, CSR No. 9901

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1 VIDEOTAPED DEPOSITION OF GEORGE YANULIS, PHD,
2 TAKEN REMOTELY VIA ZOOM ON BEHALF OF THE PATENT OWNER,
3 AT 11:07 A.M. EST, MONDAY, FEBRUARY 1, 2021,
4 BEFORE AUDRA E. CRAMER, CSR NO. 9901, PURSUANT TO
5 NOTICE.

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1 I N D E X

2 WITNESS

3 GEORGE E. YANULIS, PHD

4

5 EXAMINATION PAGE

6 BY MS. LAM 268

7 BY MS. HOEKEL 292

8 BY MS. LAM 305

9

10 E X H I B I T S

11 NO. PAGE DESCRIPTION

12 Exhibit 1006 271 INTERNATIONAL PATENT
APPLICATION FOR WO 00/42911
13 (PREVIOUSLY MARKED)14 Exhibit 1005 272 US PATENT 6,840,904
(PREVIOUSLY MARKED)15 Exhibit 1008 274 US PATENT 5,919,141
(PREVIOUSLY MARKED)16 Exhibit 1003 275 DECLARATION OF GEORGE E.
YANULIS RE US PATENT 9,795,300
17 (PREVIOUSLY MARKED)18 Exhibit 1003 283 DECLARATION OF GEORGE E. YANULIS
RE US PATENT 9,872,623
19 (PREVIOUSLY MARKED)
20 (DUPLICATE EXHIBIT NO.)
21
22

1 REMOTELY VIA ZOOM VIDEOCONFERENCE;
2 MONDAY, FEBRUARY 1, 2021, 11:07 A.M. EST

3
4 THE VIDEOGRAPHER: The time is
5 11:07 a.m., February 1, 2021. This is Video 1,
6 Volume 3, in the continued video-recorded
7 deposition of Dr. George Yanulis.

8 Counsel, we're on the record.

9 A reminder to the witness you're still
10 under oath.

11
12 GEORGE E. YANULIS, PHD,
13 having been previously duly sworn,
14 was examined and testified as follows:

15
16 EXAMINATION

17 BY MS. LAM:

18 Q. Hi, Dr. Yanulis. How are you doing?

19 A. I'm doing great, Counselor. How are
20 you?

21 Q. Good. Thank you.

22 Before we get started, did you have any

1 discussions with counsel since we ended on
2 Wednesday?

3 A. No, I did not.

4 Q. And during the breaks throughout the
5 now sort of third day of this deposition, did
6 you have any discussions with counsel?

7 A. No, I did not.

8 Q. And during the time that we ended on
9 Tuesday and restarted on Wednesday, did you have
10 any discussions with counsel?

11 A. No, I did not.

12 Q. Thank you.

13 Are you aware of any wearable devices
14 prior to March 2002 that had multiple sensors.

15 A. Yes, I am.

16 MS. HOEKEL: Form.

17 BY MS. LAM:

18 Q. Will you please describe one for me.

19 A. Some of the units that I worked with
20 was the Nellcor pulse oximetry. I'm not sure of
21 all the parameters it was capable of monitoring.

22 Also familiar with some other

1 companies' ambulatory devices. Again, I'm not
2 sure of the exact names, but Nellcor, some other
3 companies that were actively involved. I know
4 Masimo was involved in a lot of
5 multi-monitoring-type devices.

6 Those are the -- I'm sure there's more,
7 but that's what comes to mind.

8 Q. The Nellcor device that you described,
9 do you know what type of sensors it had?

10 A. Not offhand. But to the best of my
11 knowledge, they did monitor heart rate, pulse
12 oximetry. I'm not sure of all the other
13 parameters. I'd have to look it up, counselor.

14 But Masimo, as I said, did a lot of
15 multi-type monitoring. I'm sure there's several
16 other companies that are pretty well known
17 there.

18 Q. Can you identify any specific devices
19 prior to March 2002 that had multiple sensors?

20 MS. HOEKEL: Object to the form.

21 THE WITNESS: To the best of my
22 knowledge, I'd like to go to some of the patents

1 that I used in my IPR declaration, I'd like to
2 go to the patents identified.

3 The first one -- I'm just trying to
4 refresh my memory. Give me a moment.

5 The Kiani patent that I believe -- I'd
6 like to see that just to refresh my memory.
7 That was one of the supporting documents I uses.
8 I'll start with there, and if I can think of
9 others -- let's start with Kiani.

10 MS. LAM: Okay. I'm going to show you
11 Tab 10, which has been previously marked as
12 Exhibit 1006 in IPR2020-00954.

13 (Exhibit 1006 was previously
14 marked for identification.)

15 THE WITNESS: Yeah, thank you, Counsel.
16 Could you go back to Goldberg as well. That was
17 my main patent. I'd like to look at that if I
18 could.

19 MS. LAM: I'll show you Tab 9, which
20 was previously marked as Exhibit 1005 in
21 IPR2020-00954.

22

1 (Exhibit 1005 was previously
2 marked for identification.)

3 THE WITNESS: Okay. If you'll give me
4 a minute, I'd like to just read the abstract.

5 Again, this is one device that looked
6 at blood pressure, heart rate, body temperature
7 and some other parameters. So this is one
8 device that I was familiar with that directly
9 taught the use of monitoring multiple
10 parameters.

11 BY MS. LAM:

12 Q. Are you aware of any commercial devices
13 prior to March 2002 that had multiple sensors?

14 A. I'm sure there were hundreds,
15 Counselor. I just can't think of any specific
16 examples of brand names.

17 As I said, I know Masimo was readily
18 involved. Some of the other companies, like
19 Nellcor. I believe GE had some systems. Again,
20 I'd have to refresh my memory, but most of those
21 are pretty well known in the art as a PHOSITA.
22 I can't give you any specific examples, unless

1 you want me to take the time to look up all of
2 Masimo's different multi-monitoring.

3 Some of the units by GE. I could go
4 on. But, again, there were several units that
5 were capable in this time frame that allowed one
6 to monitor multiple physiological parameters.

7 MS. LAM: Audra, "PHOSITA" is
8 P-H-O-S-I-T-A, and he's going to say it a lot
9 of.

10 THE REPORTER: Thank you.

11 And could we just go off the record for
12 one second?

13 THE WITNESS: Sure.

14 THE VIDEOGRAPHER: The time is
15 11:13 a.m., and we are going off the record.

16 (Recess taken.)

17 THE VIDEOGRAPHER: The time is
18 11:16 a.m., and we're back on the record.

19 BY MS. LAM:

20 Q. Dr. Yanulis, are you aware of any
21 wearable devices prior to March 2002 that had
22 sensor ports that could receive both analog and

1 digital signals?

2 MS. HOEKEL: Object to the form.

3 THE WITNESS: I'd like to go back to
4 the Money patent if I may, just to refresh my
5 memory.

6 MS. LAM: I'll show you Tab 12. It's
7 been previously marked as Exhibit 1008 in
8 IPR2020-00954.

9 (Exhibit 1008 was previously
10 marked for identification.)

11 THE WITNESS: I want to spend some more
12 time, but to initially answer your question, as
13 a PHOSITA on the figure on the first page and
14 also in the abstract it talks about being able
15 to transmit both analog and digital vital
16 signals.

17 And I'd have to look through the rest
18 of the patent. I would believe that these units
19 we talked about are sensor ports. They may not
20 be explicitly stated, but it could be implicitly
21 viewed that these are sensor ports being able to
22 monitor both analog and digital type

1 physiological signals.

2 BY MS. LAM:

3 Q. Are you aware of any commercial devices
4 prior to March 2002 that had a sensor port that
5 could receive both analog and digital signals?

6 A. Again --

7 MS. HOEKEL: Object to the form.

8 THE WITNESS: Again, I'd have to take a
9 little bit of time, but as a PHOSITA I can
10 honestly say I've seen in a clinical environment
11 and as a clinical engineer several commercial
12 types utilized. I can't name any more companies
13 other than what I've mentioned, but I know they
14 were well known in the art for someone as a
15 PHOSITA, including myself.

16 MS. LAM: I'm going to show you Tab 3,
17 which has been previously marked as Exhibit 1003
18 in IPR2020-01015.

19 (Exhibit 1003 was previously
20 marked for identification.)

21 BY MS. LAM:

22 Q. Dr. Yanulis, is this your declaration

1 for the '300 patent?

2 A. Yes, it is, Counsel.

3 Q. Does your declaration set forth all
4 your opinions regarding patentability of the
5 claims in the '300 patent?

6 A. Yes, it does.

7 Q. Have you formed any opinions in this
8 IPR other than the opinions contained in this
9 declaration?

10 A. No, I have not.

11 Q. As you are sitting here today, are you
12 aware of any corrections that need to be made to
13 this declaration?

14 A. No, I'm not aware of any corrections
15 that need to be made.

16 Q. Did you carefully prepare this
17 declaration?

18 A. Yes, I did.

19 Q. Were you asked to investigate any
20 issues in this IPR that do not appear in your
21 declaration?

22 A. No, I was not.

1 Q. Let's turn to page 7, paragraph 19.

2 Does paragraph 19 list the documents
3 you considered in preparing your declaration for
4 the '300 patent?

5 A. Yes, it does, Counselor.

6 Q. Is everything you considered in forming
7 your opinions for this IPR on this list?

8 A. Yes, they are.

9 Q. Does your declaration contain all of
10 the legal principles that you considered in
11 forming your opinions for this IPR?

12 A. Yes, it does.

13 Q. I'd like to turn to paragraph 29.
14 We'll put the whole paragraph on the screen.

15 Can you see the second-to-last
16 sentence, starting with the word "thus"?

17 A. Are you referring to page 12,
18 Counselor?

19 Q. I'm on page 13.

20 A. I see "thus, the claims," but I don't
21 see the word "but."

22 Are we talking in Section 29?

1 Q. Sorry. I said "thus."

2 A. Okay. No problem.

3 Q. You're referring to the right sentence.

4 A. "Thus, the claims are directed mostly
5 to wire management, which is a problem common to
6 all wired devices and a problem encountered even
7 by those without any skill in the art. Of
8 course, ports are a basic way to connect and
9 disconnect an electronic device."

10 Q. Why is wire management a problem with
11 wire devices?

12 A. In the art, as well known by a PHOSITA,
13 the goal is to minimize the number of wire
14 sensors used. And that's pretty well known in
15 the art to utilize the design concept.

16 Q. And why would a person of skill want to
17 minimize the number of wire sensors?

18 A. There are a number of factors. The
19 first one is the patient, if you visualize with
20 less sensors, the better. The least number of
21 sensors, least number of wires connected, the
22 shortest wires, the shortest length of the wires

1 still provide an adequate monitoring management
2 and is optimal to the patient but also puts the
3 patient at ease.

4 Q. I'd like to turn to page 75 of the
5 declaration.

6 Sorry. Page 78.

7 A. No problem.

8 Q. Do you see the sentence in
9 paragraph 173, starting with "in contrast"?

10 A. "In contrast, the light-based pulse
11 oximetry sensors of Akai large are completely
12 noninvasive, far smaller, and thereby, more
13 comfortable when worn by the patient."

14 Do you want me to continue on?

15 Q. No, that seems fine. Thank you.

16 Are you aware of any examples of
17 invasive pulse oximetry sensors?

18 A. I'd like to go back to the Money. I
19 believe that was a little more invasive, but if
20 I could, I'd like to go back to Money just to
21 refresh my memory.

22 Q. I think it's Tab 12.

1 A. Okay. If we could go to the next page,
2 which describes the -- not the figures, but the
3 actual description of the invention.

4 If I can, I just want to take some time
5 to read this.

6 Okay. Could we go to the next page.

7 I see in Column 3, starting in line 35,
8 where it talks about "In a housing, which is
9 compact, affordable waterproof, which includes a
10 front panel, liquid crystals" --

11 THE REPORTER: Excuse me, Counsel.

12 (Discussion held off the record.)

13 THE WITNESS: Would you go back to my
14 IPR for something 300 and where it talks about
15 Akai, Money and Goldberg.

16 MS. LAM: Tab 3.

17 THE WITNESS: Make it a little easier
18 for Audra.

19 (Discussion held off the record.)

20 THE WITNESS: If you could, folks,
21 could you go to the section, Counselor, as well,
22 looking at the description of the rationale or

1 some of the description of Goldberg first and
2 then go to Akai.

3 MS. LAM: I think that's page 15.

4 THE WITNESS: How about now, Audra? Is
5 this a little easier?

6 THE REPORTER: Yes, it's much better.

7 THE WITNESS: All right. Yeah, I can
8 work from here. We'll try to make it doable.

9 All right. Could you repeat your
10 question. I believe it was, Can you think of
11 any devices that monitor these noninvasively?

12 Was that the question, Counselor?

13 BY MS. LAM:

14 Q. Can you provide an example of an
15 invasive pulse oximetry sensor?

16 A. Prior to a lot of the devices that I
17 was actively involved with, there were devices
18 that were more invasive. A blood pressure cuff
19 is somewhat more invasive, but this is not a
20 wearable monitor.

21 So if you could, I'd like to -- the
22 Goldberg is a portable device. Basically it's

1 noninvasive.

2 And if we could go to the next page,
3 page 16.

4 All right. This is just talking about
5 Kiani, which pretty much supports Goldberg.

6 Let's go to page 17, which describes
7 Akai.

8 Okay. This is Money. That's not what
9 I was looking for. Bear with me. I'm trying to
10 work around Audrey's [sic] limitations.

11 Let's go to Akai. It should be on the
12 next page.

13 All right. Next page, please.

14 To answer your question, there are
15 noninvasive devices that are well known in the
16 art. I can't find any immediately in my IPR,
17 but any PHOSITA knows that there were more
18 invasive, which is why these devices were
19 developed and used, because they were more
20 wearable.

21 So I'm not sure, for the sake of time,
22 if I can find any, but there were more invasive.

1 These patents were much more comfortable. So
2 I'm indirectly answering your question. It's
3 well known that there were more invasive, which
4 is why there was a need to innovate these more
5 invasive devices. So I'll just leave it at
6 that.

7 MS. LAM: I'd like to show you Tab 4,
8 which has been previously marked as Exhibit 1003
9 in IPR2020-01054.

10 (Exhibit 1003 was previously
11 marked for identification.)

12 BY MS. LAM:

13 Q. Is this a true and accurate copy of
14 your declaration in the IPR for the '623 patent.

15 A. It is, Counselor.

16 Q. Does your declaration set forth all
17 your opinions regarding the patentability of the
18 claims in the '623 patent?

19 A. It does.

20 Q. Have you formed any opinions in this
21 IPR other than the opinions contained in this
22 declaration?

1 A. Could you repeat the question, Counsel.

2 Q. Have you formed any opinions in this
3 IPR other than the opinions contained in this
4 declaration?

5 A. No, I have not.

6 Q. As you are sitting here today, are you
7 aware of any corrections that need to be made to
8 this declaration?

9 A. No, I am not aware of any.

10 Q. Did you carefully prepare this
11 declaration?

12 A. Yes, I did.

13 Q. Were you asked to investigate any
14 issues in this IPR that do not appear in your
15 declaration?

16 A. No, there were none --

17 Q. Let's turn to paragraph --

18 A. -- other than what's stated in the
19 declaration.

20 I'm sorry.

21 Q. Let's turn to paragraph 19.

22 Is this the list of documents you

1 considered in preparing your declaration for the
2 '623 patent?

3 A. Yes, they are.

4 Q. Is everything you considered for this
5 IPR on this list?

6 A. Yes. As contained on page 7 and 8,
7 yes.

8 Q. Does your declaration contain all of
9 the legal principles that you considered in
10 forming your opinions for this IPR?

11 A. Yes, it does.

12 Q. Another question about the Money pulse
13 oximetry cuff: Is it your opinion that Money's
14 pulse oximetry cuff transducer is more invasive
15 than the pulse oximetry sensor in Akai?

16 A. Can we go to the section where I stated
17 that?

18 Q. Let's go back to Tab 3, paragraph 173.

19 A. Which line are we looking at,
20 Counselor?

21 Q. So there is the sentence that starts
22 with "in contrast."

1 MS. HOEKEL: I'm sorry. Just to make
2 sure that I'm clear, we've switched back to a
3 different patent declaration?

4 MS. LAM: Yes. Sorry. The declaration
5 for the '300 patent.

6 MS. HOEKEL: Okay. Thank you.

7 THE WITNESS: Reading this line, "In
8 contrast, the light-based pulse oximetry sensors
9 of Akai are completely noninvasive, far smaller,
10 and thereby, more comfortable when worn by a
11 patient. I have been informed by counsel that a
12 simple substitution of one known, equivalent
13 element with another to obtain predictable
14 results demonstrates obviousness. Here, it
15 would be obvious to replace the pulse oximetry
16 cuff 39 of Money with the equivalent,
17 light-based" --

18 It's not really germane to your
19 question, but, again, this demonstrates that
20 there was a need to have more comfortable-type,
21 worn ambulatory devices, as stated in this
22 paragraph.

1 BY MS. LAM:

2 Q. Is it your opinion that the pulse
3 oximetry cuff transducer in Money is more
4 invasive than the pulse oximetry sensor
5 disclosed in Akai?

6 A. I'm not sure I see that anywhere in
7 there. If we could, I'd like to see the
8 sections on Akai. I don't believe I said that.

9 The only reason I in this paragraph --
10 and its limit on this page, it's talking about
11 substituting a pulse oximetry cuff as taught by
12 Money.

13 So I'm not sure of your question. If
14 you could repeat that. I don't see or recall a
15 section where I actually said -- I believe
16 you're saying Akai is more invasive. I don't
17 recall that sentence. If you could, show me the
18 section where I actually said that.

19 Q. The question was whether the pulse
20 oximetry cuff transducer in Money is more
21 invasive than the pulse oximetry sensor in Akai.

22 A. Again, I don't believe I said that

1 statement as you've stated it. So if you could,
2 show me the section where I said that.

3 Q. We can move on.

4 A. Counselor?

5 Q. Yes?

6 A. If I could read the statement: "Pulse
7 oximetry cuffs are largely obsolete." And my
8 point in that statement -- maybe this will help
9 to answer your questions -- were more invasive
10 than the devices which were more comfortable
11 worn by the patient in this statement.

12 So I'm not sure how to elaborate.
13 Again, if you could show me the section where I
14 said -- I think you said Akai is more
15 uncomfortable. I'd like to see that particular
16 verbiage, if I may.

17 Before you go to that, Counselor, I see
18 on page 78, I did state that -- near the end of
19 173 I said, "Akai predictably measures oxygen
20 saturation noninvasively using light." I'm not
21 sure -- you know, again, if you could find the
22 section where I said one is more uncomfortable

1 or more invasive, that would be great.

2 Q. How are pulse oximetry cuffs more
3 invasive?

4 MS. HOEKEL: Object to the form.

5 THE WITNESS: I'm not sure how to
6 answer that question, other than the fact that
7 these devices and patents that disclose the art
8 that's being invented are basically more
9 comfortable for the patient.

10 Any invasive device which allows a more
11 direct -- how should I say it?

12 I'm really not sure how to answer the
13 question, because, again, the art that's
14 disclosed, including the Akai and the Goldberg,
15 were extremely comfortable for the patient.

16 As I said earlier and in the first two
17 depositions, there were more invasive-type pulse
18 oximetry devices. I'm not sure which ones they
19 wore specifically by brand, but it's well known
20 in the art that this was an ongoing design
21 development that, prior to these, the devices
22 were more invasive.

1 BY MS. LAM:

2 Q. In what way were the devices more
3 invasive?

4 A. I'm using it in the context that a
5 PHOSITA would say as far as more discomfort for
6 the patient.

7 Q. Let's go back to Tab 4.

8 MS. HOEKEL: For the record, Shannon,
9 can you please read in what Tab 4 is so it's
10 clear.

11 MS. LAM: Yes. Exhibit 1003 of
12 IPR2020-01054.

13 Q. Dr. Yanulis, this declaration relates
14 to the fourth patent of the patents we've
15 discussed during this deposition; correct?

16 A. Correct.

17 Q. And all four patents share a similar
18 specification; correct?

19 A. Yes, they do.

20 Q. So any claim terms that appear in two
21 or more of the patents would share the same
22 claim meaning; correct?

1 A. Could you repeat --

2 MS. HOEKEL: Object to form.

3 THE WITNESS: Repeat the question.

4 BY MS. LAM:

5 Q. Any claim terms that appear in two or
6 more of the four patents we've discussed during
7 this deposition would share the same meaning;
8 correct?

9 MS. HOEKEL: Object to the form.

10 THE WITNESS: I'm going to answer that
11 by saying I'm not an attorney. I do not have
12 any more legal background on what I disclosed
13 for plain and ordinary meaning.

14 So I'm going to hesitate to answer your
15 question, because that's a more specific legal
16 question that I don't feel I'm comfortable in
17 answering based on what a PHOSITA would need to
18 know.

19 BY MS. LAM:

20 Q. If a particular claim term appeared in
21 two or more of the four patents, did you apply
22 the same plain and ordinary meaning in forming

1 your opinions?

2 A. To that extent I did.

3 MS. LAM: If you could give me a
4 five-minute break to look over my notes, we
5 might be done.

6 MS. HOEKEL: Okay. Then before we go
7 off the record -- well, let's go off the record,
8 but don't anybody go anywhere.

9 THE VIDEOGRAPHER: Okay. Stand by.

10 The time is 11:44 a.m., and we are
11 going off the record.

12 (Recess taken.)

13 THE VIDEOGRAPHER: The time is
14 12:04 p.m., and we are back on the record.

15 MS. LAM: I have no further questions.

16 MS. HOEKEL: Okay. I have a few
17 questions for Dr. Yanulis.

18

19 EXAMINATION

20 BY MS. HOEKEL:

21 Q. You discussed wire management this
22 morning a little bit.

1 When you -- you just moved this
2 weekend. You set up a new computer.

3 You set your computer back up again,
4 did you not?

5 A. Can you see me now, Counselor?

6 Q. Yeah. Can you hear me, George?

7 A. Yes.

8 Q. Okay. We'll start over.

9 When you moved -- you talked about wire
10 management this morning a little bit; correct?

11 A. Yes.

12 Q. Okay. When you set up your computer,
13 do you take efforts to manage the wiring?

14 MS. LAM: Objection. Outside the scope
15 of my examination.

16 BY MS. HOEKEL:

17 Q. You can answer, Dr. Yanulis.

18 A. In light of especially Comcast going
19 on, I've been even more focused, but I think any
20 PHOSITA that's dealing with wires and
21 communications should make an effort to look at
22 the wires, how they're assembled, if they're

1 distangled, any potential disconnections,
2 et cetera.

3 So the answer is yes.

4 Q. And one of the reasons for managing
5 wiring is -- strike that. Let me start over.

6 Is one of the reasons for managing
7 wiring esthetics?

8 MS. LAM: Objection --

9 THE WITNESS: It could be esthetics.
10 But, more importantly, you want to optimize your
11 quality signal being sense or being --
12 communicating with another device.

13 BY MS. HOEKEL:

14 Q. We talked -- well, in your deposition
15 last week about -- a lot about ports; correct?

16 A. Could you repeat the question.

17 Q. You were asked a lot of questions in
18 your deposition about ports; is that correct?

19 A. About courts?

20 Q. Ports, p-o-r --

21 A. Ports. Yes, ma'am.

22 Q. Is a magnetic connection a port?

1 MS. LAM: Objection. Form.

2 THE WITNESS: It can potentially,
3 depending on the context of how that port is
4 being used. But yes.

5 BY MS. HOEKEL:

6 Q. In your deposition last week, sometimes
7 you used the term "hard wire." Not "hardwired,"
8 but "hard wire."

9 Do you recall that?

10 A. Yes.

11 Q. What is a hard wire?

12 A. Old-school engineer that I am, as well
13 as a new-school engineer, "hard wire" and
14 "hardwired" are synonymous.

15 Q. Can you use "hard wire" and
16 "hardwired" -- you can -- when you say they're
17 synonymous, do you mean when hardwire something,
18 it is hardwired?

19 A. No. Let me --

20 MS. LAM: Objection. Form.

21 THE WITNESS: Let me clarify. In many
22 sections of my deposition, I was referring to

1 the ease of changing sensors to different ports.

2 It's a lot easier than having to hardwire or
3 solder a new connection in that context.

4 So I got to be careful about the way I
5 say "synonymous."

6 BY MS. HOEKEL:

7 Q. Okay. And can you -- when you are
8 talking about a ported connection --

9 A. Right.

10 Q. -- would a ported connection include a
11 hard wire as part of that assembly?

12 A. It can.

13 MS. LAM: Objection. Form.

14 THE WITNESS: It can.

15 BY MS. HOEKEL:

16 Q. Is there a difference, from a
17 structural standpoint, between a sensor input
18 port and a sensor output port?

19 MS. LAM: Objection. Form.

20 THE WITNESS: There can be similarity,
21 but there can also be dissimilarity, depending
22 on the type of sensor used or the type of

1 signals being used, especially if you're trying
2 to sense a signal that's not usually sensed.

3 But in general, yes, they're usually
4 the same on the inside and outside.

5 BY MS. HOEKEL:

6 Q. Okay. Can they both take up the same
7 amount of room on a device?

8 MS. LAM: Objection --

9 THE WITNESS: You can --

10 MS. LAM: -- form.

11 THE WITNESS: You can design it that
12 they optimize the size distribution of your
13 wires. It's all good design practice.

14 BY MS. HOEKEL:

15 Q. And do they both form electrical
16 connections, both an input port and an output
17 port?

18 MS. LAM: Objection. Form.

19 THE WITNESS: They can be, especially
20 in the context of what we're talking about here.

21 BY MS. HOEKEL:

22 Q. And do they both transmit data?

1 MS. LAM: Objection. Form.

2 THE WITNESS: They can both, yes.

3 BY MS. HOEKEL:

4 Q. In your previous testimony, there was
5 some discussion about Money -- particular
6 configurations of Money.

7 Are power requirements directed to the
8 life of the device, or are they directed to the
9 type of signal being used?

10 MS. LAM: Objection. Form.

11 THE WITNESS: Power requirements in
12 general refer to minimizing power utilized by
13 the components used in various portions of your
14 unit, including any ambulatory unit.

15 So I'm not sure if that answers your
16 question, but if it doesn't, I can clarify it.

17 BY MS. HOEKEL:

18 Q. Can power requirements be the same for
19 an analog versus a digital signal?

20 A. Yes.

21 MS. LAM: Objection. Form.

22 THE WITNESS: Depending, again, on the

1 type of signal. But, again, the design effort
2 is to minimize power requirements whether you're
3 transmitting an analog or digital signal.

4 BY MS. HOEKEL:

5 Q. Earlier you talked about cuff
6 transducers, and I think you said you've never
7 seen one.

8 Why is it that your -- why is it that
9 it's your understanding that a cuff transducer
10 would be less comfortable than a typical -- what
11 we see now with, like, a finger sensor for pulse
12 oximetry?

13 A. Well, I think this is --

14 MS. LAM: Objection. Form.

15 THE WITNESS: I think this is a good
16 point to clarify. I believe opposing counsel
17 was asking me noninvasive versus invasive. A
18 standard blood pressure device is somewhat more
19 invasive and more uncomfortable for monitoring
20 pressure, and that's -- any blood pressure
21 device that works on pressure differentials in
22 the circulative system to allow you to obtain

1 the two pressure parameters, diastolic and
2 systolic, are usually a little more
3 uncomfortable for most patients, especially in a
4 critical care setting. That's all I was trying
5 to allude to as far as more invasive.

6 BY MS. HOEKEL:

7 Q. Does the term "cuff" in the device cuff
8 transducer tell you anything about the device?

9 MS. LAM: Objection. Form.

10 THE WITNESS: As a PHOSITA, in the
11 context of recording blood pressure, yes. There
12 are other types of cuff-type mechanisms that are
13 well known for different parameters. For
14 example, you may want to look at, for example,
15 movement of the patient. You may want to
16 consider other parameters.

17 So I was just limiting it to the
18 context of blood pressure cuffs.

19 BY MS. HOEKEL:

20 Q. You discussed Akai in your previous
21 testimony, and Akai showed an embodiment where
22 some of the sensors were internal.

1 Do you recall that?

2 A. Yes. Yes, ma'am.

3 Q. Would a PHOSITA be able to make -- to
4 move those sensors to different locations within
5 the Akai system?

6 A. Yes.

7 MS. LAM: Objection. Form.

8 THE WITNESS: Yes, it could, which is
9 why I utilized the other patents to support it.
10 Yes.

11 BY MS. HOEKEL:

12 Q. And going back to cuff transducers,
13 have you seen a pulse oximetry cuff transducer?

14 MS. LAM: Objection. Form.

15 THE WITNESS: I've not seen it directly
16 in my experience, but a PHOSITA should know,
17 including myself, that they were well known
18 previous to a lot of these devices and probably
19 used less in this time frame of patents being
20 discussed.

21 But they were available. I think it
22 came up a couple of times. So could I name any

1 examples? No. Or any specific brands? No.

2 But I know that they existed.

3 BY MS. HOEKEL:

4 Q. Can you describe for us what a cuff
5 means to someone of ordinary skill.

6 MS. LAM: Objection. Form.

7 THE WITNESS: Usually a cuff implies
8 that you can inflate using pneumatic means to
9 inflate, in the case of blood pressure devices,
10 to wrap around the arm to create the pressure
11 differential required to obtain your blood
12 pressures -- your blood pressure.

13 BY MS. HOEKEL:

14 Q. So does a cuff generally wrap around
15 some portion of the body?

16 MS. LAM: Objection. Form.

17 THE WITNESS: In most contexts as a
18 PHOSITA would understand it, yes, it does.

19 BY MS. HOEKEL:

20 Q. Okay. And is that generally more
21 invasive than, like, a finger LED pulse oximetry
22 unit?

1 MS. LAM: Objection. Form.

2 THE WITNESS: A PHOSITA, including
3 myself, would say yes, it's more uncomfortable,
4 especially when you're trying to use it on more
5 elderly patients or kids that don't appreciate
6 that. It's a lot easier to use the finger
7 sensor technology, and you could apply it
8 much --

9 BY MS. HOEKEL:

10 Q. When you use the term --

11 A. Does that answer your question,
12 Counselor?

13 Q. Yeah, that's fine.

14 When you use the term -- strike that.
15 Let me start over.

16 I said is a cuff more invasive than a
17 finger pulse oximetry unit, and you responded
18 and said it's uncomfortable.

19 Is comfort and invasiveness -- are
20 comfort and invasiveness related?

21 MS. LAM: Objection. Form.

22 THE WITNESS: They can. Again, one

1 person's discomfort is extremely subjective.

2 But from a design perspective, which any
3 PHOSITA, including myself, one would design to
4 minimize patient discomfort.

5 But, again, discomfort a lot of times
6 is a very subjective term according to the
7 patient you're talking to and how long is this
8 device connected to the patient.

9 MS. HOEKEL: I don't have any further
10 questions. Thank you, Dr. Yanulis.

11 Ms. Lam?

12 MS. LAM: Can you give me ten minutes,
13 please?

14 THE VIDEOGRAPHER: Okay. Stand by
15 while we go off the record.

16 The time is 12:16 p.m., and we're going
17 off the record.

18 (Recess taken.)

19 THE VIDEOGRAPHER: The time is
20 12:27 p.m., and we're back on the record.

21

22

1 FURTHER EXAMINATION

2 BY MS. LAM:

3 Q. Dr. Yanulis, I have a couple more
4 questions for you.

5 When you said a ported connection could
6 include a hard wire, what did you mean?

7 A. That's a very raw term, but a PHOSITA
8 would understand that any kind of wired
9 connection could be connected to a sensor.
10 That's -- most sensors are usually -- are just
11 referred to as communication units, and those
12 are usually a hard-wire type of sensor.

13 Q. Is a hardwired connection a permanent
14 connection?

15 MS. HOEKEL: Object to the form.

16 THE WITNESS: Again, in the context of
17 PHOSITA and the art that we're discussing, it
18 more than likely is permanent in the sense it's
19 permanent for the sensor configuration design,
20 but it's not hardwired. It's a
21 hard-wire-configuration type of design, and
22 those are usually permanent.

1 BY MS. LAM:

2 Q. You mentioned that a hardwired
3 connection could be a soldered connection.

4 Could there be any other type of
5 hardwired connection?

6 MS. HOEKEL: Object to the form.

7 THE WITNESS: Any PHOSITA, including
8 myself, should understand that when you hardwire
9 or fabricate, it could imply actually soldering
10 connections at different ports of the wire
11 comprising the sensor, which is different than
12 having to hardwire a different sensor into a --
13 as a connection to the actual monitoring unit.

14 So I want to make sure the distinction
15 is made. It has to be discussed in what you're
16 asking me as far as the sensor itself or the
17 connection to the sensor.

18 BY MS. LAM:

19 Q. Is a soldered connection a permanent
20 connection?

21 A. Usually it's design. But with any --
22 having done it myself hundreds of times and

1 taught students how to do it, all you have to do
2 is heat a soldered connection, and you can
3 disconnect the wire. That's pretty well known
4 in the art.

5 So is it permanent in that sense? No,
6 because you can detach a connection that's been
7 hardwired. It's not -- that's a trivial kind of
8 thing.

9 Q. But for a consumer, would a soldered
10 connection be a permanent connection?

11 A. In view of most consumers, they would
12 prefer, because most consumers do not want to
13 take out a soldering gun and try to melt the
14 connection where the wire's attaching to a
15 particular portion of said system. So they
16 would assume and would hope that it would be a
17 permanent type of connection for a standard
18 consumer.

19 MS. LAM: No further questions.

20 MS. HOEKEL: No further questions.

21 THE WITNESS: Counselor, I want to
22 thank you for being so gracious, and I

1 appreciate the opportunity to discuss my
2 declarations more fully. And you have a great
3 day.

4 MS. LAM: You too.

5 THE VIDEOGRAPHER: If there's no more
6 statements for the record, we are going to go
7 off. Stand by.

8 The time is 12:31 p.m., February 1,
9 2021. We are going off --

10 THE WITNESS: Daniel --

11 THE VIDEOGRAPHER: -- [overspoken.]

12 THE WITNESS: -- and everybody else,
13 thank you.

14 THE VIDEOGRAPHER: Okay. We're off.
15 Take care, everybody.

16 (At 12:31 p.m. EST the
17 deposition of GEORGE YANULIS,
18 PHD, was adjourned.)

19

20

21

22

1 STATE OF CALIFORNIA)
2 COUNTY OF LOS ANGELES) SS.
3

4 I, AUDRA E. CRAMER, CSR No. 9901, in and for the
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7 That said deposition was taken down by me in
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9 of said proceedings;

10 I further certify that I am not interested in the
event of the action.

11 Witness my hand this ____ day of _____,
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Certified Shorthand
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1 George Emanuel Yanulis, Ph.D. Vol III, c/o
HUSCH BLACKWELL LLP

2 190 Carondelet Plaza, Suite 600
St. Louis, Missouri 63105

3
Case: Sotera Wireless, Inc. v. Masimo Corp.

4 Date of deposition: February 1, 2021

Deponent: George Emanuel Yanulis, Ph.D. Vol III

5

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7

8 Case: Sotera Wireless, Inc. v. Masimo Corp.
9 Witness Name: George Emanuel Yanulis, Ph.D. Vol III
10 Deposition Date: February 1, 2021

11 Page No. Line No. Change
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22 Signature Date