

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

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APPLE INC.,

Petitioner,

v.

MASIMO CORPORATION,

Patent Owner.

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Case IPR2024-00294

U.S. Patent 10,736,507

9:56 A.M.

REMOTE DEPOSITION

OF R. JAMES DUCKWORTH, Ph.D.

May 13, 2025

Reported By:

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1 Transcript of the deposition of
2 R. JAMES DUCKWORTH, Ph.D, called for Oral
3 Examination in the above-captioned matter,
4 said Deposition being taken pursuant to
5 Federal Rules of Civil Procedure by and
6 before RANDI J. GARCIA, Registered
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I N D E X

WITNESS: R. JAMES DUCKWORTH

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1 R. J A M E S D U C K W O R T H, after having
2 been first duly sworn, was examined and
3 testified as follows:

4 EXAMINATION

5 BY MR. BIENIUS:

6 Q. We're here today regarding IPR
7 proceeding IPR2024-00294 regarding U.S. Patent
8 number 10,736,507.

9 Dr. Duckworth, is there any reason
10 that you cannot give truthful and accurate
11 testimony today?

12 A. Nope.

13 Q. To ensure clarity, I will define
14 several terms that will be used throughout the
15 deposition.

16 When I use the term "patent owner" or
17 "Masimo," I'm referring to Masimo Corporation,
18 the patent owner in the proceeding.

19 Do you understand?

20 A. Yes.

21 Q. When I use the term "Apple" or
22 "petitioner," I'm referring to Apple Inc.

1 Do you understand?

2 A. Yes.

3 Q. When I use the term the '507 patent,
4 I'm referring to U.S. Patent number 10,736,507.

5 Do you understand?

6 A. Yes.

7 Q. When I use the phrase "this IPR" or
8 "this proceeding," I'm referring to IPR
9 proceeding number IPR2024-00294 filed against
10 the '507 patent.

11 Do you understand?

12 A. Yes.

13 Q. You understand that the '507 patent
14 is Exhibit 1001 in this proceeding; correct?

15 A. Yes.

16 Q. When I use the acronym "POSITA," I'm
17 referring to a person of ordinary skill in the
18 art at the time of the alleged invention.

19 Do you understand?

20 A. Yes.

21 Q. You've submitted three declarations
22 in this proceeding; correct?

1 A. Yes.

2 Q. Your most recent declaration in this
3 proceeding is Exhibit 2058 submitted on
4 April 24, 2025. Is that correct?

5 A. Yes.

6 Q. When I use the term "your
7 declaration," I'm referring to Exhibit 2058 in
8 this proceeding.

9 Do you understand?

10 A. Yes.

11 Q. Can you please describe how you
12 prepared for today's deposition.

13 A. I reviewed my declaration and
14 associated documents with counsel.

15 Q. Approximately how much time did you
16 spend preparing for today's deposition?

17 A. Maybe about 20 hours.

18 Q. As part of your preparation to
19 testify today, please identify each person you
20 communicated with, either in person or via Zoom
21 or video or telephone conference.

22 A. The counselors Philip Nelson and

1 Paul Spiel that are on the call and I think
2 maybe also with Doug, and I forget his last
3 name.

4 Q. Approximately when did you begin
5 working on your most recent declaration for
6 this proceeding?

7 A. Approximately -- can you ask the
8 question again, please.

9 Q. Approximately when did you begin
10 working on your most recent declaration for
11 this proceeding?

12 A. It's -- the declaration is dated
13 April 24th, so I believe maybe two or three
14 weeks before then.

15 Q. Are you currently aware of any errors
16 that exist in your most recent declaration?

17 A. Yes. I've identified a few mistakes.

18 Q. Can you please point those out now.

19 A. Yes.

20 So the first one is on page 18. At
21 the bottom of page 18, the next-to-last
22 sentence says "or the second cable 120." That

1 should say "second cable 140."

2 Q. You said page 18?

3 A. Yes. Uh-huh. Very bottom of the
4 page 18.

5 Q. All right. I see that. Thank you.

6 A. The next one is on page 34. The
7 D. section heading says, "Yield the Limitations
8 [21f] and [21g]." It should actually say,
9 "Yield the Limitations [21f] to [21l]."

10 Q. Thank you.

11 A. The next one is on page 38. The end
12 of paragraph 72, the last sentence -- last two
13 sentences refer to "Figure 1B of Kianl." Those
14 two places should actually say "Figure 1A." So
15 instead of "Figure 1B" in two places, it should
16 say "Figure 1A."

17 Q. Thank you.

18 A. The next one is on page 40. And that
19 is the end of paragraph 76. It should say with
20 "respect to limitation" -- instead of saying
21 "with respect to limitations [21f] and [21g],"
22 it should say "with respect to limitations

1 [21f] to [211].

2 Q. Okay.

3 A. And the last one is on page 42. In
4 paragraph 79, the paragraph after the figure
5 just says "exhibit." That should actually say
6 "EX1118," which is the Soden exhibit.

7 Q. Okay.

8 A. That's it.

9 Q. Thank you.

10 What is the function of an
11 analog-to-digital converter?

12 A. Can you point me where you're looking
13 in my declaration.

14 Q. Sure. You discuss analog-to-digital
15 converters in paragraph 58, among other places.

16 A. So analog-to-digital converter, as
17 the name describes, converts an analog signal
18 to a digital signal.

19 Q. So the input to an analog-to-digital
20 converter is always an analog signal, is that
21 correct?

22 A. I don't know whether there's

1 circumstances where there may be a special
2 case, but this regards this IPR proceedings and
3 my declaration. When I refer to an
4 analog-to-digital converter, the input would
5 always be analog.

6 Q. And the output of analog-to-digital
7 converter is always a digital signal, is that
8 correct?

9 A. Again, you know, restricting so
10 there's no special cases here, in my
11 declaration when I refer to an
12 analog-to-digital converter, the output would
13 be digital.

14 Q. The term "analog-to-digital
15 converter" is sometimes abbreviated as ADC, as
16 you've done in paragraph 58, is that correct?

17 A. That is correct.

18 Q. Is it correct that a POSITA during
19 the relevant time frame would have known how an
20 analog-to-digital converter functions?

21 A. Yes.

22 Q. Would an analog-to-digital converter

1 typically include one or more transistors?

2 A. Where are you referring to
3 transistors in the description?

4 Q. Well, I'm trying to understand how an
5 analog-to-digital converter works. You stated
6 that a POSITA during the relevant time frame
7 would understand how an analog-to-digital
8 converter functions.

9 So my question is: Would an
10 analog-to-digital converter typically include
11 one or more transistors?

12 A. In general -- well, there can be a
13 number of ways to implement an
14 analog-to-digital converter. For this
15 proceeding, as we just discussed, the input is
16 an analog signal; the output is digital. The
17 actual mechanics of how that conversion is
18 carried out, there can be -- what I'm saying is
19 there can be a variety of ways that -- to
20 actually implement an analog-to-digital
21 converter.

22 And the implementation inside an

1 analog-to-digital converter may consist of a
2 number of electrical components, including
3 transistors.

4 Q. Would an analog-to-digital converter
5 typically include one or more resistors?

6 MR. NELSON: Objection, form.

7 Objection, foundation.

8 THE WITNESS: I haven't provided an
9 opinion on the internal structure of an
10 analog-to-digital converter. Again, could
11 you point me to somewhere in my
12 declaration where I'm referring to that or
13 one of the other references?

14 BY MR. BISENIUS:

15 Q. We can move on.

16 Is converting an analog signal to a
17 digital signal a form of signal processing?

18 MR. NELSON: Objection, foundation.

19 THE WITNESS: Can you point me to the
20 specific use of processing. Processing
21 can mean many things. Can you point to --
22 me to where you're using that term.

1 BY MR. BIENIUS:

2 Q. Sure. One example would be
3 paragraph -- paragraphs 50 through 51 are
4 discussing claim limitation [22c], which
5 discusses advanced signal processing and is
6 relevant to signal processing. So my question
7 is: Is converting an analog signal to a
8 digital signal a form of signal processing?

9 A. So, again, you're pointing me to
10 paragraphs 50 and 51. In those paragraphs, the
11 advanced signal processing is referring to the
12 parallel engines and adaptive filters. I don't
13 see any mention of analog-to-digital conversion
14 in the context of paragraphs 51 -- 50 and 51
15 where we are talking about advanced signal
16 processing algorithms.

17 Q. Is converting an analog signal to a
18 digital signal a type of advanced signal
19 processing?

20 A. Again, I want to be clear that in the
21 context of your use of the term advanced signal
22 processing and how I'm using it in

1 paragraph 51, this is referring to where the
2 processing module, 130, in some embodiments
3 employs advanced signal processing techniques,
4 including parallel engines and adaptive
5 filters.

6 So that's what I'm meaning by
7 "advanced signal processing algorithms" in
8 Exhibit 2045, paragraph 32.

9 Q. Okay. I can reframe the question a
10 bit.

11 In the last sentence of paragraph 50,
12 you state, quote, "The intrinsic evidence from
13 the '507 patent provides a POSITA with
14 reasonable certainty as to the scope of the
15 claimed limitations," end quote.

16 And you're discussing limitation
17 [22c] here. So the question is: Would
18 converting an analog signal to a digital signal
19 fall within the scope of the claimed advanced
20 signal processing algorithm?

21 A. No. As I describe at the end of
22 paragraph 51, "Therefore, in my opinion, a

1 POSITA would ascertain with reasonable
2 certainty whether a signal processing algorithm
3 is advanced based on its use of parallel
4 engines and/or adaptive filters to reduce noise
5 and improve measurement accuracy."

6 Q. Is converting an analog signal to a
7 digital signal a form of signal processing?

8 MR. NELSON: Objection, asked and
9 answered.

10 THE WITNESS: I believe I answered
11 that before when we were referring to
12 paragraph 58, and I said that an
13 analog-to-digital converter converts an
14 analog to a digital signal.

15 BY MR. BISENIUS:

16 Q. My question is: Is that conversion
17 from an analog signal to a digital signal a
18 form of signal processing?

19 MR. NELSON: Same objection.

20 THE WITNESS: Again, we need to be
21 specific when you say "a form of signal
22 processing." Can you point me to where

1 specifically you're looking at that
2 description.

3 BY MR. BISENIUS:

4 Q. Well, for example, in the first
5 sentence of paragraph 58, you state, quote,
6 "Apple relies on Poeze's embodiments where the
7 'front-end interface [508] adapts a signal 524
8 received from one or more of the detectors 506
9 into a form that can be processed by the
10 monitor 118,'" end quote.

11 Here you're saying that the monitor
12 118 is processing the signal 524. And so in
13 the context of that use of the term
14 "processing," of a signal, is conversion of a
15 signal from analog to a digital signal a form
16 of signal processing?

17 MR. NELSON: Same objection.

18 THE WITNESS: I think you
19 mischaracterized my description in 50 --
20 paragraph 58, Counselor.

21 I state "where the front-end
22 interface adapts a signal 524 received

1 from one or more of the detectors 506,
2 into a form that can be processed by the
3 monitor 118.'" "

4 I don't use the term "signal
5 processing" there. I didn't use the term
6 "processed" in that sentence. As I said,
7 I state there "where 'front-end interface
8 adapts a signal 524 received from one or
9 more of the detectors 506 into a form that
10 can be processed by the monitor 118.'" "

11 BY MR. BISENIUS:

12 Q. My question is: Would conversion of
13 an analog signal to a digital signal fall into
14 that category of being processed? So does
15 conversion of an analog signal to a digital
16 signal qualify as a form of signal processing?

17 MR. NELSON: Same objection.

18 THE WITNESS: Can you repeat the
19 question, Counselor, because I think I
20 advanced that with what I quoted the start
21 of paragraph 58.

22

1 BY MR. BISENIUS:

2 Q. Well, when you just gave your last
3 answer, you described what happens before the
4 processing of the monitor.

5 My question is: Would
6 analog-to-digital conversion of the signal
7 qualify as signal processing?

8 MR. NELSON: Same objection.

9 THE WITNESS: Again, I need you to be
10 more specific when you say, "Can it
11 qualify as signal processing?"

12 Can you -- can you be more specific
13 in how you're using that -- using that
14 term as regards to my paragraph 58?

15 (Thereupon, Exhibit 1110 was marked for
16 identification.)

17 BY MR. BISENIUS:

18 Q. Sure. We can come back to that
19 question. I think it will be helpful if we
20 dive into some examples from the sections
21 you've cited from Poeze.

22 So let's turn to the Poeze reference.

1 This is U.S. Patent application publication
2 number 2011/0082711, which is Exhibit 1110 in
3 this proceeding.

4 Please let me know when you have that
5 open.

6 A. I do have that Poeze -- Poeze patent
7 open.

8 Q. When I use the term "Poeze," I'm
9 referring to Exhibit 1110.

10 Do you understand?

11 A. Yes.

12 Q. Have you read the entire Poeze
13 reference?

14 A. Yes, I have.

15 Q. Can you please turn to paragraph 124
16 of Poeze.

17 A. I'm at 124.

18 Q. The first sentence of paragraph 124
19 states, quote, "In some embodiments, a
20 programmable gain amplifier (PGA) can be used
21 in combination with a transimpedance-based
22 front-end interface 508," end quote.

1 Do you see that?

2 A. I see that in paragraph 124, yes.

3 Q. What is a programmable gain
4 amplifier?

5 MR. NELSON: Objection, foundation.

6 THE WITNESS: As the name describes
7 in paragraph 124, it's an amplifier that
8 can have a programmable gain.

9 BY MR. BISENIUS:

10 Q. Would that amplification of the input
11 signal be a form of signal processing?

12 MR. NELSON: Objection, foundation.

13 THE WITNESS: Again, Counselor, I
14 need you to point me to the use of the
15 term "signal processing" in my -- my
16 declaration so I can respond to that.

17 BY MR. BISENIUS:

18 Q. Once again, I'm specifically
19 referring to the sentence from Poeze that you
20 quote in your first sentence of paragraph 58 of
21 your declaration where it discusses at the end
22 of that sentence, "a form that can be processed

1 by the monitor 118."

2 So that's the signal processing I'm
3 referring to. And so outside of the scope
4 of -- I'm not asking you: Is it -- is this
5 processing, processing that's happening by the
6 monitor 118?

7 I'm more broadly asking you: Is this
8 amplification that's performed by the
9 programmable gain amplifier a form of signal
10 processing?

11 MR. NELSON: Same objection.

12 THE WITNESS: In my declaration, I'm
13 referring to Apple's use of the Poeze
14 embodiments, and I'm quoting the section
15 from -- from Apple where they are
16 referring to paragraph 120.

17 I don't -- I didn't provide an
18 opinion on because I don't believe Apple
19 used the programmable gain amplifier in
20 their description of their embodiments
21 they were using.

22

1 BY MR. BISENIUS:

2 Q. There were several citations to this
3 paragraph in the opposition to the revised
4 motion to amend, and that's the section that
5 you're addressing here in paragraphs 55 through
6 64. And so I want to get a better
7 understanding of the processing performed by
8 the front-end interface 508, which you discuss
9 quite a bit, and the processing that happens
10 after the front-end interface.

11 So looking at this first sentence of
12 paragraph 124, would you agree that the
13 processing by the programmable gain amplifier
14 happens after the front-end interface 508?

15 MR. NELSON: Objection, form.

16 THE WITNESS: Counselor, you used the
17 term "processing by the programmable gain
18 amplifier."

19 BY MR. BISENIUS:

20 Q. Yes.

21 A. Where specifically is the use of that
22 term "processing"? Because that's not how

1 Poeze describes that. It just talks about a
2 programmable gain amplifier.

3 Q. If I can reframe the question. The
4 output of the front-end interface 508 is
5 received by the programmable gain amplifier, is
6 that correct?

7 MR. NELSON: Objection, foundation.

8 THE WITNESS: I'm not sure now where
9 you're looking in my declaration. Can you
10 point me to that, please.

11 BY MR. BISENIUS:

12 Q. Well, I'm referring to paragraph 124
13 of Poeze, which is discussing processing
14 performed by the front-end interface 508 and
15 other components that the front-end interface
16 508 interacts with.

17 A. But I need the specific context in
18 which you're asking me about that -- that
19 description of the programmable gain amplifier
20 in my declaration so I can make sure I'm
21 responding accurately to your question.

22 Q. All right. So, for example, in

1 paragraph 59 of your declaration, the last
2 sentence, you state, quote, "The monitor 118 is
3 able to 'receive' and 'process' the signal
4 without requiring the monitor to perform any
5 analog-to-digital conversion because, in the
6 Poeze embodiments Apple relies on, the monitor
7 receives signals that have already been
8 converted by the front-end interface's ADC into
9 the digital 'form that can be processed by the
10 monitor 118,'" end quote.

11 Do you see that?

12 A. Yes. I believe you read the end of
13 my paragraph 59, yes.

14 Q. So we're talking about processing
15 performed by the front-end interface 508 and
16 processing performed by the monitor 118. That
17 is the bulk of your discussion from paragraphs
18 55 through 64. So this is relevant to all of
19 those.

20 So my question is: Is the output of
21 the front-end interface 508 received by the
22 programmable gain amplifier?

1 MR. NELSON: Objection, foundation.

2 THE WITNESS: Again, Counselor, in
3 paragraph 59 that you just read, I don't
4 refer to the programmable gain amplifier.

5 I just state that the monitor to
6 receive signals that have already been
7 converted by the front-end interface's
8 analog-to-digital converter in the digital
9 form that can be processed by the monitor
10 118.

11 BY MR. BISENIUS:

12 Q. Yes, and you're making assertions
13 about what the form is of that signal, what is
14 the form that can be processed by the monitor
15 118. So to understand that, I believe we need
16 to discuss the processing that occurs at the
17 monitor 118.

18 Do you understand how the processing
19 at the monitor 118 occurs in Poeze?

20 A. I describe that very clearly in
21 paragraph 58. I explained what I mean by the
22 form that can be processed.

1 The middle of paragraph 58, I state,
2 "However, that analog signal must be converted
3 ('adapt[ed]') into a digital signal (another
4 'form') before it can be processed by the
5 signal processor 510 in monitor 118."

6 So I describe there that the "adapts
7 into a form" is it must be converted into a
8 digital signal before it can be processed.

9 So there I describe that conversion.

10 Q. So I want to talk about the
11 processing that actually occurs. We were
12 talking about the form of the signal that can
13 be processed. We need to talk about the
14 processing and what the signal is at the
15 monitor 118.

16 So my question is: Looking at
17 paragraph 124 of Poeze, does the programmable
18 gain amplifier receive an output signal from
19 the front-end interface 508?

20 MR. NELSON: Objection. Foundation.

21 THE WITNESS: Again, Counselor, I
22 think I'm very clear in paragraph 58 what

1 that form is that I'm referring to. And
2 specifically that sentence I just read, I
3 can read it again.

4 "That analog signal must be converted
5 ('adapt[ed]') into a digital signal
6 (another 'form') before it can be
7 processed by the signal processor 510 in
8 monitor 118."

9 So that's the conversion into the
10 digital signal.

11 BY MR. BISENIUS:

12 Q. Do you understand what processing
13 occurs in the monitor 118 in the embodiments
14 described in Poeze?

15 MR. NELSON: Objection, foundation.

16 THE WITNESS: There's a lot of
17 embodiments described. Can you be
18 specific about which one?

19 BY MR. BISENIUS:

20 Q. Yeah. Specifically the embodiment
21 described in paragraph 124 of Poeze. Do you
22 understand the processing performed by the

1 monitor 118 in paragraph 124?

2 MR. NELSON: Objection, foundation.

3 THE WITNESS: Specifically in 124,
4 it's -- that sentence we were just looking
5 at, it's talking about "a programmable
6 gain amplifier can be used in combination
7 with transimpedance-based front-end
8 interface 508."

9 BY MR. BISENIUS:

10 Q. Would a programmable gain amplifier
11 amplify the input signal by increasing the
12 voltage of the signal?

13 MR. NELSON: Objection, foundation.

14 THE WITNESS: I have not provided an
15 opinion on how a programmable gain
16 amplifier works. You're asking me a
17 general question about what it might do.
18 It is possible a programmable gain
19 amplifier could increase the voltage.

20 BY MR. BISENIUS:

21 Q. A voltage is an analog signal, is
22 that correct?

1 MR. NELSON: Objection, foundation.

2 THE WITNESS: I don't use that term
3 in my declaration. Are we talking in
4 general terms now, Counselor?

5 BY MR. BISENIUS:

6 Q. Well, I can make it more specific to
7 this.

8 Is the processing performed by the
9 programmable gain amplifier analog signal
10 processing or digital signal processing?

11 MR. NELSON: Objection, foundation.

12 THE WITNESS: Those -- again, those
13 terms are not used in my declaration.
14 I've not used those terms in my
15 declaration. And I don't see Poeze using
16 those descriptions.

17 So, again, I'd like you to be
18 specific to help me understand the context
19 of your question in light of my
20 declaration.

21 BY MR. BISENIUS:

22 Q. I'm trying to understand what exactly

1 the programmable gain amplifier does to the
2 signal. And earlier you stated that it would
3 amplify the signal.

4 And so my question is: How is it
5 amplifying the signal? Is it amplifying an
6 analog signal? And if so, what form would that
7 take? Or what examples of forms would that
8 take? Or is it amplifying a digital signal --

9 MR. NELSON: Object to form.

10 BY MR. BISENIUS:

11 Q. -- and how long would that take?

12 MR. NELSON: Objection to form.

13 BY MR. BISENIUS:

14 Q. But I can break it into pieces.

15 Would the programmable gain amplifier
16 described in paragraph 124 be operating on an
17 analog signal or a digital signal?

18 A. I believe in the context of paragraph
19 124, it would be operating on an analog signal.

20 Q. Continuing with this second sentence
21 in paragraph 124, it states, quote, "For
22 example, the output of a transimpedance-based

1 front-end interface 508 can be output to a PGA
2 as coupled with an ADC in the monitor 118," end
3 quote.

4 So in this sentence, it's stating
5 that the analog-to-digital converter is in the
6 monitor 118, is that correct?

7 A. What Poeze describes there, it says
8 it can be output to a PGA that is coupled with
9 an ADC in the monitor 118.

10 Q. And as we previously discussed, the
11 function of an ADC is to convert an analog
12 signal to a digital signal; correct?

13 A. As I describe in paragraph 58,
14 "Therefore, Poeze's front-end interface 508
15 includes at least one analog-to-digital
16 converter to output 'digital information for
17 processing by the signal processor 510 of the
18 monitor 118.'"

19 Q. I'm talking about the specific
20 embodiment described in paragraph 124, which
21 states that "the output of a
22 transimpedance-based front-end interface 508

1 can be output to a PGA that is coupled with an
2 ADC in monitor 118."

3 So it's the PGA that's receiving the
4 output of the front-end interface, and that's
5 coupled to an analog-to-digital converter
6 that's in the monitor.

7 And so in this embodiment, the
8 analog-to-digital converter would be converting
9 an analog signal to a digital signal within the
10 monitor, is that correct?

11 MR. NELSON: Objection, foundation.

12 THE WITNESS: Your previous question
13 asked me about: What does an analog-to
14 digital converter do?

15 And so I was reading part of my
16 paragraph 58 that explains it converts it
17 to digital information for processing by
18 the signal processor 510 in the embodiment
19 that I was referring to in paragraph 58,
20 which is where Apple is using the
21 embodiment where the analog-to-digital
22 converter is in the front-end interface

1 508.

2 BY MR. BISENIUS:

3 Q. Looking specifically at the
4 embodiment described in paragraph 124, the
5 signal received by monitor 118 is an analog
6 signal, is that correct?

7 A. I want to make sure I understand your
8 question correctly. Do you mind repeating
9 that, please.

10 Q. In the embodiment described in
11 paragraph 124 of Poeze, the signal received by
12 the monitor 118 is an analog signal, is that
13 correct?

14 A. In the specific embodiment described
15 in 124, when it talks about the PGA that is
16 coupled with an ADC in the monitor 118, then
17 the ADC would be receiving an analog signal.

18 Q. And the ADC is in the monitor 118 in
19 this embodiment, so the monitor 118 would be
20 receiving analog signal, is that correct?

21 MR. NELSON: Objection, form.

22 THE WITNESS: The ADC as described in

1 paragraph 124 of Poeze, it says "an ADC in
2 the monitor 118."

3 (Thereupon, Exhibit 1001 was marked for
4 identification.)

5 BY MR. BISENIUS:

6 Q. I'd like to turn to the '507 patent,
7 which is Exhibit 1001.

8 A. I have that.

9 Q. Start out talking about Figure 1A.
10 Figure 1A shows a first cable 120 leading from
11 the sensor 110 to the processing module 130, is
12 that correct?

13 A. Are you reading a specific paragraph
14 in -- in the patent there? Just so we can be
15 specific and accurate.

16 Q. I'm referring to the description of
17 Figure 1A in general. I can find the paragraph
18 for you.

19 For example, the paragraph that
20 starts at the bottom column 3 around line 57
21 discusses the cables 120 and 140 and the
22 processing module 130, et cetera.

1 So the question is: Figure 1A shows
2 a first cable 120 leading from the sensor 110
3 to the processing module 130; correct?

4 A. That paragraph you were reading
5 states, "The physiological monitoring system
6 100 shown in Figure 1A includes a sensor 110,
7 first cable 120, processing module 130, second
8 cable 140," et cetera.

9 Q. Is the signal carried by the cable
10 120 an analog signal or a digital signal?

11 MR. NELSON: Objection, foundation.

12 THE WITNESS: Sorry. In my
13 paragraph 53, I refer to the patent. And
14 I say, "In my opinion, a POSITA would have
15 understood that the plain and ordinary
16 meaning of 'one or more analog signals
17 responsive to light' output by the optical
18 sensor refers to data that is actually
19 acquired with the optical sensor."

20 And I continue on in that same
21 paragraph there: "That 'sensor data is
22 transmitted from sensor 110 along the

1 first cable 120 to the processing module
2 130.'" "

3 So that's an analog signal responsive
4 to light that is transmitted along
5 signal -- along cable 120.

6 BY MR. BISENIUS:

7 Q. What form does the signal carried by
8 the cable 120 take? For example, is the signal
9 a change in voltage, a change in current, or
10 something else?

11 MR. NELSON: Objection, foundation.

12 THE WITNESS: So, Counselor, I
13 believe you're asking: Is the analog
14 signal along cable 120 a voltage or a
15 current?

16 This -- I don't make a distinction in
17 my declaration. I just refer to it as an
18 analog signal responsive to light.

19 And I don't believe the '507 patent
20 makes a distinction whether it's voltage
21 or -- or current.

22

1 BY MR. BISENIUS:

2 Q. Figure 1A shows a second cable 140
3 leading from the processing module 130 to a
4 connection port 150 of a smartphone 160. Is
5 that correct?

6 A. Again, it sounded like you were
7 reading part of that same paragraph in the
8 '507 patent. I stopped reading before, but it
9 continues: "Processing module 130, second
10 cable 140, connection port 150, and a mobile
11 computing device, illustrated here as
12 smartphone 160."

13 Q. Is the signal carried by the second
14 cable 140 an analog signal or a digital signal?

15 MR. NELSON: Objection, foundation.

16 THE WITNESS: Are you referring to
17 somewhere in my declaration? Because I
18 don't believe I -- I describe what is
19 being passed in those terms along 140.

20 Are you referring to something
21 specific there?

22

1 BY MR. BISENIUS:

2 Q. This is relevant to the processing
3 that occurs within the module 130. And so my
4 question is: Is the signal carried by the
5 second cable 140 an analog signal or a digital
6 signal?

7 MR. NELSON: Same objection.

8 THE WITNESS: So it would help again
9 if you're saying you're -- you're asking
10 me about what happens after the processing
11 130. Can you refer to me somewhere in my
12 declaration where I'm describing that?

13 BY MR. BISENIUS:

14 Q. In paragraph 53, for example, you're
15 talking about sensor data, the data that is
16 actually acquired by the optical sensor. I'm
17 establishing the scope of these claims.

18 I'm asking: After this processing,
19 so after the processing board, is the signal
20 carried by the cable 140 analog signal or
21 digital signal?

22 MR. NELSON: Objection, foundation.

1 THE WITNESS: In paragraph 53, I'm
2 not describing anything that is happening
3 beyond the processing board 130. I'm
4 describing what is happening between the
5 optical sensor 110, and the processing
6 module 130.

7 BY MR. BISENIUS:

8 Q. So sitting here today, you're not
9 sure if the signal on the cable 140 is an
10 analog signal or a digital signal, is that
11 correct?

12 MR. NELSON: Objection to form.

13 THE WITNESS: That's not -- that
14 wasn't my answer.

15 I was asking you to please point to
16 where I'm describing what is happening on
17 cable 140 of my declaration.

18 I don't believe I've described that.
19 So what I would need to do now is go and
20 look at the Poeze -- sorry -- look at the
21 '507 patent and then find the relevant
22 description of cable 140 and what has been

1 transmitted along there to answer your
2 question.

3 BY MR. BISENIUS:

4 Q. Maybe I can come at this from a
5 different angle. The claims -- the revised
6 claims refer to "one or more analog signals
7 responsive to the light from a light source
8 attenuated by tissue of the user at a
9 measurement site."

10 The term "analog signal" or "analog
11 signals" does not actually appear in the
12 '507 patent. So I'm wondering where you're
13 finding support in the patent for the signals
14 on cable 120 being one or more analog signals?

15 MR. NELSON: Objection, form
16 Objection, foundation.

17 THE WITNESS: So I want to be clear,
18 Counselor. Earlier you were asking me
19 about cable 140. Now we are going back to
20 talking about cable 120, which I believe I
21 discussed quite thoroughly in my
22 paragraph 53.

1 So I can go through and, you know,
2 repeat some of those descriptions from
3 paragraph 53, if you would like.

4 BY MR. BISENIUS:

5 Q. Yeah, I would like you to identify
6 specific portions of the '507 patent that
7 describe the signal carried by cable 120 as
8 being an analog signal.

9 MR. NELSON: Objection, form.

10 THE WITNESS: So let me read --
11 excuse me.

12 Let me read paragraph 53, then.

13 "In my opinion, a POSITA would have
14 understood that the plain and ordinary
15 meaning of 'one or more analog signals
16 responsive to light' output by the optical
17 sensor refers to data that is actually
18 acquired with the optical sensor. This
19 understanding is supported by the
20 specification of the '507 patent. For
21 instance, the specification explains that
22 'the sensor has light emitting diodes

1 (LEDs) that transmit [light] into a tissue
2 site and a detector.' Exhibit 1001,
3 1:28-34."

4 "The specification also explains that
5 the 'sensor 110 provides data in the form
6 of an output signal indicative of light'
7 measured from 'body tissues.'
8 Exhibit 1001 at 4:46-51.

9 "That output signal data from the
10 sensor is indicative of measured light
11 because it is light intensity data
12 acquired with the sensor detector.
13 Exhibit 1001, 1:28-34; 4:46-51."

14 "The detector 'responds to the
15 intensity' of light by outputting data (an
16 analog electrical signal) corresponding to
17 the intensity of the light that it
18 measures. Exhibit 1001, 1:28-34; or
19 4:46-51.

20 "That 'sensor data is transmitted
21 from sensor 110 along the first cable 120
22 to the processing module 130, which can

1 apply noise filtering and signal
2 processing techniques described below.'"
3 Exhibit 1001, 4:67-5:4.

4 "Therefore, it is my opinion that the
5 POSITA would have understood that the
6 plain meaning of 'one or more analog
7 signals responsive to light' output by the
8 optical sensor and received by the
9 processing board refers to data actually
10 acquired with the optical sensor."

11 MR. BISENIUS: We have been going for
12 about an hour. Now might be a good time
13 to take a break. Should we reconvene at
14 five past the hour?

15 THE WITNESS: Can we make it
16 10 minutes, counselor?

17 MR. BISENIUS: Sure. Ten past?

18 THE WITNESS: Yeah. Thank you.

19 (Thereupon, a brief recess was taken.)

20 BY MR. BISENIUS:

21 Q. I'd like to return to the Poeze
22 reference, Exhibit 1110. I'm going to start at

1 paragraph 25.

2 A. I'm at paragraph 25.

3 Q. This paragraph states, quote,
4 Figure 8 is a block diagram of an example
5 health data collection device capable of
6 non-invasively measuring one or more blood
7 analytes in a monitored patient, according to
8 an embodiment of disclosure," end quote.

9 Do you see that?

10 A. I see that in paragraph 25, yes.

11 Q. Can you please turn to Figure 8 of
12 Poeze.

13 A. I'm at Figure 8.

14 Q. Figure 8 shows a health data
15 collection device 112, is that correct?

16 MR. NELSON: Objection, foundation.

17 THE WITNESS: So when I look at
18 paragraph 106, it states, "In the depicted
19 embodiment shown in Figure 8, the sensor
20 116 includes an emitter 504, a tissue
21 shaper 522, a set of detectors 506, and a
22 front-end interface 508."

1 So there was a reference to Figure 8.

2 BY MR. BISENIUS:

3 Q. My question was that Figure 8 shows a
4 health data collection device 112, is that
5 correct?

6 MR. NELSON: Same objection.

7 BY MR. BISENIUS:

8 Q. It's described, for example, in
9 paragraph 98.

10 A. Sorry. Paragraph 98, it says,
11 "Figure 8 is a block diagram that illustrates
12 the components of an example of a health data
13 collection device 112."

14 Q. The health data collection device 112
15 includes a sensor 116 and monitor 118. Is that
16 correct?

17 MR. NELSON: Objection, foundation.

18 THE WITNESS: As I described in
19 paragraph 106, "In the depicted embodiment
20 shown in Figure 8, the sensor 116 includes
21 an emitter 504, a tissue shaper 522, a set
22 of detectors 506, and a front-end

1 interface 508."

2 And in the previous paragraph, 105,
3 it refers to the monitor, monitor 118.

4 BY MR. BISENIUS:

5 Q. So my question is: The sensor 116
6 and the monitor 118 are both part of the health
7 data collection device 112, is that correct?

8 MR. NELSON: Objection, foundation.

9 THE WITNESS: Sorry. In
10 paragraph 105, it says, "The data
11 collection device 112 can include a sensor
12 116 (or multiple sensors) that is coupled
13 to a processing device or physiological
14 monitor 118."

15 BY MR. BISENIUS:

16 Q. Just a little bit ago, you mentioned
17 that the sensor 116 includes detectors 506.

18 What is the function of the
19 detectors 506?

20 MR. NELSON: Objection, foundation.

21 THE WITNESS: So -- so I think I can
22 refer back to my paragraph 53 there, about

1 three or four sentences in: "For
2 instance, the specification explains that
3 'the sensor has light emitting diodes that
4 transmit [light]'" -- sorry. My mistake
5 there.

6 So you're asking me specifically
7 about Poeze and the detectors 506. Is
8 that somewhere in my declaration I'm
9 referring to that? I'm just looking.

10 BY MR. BISENIUS:

11 Q. Sure. In paragraph 54, you discuss
12 the detectors 506.

13 A. Yes. Thank you.

14 So in paragraph 54, "Poeze explains
15 that its detectors 506 'output a detector
16 signal 524 responsive to light,'" referring to
17 Exhibit 1110, [0118], [0120], Figure 8.

18 Then I go on: "However, Poeze's
19 detector signals 524 are manipulated by the
20 front-end interface 508 before reaching the
21 signal processor 510 in Poeze's monitor 118."

22 Q. The light that you just referred to,

1 that's light that's been attenuated through a
2 patient's skin, is that correct?

3 A. So the light I'm referring to, if I
4 understand you correctly, I was quoting from
5 Exhibit 1110 at 118 and 120. So let me refer
6 to those paragraphs.

7 Sorry. In paragraph 118, it says,
8 "For example, the detectors 506 can capture
9 measure light transmitted from the emitter 504
10 that has been attenuated or reflected in the
11 tissue in the measurement site 502."

12 It continues: "The detectors 506 can
13 output a detector signal 524 responsive to the
14 light captured or measured."

15 Q. Continuing with Figure 8, Figure 8
16 shows a number of arrows from the detectors 506
17 to the front-end interface 508, is that
18 correct?

19 A. In Figure 8, I see a number of arrows
20 labeled "measurement data 524."

21 Q. Do those arrows represent
22 transmission lines?

1 MR. NELSON: Objection, foundation.

2 THE WITNESS: What do you mean by
3 "transmission lines," Counselor? I don't
4 think I have used that term in my
5 declaration.

6 BY MR. BISENIUS:

7 Q. Do the measurement data lines
8 represent a means of communicating a signal
9 from the detectors 506 to the front-end
10 interface 508?

11 MR. NELSON: Objection, foundation.

12 THE WITNESS: In paragraph 120, it
13 says, "For example, the front-end
14 interface 508 can adapt to signal 524
15 received from one or more detectors 506
16 into a form that can be processed by the
17 monitor 118."

18 Q. Is the signal 524 an analog signal?

19 MR. NELSON: Objection, foundation.

20 THE WITNESS: I state in my
21 paragraph 58 of my declaration, "Dr. Kenny
22 and I agree that the signal 524 from the

1 detectors 506 of Poeze's sensor 116 'is an
2 analog signal.'"

3 BY MR. BISENIUS:

4 Q. Is the signal 524 an unprocessed
5 signal?

6 A. I want to be very clear about what
7 you mean by "unprocessed." Can you point me to
8 that specific term in my patent in this
9 context?

10 Q. Would you agree that in Figure 8, the
11 front-end interface 508 receives analog
12 signals?

13 MR. NELSON: Objection, foundation.

14 THE WITNESS: I think I just
15 described in my paragraph 58, "Dr. Kenny
16 and I agree that the signal 524 from the
17 detectors 506 of Poeze's sensor 116 'is an
18 analog signal.'"

19 BY MR. BISENIUS:

20 Q. Is a signal 524 that travels from the
21 detectors 506 to the front-end interface 508
22 the data that is actually acquired by the

1 detectors 506?

2 MR. NELSON: Objection, foundation.

3 THE WITNESS: I think I already

4 answered that in paragraph 118 of Poeze,

5 where I said, "For example, the detectors

6 506 can capture and measure light

7 transmitted from the emitter 504 that has

8 been attenuated or reflected from the

9 tissue in the measurement site 502."

10 BY MR. BISENIUS:

11 Q. So would you agree that the signal

12 524 is the data that is actually acquired by

13 the detectors 506?

14 MR. NELSON: Same objection.

15 THE WITNESS: That term you're using,

16 Counselor, is the claim language specific

17 to the '507 patent. Poeze does not use

18 the -- that description. I described how

19 Poeze describes that signal from the

20 detectors.

21 BY MR. BISENIUS:

22 Q. I'm asking you: Is it your opinion

1 that the signal 524, would that fall within
2 your concept of data that is actually acquired
3 or would that fall outside of that term?

4 MR. NELSON: Objection, form.

5 THE WITNESS: Can you repeat your --
6 your question. Can you repeat your
7 question, please.

8 BY MR. BISENIUS:

9 Q. Is the signal 524 that's transmitted
10 from the detectors 506 to the front-end
11 interface 508 the data that is actually
12 acquired by the detectors 506?

13 MR. NELSON: Objection, foundation.

14 THE WITNESS: I will just repeat what
15 I've said in paragraph 58 as regards the
16 analog -- as regards to the signal 524.

17 "Apple relies on Poeze's embodiments
18 where the 'front-end interface [508]
19 adapts a signal 524 received from one or
20 more of the detectors 506 into a form that
21 can be processed by the monitor 118.'"

22 And then as I've said a couple times

1 now, "Dr. Kenny and I agree that signal
2 524 from the detectors 506 of Poeze's
3 sensor 116 'is an analog signal.'"

4 I don't recall Dr. Kenny describing
5 it in any of other way. Again, maybe you
6 can point me to something so I can better
7 answer your question there, because you're
8 asking me to apply something to the Poeze
9 description that I don't believe I've done
10 in my declaration.

11 BY MR. BISENIUS:

12 Q. Well, in paragraph 53 you state that
13 "A POSITA would have understood that the plain
14 and ordinary meaning of 'one or more analog
15 signals responsive to light' output by the
16 optical sensor refers to data that is actually
17 acquired with the optical sensor."

18 So I'm trying to determine in Poeze's
19 system where the signal is the data that is
20 actually acquired and when you believe it stops
21 being the data that is actually acquired.

22 So I'm asking: Is the signal 524

1 that is output by the detectors 506 and
2 received by the front-end interface 508 the
3 data that is actually acquired by the detectors
4 506?

5 MR. NELSON: Objection, form.

6 Objection, foundation.

7 THE WITNESS: So in paragraph 54, I
8 say that "Poeze explains that its
9 detectors 506 'output a detector signal
10 524 responsive to light.' However,
11 Poeze's detector signals 524 are
12 manipulated by the front-end interface 508
13 before reaching the signal processor 510
14 in Poeze's monitor 118, paragraph 120,
15 Figure 8.

16 "Apple has, therefore, not shown that
17 these same detector signals 524 (the data
18 actually acquired with Poeze's optical
19 sensor) are output by Poeze's sensor 116
20 and received by Poeze's monitor 118."

21 BY MR. BISENIUS:

22 Q. So here you've stated that the

1 detector signals 524 are the data actually
2 acquired by Poeze's optical sensor, is that
3 correct?

4 A. My sentence was "Apple has,
5 therefore, not shown that the same detector
6 signals 524 (the data actually acquired with
7 Poeze's optical sensor) are output by Poeze's
8 sensor 116 and received by Poeze's monitor
9 118."

10 Q. I just want to understand the
11 sentence a little bit better.

12 Would you agree that the signals 524
13 are output by Poeze's sensor 116?

14 MR. NELSON: Objection, foundation.

15 THE WITNESS: No. Definitely don't.

16 BY MR. BISENIUS:

17 Q. Well, turning back to Figure 8, the
18 lines coming out of the detectors 506 are
19 labeled 524. Well, you know, scratch that.

20 Let's turn to paragraph 120 of Poeze.

21 A. I'm at 120.

22 Q. So at the third sentence of

1 paragraph 120, it states, quote, "The front-end
2 interface 508 can have its components assembled
3 in the sensor 116, in the monitor 118, in
4 connecting cabling (if used) combinations of
5 the same, or the like," end quote.

6 Do you see that?

7 A. I believe you've read part of
8 paragraph 120, yes.

9 Q. So this paragraph expressly states
10 that the front-end interface 508 can be in the
11 monitor 118, is that correct?

12 MR. NELSON: Objection, foundation.

13 THE WITNESS: As I described a few
14 times, though, paragraph 106 says, "In the
15 depicted embodiment shown in Figure 8, the
16 sensor 116 includes an emitter 504, a
17 tissue shaper 522, a set of detectors 506,
18 and a front-end interface 508," which is
19 the embodiment that Apple describes.

20 BY MR. BISENIUS:

21 Q. But paragraph 120 specifically
22 describes a variation of Figure 8 in which the

1 front-end interface 508 is in the monitor 118,
2 is that correct?

3 MR. NELSON: Objection, foundation.

4 THE WITNESS: The sentence in
5 paragraph 120 says, "The front-end
6 interface 508 can have its components
7 assembled in the sensor 116 in the monitor
8 118."

9 But, again, as I explained, Apple was
10 relying on the embodiment as I just
11 described in paragraph 106 when it says,
12 "In the depicted embodiment shown in
13 Figure 8, the sensor 116 includes the
14 front-end interface 508."

15 BY MR. BISENIUS:

16 Q. Do you believe that paragraph 120 is
17 referring to Figure 8 or an embodiment that is
18 different than Figure 8?

19 MR. NELSON: Objection, foundation.

20 THE WITNESS: Well, Poeze describes
21 in 106 the front-end interface 508 is in
22 the sensor 116, and then you've just

1 described a different description for
2 where the front-end interface 508 can be
3 in paragraph 120.

4 But, as I --

5 BY MR. BISENIUS:

6 Q. Looking --

7 A. I'm sorry. Can I finish.

8 As I said, I was focusing on the
9 embodiment that Apple was using where the
10 front-end interface 508 was in sensor 116.

11 BY MR. BISENIUS:

12 Q. Looking at paragraph 120, in the
13 specific embodiment described here in which the
14 front-end interface 508 has its components
15 assembled in the monitor 118, the monitor 118
16 receives an analog signal in those embodiments,
17 is that correct?

18 MR. NELSON: Objection, foundation.

19 THE WITNESS: I haven't provided an
20 opinion on that. As I said in summary at
21 the bottom of my paragraph 58,
22 accordingly, "In my opinion, a POSITA

1 would have understood that in the Poeze
2 embodiments relied on by Apple, the
3 detected analog signal is converted to a
4 digital signal before it reaches the
5 monitor 118."

6 BY MR. BISENIUS:

7 Q. In the embodiments in which the
8 front-end interface 508 has its components
9 assembled in the monitor 118, where would the
10 analog-to-digital conversion occur?

11 MR. NELSON: Objection, foundation.

12 THE WITNESS: So, Counselor, now
13 you're asking me to consider a
14 hypothetical case that I have not
15 described in my declaration or Apple has
16 described in their opposition. Is that
17 correct?

18 BY MR. BISENIUS:

19 Q. That is not correct.

20 If you turn to the opposition
21 brief -- let's see here.

22 Page 15, for example. If you look at

1 the sentence -- let me know when you're there.

2 The opposition brief, this is paper 52, and I'm
3 on page 15.

4 A. I'm on page 15, yes. Uh-huh.

5 Q. So the sentence starting at the third
6 line on page 15 says, "Poeze's system includes
7 'front-end interface that adapts a signal 524
8 received from one or more of the detectors 506
9 into a form that can be processed by the
10 monitor 118' and 'can have its components
11 assembled in the sensor 116, in the monitor
12 118, or in connecting cabling.'"

13 Do you see that?

14 A. I do.

15 Q. So here the opposition expressly
16 identified embodiments in which the front-end
17 interface has its components assembled in the
18 monitor 118.

19 So I'm asking you: In those specific
20 embodiments in which the front-end interface
21 508 has its components assembled in the monitor
22 118, the signal received by the monitor 118

1 would be an analog signal, is that correct?

2 MR. NELSON: Objection, foundation.

3 THE WITNESS: I disagree with your
4 characterization of the opposition
5 position there because, as you can see at
6 the top, this is where Apple describes the
7 Poeze system.

8 They refer to Figure 8, and they
9 describe where the front-end interface
10 adapts a signal 524 from one or more of
11 the detectors 506 into a form that can be
12 processed by the monitor 118.

13 As I explained a few times, that
14 means that the analog-to-digital converter
15 must be in the front-end interface to be
16 able to convert it from analog into a
17 digital form.

18 BY MR. BISENIUS:

19 Q. Specifically in the embodiments in
20 which the front-end interface 508 is in the
21 monitor 118, the signal received at the monitor
22 118 would be an analog signal in those

1 embodiments, is that correct?

2 MR. NELSON: Same objection.

3 THE WITNESS: So, again, are you
4 asking me to respond to an embodiment that
5 Apple was not describing there? They make
6 it very clear about the embodiment adapts
7 a signal 524 that can be -- can be
8 processed.

9 They refer to other various
10 embodiment. But the key embodiment is the
11 description, as I've explained a few times
12 before, where they start out by explaining
13 the front-end interface adapts a signal
14 524 received from one or more of the
15 detectors 506 into a form that can be
16 processed by the monitor 118.

17 BY MR. BISENIUS:

18 Q. My question is: An embodiment in
19 which the front-end interface 508 has its
20 components assembled in the monitor 118, the
21 signal received by the monitor 118 in those
22 embodiments would be an analog signal, is that

1 correct?

2 MR. NELSON: Objection. Asked and
3 answered.

4 THE WITNESS: Again, I -- you're
5 asking me now to consider a different
6 hypothetical case that I've not addressed
7 in my declaration or Apple described.
8 You're referring to such various
9 embodiments, but they are not consistent
10 with the embodiment that Apple is
11 describing there.

12 So if you want me to now describe
13 what may be in a different hypothetical
14 case, not considered by declaration or by
15 Apple's opposition, I can try and do that.

16 BY MR. BISENIUS:

17 Q. I'm asking you in the embodiments in
18 which the front-end interface 508 has its
19 components assembled in the monitor 118, the
20 signals received at the monitor 118 would be
21 analog in those embodiments, is that correct?

22 MR. NELSON: Objection, foundation.

1 THE WITNESS: I'm not sure,
2 Counselor. But is that a slightly
3 different question? Just, again, so I can
4 be accurate, can you repeat that, please.

5 BY MR. BISENIUS:

6 Q. Yes. In the embodiments in Poeze in
7 which the front-end interface 508 has its
8 components assembled in the monitor 118, the
9 signal received by the monitor 118 would be an
10 analog signal, is that correct?

11 MR. NELSON: Same objection.

12 THE WITNESS: Can you -- again, I
13 want to be accurate here.

14 Can you point me to the specific
15 sentence you're referring to, either in my
16 declaration or in Apple's opposition?

17 BY MR. BISENIUS:

18 Q. Well, I'm pointing to the discussion
19 of element 21A in general in the opposition,
20 but this sentence that we just discussed that
21 starts at the third line of page 15, talks
22 about signal 524, and discusses that the

1 front-end interface can have its components
2 assembled in the monitor 118.

3 So my question is: In the
4 embodiments of Poeze in which the front-end
5 interface 508 has its components assembled in
6 the monitor 118, the monitor 118 would receive
7 analog signals, is that correct?

8 MR. NELSON: Objection, foundation.

9 THE WITNESS: Again, I think the best
10 is for me to refer back to 58 where "Apple
11 relies on Poeze's embodiments where the
12 'front-end interface [508] adapts a signal
13 524 received from one or more of the
14 detectors 506 into a form that can be
15 processed by the monitor 118.'"

16 And I continue with "Dr. Kenny and I
17 agree that signal 524 from the detectors
18 506 and Poeze's sensor 116 'is an analog
19 signal.'"

20 And I continue, "However, the analog
21 signal must be converted, ('adapt[ed]')
22 into a digital signal (another 'form')

1 before it can be processed by the signal
2 510 in monitor 118. Therefore, Poeze's
3 front-end interface 508 includes at least
4 one analog-to-digital converter to output
5 'digital information for process and by
6 the signal processor 510.'"

7 So the output of the front-end
8 interface is digital for processing by the
9 signal processor 510.

10 BY MR. BISENIUS:

11 Q. Did you consider embodiments in
12 Poeze -- sorry. Scratch that.

13 When forming the opinions that you
14 expressed in your most recent declaration, did
15 you consider the embodiments in Poeze in which
16 the front-end interface 508 has its components
17 assembled in the monitor 118?

18 A. My opinions are in response to
19 Apple's arguments. And Apple's argument makes
20 it very clear that the front-end interface
21 includes at least one analog-to-digital
22 converter to output the digital information for

1 processing by the signal processor 510.

2 You know, I've explained that many
3 times there. So I focused on the embodiments
4 that Apple were -- was relying on in their
5 opposition there.

6 Q. Did you consider embodiments of Poeze
7 where the front-end interface 508 has its
8 components assembled in the monitor 118?

9 MR. NELSON: Objection, asked and
10 answered.

11 THE WITNESS: I read the description
12 in Poeze in paragraph 120. But as I
13 explained, that is not the embodiment that
14 Apple relies on. So my opinions are
15 focused on the embodiments that Apple was
16 presenting.

17 BY MR. BISENIUS:

18 Q. So looking at the sentence that
19 starts at the third line of page 15 of the
20 opposition brief, Paper 52, which states,
21 quote, "Poeze's system includes 'front-end
22 interface that adapts a signal 524 received

1 from one or more of the detectors 506 into a
2 form that can be processed by the monitor 118'
3 and 'can have its components assembled in the
4 sensor 116, in the monitor 118, or in the
5 connecting cable -- cabling," end quote.

6 You did not consider the express
7 statement there of the front-end interface
8 having its components assembled in the monitor
9 118, is that correct?

10 MR. NELSON: Objection, misstates
11 testimony.

12 BY MR. BISENIUS:

13 Q. Yes or no? Did you or did you not
14 consider the embodiments in which the front-end
15 interface has its components assembled in the
16 monitor 118? That's my question.

17 MR. NELSON: Objection. Asked and
18 answered.

19 THE WITNESS: You asked me,
20 Counselor, about that sentence in the
21 opposition there. And I've explained a
22 few times now that the front-end interface

1 has to adapt a signal 524 received from
2 one or more of the detectors 506 into a
3 form that can be processed.

4 Apple includes additional quote, but
5 to meet the embodiment where the signal
6 adapts the signal from one or more
7 detectors into a form that can be
8 processed. As I've explained, then the
9 analog-to-digital converter must be in the
10 front-end interface.

11 BY MR. BISENIUS:

12 Q. My question is: In embodiments in
13 which the front-end interface 508 is in the
14 monitor 118, the signals received by the
15 monitor 118 would be analog, is that correct?

16 MR. NELSON: Same objection.

17 THE WITNESS: I believe I've answered
18 that question now multiple times.

19 (Thereupon, Exhibit 2058 was marked for
20 identification.)

21 BY MR. BISENIUS:

22 Q. All right. Let's talk about your

1 most recent declaration, Exhibit 2058. I want
2 to turn to paragraph 58.

3 Looks like you're there already.

4 A. Yep.

5 Q. In the last sentence of this
6 paragraph at the bottom of the page, you state,
7 quote, "Accordingly, in my opinion, a POSITA
8 would have understood that in the Poeze
9 embodiments relied on by Apple, the detected
10 analog signal is converted to a digital signal
11 before it reaches the monitor 118," end quote.

12 Do you see that?

13 A. I see that.

14 Q. Can you identify where in Poeze it
15 describes embodiments in which the detected
16 analog signal is converted to a digital signal
17 before it reaches the monitor 118.

18 A. I believe that is what I'm describing
19 in paragraph 58 that I've read a few times now.
20 I can read that again, but I think my
21 paragraph 58 makes it very clear.

22 So "Apple relies on Poeze's

1 embodiments where the 'front-end interface
2 [508] adapts a signal 524 received from one or
3 more of the detectors 506 into a form that can
4 be processed by monitor 118.'"

5 And I continue with "However, the
6 analog signal" -- let me back up one sentence.

7 "Dr. Kenny and I agree that signal
8 524 from detectors 506 of Poeze's sensor 116
9 'is an analog signal.' However, that analog
10 signal must be converted ('adapt[ed]') into a
11 digital signal (another 'form') that -- before
12 it can be processed by the signal processor 510
13 in monitor 118."

14 Therefore, Poeze's front-end
15 interface 508 includes at least one
16 analog-to-digital converter to output digital
17 information for processing by the signal 510 of
18 the monitor 118."

19 Q. And I'm asking you to identify where
20 in Poeze it actually discloses
21 analog-to-digital conversion occurring before
22 the signal reaches the monitor 118.

1 A. So I just read that sentence in
2 paragraph 58: "Therefore, Poeze's front-end
3 interface 508 includes at least one
4 analog-to-digital converter ('ADC') to output
5 'digital information for processing by the
6 signal processor 510 of the monitor 118.'"

7 Q. That wasn't my question. I wasn't
8 asking you to identify where in your
9 declaration you described that. I'm asking you
10 where in Poeze does Poeze describe converting
11 the signal from an analog signal to a digital
12 signal before the signal reaches the monitor
13 118?

14 A. That same sentence I just read, I
15 refer to Exhibit 1110, 123, for example. "The
16 ADC or ADCs can provide one or more outputs
17 into multiple channels of digital information
18 for processing by the signal processor 510."

19 Q. Does this paragraph state that the
20 ADCs are positioned outside of the monitor 118?

21 MR. NELSON: Objection, foundation.

22 THE WITNESS: That paragraph I just

1 read describes what the ADC -- the ADC
2 does.

3 And you need an ADC in the front-end
4 interface to adapt a signal 524 received
5 from one or more of the detectors 506 into
6 a form that can be processed by the
7 monitor 118.

8 So, therefore, Poeze's front-end
9 interface 508 includes at least one of
10 those analog-to-digital converters.

11 BY MR. BISENIUS:

12 Q. Can you identify where in Poeze it
13 states that the front-end interface includes
14 one or more analog-to-digital converters?

15 A. I also refer that same sentence --
16 let me read that again and refer to the quote,
17 then.

18 "Therefore, Poeze's front-end
19 interface 508 includes at least one
20 analog-to-digital converter ('ADC') to output
21 'digital information for processing by the
22 signal processor 510 of the monitor 118.'

1 Exhibit 1110 at paragraphs 123 and 125 ('a
2 switched-capacitor-based front-end interface
3 508 can be useful because it can provide a
4 digital signal to the signal processor 510 in
5 the monitor 118')."

6 Q. In there, you were reading a quote
7 from paragraph 125 of Poeze, is that correct?

8 A. That's where that quotation was from.
9 It was in paragraph 125.

10 Q. Would it surprise you to learn that
11 paragraph 125 of Poeze is never cited in the
12 opposition to motion to amend?

13 MR. NELSON: Objection to form.

14 THE WITNESS: You asked me,
15 Counselor, about my reasoning for my
16 opinion at the bottom of paragraph 58, why
17 a POSITA would have understood in the
18 Poeze embodiments relied on by Apple the
19 detected analog signal is converted to a
20 digital signal before it reaches the
21 monitor 118.

22

1 BY MR. BISENIUS:

2 Q. But your reliance on this is a
3 paragraph that's never cited in the opposition.
4 So I guess my question is: How can you insist
5 that Apple is only relying on embodiments in
6 which the analog-to-digital converter is in the
7 front-end interface and where the front-end
8 interface is outside of the monitor if Apple
9 never cited to this paragraph where the
10 analog-to-digital converter is in the front-end
11 interface?

12 MR. NELSON: Objection to form,
13 foundation.

14 THE WITNESS: I believe I've answered
15 that, again, multiple times for my
16 opinion, as I state in 28 -- sorry -- in
17 paragraph 58, where I explain that to
18 adapt to signal 524, as this is, you know,
19 Apple's language here, Apple is adapting a
20 signal 524 received from one or more of
21 the detectors 506 into a form that can be
22 processed by the monitor 118.

1 Again, in that paragraph, I explain
2 how we start with an analog signal that
3 Dr. Kenny and I agree with; and then the
4 analog signal must be converted into a
5 digital form before it can be processed by
6 the signal processor 510.

7 And then, therefore, Poeze's
8 front-end interface must include at least
9 one analog-to-digital converter, and I'm
10 giving references to Poeze where, in
11 general, they explain about
12 analog-to-digital converters.

13 BY MR. BISENIUS:

14 Q. Let's go back to the first sentence
15 in paragraph 58 here. The quoted portion of
16 Poeze that you quote here is that "Front-end
17 interface [508] adapts a signal 524 received
18 from one or more of the detectors 506 into a
19 form that can be processed by the monitor 118."

20 In embodiments of Poeze in which the
21 analog-to-digital converters are included
22 within the monitor 118, that form would be an

1 analog signal, isn't that correct?

2 MR. NELSON: Objection, foundation.

3 Asked and answered.

4 THE WITNESS: I believe that's the
5 same question you've asked me multiple
6 times, Counselor, that I believe I've also
7 answered multiple times.

8 Counselor, it's 12:00 o'clock, which
9 is noontime on the east coast here. If
10 this would be a convenient time for me to
11 be able to take a lunch break, I would
12 appreciate it.

13 MR. BISENIUS: Sure. Yeah, let's go
14 off the record.

15 (Thereupon, a lunch recess was taken.)

16 MR. NELSON: This is Philip Nelson,
17 counsel for Masimo in this proceeding.

18 MR. BISENIUS: I don't know if I
19 stated my name on the record. This is
20 Patrick Bisenius of Fish & Richardson on
21 behalf of petitioner Apple. And I'm
22 joined by Grace Kim, also of Fish &

1 Richardson.

2 BY MR. BISENIUS:

3 Q. Let's jump back in.

4 Dr. Duckworth, I want to talk
5 about -- continue talking about the Poeze
6 reference, Exhibit 1110. So if you can pull
7 that up and turn to paragraph 122.

8 A. I have that in front of me.

9 Q. The first sentence of paragraph 122
10 states, quote, "The front-end interface 508 can
11 be implemented using one or more amplifiers,
12 such as transimpedance amplifiers, that are
13 coupled to one or more analog-to-digital
14 converters (ADCs) (which can be in the monitor
15 118), such as a sigma-delta ADC," end quote.

16 Do you see that?

17 A. I do.

18 Q. So here again, similar to
19 paragraph 124, Poeze is describing embodiments
20 where the analog-to-digital converter is in the
21 monitor 118, is that correct?

22 MR. NELSON: Objection, foundation.

1 THE WITNESS: So, again, let me just
2 go back to opposition page 15. So the
3 start of that description is referring to
4 paragraphs 120, 114, and Figure 8. As we
5 have said a few times, "Poeze's system
6 includes 'front-end interface that adapts
7 a signal 524 received from one or more
8 detectors 506 into a form that can be
9 processed by the monitor 118.'"

10 Then I can continue in my
11 declaration: "Therefore, Poeze front-end
12 interface 508 includes at least one
13 analog-to-digital converter ('ADC') to
14 output 'digital information for processing
15 by the signal processor 510 of the monitor
16 118.'"

17 So you described paragraph 122, which
18 shows how the front-end interface can be
19 implemented. But as I've explained in my
20 paragraph 58, Apple requires that the ADC
21 be in the front-end interface.

22 Q. So I've got a couple follow-up

1 questions on that.

2 First off, looking at the last
3 sentence of page 15 of the opposition brief,
4 Paper 52, Apple stated, quote, "An
5 'analog-to-digital converter' (ADC) receives
6 the output of the front-end interface 508 and
7 'provides one or more outputs for processing by
8 the signal processor 510 of the monitor 118'
9 and therefore the signals output by the
10 sensor 116 and interface 508 are analog."

11 And citing to paragraphs 122 and
12 through 124 here. And in a parenthetical
13 behind that citation, it says, "Describing ADCs
14 'in the monitor 118.'"

15 Here it appears that Apple is
16 expressly relying on embodiments in which the
17 signals output by the sensor 116 and front-end
18 interface are analog and the analog-to-digital
19 converter is in the monitor 118.

20 So my question is: In these
21 implementations in which the analog-to-digital
22 converter is in the monitor 118, the signal

1 received by the monitor 118 would be an analog
2 signal, is that correct?

3 MR. NELSON: Objection, foundation,
4 form.

5 THE WITNESS: I believe I've answered
6 that a few times, that that description
7 that you just read at the end of the
8 section 21A on page 15 is at odds with how
9 Apple describes the embodiment that they
10 are using there, where the front-end
11 interface adapts signal 524 received from
12 one or more of the detectors 506 into a
13 form that can be processed by the monitor
14 118. And they refer back to paragraphs
15 120, 114, and Figure 8.

16 BY MR. BISENIUS:

17 Q. But in embodiments in which the
18 analog-to-digital converter is in the monitor
19 118, the form that can be processed by the
20 monitor 118 would be an analog signal, wouldn't
21 it?

22 MR. NELSON: Objection, foundation,

1 form, asked and answered.

2 THE WITNESS: Again, I refer back to
3 my paragraph 58 in the middle where I say,
4 "However, that analog signal must be
5 converted ('adapt[ed]') into a digital
6 signal (another 'form') before it can be
7 processed by the signal processor 510 in
8 monitor 118."

9 BY MR. BISENIUS:

10 Q. Well, let's just look at the
11 embodiment discussed in paragraph 122 of Poeze.

12 In this embodiment, in which the
13 digital-to-analog converter is in the monitor
14 118, the signal received at the monitor 118
15 would be an analog signal, is that correct?

16 MR. NELSON: Objection. Same.

17 THE WITNESS: I believe this is just
18 the same question that you posed quite a
19 few times now, Counselor, and I believe
20 I've answered quite a few times too.

21 BY MR. BISENIUS:

22 Q. So looking back at the opposition

1 brief, this last sentence of the analysis of
2 element 21A where Apple cites to and quotes
3 paragraphs 122 through 124, did you consider
4 these embodiments when forming your opinions in
5 your declaration?

6 MR. NELSON: Objection. Asked and
7 answered.

8 THE WITNESS: I believe I've answered
9 that, again, a few times by my
10 paragraph 58, which makes it very clear
11 the embodiment that Apple has described in
12 there requires the ADC to be in the
13 front-end interface.

14 BY MR. BISENIUS:

15 Q. And that's your opinion, even though
16 Apple expressly cited to and quoted paragraphs
17 that expressly state that the ADC is in monitor
18 118. So my question is: What is your basis
19 for insisting that Apple only relied on
20 embodiments in which the analog-to-digital
21 conversion happens outside of the monitor 118
22 when Apple expressly cited to and quoted

1 paragraphs describing the analog-to-digital
2 conversion in the monitor 118? Did you
3 consider these paragraphs when forming your
4 opinions?

5 MR. NELSON: Objection to form.
6 Foundation.

7 THE WITNESS: Apple expressly cited
8 to paragraphs 120, 114, and Figure 8 and
9 said the "Poeze's system includes
10 'front-end interface that adapts a signal
11 524 received from one or more of the
12 detectors 506 into a form that can be
13 processed by the monitor 118."

14 So I'm going with what Apple is
15 expressly stating in their opposition
16 there, which makes it very clear that the
17 front-end interface 508 must include at
18 least one analog-to-digital converter.

19 There can be other Poeze embodiments,
20 but that's not the one that Apple is
21 stating there.

22

1 BY MR. BISENIUS:

2 Q. What leads you to believe that the,
3 quote, "form that can be processed by the
4 monitor 118," end quote, needs to be a digital
5 signal?

6 A. Again, I can -- I believe I've
7 answered that many times in paragraph 58. I
8 can read that again if you like.

9 "Apple relies on Poeze embodiments
10 where the 'front-end interface 508 adapts the
11 signal 524 received from one or more of the
12 detectors 506 into a form that can be processed
13 by the monitor 118.' Opposition at 15."

14 And then "describing embodiment of
15 front-end interface 508 that adapts detector
16 signal 524 'into a form that can be processed'
17 by the 'signal processor 510 in the monitor
18 118.' Dr. Kenny and I agree that the signal
19 524 from the detectors 506 of Poeze's sensor
20 116 'is an analog signal.' However, that
21 analog signal must be converted ('adapt[ed]')
22 into a digital signal, (another 'form') before

1 it can be processed by the signal processor 510
2 in monitor 118." Exhibit 1110 at 120.

3 "Therefore, Poeze's front-end
4 interface 508 includes at least one
5 analog-to-digital converter ('ADC') to output
6 'digital information for processing by the
7 signal processor 510 of the monitor 118.'"

8 Then I finished that paragraph with,
9 "Accordingly, in my opinion, a POSITA would
10 have understood that in the Poeze embodiments
11 relied on by Apple, the detected analog signal
12 is converted to a digital signal before it
13 reaches the monitor 118."

14 Q. So let me reframe that question. You
15 ignored the embodiments in which the
16 analog-to-digital converter is in the monitor
17 118 in forming this opinion, is that correct?

18 MR. NELSON: Objection, foundation,
19 form, argumentative.

20 THE WITNESS: I did not ignore what
21 Apple provided in their opposition there.

22 I looked at the totality, and the summary

1 is as I've just explained my opinion in
2 paragraph 58.

3 BY MR. BISENIUS:

4 Q. Turning to Figure 8, the signal
5 processor 510 is shown as being within the
6 monitor 118, is that correct?

7 MR. NELSON: Objection, foundation.

8 THE WITNESS: Counselor, I just
9 turned back to Figure 18. Would you mind
10 asking your question again, please.

11 BY MR. BISENIUS:

12 Q. Sorry. Figure 8, correct?

13 A. Yes. I meant to say Figure 8.

14 Q. In Figure 8, the signal processor 510
15 is within the monitor 118 is that correct?

16 MR. NELSON: Same objection.

17 THE WITNESS: So in paragraph 126, it
18 says, "As shown in Figure 8, the monitor
19 118 can include the signal processor 510."

20 BY MR. BISENIUS:

21 Q. The monitor 118 includes other
22 components in addition to the signal processor

1 510, is that correct?

2 MR. NELSON: Objection, foundation.

3 THE WITNESS: Continuing that same
4 paragraph, 126, it says, "The monitor 118
5 can include the signal processor 510 and a
6 user interface, such as display 512."

7 BY MR. BISENIUS:

8 Q. Looking specifically at Figure 8,
9 reference numerals 112, 116, and 118, each
10 labeled respective braces. Reference numeral
11 112 labels a brace that encompasses the sensor
12 116 of the monitor 118. Is that correct?

13 MR. NELSON: Objection, foundation.

14 THE WITNESS: Looking at Figure 8, I
15 see the brace 112 going across sensor 116
16 and monitor 118.

17 BY MR. BISENIUS:

18 Q. And the signal processor 510 is
19 positioned entirely under the brace labeled by
20 monitor 118, is that correct?

21 A. If we are going to be analyzing which
22 parts are in which, I think we need to look at

1 the corresponding specification there. So as I
2 just read from paragraph 126, "As shown in
3 Figure 8, the monitor 118 can include the
4 signal processor 510."

5 Q. What paragraph was that you were
6 reading from?

7 A. 126.

8 Q. If you want to rely on the
9 specification in paragraph 120, several
10 sentences in it states, quote, "The front-end
11 interface 508 can have its components assembled
12 in the sensor 116, in the monitor 118, in
13 connecting cable (if used), combinations of the
14 same, or the like," end quote.

15 So if we are relying on the
16 specification, specification expressly tells us
17 that the front-end interface can be positioned
18 in the monitor of 118, is that correct?

19 MR. NELSON: Objection, foundation.

20 THE WITNESS: I disagree with the
21 embodiment that we're considering. If we
22 go back to paragraph 106: "In the

1 depicted embodiment shown in Figure 8, the
2 sensor 116 includes an emitter 505, a
3 tissue shape of 522, a set of detectors
4 506, and a front-end interface 508."

5 BY MR. BISENIUS:

6 Q. Looking at Figure 8, there's a line
7 labeled "input data" between the front-end
8 interface 508 and the signal processor 510.

9 That line labeled "input data" is
10 entirely positioned beneath the brace labeled
11 "monitor 118," is that correct?

12 MR. NELSON: Objection, foundation.

13 THE WITNESS: I'm not sure what
14 you're asking there, Counselor, because
15 from that description I just read, the
16 front-end interface would be in -- let me
17 find that paragraph again -- the sensor
18 116 includes the front-end interface of
19 508. So in that case, then, if -- the
20 input data would be continuing to the
21 left, into sensor 116.

22

1 BY MR. BISENIUS:

2 Q. So are you ignoring the express
3 drawings in Figure 8 and the express disclosure
4 in paragraph 120 that the front-end interface
5 can have its components in the monitor or in
6 combinations of the monitor and the sensor and
7 relying only on paragraph 106? Is that
8 correct?

9 MR. NELSON: Objection to form,
10 foundation, argumentative.

11 THE WITNESS: I don't believe I'm
12 ignoring anything in the -- the Poeze
13 reference there. What I'm doing is
14 responding to Apple's description of the
15 embodiment they are relying upon and
16 explaining, you know, what that means,
17 which I've described many times.

18 BY MR. BISENIUS:

19 Q. I just want to be clear. Looking at
20 page 15 of the opposition brief, Paper 52, you
21 have expressly ignored the quoted portions of
22 Poeze in the brief that describe the front-end

1 interface as being in the monitor 118 and the
2 ADC as being in the monitor 118, is that
3 correct?

4 MR. NELSON: Objection, form,
5 foundation, argumentative.

6 THE WITNESS: I think the question
7 was, Counselor, you said I've ignored
8 that? That's totally untrue.

9 I've looked at the totality of that
10 description there, but all I can go on is
11 how Apple describes the embodiment at the
12 top there that they are describing, how
13 the Poeze embodiment works that they are
14 using. And from that, that's where I've
15 drawn my opinions in paragraph 58.

16 BY MR. BISENIUS:

17 Q. Let's ignore what you believe to be
18 the embodiment relied upon by Apple. I want to
19 talk about a specific embodiment from Poeze.

20 Going back to paragraph 122, once
21 again, the first sentence of this paragraph
22 states, quote, "A front-end interface 508 can

1 be implemented using one or more amplifiers,
2 such as transimpedance amplifiers, that are
3 coupled to one or more analog-to-digital
4 converter (ADCs (which can be in the monitor
5 118), such as a sigma-delta ADC," end quote.

6 In this specific embodiment described
7 here in which the ADC is in the monitor 118,
8 the form that can be processed by the monitor
9 is an analog signal, is that correct?

10 MR. NELSON: Objection, foundation,
11 form.

12 THE WITNESS: You've asked me that
13 question many times, Counselor. And I've
14 answered it.

15 BY MR. BISENIUS:

16 Q. I actually don't believe you have
17 answered it yet. You go back and read from
18 your declaration and insist that Apple relied
19 on a different embodiment.

20 What you haven't done is answer a
21 question about this specific embodiment.

22 So I'm asking you: In this specific

1 embodiment, paragraph 122 of Poeze, where the
2 analog-to-digital converter is in the monitor
3 118, is it correct that the form of the signal
4 that is processed by the monitor is an analog
5 signal?

6 MR. NELSON: Objection to form,
7 foundation, asked and answered.

8 THE WITNESS: I believe I've answered
9 that question, Counselor.

10 BY MR. BISENIUS:

11 Q. I don't believe that you have. You
12 have repeatedly insisted that Apple did not
13 rely on this embodiment and then read from
14 other portions of Apple.

15 Can you answer questions about the
16 embodiment in paragraph 122 where the
17 analog-to-digital converter is in the monitor
18 118?

19 MR. NELSON: Objection.
20 Argumentative.

21 THE WITNESS: So, Counselor, to be
22 clear, then, you're asking me a

1 hypothetical question outside of the scope
2 of my declaration responding to Apple's
3 embodiments for their arguments there. So
4 now you want me to consider this
5 hypothetical case, very different
6 embodiment. I just want to be clear
7 that's what you're asking me.

8 BY MR. BISENIUS:

9 Q. I don't know that I refer to it as
10 hypothetical because it's expressly described
11 in Poeze.

12 So in this express embodiment
13 described in Poeze where the analog-to-digital
14 converter is in the monitor 118, is the signal
15 received by the monitor in a form that can be
16 processed by the monitor 118 in analog signal?

17 MR. NELSON: Objection to form,
18 foundation, asked and answered.

19 THE WITNESS: So I believe this is a
20 hypothetical different embodiment to what
21 I provide my opinion on and what Apple is
22 providing for their -- their embodiment

1 they are using.

2 So having said that, you'd like me to
3 then proceed and give you an opinion,
4 then, on paragraph 122 in Poeze?

5 BY MR. BISENIUS:

6 Q. Correct. I'd like you to give me an
7 opinion on the embodiment in paragraph 122
8 where the analog-to-digital converter is in the
9 monitor 118.

10 My question is: In that embodiment,
11 is the form of the signal that can be processed
12 by the monitor 118 an analog signal?

13 MR. NELSON: Objection to form,
14 foundation.

15 THE WITNESS: So, again, we are
16 talking now about a hypothetical
17 embodiment here. So with that being said,
18 if we look at paragraph 122 and the ADC
19 was in the monitor 118, then the input to
20 that ADC would be analog.

21 BY MR. BISENIUS:

22 Q. I want to continue with your

1 declaration. We were just talking about
2 paragraph 58. I want to move ahead a couple
3 paragraphs, paragraph 60.

4 In the second sentence of
5 paragraph 60, you state, quote, "However,
6 Poeze's sensor 116 already 'includes a
7 front-end interface 508,'" end quote.

8 Do you see that?

9 A. Yes, I do.

10 Q. But as we discussed earlier,
11 paragraph 120 of Poeze expressly describes
12 other arrangements in which the front-end
13 interface is located within the monitor 118, is
14 that correct?

15 MR. NELSON: Objection to form,
16 foundation.

17 THE WITNESS: When you say we already
18 discussed some alternatives, I'm
19 specifically referring here to the
20 embodiment that I'm describing where
21 Poeze's sensor 116 already includes the
22 front-end interface 508.

1 BY MR. BISENIUS:

2 Q. So in your analysis here, you're
3 ignoring embodiments in which the front-end
4 interface is located in the monitor 118, is
5 that correct?

6 MR. NELSON: Objection, foundation.

7 THE WITNESS: As I described there,
8 "In the depicted embodiment shown in
9 Figure 8, the sensor 116 includes an
10 emitter 504, a tissue shaper 522, a set of
11 detectors 506, and a front-end interface
12 508."

13 BY MR. BISENIUS:

14 Q. So you are only relying on
15 embodiments in which the front-end interface is
16 in the sensor 116 in forming your opinion here,
17 is that correct?

18 MR. NELSON: Objection, foundation,
19 asked and answered.

20 THE WITNESS: This is all related to
21 the section limitation 21A where we've
22 said many times Apple relies on Poeze's

1 embodiments where the front-end interface
2 adapts a signal 524 received from one or
3 more of the detectors, 506 in the form
4 that can be processed by the monitor 118.

5 BY MR. BISENIUS:

6 Q. Turning back to Poeze, I want to talk
7 about Figure 7 now.

8 A. I'm at Figure 7.

9 Q. Figure 7 depicts the health data
10 collection device 112 having the monitor device
11 118 in the finger clip sensor 116 as connected
12 to the monitoring device by cable 452, is that
13 correct?

14 MR. NELSON: Objection, foundation.

15 THE WITNESS: Are you reading a
16 specific section from Poeze on that?

17 BY MR. BISENIUS:

18 Q. I'm generally paraphrasing
19 paragraph 93.

20 A. So paragraph 93 says, Figure 7
21 illustrates an example of a health data
22 collection device 112. In the depicted

1 embodiment, the monitor device 118 includes a
2 finger clip sensor 116 connected to a monitor
3 118 by cable 452.

4 Q. Would you consider the sensor 116 and
5 monitor 118 to be included together in this
6 figure?

7 MR. NELSON: Objection, foundation.

8 THE WITNESS: You said that --
9 "together," Counselor. I assume you're
10 referring to how it's used in the
11 substitute claims?

12 BY MR. BISENIUS:

13 Q. My question is: Would you consider
14 the sensor 116 and the monitor 118 to be
15 included together in Figure 7?

16 MR. NELSON: Same objection.

17 THE WITNESS: I think we need to be
18 more specific about what you mean by
19 "together," looking specifically at the
20 claim language.

21 BY MR. BISENIUS:

22 Q. I'm asking you if you would -- if a

1 POSITA would consider the sensor 116 and the
2 monitor 118 to be included together.

3 MR. NELSON: Objection. Same.

4 THE WITNESS: I think a POSITA would
5 need more context for your use of the word
6 "together."

7 BY MR. BISENIUS:

8 Q. Would a POSITA understand what it
9 means for a sensor and a processing board to be
10 included together in the context of the
11 '507 patent?

12 A. I think the '507 patent shows some
13 good examples of that. Let me see.

14 So referring to my paragraph 45 in my
15 declaration, "It is my opinion that, in the
16 context of the claim language of Substitute
17 Claim 21, a POSITA would understand the
18 included-together limitation describes one
19 characteristic that makes the SpO2 measurement
20 system 'portable' while used in the claimed
21 method of 'informing a user of mobile
22 measurement of oxygen saturation.'

1 Specifically, the included-together limitation
2 describes that the sensor and processing board
3 are included together in the portable
4 measurement system used at the measurement
5 site. In Figures 1A-1C, the specification of
6 the '507 patent provides an example of
7 including the sensor and processing board
8 together."

9 Q. My question is: In Figure 7 of
10 Poeze, are the sensor 116 and monitor 118
11 included together?

12 MR. NELSON: Same objection.

13 THE WITNESS: Again, the use of the
14 word "together," we have to look at the
15 claim language there. And I've just
16 described my opinion in paragraph 45 what
17 it means to be included together.

18 BY MR. BISENIUS:

19 Q. The word -- I guess, let me reframe.

20 Would the arrangement of the sensor
21 116 and the monitor 118 depicted in Figure 7 of
22 Poeze fall within the scope of the claim term,

1 including the sensor and processing board
2 together?

3 MR. NELSON: Objection.

4 THE WITNESS: That's not something I
5 have provided an opinion on.

6 BY MR. BISENIUS:

7 Q. So looking at Figure 7, you're not
8 sure if the sensor 116 and the monitor 118 are
9 included together, is that true?

10 MR. NELSON: Objection, foundation.

11 THE WITNESS: That's not true. What
12 I'm saying is I've not provided an opinion
13 on that in my declaration.

14 BY MR. BISENIUS:

15 Q. So you stated in paragraph 46 of your
16 declaration, quote, "Therefore, in my opinion,
17 a POSITA would understand the scope of the
18 included-together limitation with reasonable
19 certainty in view of the intrinsic evidence,
20 including the cable-connected embodiment
21 identified by Apple," end quote.

22 So being that a POSITA would

1 understand the scope of the included-together
2 limitation, do you understand the scope of the
3 included-together limitation?

4 A. I'm a little unclear on your
5 question. I'm very clear on what a POSITA
6 would understand by looking at the '507 patent
7 and the claim language. But you're asking me
8 about a different system. That's where I said
9 I've not provided an opinion on -- on that.

10 Q. Right now I'm talking about the scope
11 of the included-together limitation.

12 Just a yes-or-no question: Do you
13 understand the scope of the included-together
14 limitation in the substitute claims?

15 A. I've answered that in paragraph 45.
16 It is my opinion that in the context of the
17 claim language of substitute claim 21, a POSITA
18 would understand the included-together
19 limitation.

20 Q. That's a slightly different answer.
21 You stated that a POSITA would understand the
22 scope. I'm asking if you understand the scope

1 of that term.

2 A. Yes, I understand the scope of the
3 claim language and specification of the
4 '507 patent.

5 Q. So with that understanding, that
6 scope of the included-together limitation in
7 mind, looking at Figure 7 of Poeze, are the
8 sensor 116 and monitor 118 included together?

9 A. As I said, I have not provided an
10 opinion on that in my declaration. But I'm
11 not -- I'm not prepared to give an opinion on
12 that on the fly.

13 Q. Have you read the Poeze patent
14 publication all the way through?

15 A. I believe you asked me that question
16 earlier today. Yes, I have read the Poeze
17 patent application.

18 Q. In your expert opinion, looking at
19 Figure 7, you are unable to determine if the
20 sensor 116 and monitor 118 are included
21 together, is that correct?

22 MR. NELSON: Objection, foundation.

1 Mischaracterizes evidence.

2 THE WITNESS: I've not said I'm
3 unable to do that. I've said I'm not
4 prepared to provide a new opinion on that
5 at the moment.

6 BY MR. BISENIUS:

7 Q. In the example depicted in Figure 7,
8 the monitor 118 and sensor 116 are physically
9 connected, is that correct?

10 A. We were just looking at a description
11 of Figure 7, which is -- let me just find it
12 here.

13 So paragraph 93 says, "In the
14 depicted embodiment the monitor device 118
15 includes a finger clip sensor 116 connected to
16 a monitor 118 via a cable 452."

17 BY MR. BISENIUS:

18 Q. Are Figure 7 of Poeze and Figure 8 of
19 Poeze directed towards the same embodiment?

20 MR. NELSON: Objection, foundation.

21 THE WITNESS: In paragraph 24, it
22 describes, "Figure 7 illustrates a sample

1 handheld monitor and an exemplary
2 noninvasive optical sensor of a health
3 data collection device in accordance with
4 one embodiment."

5 In paragraph 25, it says, "Figure 8
6 is a block diagram of an example health
7 data collection device capable of
8 non-invasively measuring one or more blood
9 analytes in a monitored patient, according
10 to an embodiment of the disclosure."

11 BY MR. BISENIUS:

12 Q. Maybe I can help you out a bit.

13 In paragraph 63 of your declaration,
14 you refer to -- you assert that "Apple relies
15 on numerous different embodiments of Poeze."

16 And then in the parenthetical, you
17 cite to -- you refer to Figures 1B, 2B, 7,
18 and 8.

19 So it appears here that you're
20 insisting that these figures all refer to
21 different embodiments, but it's not quite
22 clear. So I'm trying to clarify that.

1 Do you believe that Figures 7 and 8
2 are referring to different embodiments? Or are
3 they actually referring to the same embodiment?

4 MR. NELSON: Objection to form.

5 THE WITNESS: As you state, in
6 paragraph 63, I say, "Additionally, I note
7 that Apple does not identify its
8 obviousness grounds with particularity.
9 Apple relies on numerous different
10 embodiments of Poeze. See, e.g.,
11 Opposition at 14-15 and 17 (relying on
12 Poeze's embodiments in Figures 1B 2B, 7,
13 8, and iterations of thereof)."

14 So I'm just pointing out that Apple
15 is relying on various embodiments in
16 those -- those sections.

17 Counselor, would you mind if we take
18 a break? I could do with a bathroom
19 break.

20 MR. BISENIUS: Sure. Yes. Should we
21 come back at 50 past the hour?

22 THE WITNESS: That sounds good.

1 Thank you.

2 (Thereupon, a brief recess was taken.)

3 BY MR. BISENIUS:

4 Q. Dr. Duckworth, are you ready?

5 A. I'm ready.

6 Q. We were discussing Figure 7 and
7 Figure 8 of Poeze. My question is: Are
8 Figure 7 and Figure 8 directed towards the same
9 embodiments of Poeze?

10 MR. NELSON: Objection. Foundation.

11 THE WITNESS: I believe I answered
12 that with how I described Figure 7 and 8
13 from Poeze.

14 BY MR. BISENIUS:

15 Q. Is the monitor depicted in Figure 7
16 the same as the monitor -- sorry. Let me
17 scratch that.

18 Is the monitor 118 depicted in
19 Figure 7 the same as the monitor 118 depicted
20 in Figure 8?

21 MR. NELSON: Objection, foundation.

22 THE WITNESS: The paragraph 93 refers

1 to the monitor 118 in regards to Figure 7.

2 And then referring to Figure 8, also

3 refers to monitor 118.

4 BY MR. BISENIUS:

5 Q. So do you believe that the

6 descriptions of monitor 118 with respect to

7 Figure 7 and Figure 8 would be equally

8 applicable to both Figure 7 and Figure 8?

9 MR. NELSON: Objection, foundation.

10 THE WITNESS: Not necessarily. It

11 would depend on the specific embodiment

12 and variation.

13 BY MR. BISENIUS:

14 Q. Is the sensor 116 depicted in

15 Figure 7 the same as the sensor 116 depicted in

16 Figure 8?

17 MR. NELSON: Objection, foundation.

18 THE WITNESS: When you say "the

19 same," Counselor, what do you mean? Do

20 you mean identical?

21 Again, in Figure 8, the sensor 116

22 can have various embodiments and

1 variations. So when you say "the same,"
2 I'm not quite sure what you mean by that.

3 BY MR. BISENIUS:

4 Q. Let me rephrase.

5 Can you identify any differences
6 between the sensor 116 in Figure 7 and the
7 sensor 116 in Figure 8?

8 MR. NELSON: Objection, foundation.

9 THE WITNESS: It is very difficult to
10 identify differences because there are two
11 totally different representations. One is
12 a -- is a picture of the handheld monitor,
13 and Figure 8 is a block diagram. So we
14 are trying to compare apples and oranges
15 there, if you're saying are they the same.

16 BY MR. BISENIUS:

17 Q. Let's turn to Figure 2B of Poeze.

18 A. I'm at Figure 2B.

19 Q. Figure 2B also depicts the health
20 data collection device 112 having the monitor
21 118 and the sensor 116. Is that correct?

22 MR. NELSON: Objection, foundation.

1 THE WITNESS: Sorry. Describes as
2 Figure 2 as contained in monitor 118 and
3 sensor 116.

4 BY MR. BIENIUS:

5 Q. Figure 2B shows the health data
6 collection device 112 in communication with a
7 general-purpose computing device 126, is that
8 correct?

9 A. Again, Counselor, are you reading
10 from a specific --

11 Q. I'm just looking at Figure 2B. I
12 think it's straightforward in the figure
13 itself.

14 A. Well, you were using terms in there,
15 so I want to make sure we're accurate.

16 Q. Well, you see the reference to
17 numeral 126 in Figure 2B; correct?

18 A. That's the general computing device
19 126.

20 Q. Correct. So I'm asking: Figure 2B
21 shows the health data collection device 112 in
22 communication with the general-purpose

1 computing device 126, is that correct?

2 A. Can you ask your question again,
3 please.

4 Q. Figure 2B shows the health data
5 collection device 112 in communication with the
6 general-purpose computing device 126, is that
7 correct?

8 MR. NELSON: Objection, foundation.

9 THE WITNESS: When you say "in
10 communication," you're referring to the
11 arrow 128? I'm just trying to find a good
12 description of that in Poeze, just to make
13 sure we're consistent here.

14 So I see in paragraph 34 referring to
15 Figure 2A, it talks about a communications
16 link 128. And then the communications
17 link -- excuse me.

18 The communications link 128 can be a
19 wired or wireless connection adapted to
20 transfer data between the two devices.

21 BY MR. BISENIUS:

22 Q. Here, the two devices it's referring

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1 to are the health data collection device 112
2 and the general-purpose computing device 126,
3 is that correct?

4 MR. NELSON: Objection, foundation.

5 THE WITNESS: So we are reading
6 paragraph 34 related to Figure 2A,
7 general-purpose computing device 126, with
8 the computing device 126 coupled with a
9 health data connection device 112 by
10 communications link 128.

11 BY MR. BISENIUS:

12 Q. In Figure 2B, the general-purpose
13 computing device 126 is depicted as a cell
14 phone, is that correct?

15 MR. NELSON: Objection, foundation.

16 THE WITNESS: I just see Poeze
17 referring to it as a general-purpose
18 computer device 126.

19 BY MR. BISENIUS:

20 Q. So looking at that paragraph you were
21 just reading from, paragraph 34, the first
22 sentence says, "Figure 2A depicts another

1 embodiment with a personal health organizer
2 software module 132 executed on a
3 general-purpose computing device 126."

4 Do you see that?

5 A. I do.

6 Q. And then a couple sentences later, it
7 states, "The personal health organizer module
8 132 could be an executable program on an
9 operating system of a device such as mobile
10 phone."

11 So would you agree that in Figure 2B,
12 the general-purpose computing device 126 is
13 being depicted as a phone?

14 MR. NELSON: Objection, foundation.

15 THE WITNESS: I don't think it
16 explicitly describes it as a phone.

17 You were reading from 34. And it
18 says, "Can be an executable program and
19 operating system on a device, such as
20 mobile phone, a personal digital
21 assistant, a portable music player, an
22 electronic book reader, a netbook,"

1 et cetera," there.

2 BY MR. BISENIUS:

3 Q. One of the embodiments of the
4 general-purpose computing device 126 would be a
5 mobile phone, is that correct?

6 A. It lists the examples there as being
7 a mobile phone, yes.

8 Q. Earlier you read a portion of this
9 paragraph about the communications link 128.
10 It states that "The communications link 128 can
11 be a wireless connection," is that correct?

12 MR. NELSON: Objection, foundation.

13 THE WITNESS: It actually says, "The
14 communication link 128 can be a wired or
15 wireless connection."

16 BY MR. BISENIUS:

17 Q. In situations in which the
18 communications link 128 is a wireless
19 connection, it would be possible for the
20 general-purpose computing device 126 to be at a
21 different physical location than the monitor
22 118, is that correct?

1 MR. NELSON: Objection, foundation.

2 THE WITNESS: I don't -- I don't
3 think I provided an opinion on that in my
4 declaration. Are you asking something
5 specifically about my declaration or just
6 general questions about Poeze?

7 BY MR. BISENIUS:

8 Q. I'm asking you -- I believe this is
9 relevant to your declaration. I would like you
10 to answer it.

11 In situations in which the
12 general-purpose computing device 126
13 communicates over a wireless link to the
14 monitor 118 -- so the communications link 128
15 is wireless -- in those situations, it would be
16 possible for the general-purpose computing
17 device 126 to be at a different physical
18 location than the monitor 118, is that correct?

19 MR. NELSON: Objection, foundation.

20 THE WITNESS: So you say this is
21 relevant to my declaration? Can you point
22 me to where you're referring, then,

1 please.

2 BY MR. BISENIUS:

3 Q. You're unable to answer this question
4 without looking at your declaration, is that
5 correct?

6 MR. NELSON: Objection to form.

7 THE WITNESS: Counselor, you said
8 this was relevant to my declaration, so
9 I'm asking you where in my declaration I'm
10 referring to that in that way.

11 BY MR. BISENIUS:

12 Q. Let's look, for example, at
13 paragraph 71 of your declaration. It's a
14 pretty long paragraph, spans a couple pages.

15 But on page 36, about halfway down
16 the page, you have a numbered list of a number
17 of issues you're discussing. After the number
18 2, you say, quote, "Displaying the complex data
19 and inputs on a smartphone touchscreen would be
20 redundant because that information was already
21 displayed on Kianl's handheld device," end of
22 quote.

1 And so I'm asking you: In situations
2 in which the communication link imposed is a
3 wireless link, the general-purpose computing
4 device 126 could be in a different physical
5 location from the monitor 118, isn't that
6 correct?

7 MR. NELSON: Objection, foundation.

8 THE WITNESS: That paragraph is
9 explaining that the information is already
10 on Kianl's handheld device. And so
11 displaying it on a smartphone touchscreen
12 would then be redundant because it's
13 already displayed there.

14 BY MR. BISENIUS:

15 Q. So my question is: Relevant to your
16 insistence that this would be a redundant
17 display of this information, in situations in
18 which the communication link 128 is a wireless
19 connection, the general-purpose computing
20 device 126 could be at a different physical
21 location than the monitor 118, isn't that
22 correct?

1 MR. NELSON: Objection to form.

2 THE WITNESS: So the monitor 126
3 could be in a different physical location
4 to monitor 118, if there was a wireless
5 link there.

6 BY MR. BISENIUS:

7 Q. In forming your opinion that
8 displaying the complex data and inputs on a
9 smartphone touchscreen would be redundant
10 because that information was already displayed
11 on Kianl's handheld device, did you consider
12 scenarios in which the general-purpose
13 computing device 126 is in a different physical
14 location from the monitor 118?

15 MR. NELSON: Objection, foundation.

16 THE WITNESS: I think we're talking
17 about different concepts here.

18 So Poeze is transmitting information
19 wirelessly to the mobile computing device,
20 the 126.

21 Kianl is a self-contained, handheld
22 device with all the information processed

1 on that same device and displayed on that
2 same device.

3 So there would be no -- no reason to
4 then replicate that same information.

5 BY MR. BISENIUS:

6 Q. In scenarios in which the user of the
7 general-purpose computing device 126 is in a
8 different physical location than the monitor
9 118, the user of the general-purpose computing
10 device 126 would not be able to see the monitor
11 118, is that correct?

12 MR. NELSON: Objection, foundation.

13 THE WITNESS: Just so I'm sure, can
14 you repeat the question, please.

15 BY MR. BISENIUS:

16 Q. In scenarios in which the user of the
17 general-purpose computing device 126 is in a
18 different physical location than the monitor
19 118, the user of the general-purpose computing
20 device 126 would not be able to see the display
21 of the monitor 118, is that correct?

22 MR. NELSON: Same objection.

1 THE WITNESS: They could be at a
2 different physical location, but you could
3 still see the display of monitor 118.

4 BY MR. BISENIUS:

5 Q. I want to continue with paragraph 34
6 of Poeze. As we discussed earlier, the first
7 sentence states in part, quote, "A personal
8 health organizer software module 132 executed
9 on a general-purpose computing device 126," end
10 quote.

11 Then a few sentences later, the
12 paragraph goes on to state, quote, "The
13 personal health organizer module 132 can be an
14 application as executed on the operating system
15 of a mobile phone, such as the iPhone
16 manufactured by Apple, Inc., a BlackBerry
17 device manufactured by Research In Motion,
18 Inc., the Pre manufactured by Palm, Inc., or a
19 mobile device manufactured by HTC, Nokia, or
20 Motorola, et cetera," end quote.

21 Do you see that?

22 A. I see that in paragraph 34, yes.

1 Q. So here Poeze is expressly disclosing
2 that the general-purpose computing device 126
3 could be an iPhone, a BlackBerry, or another
4 mobile phone. Is that correct?

5 MR. NELSON: Objection, foundation.

6 THE WITNESS: So I can just repeat
7 back part of paragraph 34: "The personal
8 health organizer module 132 can be an
9 application that is executed on the
10 operating system of a mobile phone, such
11 as the iPhone, a BlackBerry device,
12 et cetera."

13 BY MR. BISENIUS:

14 Q. Is Figure 2B of Poeze directed
15 towards the same embodiment as Figure 7?

16 MR. NELSON: Objection, foundation.

17 THE WITNESS: Paragraph 18 describes
18 "Figures 2A and 2B illustrate another
19 embodiment of a personal health
20 organizer."

21 And paragraph 24 describes
22 "Figure 7 illustrates a sample handheld

1 monitor and an exemplary noninvasive
2 optical sensor of a health data collection
3 device in accordance with one embodiment."

4 BY MR. BISENIUS:

5 Q. Would you agree that the depiction of
6 the personal health or -- sorry.

7 Would you agree that the depiction of
8 the health data collection device 112 in
9 Figure 2B is highly similar, although not
10 identical, to the depiction of the health data
11 collection device 112 in Figure 7?

12 MR. NELSON: Objection to form.
13 Foundation.

14 THE WITNESS: So, Counselor, you're
15 asking me if those figures are similar?
16 Is that correct?

17 BY MR. BISENIUS:

18 Q. Correct.

19 A. The figures do look similar.

20 Q. Turning to Figure 1B of Poeze,
21 Figure 1B, once again, shows the health data
22 collection device 112 having the monitor 118 in

1 the sensor 116, is that correct?

2 A. Figure 1B shows 116 and 118.

3 Q. What is the difference between the
4 embodiment depicted in Figure 1B and the
5 embodiment depicted in Figure 2B?

6 A. So we're looking for a description of
7 1B? It talks about a personal health organizer
8 110 in paragraph 31.

9 Q. Is that your answer, counsel? Or --
10 sorry.

11 Is that your answer, Doctor?

12 A. Yes. I thought I answered the
13 question. Sorry.

14 Q. Are you aware of any portions of
15 Poeze that describe the health data collection
16 device 112 of Figure 2B as being different from
17 the health data collection Device 112 of
18 Figure 1B?

19 A. I have not read the whole of Poeze
20 here now. But it seems to refer to 112 as
21 health data collection device in the different
22 figures.

1 Q. I'd like to go back to your most
2 recent declaration, paragraph 65.

3 A. I'm there.

4 Q. In the second sentence of
5 paragraph 65, you state, quote, However, the
6 ADC is not an internal component of Poeze's
7 monitor 118," end quote.

8 Do you see that?

9 A. I do see that.

10 Q. In forming this opinion, were you
11 ignoring the embodiments described in
12 paragraphs 122 and 124 of Poeze that expressly
13 describe the ADC as being an internal component
14 of the monitor 118?

15 MR. NELSON: Objection, foundation.

16 THE WITNESS: I believe I answered
17 that question before. As I continue in
18 paragraph 65, "Rather, as discussed above,
19 Apple relies on Poeze's embodiments where
20 the front-end interface's ADC converts the
21 detector signal 524 into a digital signal
22 before the signal reaches the monitor

1 118."

2 And "Because the analog-to-digital
3 conversion occurs before the signal
4 reaches the monitor 118 in the embodiments
5 Apple relies on, it is my opinion that in
6 those embodiments the front-end
7 interface's ADC is not an 'internal
8 component' of Poeze's monitor 118."

9 BY MR. BISENIUS:

10 Q. I just want to clarify here because
11 this sentence seems to be a making a universal
12 statement about Poeze in general and not
13 necessarily embodiments relied on by Apple.

14 So would it be better to phrase this
15 assertion as you believe that the embodiments
16 relied on by Apple do not have an ADC as an
17 internal component of the monitor 118?

18 MR. NELSON: Objection to form.

19 BY MR. BISENIUS:

20 Q. Let me ask that a different way.

21 Would you agree that there are
22 embodiments described in Poeze in which the

1 analog-to-digital converter is in the monitor

2 118?

3 A. I believe we discussed this also
4 earlier where we talked about the ADC could be
5 in different locations. But as I said here in
6 65 and also as we saw earlier in paragraph 58,
7 "Apple relies on Poeze's embodiments where the
8 front-end interface's ADC converts the detector
9 signal 524 into a digital signal before signal
10 reaches the monitor 118."

11 And then at the end of that
12 paragraph, it is my opinion that in those
13 embodiments the front-end interface's ADC "is
14 not an internal component to Poeze's monitor
15 118."

16 Q. I want to turn to the opposition
17 brief, Paper 52, specifically starting at
18 page 13.

19 A. Page 13?

20 Q. On page 13 of Paper 52, the first
21 sentence states, quote, "Multiple reasons would
22 have prompted a POSITA to modify Poeze's system

1 based on Pakula to include an improved
2 electronic device housing for mounting and
3 protecting the display and internal electronics
4 of Poeze's monitor 118," end quote.

5 Do you see that?

6 A. I do.

7 Q. So this sentence is expressly stating
8 that part of the proposed modification to
9 Poeze, based on the teachings of Pakula, is
10 mounting of the internal electronics of Poeze's
11 monitor 118 within an improved electronic
12 device housing, is that correct?

13 MR. NELSON: Objection, foundation.

14 THE WITNESS: All I can do is read
15 back the sentence that it states on
16 page 13 there: "Modify Poeze's system
17 based on Pakula to include an improved
18 electronic device housing for mounting and
19 protecting the display and internal
20 electronics of Poeze's monitor 118."

21 BY MR. BISENIUS:

22 Q. The next sentence states, quote,

1 "Such an implementation would have 'dissipated
2 impact forces and thus reduced damage to the
3 electronic device housing' and 'protected the
4 components from damage during use or when
5 dropped," end quote.

6 Do you see that?

7 A. I see that.

8 Q. Can you identify anywhere in your
9 most recent declaration where you disputed this
10 assertion that mounting of the internal
11 electronics of Poeze's monitor 118 with an
12 improved electronic device described by Pakula
13 would have dissipated impact forces and thus
14 reduced damage to the electronic device housing
15 and protected the components from damage during
16 use or when dropped?

17 A. I could search through my
18 declaration, but I do not believe I referred to
19 Pakula in my declaration.

20 Q. The third sentence on page 13 of
21 Paper 52 states, quote, "Pakula's housing
22 allows for 'robustly attaching' components to

1 'support and protect' such components," end
2 quote.

3 Do you see that?

4 A. I do.

5 Q. Can you identify anywhere in your
6 most recent declaration where you disputed this
7 assertion that robustly attaching the internal
8 electronics of Poeze's monitor 118 with an
9 improved electronic device described by Pakula
10 would have supported and protected such
11 components?

12 A. I do not believe I referred to Pakula
13 in my declaration.

14 Q. I'm not going to step through every
15 single one of these one by one, just to save us
16 some time.

17 But on pages 13 and 14 of the
18 opposition brief, Paper 52, the brief walks
19 through a number of benefits that would have
20 resulted from mounting and protecting the
21 display and internal electronics of Poeze's
22 monitor 118 within an improved electronic

1 device housing as suggested by Pakula.

2 Can you identify anywhere in your
3 most recent declaration where you refuted or
4 even addressed any of these benefits described
5 on pages 13 and 14 that would have resulted
6 from that proposed modification?

7 MR. NELSON: Objection to form,
8 foundation.

9 THE WITNESS: I did not refer to
10 Pakula in my recent declaration.

11 BY MR. BISENIUS:

12 Q. I want to jump forward to page 16 of
13 the opposition brief.

14 A. I'm there.

15 Q. A little -- I don't know. About a
16 third of the way down the page, there's a
17 sentence that starts with "For example."

18 This sentence states, quote, "For
19 example, Pakula describes various internal
20 computing components of the resulting device
21 'can be electrically coupled using one or more
22 of a PCB,'" end quotes.

1 The term "PCB" here refers to a
2 printed circuit board, is that correct?

3 A. A PCB is a printed circuit board.

4 Q. In your most recent declaration, did
5 you refute or address any of the benefits that
6 would have resulted from mounting the internal
7 components of Poeze's monitor 118 to a printed
8 circuit board as described by Pakula?

9 A. In my paragraph 66, I refer to the
10 opposition at 16. So "Even if an ADC were an
11 internal component of Poeze's monitor 118,
12 Apple fails to show a motivation to modify
13 Poeze to put the ADC and the signal processor
14 510 'on a board' in the monitor 118. Apple
15 argues this modification was 'well known in the
16 art' and allows electrical communication 'in a
17 reliable, well-known manner.' Opposition
18 at 16.

19 "But even if true, being well known
20 does not explain why a POSITA would have been
21 motivated to do what Apple proposes, namely,
22 place the ADC and the signal processor 510 on a

1 circuit board in the monitor 118."

2 And "Apple also argues that a benefit
3 of using a printed circuit board (PCB) is
4 reliable electrical communication 'while
5 securing the components within the assembly.'"

6 So I was referring back to
7 Opposition 16 that you were just describing.
8 So, yes, I did address Opposition 16.

9 Q. In this paragraph, did you address
10 any of the benefits discussed on pages 13 and
11 14 of the opposition of mounting the internal
12 components of Poeze's monitor 118 within the
13 improved electronic device housing?

14 MR. NELSON: Objection to form.

15 THE WITNESS: Just looking at my
16 declaration, I think I may have misspoke
17 before. Let me just clarify.

18 Yes, I misspoke before. I did review
19 and discuss Pakula.

20 So in paragraph 67, we talked about
21 "The section that addresses Pakula, Id.,
22 at 13-14. But even the Pakula discussion

1 pertains to a housing, not putting
2 components on a circuit board."

3 BY MR. BISENIUS:

4 Q. Looking at -- going back to pages 13
5 and 14 of the opposition brief, Paper 52, the
6 first sentence here expressly describes that
7 the proposed modification includes mounting and
8 protecting internal electronics of Poeze's
9 monitor 118 with an improved electronic device
10 housing, is that correct?

11 A. So your question is back on page 13,
12 Counselor, is that correct?

13 Q. Correct.

14 A. And you're asking me again, please?

15 Q. That in the first sentence of the
16 opposition brief, first sentence of page 13,
17 the described modification is -- includes
18 mounting internal electronics of Poeze's
19 monitor 118 in and improved electronic device
20 housing, is that correct?

21 A. That is the first sentence on
22 page 13, "include an improved electronic device

1 housing for mounting and protecting the display
2 and internal electronics Poeze's monitor 118."

3 Q. So to reiterate my question from
4 before, now that you've identified these
5 additional portions of your declaration, can
6 you identify anywhere in your declaration that
7 you refute any of the benefits discussed on
8 pages 13 and 14 that would have resulted from
9 mounting internal electronics of Poeze's
10 monitor 118 in an improved electronic device
11 housing?

12 A. My reference to Pakula is in
13 paragraph 67 of my declaration where I say that
14 the "Pakula discussion pertains to a housing,
15 not putting components on a circuit board."

16 Q. But the discussion does pertain to
17 mounting electronic components in the housing,
18 is that correct?

19 A. Mounting components in a housing is
20 different than putting components on a circuit
21 board.

22 Q. Would you agree that if a circuit

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1 board is located within the housing, if you
2 mounted components to that circuit board, those
3 components would be mounted within the housing?

4 MR. NELSON: Object to the form.

5 THE REPORTER: Counsel, did you
6 object? I thought I heard you really low.

7 MR. BISENIUS: You might be on mute.
8 We're not hearing you.

9 Let's go off the record.

10 (Thereupon, a brief recess was taken.)

11 BY MR. BISENIUS:

12 Q. Let's go to page 16 of the opposition
13 brief, Paper 52. Here the opposition brief is
14 discussing Pakula's disclosures of mounting
15 electronic components on a printed circuit
16 board. Is that correct?

17 A. I see on page 16, for example,
18 "Pakula describes various internal computing
19 components of the resulting device 'can be
20 electrically coupled using one or more of a
21 PCB.'"

22 Q. Would you agree that mounting

1 electronic components to a printed circuit
2 board is one way in which those components
3 could be mounted within a housing?

4 MR. NELSON: Objection, foundation.

5 THE WITNESS: So you're asking a
6 general question, Counselor, about adding
7 components to a printed circuit board, is
8 that correct?

9 BY MR. BISENIUS:

10 Q. Well, here it's discussing Pakula's
11 disclosure of mounting components to a printed
12 circuit board.

13 I'm asking if you would agree that
14 mounting components to a printed circuit board
15 is one manner in which those components could
16 be mounted within a housing.

17 MR. NELSON: Objection, foundation.

18 THE WITNESS: That is not something I
19 provided an opinion on. But a printed
20 circuit board and a housing are two very
21 different items.

22

1 BY MR. BISENIUS:

2 Q. Would you agree that Pakula discloses
3 various embodiments of a housing?

4 A. Pakula, in the abstract, says
5 improved housings for electronic devices are
6 disclosed.

7 (Thereupon, Exhibit 1113 was marked for
8 identification.)

9 BY MR. BISENIUS:

10 Q. Turning to -- I want to turn to
11 Pakula. This is Exhibit 1113. I want to
12 discuss paragraphs 69 and 70 that are cited in
13 and quoted on page 16 of the Opposition brief.

14 A. I'm at 69.

15 Q. Among other components, paragraph 69
16 is discussing an internal platform, is that
17 correct?

18 A. I see paragraph 69 starts with the
19 words "The internal platform."

20 Q. Looking at the last sentence of
21 paragraph 69 it states, quote, "For example,
22 the internal platform can be formed by a

1 printed circuit board or chip used by the
2 device," end quote.

3 Do you see that?

4 A. I see that at the end of
5 paragraph 69.

6 Q. Skipping forward to paragraph 70, it
7 gives a reference numeral to the internal
8 platform and refers to it as internal platform
9 140.

10 Do you see that?

11 A. Yes, I do.

12 Q. Now I'd like to jump ahead to
13 paragraph 86, which is also cited on page 16 of
14 the opposition brief.

15 This is discussing internal platform
16 240. It says, "Can cover any suitable area
17 within volume 222."

18 And it says, "Internal platform 240
19 can include any suitable features for securing
20 or connecting electronic device components,
21 such as one or more snaps, prongs, chamfers,
22 extends, openings, access points, doors or

1 combinations of these."

2 Do you see that?

3 A. I see that sentence.

4 Q. When Pakula is referring to an
5 internal platform, would you agree that it's
6 referring to a platform that is inside the
7 housing?

8 MR. NELSON: Objection, foundation.

9 THE WITNESS: I can read from Pakula
10 in paragraph 85 where it says that
11 "Internal platform 240 can include any
12 suitable shape, including, for example, a
13 substantially plainer shape. In some
14 embodiments, internal platform 240 can
15 include several distinct regions, such as
16 a primary region and step regions
17 extending from the primary region to
18 engage one or more features of outer
19 periphery member 220."

20 BY MR. BISENIUS:

21 Q. Earlier in that same paragraph,
22 paragraph 85, it states -- and this is on the

1 previous page -- it states, quote, "In some
2 embodiments, one or more of the internal
3 components of the electronic device can be
4 connected to the outer periphery member and
5 serve as a structural component. For example,
6 a circuit board with or without a separate
7 stiffening element can be connected to offset
8 portions of outer periphery member 220," end
9 quote.

10 So here, would you agree that it's --
11 when it refers to the circuit board, it is
12 discussing an internal structure of the
13 housing?

14 A. Are you asking me if the circuit
15 board in that Pakula description, paragraph 85,
16 is inside what is classed as the outer
17 periphery member 220?

18 Q. Correct.

19 A. I think all I can do there is read
20 how it states. For example, a circuit board
21 with or without a separate stiffening element
22 can be connected to opposite portions of outer

1 periphery 220.

2 Q. Looking at these disclosures of the
3 Pakula that were cited in the opposition brief,
4 would you agree that a circuit board is one
5 manner in which electronic components can be
6 mounted within the housing?

7 A. I'm a little confused about your
8 question. Are you -- you're asking me about a
9 housing in Pakula? Or are you asking me about
10 something else?

11 Q. Yeah, a housing in Pakula
12 specifically. Would you agree that a printed
13 circuit board is one manner in which components
14 could be mounted within the housing of Pakula?

15 A. Well, again, it's the same sentence I
16 read before. In paragraph 85, for example, a
17 circuit board, with or without a separate
18 stiffening element, can be connected to
19 opposite portions of outer periphery member
20 220.

21 Q. I'm going to go back to the Poeze
22 reference, Exhibit 1110, and talk about

1 paragraph 34 again.

2 A. Paragraph 34?

3 Q. Correct.

4 Would you agree that Poeze discloses
5 that in at least some examples, an iPhone can
6 be used as the general-purpose computing device
7 126 that executes the personal health organizer
8 software module 132?

9 MR. NELSON: Objection, foundation.

10 THE WITNESS: I can read from
11 paragraph 34 where it says, "For example,
12 the personal health organizer module 132
13 can be an application that is executed on
14 operating system of a mobile phone."

15 BY MR. BISENIUS:

16 Q. Later on in that paragraph, it
17 describes one example of such a mobile phone
18 for executing the health organizer software
19 module is an iPhone, is that correct?

20 A. That sentence I just read continues
21 "that is executed on the operating system of a
22 mobile phone such as the iPhone manufactured by

1 Apple."

2 Q. Have you ever used an iPhone?

3 A. Yes.

4 Q. Had you used an iPhone prior to
5 September 20th, 2012?

6 A. Probably. But I can't -- probably.

7 Q. Would you agree that an iPhone has a
8 fairly large screen in comparison to the size
9 of the device overall?

10 MR. NELSON: Objection, foundation.

11 THE WITNESS: Are you referring to a
12 specific iPhone model, then, Counselor?
13 Because the screen has changed in
14 different models.

15 BY MR. BISENIUS:

16 Q. Let's refer to the iPhone models that
17 existed before September 20, 2012. In those
18 models, in some of those models, the screen of
19 the iPhone took up a significant majority of
20 the front face of the phone, is that correct?

21 MR. NELSON: Objection, foundation.

22 THE WITNESS: That's not something I

1 provided an opinion on. I wouldn't want
2 to provide an opinion without the specific
3 model or information on the specific model
4 in front of me.

5 BY MR. BISENIUS:

6 Q. Did iPhones released prior to
7 September 20, 2012, have touchscreens?

8 A. I believe so.

9 Q. And prior to September 20th, 2012, a
10 POSITA would have been aware that users would
11 generally interact with an iPhone by selecting
12 icons displayed on the touchscreen, is that
13 correct?

14 MR. NELSON: Objection, foundation.

15 THE WITNESS: I haven't provided an
16 opinion on that, Counselor.

17 Again, I think I would need to see
18 the exact model you're referring to
19 because I know iPhones have had a variety
20 of displays. They have had a variety of
21 physical switches and buttons.

22 (Thereupon, Exhibit 1006 was marked for

1 identification.)

2 BY MR. BISENIUS:

3 Q. I want to switch to Kianl reference.

4 This is Exhibit 1006.

5 A. I have that.

6 Q. I want to look at Figure 10

7 specifically.

8 A. I'm at Figure 10.

9 Q. Figure 10 of Kianl shows numeric
10 values for SpO2 and heart rate measurements,
11 historical graphs for SpO2 and heart rate, and
12 input control icons all on one display screen,
13 is that correct?

14 A. Again, Counselor, seems like you're
15 reading from a part of the specification. Can
16 we go to that, just to be clear?

17 Q. I'm really just looking at Figure 10,
18 but we can look at the description of
19 Figure 10.

20 Description of Figure 10 starts at
21 column 11, line 7, under the heading "Trend
22 View."

1 A. Yes, I see that.

2 Q. So looking back at Figure 10, the two
3 large numbers on the left side, 98 and 55, what
4 do those numbers represent?

5 A. The SpO2 value and the heart rate
6 value.

7 Q. Just to the right of those, there's
8 two graphs. What do those two graphs
9 represent?

10 A. So you're referring to -- there's an
11 oxygen saturation trend graph 130 and a pulse
12 rate trend graph 110. I think I misquoted
13 that. An oxygen saturation trend graph 1030
14 and a pulse rate trend graph 1050.

15 Q. Then to the right of those two trend
16 graphs, there's a number of rectangular icons.
17 What is the function of those rectangular
18 icons?

19 A. So we are better to go to an earlier
20 figure that explains those.

21 So I believe Figure 2A is good to
22 explain those. They are -- they're shown as

1 270. They are the soft key icons 270, which
2 were associated with the programmable function
3 keys, soft keys, 260.

4 Q. The soft key icons? 270 represent
5 input functions; correct?

6 MR. NELSON: Objection, foundation.

7 THE WITNESS: As I just explained,
8 the programmable function keys -- that's
9 260 to the right -- they are associated
10 with the soft key icons 270.

11 And they drawn -- in that same
12 section, it says, "The four soft keys 260
13 are pressed to select a corresponding one
14 of the soft key icons 270."

15 BY MR. BISENIUS:

16 Q. So when a user selects one of the
17 soft keys 260, the device would perform a
18 function associated with the corresponding
19 displayed soft key icon 270, is that correct?

20 MR. NELSON: Objection, foundation.

21 THE WITNESS: I think the description
22 is very clear there. "The four soft keys

1 260 are pressed to select a corresponding
2 one of the soft key icons 270. The soft
3 key icons 270 indicate the software menu
4 items that can be selected through the
5 soft keys 260. Pressing a soft key 260
6 next to an icon 270 selects the option."

7 BY MR. BISENIUS:

8 Q. Turning back to Figure 10, on the
9 display example shown in Figure 10, the display
10 includes a numeric value for SpO2, a numeric
11 value for heart rate measurement, a trend graph
12 for SpO2 measurements, a trend graph for heart
13 rate measurements, and four soft key icons.

14 Is that correct?

15 MR. NELSON: Objection to form.

16 THE WITNESS: It includes more --
17 excuse me.

18 It includes more than that.

19 Let's see. We described part of that
20 in that column 11. "Figure 10 illustrates
21 a trend view 1000 having a first line of
22 information 1010, a second line of

1 information 1020, an oxygen saturation
2 trend graph 1030, a low signal quality
3 indicator 1040, a pulse rate trend graph
4 1050."

5 Then so we explained there's also the
6 SpO2 and heart rate information two and
7 the icons.

8 BY MR. BISENIUS:

9 Q. Looking specifically at the SpO2
10 numeric value, the heart rate measurement
11 numeric value, the SpO2 measurement trend
12 graph, the heart rate measurement trend graph,
13 and the four soft key icons, is it your opinion
14 that it would have been beyond the skill of a
15 POSITA to fit that information on the display
16 screen of an iPhone as of September 2012?

17 MR. NELSON: Objection, foundation.

18 THE WITNESS: I address that in my
19 paragraphs 72, 73, 74, 75 of my -- and 76
20 of my summary why Kianl's user interface
21 could not have been readily implemented on
22 a smartphone's touchscreen.

1 I talk about the Kianl being a larger
2 device, a large screen displaying multiple
3 real-time physiological parameters. The
4 console and handheld are much larger than
5 a smartphone. And the console and
6 handheld need to be large to contain
7 screens that were large enough to display
8 all of that information.

9 Also, Apple ignored that Kianl does
10 not disclose a touchscreen user interface.
11 So Kianl needed multiple physical buttons
12 that then -- to be able to operate. And
13 it does not disclose a touchscreen user
14 interface.

15 So those -- that button functionality
16 has to now be integrated into a
17 touchscreen. So in paragraph 75, "In my
18 opinion, because Kianl lacks a touchscreen
19 user interface and requires physical
20 buttons and knobs, a POSITA would not have
21 been able to implement Kianl's interface
22 on Poeze's smartphone."

1 The physical buttons are
2 "fundamentally different from and
3 incompatible with Poeze's touchscreen
4 interface."

5 So in summary, "In my opinion, a
6 POSITA would not have reasonably expected
7 success in displaying Kianl's complex set
8 of multiple physiological parameter
9 measurements, historical charts, and the
10 many user inputs of Kianl in the very
11 limited space of Poeze's smartphone
12 touchscreen."

13 "In my opinion, because of the need
14 to use significant portions of Poeze's
15 smartphone touchscreen for controls
16 (rather than the physical buttons and
17 knobs like Kianl), a POSITA would not have
18 reasonably expected both Kianl's controls
19 and detailed information to fit on Poeze's
20 screen, much less fit on Poeze's touch
21 screen in a sufficiently viewable or
22 usable manner."

1 BY MR. BISENIUS:

2 Q. You touched on a number of issues
3 there, but I really want to focus on the issue
4 of displaying SpO2 and heart rate numeric
5 values, the SpO2 and heart rate trend graphs,
6 and four soft key icons.

7 It is your honest opinion that you do
8 not believe a POSITA would have had the skill
9 to display two 2-digit numbers, two graphs, and
10 four input keys on a single iPhone display as
11 of 2012, is that correct?

12 MR. NELSON: Objection to form,
13 foundation, argumentative.

14 THE WITNESS: You were taking a
15 subset of Kianl there, Counselor. I was
16 explaining that a Kianl interface consists
17 of many more items than you listed, and
18 that's what I'm explaining in my
19 declaration as my opinion there.

20 BY MR. BISENIUS:

21 Q. Do you recall reading the D'Angelo
22 reference, Exhibit 1007, in this proceeding?

1 A. Is that a prior art for these
2 substitute claims?

3 Q. It was relied on as prior art in the
4 petition.

5 (Thereupon, Exhibit 1007 was marked for
6 identification.)

7 Q. Could you open up Exhibit 1007. It's
8 only four pages long. If you could take a look
9 at that and tell me if you recall reading this
10 exhibit.

11 A. I remember reviewing D'Angelo
12 earlier, earlier opinions.

13 Q. Looking at the second -- sorry -- the
14 third page of D'Angelo's Exhibit 1007. In the
15 section at the bottom of the second -- sorry.

16 In the section at the bottom of the
17 first column, where it says, "B., Smartphone
18 application," it discusses implementing its
19 application on iPhone.

20 Do you see that?

21 A. Not sure which page you're on. Can
22 you repeat that.

1 Q. Page 3 of D'Angelo, left column
2 toward the bottom, the section that starts
3 "B. Smartphone application."

4 It says, "The realized iPhone
5 application enables transferring the data
6 stored on the microSD card inside the
7 management device to the iPhone via the serial
8 interface."

9 Would you agree here it's discussing
10 an iPhone?

11 A. In D'Angelo, page 3, that paragraph
12 mentions an iPhone.

13 Q. When you look to the Figure 4 on the
14 right, bottom of page 3, would you agree that
15 Figure 4 is showing two different examples of
16 an iPhone?

17 MR. NELSON: Objection, foundation,
18 scope.

19 THE WITNESS: The caption for
20 Figure 4 describes "Prototypes of
21 management devices in two
22 variants: integrated into a smartphone

1 cover (left) and as Eventlogger with
2 adapter for smartphone connection
3 (right)."

4 BY MR. BISENIUS:

5 Q. Do you know what an iPhone looks
6 like?

7 A. I know what an iPhone looks like.

8 Q. Would you agree that the device
9 depicted in Figure 4 is an iPhone?

10 MR. NELSON: Objection, scope,
11 foundation.

12 THE WITNESS: Figure 4 just refers to
13 a smartphone. It looks like an iPhone,
14 but it doesn't explicitly state that.

15 BY MR. BISENIUS:

16 Q. Turning to Figure 5 on page 4 of
17 D'Angelo, if you zoom in a bit, the middle
18 display screen shown in Figure 5, this shows
19 two graphs, two numeric values, and several
20 input icons.

21 Would you agree?

22 MR. NELSON: Objection, foundation.

1 THE WITNESS: Where is that
2 description?

3 It just says, "Screenshots of the
4 iPhone application visualizing acquired
5 vital parameters live and previously
6 recorded datasets."

7 So that's what it describes Figure 5
8 as.

9 BY MR. BISENIUS:

10 Q. Regardless of the information that's
11 being displayed, would you agree that there are
12 two graphs shown on the middle display of
13 Figure 5?

14 MR. NELSON: Objection, foundation,
15 scope.

16 THE WITNESS: It looks like there is
17 a green and red graph there in the center.

18 BY MR. BISENIUS:

19 Q. Would you also agree there is a green
20 numeric value to the right of the green graph
21 and a red numeric value to the right of the red
22 graph?

1 A. Yes. I see a green number 56 a and
2 red number 130, I think.

3 Q. Would you also agree that there are a
4 number of selectable icons displayed on this
5 display screen?

6 MR. NELSON: Objection, foundation.

7 THE WITNESS: No, I don't see a
8 description of that.

9 BY MR. BISENIUS:

10 Q. So after looking at this display
11 screen in D'Angelo, which D'Angelo was
12 published in 2011, do you still believe it
13 would have been beyond the skill of a POSITA to
14 put two graphs, two numeric values, and four
15 selectable icons on the same screen of an
16 iPhone?

17 MR. NELSON: Objection, foundation.
18 Scope.

19 THE WITNESS: That's not an
20 opinion -- that's not an opinion I
21 provided in my declaration. I was
22 responding specifically to how Apple said

1 they were using what Kianl was teaching to
2 be able to display that information and
3 have the input of Kianl on the
4 touchscreen.

5 So that is my opinion based on what
6 Apple was providing and how they were
7 saying they were using Kianl's teaching to
8 modify the smartphone.

9 BY MR. BISENIUS:

10 Q. I'd like to return to the opposition
11 to revise motion to amend, Paper 52.
12 Specifically, I want to talk about the "Listing
13 of Grounds," which is on Roman numeral
14 page xvi.

15 A. I'm on page xvi.

16 Q. Ground RMTA 1D relies on "Poeze in
17 view of Kianl, Baba, Pakula, and Teller."

18 Did you ever address the Teller
19 reference or Ground RMTA 1D in your
20 declaration?

21 A. I'm sorry, Counselor. You've lost me
22 where you're looking here. Can you --

1 Q. I'm on -- I'm at the "Listing of
2 Grounds," which is Roman numeral page xvi, not
3 Arabic numeral page 16.

4 A. Oh. Okay. I apologize.

5 Okay. Let me go, then, to 16. Can
6 you say -- ask me the question again. Please.

7 Q. You're seeing the "Listing of
8 Grounds," correct?

9 A. Yes. Just one second.

10 Excuse me. Yep.

11 Q. Ground RMTA 1D relies on "Poeze in
12 view of Kianl, Baba, Pakula, and Teller."

13 Did you ever address the Teller
14 reference or Ground RMTA 1D in your
15 declaration?

16 MR. NELSON: Objection to form.

17 THE WITNESS: As I described in my
18 summary, I say that "(Grounds 1A-1D)
19 Substitute Claims 21-24 would not have
20 been obvious to a POSITA based on the
21 combination of Poeze, Kianl, Baba, and,
22 Pakula, or with additional references

1 Moon, Diab, or Teller."

2 I did not subsequently refer to
3 Teller in my declaration.

4 BY MR. BISENIUS:

5 Q. Ground RMTA 1C relies on "Poeze in
6 view of Kianl, Baba, Pakula, Diab."

7 Did you ever address the Diab
8 reference or Ground RMTA 1C in your
9 declaration?

10 A. Again, I looked at all these
11 references for the grounds. And as I stated
12 that same statement there, POSITA would not
13 have found them obvious over the combination.
14 I don't think I, though, subsequently
15 explicitly mentioned Diab again later in my
16 declaration.

17 Q. Ground RMTA 1B relies on "Poeze in
18 view of Kianl, Baba, Pakula, and Moon."

19 Did you ever address the Moon
20 reference or Ground RMTA 1B in your
21 declaration?

22 A. Again, as I explained, I did look at

1 those. And my conclusion is that they would
2 not have been obvious, but I did not explicitly
3 reference Moon later in my declaration.

4 (Thereupon, Exhibit 2045 was marked for
5 identification.)

6 BY MR. BISENIUS:

7 Q. I'd like to talk about Exhibit 2045.
8 This is U.S. Patent application number
9 15,880,071, which is the application that led
10 to the '507 patent. We are going to be talking
11 about this exhibit and your declaration kind of
12 side by side.

13 A. Okay.

14 Q. I'm at paragraph 35 of your
15 declaration.

16 A. Okay.

17 Q. And you there you state -- sorry.
18 I'll wait for you to get there.

19 A. I'm at 35.

20 Q. In paragraph 35, you state, quote,
21 "The same claimed ledge and lip are present in
22 the upper opening and the lower opening," end

1 quote.

2 Do you see that?

3 A. Yes, I do.

4 Q. Can you please identify the claimed
5 inner ledge and a perimeter lip sized and
6 configured to receive the upper and lower
7 shelves in the figures or written description
8 of Exhibit 2045?

9 A. So on my page 15, I'm referring to
10 Apple's annotated figure from 2045, Figure 1C,
11 where they refer to the potential perimeter lip
12 and the potential inner ledge.

13 Q. Do you agree that the area identified
14 as a potential perimeter lip provides support
15 for the claimed upper perimeter lip?

16 MR. NELSON: Objection, foundation.

17 THE WITNESS: So on the previous
18 page, paragraph 32, Apple labels Figure 1C
19 of the '507 patent to indicate an inner
20 ledge and a perimeter lip and an upper
21 opening consistent with claim limitation
22 2110.

1 So I agree that the annotated figure,
2 Apple shows the inner ledge and the
3 perimeter lip.

4 BY MR. BISENIUS:

5 Q. You agree with those annotations, is
6 that correct?

7 A. There's -- those particular
8 annotations where it refers to the perimeter
9 lip and the inner ledge.

10 Q. Returning to paragraph 35, you
11 stated, quote, "The upper and lower openings
12 are the same," end quote.

13 Do you see that?

14 A. Oh, I see where you're reading now.
15 In my opinion, applying Apple's interpretation,
16 a POSITA would have understood from the figures
17 that the upper and lower openings are the same.

18 Q. Can you identify anywhere in
19 Exhibit 2045 where the upper and lower openings
20 of the enclosure 132 are described as being the
21 same?

22 MR. NELSON: Objection, foundation.

1 THE WITNESS: I think the Figure 1C
2 makes it very clear that the -- where is
3 my description? -- "The same claimed ledge
4 and lip are present in the upper opening
5 and the lower opening. The structures on
6 the upward-facing interior surface of the
7 lower shell correspond to and mate with
8 the structures in the upper opening,
9 thereby disclosing that two shells are
10 interchangeable, as shown below."

11 Then I annotate to Figure 1C to show
12 that.

13 BY MR. BISENIUS:

14 Q. Looking at Figure 1C specifically,
15 there's a number of lines near the lower
16 opening that are not present near the upper
17 opening.

18 Do you see that?

19 Let me be more specific. I'm looking
20 at the enclosure 132 in Figure 1C. The
21 enclosure 132 has two long sides. We see the
22 outside of one of the long sides and the inside

1 of the other long side.

2 Would you agree with that?

3 A. Yes, I think I agree with that.

4 Q. So looking at the long side where we
5 can see the inside of the long side, along that
6 wall there, there's a number of lines near the
7 lower opening that are not present near the
8 upper opening.

9 Do you see that?

10 A. I think you're mischaracterizing
11 those. Excuse me.

12 I think you're mischaracterizing
13 those when you say they are near the lower
14 opening.

15 Q. So looking at that wall along the
16 long side where we see the inside of the wall,
17 starting at the lower opening, there are five
18 parallel lines.

19 Do you see those five lines?

20 A. I see lines that are running along
21 the inside of that long portion.

22 Q. Those five lines are all relatively

1 closely spaced together. And then after those
2 five lines, above those five lines, there's a
3 gap where there's a significant -- a more
4 significant space where there are no parallel
5 lines until the top lines of that wall. That
6 gap is not present near the lower opening,
7 isn't that correct?

8 MR. NELSON: Objection, foundation.

9 THE WITNESS: I disagree with how
10 you're describing that figure, Counselor.

11 BY MR. BISENIUS:

12 Q. Would you agree that what's shown
13 along the inner wall of the long side where we
14 can see the inside of the enclosure is not
15 symmetrical from top to bottom?

16 MR. NELSON: Objection, foundation.

17 THE WITNESS: I also disagree with
18 that statement. Because at the
19 perspective, I don't think we can really
20 draw any conclusion about that.

21 BY MR. BISENIUS:

22 Q. Returning to those five parallel

1 lines starting with the line closest to the
2 bottom opening. What do those five parallel
3 lines represent?

4 MR. NELSON: Objection, foundation.

5 THE WITNESS: I don't think the
6 patent describes those.

7 BY MR. BISENIUS:

8 Q. Do you believe that the claimed inner
9 ledge for the lower opening is depicted in
10 Figure 1C?

11 A. Because of the perspective view, I
12 don't believe we can see the lower lip.

13 Q. My question was about the inner
14 ledge.

15 A. I'm sorry.

16 Q. Do you believe that the -- sorry.
17 I'll just reask it.

18 Do you believe that the inner ledge
19 for the lower opening is depicted in Figure 1C?

20 A. I don't believe we can -- because of
21 the perspective, we can see the inner ledge on
22 the lower opening.

1 Q. Do you believe that the perimeter lip
2 or the lower opening is depicted in Figure 1C?

3 A. Again, because of perspective, I
4 don't believe we can see that.

5 Q. Moving ahead to paragraph 38 of your
6 declaration, in the first sentence of the
7 paragraph 8, you state, quote, "The enclosure
8 has a transition for each of these tapered
9 support members," end quote.

10 Several paragraphs later, in
11 paragraph 42, you state, quote, "Instead, the
12 claimed 'transition' is a feature of the
13 enclosure."

14 This is in the last sentence of
15 paragraph 42. Do you see those two statements?

16 A. I see "Instead, the claimed
17 'transition' is a feature of the enclosure."

18 Q. Can you identify the transition for
19 each of the tapered support members in the
20 figures and/or written disclosure of
21 Exhibit 2045?

22 A. So in paragraph 43, second sentence,

1 "However, the claimed 'transition' does not
2 recite additional or separate structure.
3 Instead, it is the boundary between the
4 enclosure and tapered flexible support member.
5 Figure 1C discloses that boundary."

6 Q. Can you identify where that boundary
7 is in Figure 1C?

8 A. Yes. That would be the oval shape
9 that you can see where 138 is connected to 132.

10 Q. I'd like to skip ahead to
11 paragraph 45 of your declaration --

12 MR. BISENIUS: Actually, we have been
13 going for about an hour. Now might be a
14 good time for a break.

15 (Thereupon, a brief recess was taken.)

16 BY MR. BISENIUS:

17 Q. I want to continue with your
18 declaration, Exhibit 2058, at paragraph 45.

19 A. I'm there.

20 Q. Several sentences into this
21 paragraph, the sentence starting with the word
22 "specifically," you state, quote,

1 "Specifically, the included-together limitation
2 describes that the sensor and processing board
3 are included together in the portable
4 measurement system used at the measurement
5 site," end quote.

6 What is the measurement site that you
7 refer to in this sentence?

8 A. So limitation 21a talks about "one or
9 more analog signals responsive to light and
10 from a light source attenuated by tissue of the
11 user at measurement site, said one or more
12 analog signals responsive to an oxygen
13 saturation of said tissue."

14 So it's measurement site where the --
15 the sensor is measuring the oxygen saturation.

16 Q. So the measurement site is a location
17 on the patient's body, is that correct?

18 A. So it is the -- wherever the tissue
19 of the user is being measured.

20 Q. In your understanding, does the term
21 "measurement site" here refer to a portion of
22 the patient's body, or is it referring to a

1 location where the patient is located?

2 MR. NELSON: Objection. Asked and
3 answered.

4 THE WITNESS: As I explained from the
5 claim language, it's attenuated by tissue
6 of the user at the measurement site.

7 BY MR. BISENIUS:

8 Q. I understand that, but that isn't
9 giving me clarity on your interpretation of the
10 term "measurement site."

11 Is the term "measurement site" as
12 used in this claim referring to a location on
13 the user or a location where the user is?

14 A. I was trying to find a description
15 quickly in the '507 patent, but it is on the
16 patient. It's on the user.

17 Q. In this sentence in paragraph 45,
18 when you say, "The sensor and processing board
19 are included together in the portable
20 measurement system used at the measurement
21 site," when you use the term "measurement
22 site," you're referring to a location on the

1 patient's body, is that correct?

2 MR. NELSON: Objection. Asked and
3 answered.

4 BY MR. BISENIUS:

5 Q. I'm just a bit confused because it
6 doesn't seem from the examples in the pictures
7 of the '507 patent that the sensor and the
8 processing board are both located at the
9 specific area of the patient's body where the
10 measurement is being taken.

11 So I'm trying to understand if you
12 believe that the term "included together"
13 requires both the sensor and the processing
14 board to be positioned at the same measurement
15 site on the user's body.

16 A. I think it's -- that sentence is -- I
17 personally think my sentence there is very
18 clear. Specifically, the included-together
19 limitation describes the sensor and processing
20 board are included together in the portable
21 measurement system used at the measurement
22 site.

1 And "used at the measurement site" is
2 at the site where the -- the analog signal is
3 responsive to light from a light source
4 attenuated by tissue of the user at measurement
5 site.

6 Q. If the processing board were
7 connected to the optical sensor by a cable with
8 the optical sensor in one room of the hospital
9 and the processing board in an adjacent room of
10 the hospital, with the cable connecting them,
11 would this fall within the scope of including
12 the sensor and processing board together?

13 MR. NELSON: Objection, foundation.

14 THE WITNESS: So the requirement is
15 included together in the portable
16 measurement system. In the example you
17 just gave, I don't believe it would now be
18 a portable measurement system.

19 BY MR. BISENIUS:

20 Q. Let's say in that example in which
21 the processing board is in one room of the
22 hospital, the sensor is in an adjacent room of

1 the hospital, let's say the cable connecting
2 them runs out the door of one room, runs into
3 the door of the other room. It's not affixed
4 to the walls. It doesn't travel through the
5 walls. Would that fall within the scope of
6 including the sensor and processing board
7 together?

8 MR. NELSON: Objection, foundation.

9 THE WITNESS: Counselor, that was a
10 very -- I'm sorry to laugh. But that to
11 me was a very complex description of a
12 potential system.

13 I've not provided an opinion on that
14 kind of device. I wouldn't want to
15 provide an opinion on the fly for that.

16 BY MR. BISENIUS:

17 Q. Well, so you opine in paragraph 46,
18 the very last sentence, quote, "Therefore, in
19 my opinion, a POSITA would have understood" --
20 sorry. Let me start over.

21 Quote, "Therefore, in my opinion, a
22 POSITA would understand the scope of the

1 included-together limitation with reasonable
2 certainty in view of the intrinsic evidence,
3 including the cable-connected embodiment
4 identified by Apple," end quote.

5 Do you see that?

6 A. I see that sentence, yes.

7 Q. So then I'm looking at Figure 1A of
8 the '507 patent. And it shows a cable 140, but
9 it's got cutoff marks. So it doesn't actually
10 show you how long the cable 140 is.

11 So let's say that cable 140 was long
12 enough to stretch from one room of a hospital
13 to an adjacent room of the hospital. Would
14 that fall within the scope of including the
15 sensor and processing board together?

16 A. If you're referring to Figure 1A,
17 then the sensor is 110, and the processing
18 board is 130. So the claim requires the -- let
19 me make sure I've got the --

20 Q. Sorry. You're right. I was
21 referring to the wrong cable.

22 So let me start over. Figure 1A

1 showing cable 120, it has got cutoff signs. So
2 it doesn't actually show the length of cable
3 120. If cable 120 were sufficiently long
4 enough so that the sensor 110 is in one room of
5 the hospital and the processing module 130 is
6 in an adjacent room of a hospital, would that
7 fall within the scope of including the sensor
8 and processing board together?

9 A. I believe I answered that question
10 earlier. I just lost my page, though. Let's
11 see.

12 Yes, the -- paragraph 47: "Instead,
13 Substitute Claim 21 recites the claimed
14 components are included together in the
15 portable measurement system that is used at the
16 measurement site in performing the claimed
17 method."

18 So it needs to be a portable
19 measurement system.

20 Q. But there would be no specific cutoff
21 for the length of that cable 120. Is that what
22 you're saying?

1 A. (no verbal response.)

2 MR. NELSON: Objection, foundation.

3 BY MR. BISENIUS:

4 Q. So regardless of the length of the
5 cable 120, as long as the sensor 110, the cable
6 120, and processing module 130 can all be
7 moved, would that fall within the scope of
8 including the sensor and processing board
9 together?

10 MR. NELSON: Objection, foundation.

11 THE WITNESS: I'm not sure what you
12 mean by "moved." I think it is better to
13 use the term "portable" as used by the
14 claims, configured to be portable by
15 including the sensor and processing board
16 together.

17 BY MR. BISENIUS:

18 Q. Do you believe that this claim
19 element requires the sensor and processing
20 board to be portable while in use?

21 MR. NELSON: Objection, foundation.

22 THE WITNESS: The claim requires them

1 to be portable by including the sensor and
2 processing board together. That is all
3 that the requirement is there.

4 BY MR. BISENIUS:

5 Q. Try the scenario where I'm using the
6 sensor at one end of a football field. The
7 cable runs all the way across the entire
8 football field. I have my processing board at
9 the other side of the football field. And when
10 I'm done taking measurements, we reel up the
11 cable; and we can transport the processing
12 board and sensor and cable with this rolled-up
13 cable. Would that qualify -- would that fall
14 within the scope of including the sensor and
15 processing board together?

16 MR. NELSON: Objection, foundation.

17 THE WITNESS: The example you gave,
18 Counselor, I've not provided an opinion on
19 that. But I don't believe that would
20 satisfy the claim requirements of a
21 portable measurement system.

22

1 BY MR. BISENIUS:

2 Q. Moving ahead to paragraph 50, in
3 paragraph 50, you're discussing limitation
4 [22c]; correct?

5 A. That is how paragraph 50 starts with
6 regard to limitation [22c].

7 Q. In the last sentence of paragraph 50,
8 you state, quote, "The intrinsic evidence from
9 the '507 patent provides a POSITA with
10 reasonable certainty as to the scope of the
11 claimed limitations," end quote.

12 Do you see that?

13 A. That is the end of paragraph 50.

14 Q. You're making the statement with
15 respect to element [22c]; correct?

16 A. Yes. The section is talking about
17 limitation [22c].

18 Q. What is the scope of element [22c]?

19 MR. NELSON: Objection, foundation.

20 THE WITNESS: So [22c] states,
21 "Wherein the processing said one or more
22 analog signals comprises applying an

1 advanced signal processing algorithm with
2 data filtering."

3 BY MR. BISENIUS:

4 Q. Does the claimed advanced signal
5 processing algorithm with data filtering
6 require the use of both parallel engines and
7 adaptive filters?

8 MR. NELSON: Objection, foundation.

9 THE WITNESS: I summarized that at
10 the end of 51, paragraph 51: "Therefore,
11 in my opinion, a POSITA could ascertain
12 with reasonable certainty whether a signal
13 process algorithm is advanced based on its
14 use of parallel engines and/or adaptive
15 filters to reduce noise and improve
16 measurement accuracy."

17 BY MR. BISENIUS:

18 Q. If a signal processing algorithm used
19 parallel engines but not adaptive filters,
20 would that fall within the scope of the claim
21 advanced signal processing algorithm?

22 MR. NELSON: Objection. Asked and

1 answered.

2 THE WITNESS: I believe I answered
3 that question, Counselor, with the end of
4 paragraph 51 that I just read out.

5 BY MR. BIENIUS:

6 Q. Turning to column 6 of the
7 '507 patent, starting at line 7, the sentence
8 at the end of that line states, "Processing
9 module 130, in some embodiments, employs
10 advanced signal processing techniques,
11 including parallel engines and adaptive
12 filters, to allow accurate monitoring of
13 arterial oxygen saturation and pulse rate, even
14 during the most challenging conditions."

15 The next sentence starts out: "In
16 some embodiments, the processing module 130 can
17 employ Signal Extraction Technology or
18 Masimo SET."

19 Would you consider Signal Extraction
20 Technology to fall within the scope of the
21 claimed advanced signal processing algorithm?

22 A. The fact that it described it as

1 using parallel signal processing engines is
2 what I said in the end of paragraph 51, based
3 on its use of parallel engines and/or adaptive
4 filters.

5 Q. Are there any forms of signal
6 processing that would fall within the scope of
7 the claimed advanced signal processing
8 algorithm with data filtering other than
9 parallel engines and adaptive filters?

10 MR. NELSON: Objection, foundation.

11 THE WITNESS: That's not something I
12 provided an opinion on in my declaration.

13 In paragraph 51, I identify
14 paragraph 32 as identifying two forms of
15 that advanced signal processing, including
16 parallel engines and adaptive filters.

17 BY MR. BISENIUS:

18 Q. What I'm asking is, is the claim term
19 "advanced signal processing algorithm with data
20 filtering" limited to only parallel engines
21 and/or adaptive filters? Or are there other
22 forms of signal processing that will fall

1 within the scope of that claim term?

2 MR. NELSON: Same objection.

3 THE WITNESS: That is not something I
4 provided an opinion on. I will just stick
5 with the examples I gave in paragraph 51.

6 BY MR. BISENIUS:

7 Q. You said here that a POSITA would --
8 sorry.

9 You said here that the '507 patent
10 provides a POSITA with a reasonable certainty
11 as to the scope of the claimed limitations with
12 respect to limitation [22c].

13 And so is that scope limited to only
14 parallel engines and/or adaptive filters? Or
15 would other forms of signal processing fall
16 within the scope of the claim's advanced signal
17 processing algorithm with data filtering?

18 MR. NELSON: Objection, foundation,
19 asked and answered.

20 THE WITNESS: I describe, I think,
21 very well in paragraphs 50 and 51 the
22 intrinsic evidence from the '507 patent

1 provides the POSITA with reasonable
2 certainty as to the scope of the claim
3 limitations.

4 And then I provide paragraph 32 as
5 giving -- where paragraph 32 identifies
6 two form of advanced signal processing,
7 including parallel engines and adaptive
8 filters.

9 BY MR. BISENIUS:

10 Q. Would noise filtering that does not
11 use adaptive filters fall within the scope of
12 the claimed advanced signal processing
13 algorithm with data filtering?

14 MR. NELSON: Objection, foundation.

15 THE WITNESS: That's not something I
16 provided an opinion on. I'll give you
17 examples of advanced signal processing,
18 use of parallel engines and/or adaptive
19 filters to reduce noise and improve
20 measure accuracy.

21 BY MR. BISENIUS:

22 Q. Well, I'm trying to identify the

1 boundaries of the scope of this claim term,
2 which is what you're addressing in paragraphs
3 50 and 51.

4 So sitting here today, you don't know
5 whether or not noise filtering that does not
6 use adaptive filters would fall within the
7 scope of the claimed advanced signal processing
8 algorithm, is that correct?

9 MR. NELSON: Objection, foundation,
10 mischaracterizes evidence.

11 THE WITNESS: Counselor, I did not
12 say I did not know. You were giving an
13 example that is -- you were saying without
14 the use of adaptive filters. I
15 explained -- and I've explained many times
16 in paragraph 51 that signal processing
17 algorithm is advanced based on use of
18 parallel engines and/or adaptive filters.

19 BY MR. BISENIUS:

20 Q. Okay. Would noise filtering that
21 does not use parallel engines and/or adaptive
22 filters fall within the scope of the claimed

1 advanced signal processing algorithm with data
2 filtering?

3 MR. NELSON: Objection. Asked and
4 answered.

5 THE WITNESS: You're asking me --
6 that's not something I provide an opinion
7 on in my declaration. I've given examples
8 of the advanced signal processing. I'm
9 sure there's others. But that's not
10 something I would want to provide an
11 opinion on on the fly today.

12 BY MR. BISENIUS:

13 Q. Would matched filtering to improve
14 the signal-to-noise ratio of the signal fall
15 within the scope of the claimed advanced signal
16 processing algorithm?

17 MR. NELSON: Objection, foundation.

18 THE WITNESS: Are you reading the
19 term "matched" in the patent or my
20 declaration, Counselor?

21 BY MR. BISENIUS:

22 Q. Let's look at the opposition brief,

1 page 32.

2 The brief sites to the Moon reference
3 here, several portions of the Moon reference.
4 But it quotes one portion, which discusses,
5 quote, "The matched filter improves the
6 signal-to-noise ratio," end quote.

7 So my question is, would matched
8 filtering to improve the signal-to-noise ratio
9 of the signal fall within the scope of the
10 claimed advanced signal processing algorithm?

11 MR. NELSON: Objection, foundation.
12 Relevance.

13 THE WITNESS: That is not something I
14 provided an opinion on today. I would
15 need more time to think about that.

16 BY MR. BISENIUS:

17 Q. Would analog-to-digital conversion
18 fall within the scope of the claimed advanced
19 signal processing algorithm?

20 MR. NELSON: Objection, foundation.

21 THE WITNESS: I believe we talked
22 about A-to-D converters this morning. I

1 explained that an A-to-D converter just
2 takes an analog signal and converts it to
3 digital.

4 BY MR. BISENIUS:

5 Q. Would that be considered a form of
6 advanced signal processing?

7 MR. NELSON: Same objection.

8 THE WITNESS: Not as used in the
9 claims here. And as I describe, the two
10 forms of advanced signal processing
11 describe parallel engines and adaptive
12 filters. There is no mention of A-to-D
13 converters there.

14 BY MR. BISENIUS:

15 Q. Would a Fourier transform of the
16 signal data fall within the scope of the
17 claimed advanced signal processing algorithm?

18 MR. NELSON: Objection, foundation.

19 THE WITNESS: If you're referring to
20 a form, as we were discussing earlier, I
21 made that clear that the form there was
22 changing the analog to a digital signal.

1 There is no mention of advanced signal
2 processing.

3 BY MR. BISENIUS:

4 Q. I'm asking specifically about Fourier
5 transform.

6 Would a Fourier transform of the
7 signal data fall within the scope of the
8 claimed advanced signal processing algorithm?

9 MR. NELSON: You want to spell
10 Fourier for her?

11 MR. BISENIUS: Oh, yeah. It's
12 F-O-U-R-I-E-R.

13 THE WITNESS: I misunderstood your
14 earlier question because I didn't -- I
15 thought you were talking about form. So I
16 apologize for that.

17 So does the '507 patent use the term
18 "Fourier," to save me looking that up,
19 Counselor?

20 BY MR. BISENIUS:

21 Q. I actually don't know. I'm just
22 trying to determine what falls within the scope

1 of this claim limitation and what falls outside
2 of it.

3 You stated that a POSITA would have
4 reasonable certainty as to the scope of the
5 claim. So I'm trying to find where those
6 boundaries are by asking you about common
7 signal processing.

8 A. I did not provide an opinion on that.
9 I would not want to provide an opinion on that
10 particular signal processing on the fly.

11 Q. Have you ever taught Fourier
12 transforms to undergrad students?

13 A. I --

14 MR. NELSON: Objection, foundation.

15 THE WITNESS: Sorry. I have not
16 taught Fourier transforms. I have worked
17 with them in the past.

18 BY MR. BISENIUS:

19 Q. You're not sure if they would fall
20 within the scope of the claimed advanced signal
21 processing algorithm? That's correct?

22 MR. NELSON: Same objection.

1 THE WITNESS: I would need more time
2 to prepare -- sorry.

3 I would need more time to prepare an
4 opinion on that is the best way to answer
5 that.

6 BY MR. BISENIUS:

7 Q. Would digital sampling and averaging
8 of the signal fall within the scope of the
9 claimed advanced signal processing algorithm?

10 MR. NELSON: Same objection.

11 THE WITNESS: I will provide the same
12 answer, Counselor. I would need more time
13 to form an opinion on that.

14 BY MR. BISENIUS:

15 Q. Would processing the signals to
16 extract the blood oxygen saturation level of
17 the patient fall within the scope of the
18 claimed advanced signal processing algorithm?

19 MR. NELSON: Same objection.

20 THE WITNESS: So in the patent
21 description in column 6, it says, "The
22 processing module 130 drives operation of

1 the sensor 110 and receives raw detected
2 signals from the sensor 110. The
3 processing module 130 processes the raw
4 detected signals to determine the
5 physiological measurement."

6 So I will read that again.

7 "The processing module 130 drives
8 operation of the sensor 110 and receives
9 raw detected signals from the sensor 110.
10 The processing module 130 processes the
11 raw detected signals to determine a
12 physiological measurement."

13 So the physiological measurement
14 could be the heart rate or the SpO2, for
15 example.

16 BY MR. BISENIUS:

17 Q. My question is: Would all forms of
18 processing the signals to extract the blood
19 oxygen saturation level of the patient fall
20 within the scope of the claimed advanced signal
21 processing algorithm.

22 MR. NELSON: Same objection.

1 THE WITNESS: The patent continues
2 with: "The processing module 130, in some
3 embodiments, employs advanced signal
4 processing techniques, including parallel
5 engines and adaptive filters, to allow
6 accurate monitoring of arterial oxygen
7 saturation and pulse rate even during the
8 most challenging conditions."

9 And then it continues with "In some
10 embodiments, the Signal Extraction
11 Technology"

12 BY MR. BISENIUS:

13 Q. Did you speak with Mr. Nelson or
14 Mr. Spiel regarding the substance of your
15 testimony at any time today after you were
16 sworn in by the court reporter?

17 A. No.

18 MR. BISENIUS: No further questions.

19 MR. NELSON: No questions for me.

20 THE REPORTER: Would you like a
21 rough?

22 MR. NELSON: Regular delivery and

1 I'll take a rough.

2 (Time Noted: 4:36 p.m.)

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CERTIFICATE

I, the undersigned authority, hereby
certify that the foregoing transcript, page 1
through 198 is a true and correct transcription
of the deposition of R. James Duckworth, Ph.D.
taken before me at the time and place set forth
on the title page hereof.

I further certify that said witness
was duly sworn by me according to law.

I further certify that I am not of
counsel to any of the parties to said cause or
otherwise interested in the event thereof.

IN WITNESS WHEREOF I hereunto set my
hand and affix official seal this 14th day of
May, 2025.



RANDI GARCIA, COURT REPORTER, RPR

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Page 201

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2 KNOBBE, MARTENS, OLSON & BEAR, LLP
3 2040 Main Street
4 Irvine, California 92614
5

Case: Apple, Inc. v. Masimo Corp.

6 Date of deposition: May 13, 2025

Deponent: R. James Duckworth, Ph.D.

7
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9

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10 and examined the foregoing pages
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11

12 (Check appropriate box):

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me to the questions therein recorded.

14 () Except for the changes noted in the
attached Errata Sheet, the same is a true,
15 correct and complete transcription of the
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7

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9 Witness Name: R. James Duckworth, Ph.D.

10 Deposition Date: May 13, 2025

11 Page No. Line No. Change

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A				
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