

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

ALIVECOR, INC.,	)	
	)	
Petitioner,	)	
	)	Case No.
Vs.	)	IPR2023-00950
	)	
Apple, Inc.,	)	
	)	
Patent Owner.	)	
	)	U.S. Patent
	)	10,076,257

DEPOSITION OF
RONALD DAVID BERGER, M.D., Ph.D., F.H.R.S.
(Taken Virtually by Patent Owner)
Wednesday, March 27th, 2024
10:01 a.m. EDT

Certified Stenographic Court Reporter
Amy A. Brauser, RPR, RMR, CRR

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1 REMOTE DEPOSITION OF RONALD DAVID BERGER,
2 M.D., Ph.D., F.H.R.S., a witness called on behalf of
3 Patent Owner, before Amy A. Brauser, RPR RMR CRR,
4 Certified Stenographic Court Reporter and Notary
5 Public, in and for the Commonwealth of Virginia, on
6 Wednesday, the 27th day of March, 2024, commencing at
7 10:01 a.m.

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1 VIRTUAL APPEARANCES

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1 INDEX OF EXAMINATIONS

2 By Mr. Bisenius Page 5

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6 INDEX OF EXHIBITS

7 NUMBER DESCRIPTION MARKED/IDENTIFIED

8 Exhibit 1003 Declaration of Ronald D. Berger, 14

9 M.D., Ph.D., F.H.R.S., numbered

10 1003.1 to 193

11 Exhibit 1005 US Patent Publication 15

12 2007/0021677, numbered 1 to 42

13 Exhibit 1007 US Patent Number 5,191,891, 48

14 numbered 1007.1 to 12

15 Exhibit 1001 US Patent Number 10,076,257, 55

16 numbered 1001.1 to 15

17 Exhibit 1006 US Patent Number 6,775,566, 123

18 numbered 1006.1 to 11

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

2 RONALD D. BERGER, M.D., Ph.D., F.H.R.S.,
3 after having been first duly sworn under penalty of
4 perjury by the certified stenographer, was
5 examined and testified as follows:

6 EXAMINATION

7 BY MR. BISENIUS:

8 Q. We are here today regarding IPR
9 proceeding IPR2023-00950 regarding US Patent
10 Number 10,076,257.

11 Can you, please, state your full name?

12 A. Sure. Ronald David Berger.

13 Q. Can you please state your city of
14 residence?

15 A. Baltimore, Maryland.

16 Q. Is there any reason that you cannot
17 give truthful and accurate testimony today?

18 A. No.

19 Q. To ensure clarity, I'm going to define
20 several terms that will be used throughout this
21 deposition.

22 When I use the terms "Petitioner" or

1 "AliveCor," I'm referring to AliveCor Inc., the
2 Petitioner in this proceeding. Do you understand?

3 A. Yes.

4 Q. When I use the term "Apple" or "Patent
5 Owner," I'm referring to Apple Inc. Do you
6 understand?

7 A. Yes.

8 Q. When I use the term "'257 Patent," I'm
9 referring to US Patent Number 10,076,257, titled
10 "Seamlessly Embedded Heart Rate Monitor." Do you
11 understand?

12 A. Yes.

13 Q. When I use the phrase "this IPR" or
14 "this proceeding," I'm referring to IPR proceeding
15 number IPR2023-00950, filed against the
16 '257 Patent. Do you understand?

17 A. Yes.

18 Q. When you use the acronym "POSITA," I'm
19 referring to a person of ordinary skill in the art
20 at the time of the alleged invention. Do you
21 understand?

22 A. Yes.

1 Q. When I use the term "your declaration"
2 or the "Berger declaration," I am referring to
3 Exhibit 1003 in this proceeding. Do you
4 understand?

5 A. Yes.

6 Q. Can you, please, describe how you
7 prepared for today's deposition?

8 MR. FERNANDO: I'll just caution the
9 witness, you can explain what you did without
10 revealing the contents of any communications
11 with your attorneys, Dr. Berger.

12 THE WITNESS: Very good.

13 I reviewed my declaration. I reviewed
14 the patent at issue, the '257, the prosecution
15 history, the prior art. I met with counsel on
16 several occasions virtually, and in one case,
17 in person, over the last month or so for, I
18 would estimate somewhere around four or five
19 sessions.

20 BY MR. BISENIUS:

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

1 A. I would guess about 20 hours or so.

2 Q. As part of your preparation for today's
3 deposition, did you conduct any independent
4 searches such as searches on the Internet?

5 A. No.

6 Q. When were you first contacted by
7 someone on behalf of AliveCor?

8 A. I think it was a bit over a year ago.
9 One of the attorneys, I think it may have been
10 Mr. Fernando, contacted me via e-mail to describe
11 the case at issue and see if I would be interested
12 in working as a consultant as an expert witness.

13 Q. What did you do, if anything, before
14 agreeing to be retained on behalf of AliveCor?

15 A. I think we had a conversation, a
16 telephone conversation, which gave a bit more
17 clarity of what was being asked of the -- of the
18 timeline and of the time requirements. Maybe there
19 was some e-mails back and forth, sent my CV, and
20 then received an engagement letter.

21 Q. Do you have a written agreement that
22 governs your work on this matter?

1 A. I think so, yes.

2 Q. When was the first time that you heard
3 of AliveCor?

4 A. I think it was probably about ten years
5 ago or so.

6 Q. When did you first become aware of the
7 '257 Patent?

8 A. In the context of this litigation.

9 Q. Are you aware that the '257 Patent is
10 currently involved in a District Court litigation
11 between Apple and AliveCor?

12 A. I don't know the details of that, no.

13 Q. Were you aware of the litigation when
14 you prepared your declaration?

15 A. I don't recall.

16 Q. So you haven't prepared any written
17 expert opinions for the District Court litigation
18 involving the '257 Patent; is that correct?

19 A. I believe that's correct.

20 Q. Are you aware that the '257 Patent is
21 currently the subject of a separate IPR proceeding
22 filed by Masimo Corporation?

1 A. I am aware of that.

2 Q. Have you read the petition or expert
3 declaration or any other documents from the Masimo
4 IPR proceeding challenging the '257 Patent?

5 A. No.

6 Q. Without revealing privileged
7 communications, can you, please, describe the
8 process by which you prepared your declaration?
9 For example, did you write every word throughout
10 the entire process or did counsel for Petitioner
11 prepare first drafts that you revised or was there
12 another process?

13 MR. FERNANDO: Object to form.

14 THE WITNESS: It was a long process
15 that started with several sessions over Zoom
16 where we discussed the prior art, the claims
17 of the '257, how the prior art rendered
18 obvious the claims of the '257.

19 There were --

20 MR. FERNANDO: Sorry. Dr. Berger, I
21 just want to caution you not to get into the
22 substance of any communications with

1 attorneys.

2 THE WITNESS: Very good.

3 There were drafts back and forth that I
4 contributed to, that I wrote some of, that
5 I -- where my opinions were expressed entirely
6 my opinions, and then I edited drafts. There
7 was back and forth. I wrote much of it, I
8 edited the rest of it, and eventually led to a
9 final draft.

10 BY MR. BISENIUS:

11 Q. What percentage of the words in your
12 declaration did you write in this case as opposed
13 to merely reviewing words written by someone else?

14 A. I don't know that I can provide any
15 clarity on that. There was so much back and forth
16 where I was rewriting and editing, revising,
17 writing anew. I don't know that I can give you a
18 number or an estimate on that.

19 I can tell you that the -- that every
20 bit of the opinions expressed in the declaration
21 are my opinions and that this is -- this is really
22 my work, even if there were some back and forth on

1 how things were worded.

2 Q. Other than AliveCor's attorneys, did
3 you have anyone, such as an assistant, help you
4 with your declaration for this IPR?

5 A. No.

6 Q. As part of your work for this
7 proceeding, did you ever communicate in any way
8 with any of the named inventors of the '257 Patent?

9 A. No.

10 Q. Did you communicate with anyone at
11 AliveCor other than AliveCor's attorneys?

12 A. No.

13 Q. In forming your opinions in your
14 declaration, did you rely on any assumptions that
15 are not identified in your declaration?

16 A. I don't believe so.

17 Q. Do you currently have any opinions
18 about the '257 Patent that are not contained in
19 your declaration?

20 MR. FERNANDO: Object to form.

21 THE WITNESS: I don't believe so. I
22 think it's -- as I learned more about Apple's

1 positions in their response, I think some
2 additional opinions may evolve, but I don't
3 think anything -- I don't think there's
4 anything not expressed in my declaration at
5 this point.

6 BY MR. BISENIUS:

7 Q. Has anything happened since you
8 prepared your declaration that changes any of your
9 opinions that you provided in the declaration?

10 A. No.

11 Q. Are you currently aware of any errors
12 that exist in your declaration?

13 MR. FERNANDO: Object to form.

14 THE WITNESS: I don't believe so, no.

15 BY MR. BISENIUS:

16 Q. During your career, approximately how
17 many times have you been retained as an expert,
18 either as a testifying expert or a nontestifying
19 expert, in a litigation matter?

20 A. Let me split that in two. I have done
21 a fair bit of medical malpractice expert consultant
22 work, particularly a bit earlier in my career, and

1 that may have been on 40 or 50 cases, and I may
2 have been deposed in 30 or 40 of those.

3 In regard to patent litigation, I think
4 I've been retained in 12 or 13 or 14 cases and have
5 been deposed in, perhaps, all of those. All or
6 most of those.

7 (Exhibit Number 1003 was marked for identification.)

8 BY MR. BISENIUS:

9 Q. All right. I would like to talk about
10 your declaration, Exhibit 1003. If you could,
11 please, turn to that.

12 A. Okay. I have -- I do have a binder
13 with it. I also have it on my screen, so -- to
14 give me the opportunity to search it if necessary.

15 Q. Do you have any handwritten notes in
16 your physically copy there in front of you?

17 A. No.

18 Q. I want to start at Paragraph 75 of your
19 declaration, which is on page 36.

20 A. Okay.

21 Q. In this section, you opine that the
22 preambles of Claims 1 and 15 should be given

1 patentable weight; is that correct?

2 A. I suppose that's a reasonable way of
3 saying it, that it's limiting, yes.

4 Q. Have you offered an opinion on how any
5 other terms in the '257 Patent claims should be
6 interpreted?

7 A. I don't believe so, no.

8 Q. So is it your opinion that other than
9 the preamble, which you've addressed here, all
10 terms in the claims of the '257 Patent should be
11 given their plain and ordinary meaning?

12 A. Yes.

13 Q. All right. I would now like to turn to
14 the Markel reference. This is Exhibit 1005.

15 (Exhibit Number 1005 was marked for identification.)

16 BY MR. BISENIUS:

17 Q. There had been an original version of
18 Markel that had been submitted. It was the issued
19 patent, and then later it was replaced with the
20 publication. When I refer to "Markel" or
21 Exhibit 1005, I'm going to rely on the corrected
22 version, which is the publication. This is US

1 patent publication 2007/0021677.

2 Is that the copy of Markel that you
3 have?

4 A. I believe so. It has A1 at the end of
5 it as well. Is that the same?

6 Q. Correct, yes.

7 A. Uh-huh, okay.

8 Q. All right. I'm going to start with
9 Figure 1 of Markel. This figure is showing a
10 hand-held mobile phone; is that correct?

11 A. I believe so, uh-huh.

12 Q. And this device includes a number of
13 push buttons, including a send button 130 and end
14 button 132; is that correct?

15 A. Yes.

16 Q. Moving ahead to Figure 2, this is
17 showing various configurations for the send button;
18 is that correct?

19 A. Let me just read the reference.

20 (Witness reviews document.)

21 Q. If it helps, I believe Figure 2 is
22 described in Paragraph 47.

1 A. Right, I am reading that now.

2 I believe Figure 2 is describing
3 exemplary configurations of a push button, yes.

4 Q. In each of these examples of push
5 buttons in Figure 2, the buttons include one or
6 more electrodes; is that correct?

7 (Witness reviews document.)

8 A. Yes.

9 Q. In the example in the lower left of
10 Figure 2, the entire push button 220 is an
11 electrode; is that correct?

12 A. I believe that's correct.

13 Q. So in this example in the lower left of
14 Figure 2, the presence of the electrode is not
15 visibly identifiable to the user because the entire
16 button is an electrode; is that correct?

17 A. I'm not sure. I mean, it's visible,
18 and it may be metallic, it may be molded from
19 conductive plastic. I think it's visible. I think
20 it may be apparent or inapparent to the user,
21 depending on the embodiment, as to whether it's --
22 whether it serves dual purposes in electrode.

1 Q. Well, I can rephrase that question.

2 Is the electrode 220 visibly distinct
3 from the push button 222 in the lower left side of
4 Figure 2?

5 A. I don't -- I don't know that it's --
6 whatever part of it is the electrode may not be
7 visibly distinct from the rest of that button, but
8 may be distinct from other buttons or the rest of
9 the -- I don't know.

10 Q. Can you identify any disclosure in
11 Markel that describes the electrode of the push
12 button 220 being positioned underneath an exterior
13 surface of the push button 220?

14 A. Well, it says that 220 may be metallic
15 or may be molded from conductive plastic. In the
16 latter, I think it would be necessary to have
17 something more conductive that makes contact with
18 that molded plastic. So I think, then, it becomes
19 a question of which part of it is the, quote,
20 electrode and which part of it is a material that
21 makes contact with that electrode.

22 Q. You just said that you feel it would be

1 necessary for something more conductive to have
2 contact with the molded plastic. Does Markel
3 actually describe an additional electrode placed
4 underneath the electrode of the push button 220?

5 MR. FERNANDO: Object to form.

6 THE WITNESS: I believe, even if not in
7 that paragraph, Markel describes the use of
8 plastic and other materials being combined
9 together so as to provide the necessary
10 contact.

11 BY MR. BISENIUS:

12 Q. Can you identify that disclosure in
13 Markel?

14 A. There are a couple of places I will
15 refer to. So, for instance, in Paragraph 35, the
16 description about the electrodes say that:

17 (Reading)

18 Such electrodes may be
19 incorporated into the MCD 100 in any
20 of a variety of manners.

21 I'll also refer to Paragraph 50, a
22 little bit after where we were talking about that

1 push button, talking about -- towards the end of

2 Paragraph 50, talking about: (Reading)

3 A first electrode may be

4 disposed on the main body portion 620,

5 molded into the main body portion or

6 positioned on the main body portion.

7 And a second electrode may be disposed

8 on the audio portion 610, e.g. molded

9 into the audio portion or positioned

10 on the audio portion.

11 So I think it's clear that the -- that

12 what is referred to as the electrode may be

13 material that's on the surface or within the -- or

14 molded into the surface material.

15 Q. Begin with Paragraph 50, this paragraph

16 is -- in this paragraph, it describes a first

17 electrode and a second electrode, correct?

18 A. I believe that's correct.

19 Q. And the first electrode and the second

20 electrode are in two separate portions of the

21 device; is that correct?

22 A. That's my understanding, yes.

1 Q. Is there any description of the second
2 electrode being positioned underneath the first
3 electrode or vice versa?

4 MR. FERNANDO: Object to form.

5 THE WITNESS: Of the -- of these two
6 electrodes, one being underneath the other?
7 I don't believe so.

8 BY MR. BISENIUS:

9 Q. Is there any expressed description of
10 either of the two electrodes being positioned
11 entirely under the surface of the device?

12 A. I believe so. I believe that in that
13 parenthetical where -- that starts -- the lines
14 aren't numbered. But in Paragraph 50, where it
15 says, "molded into the audio portion or positioned
16 on the audio portion," for those to describe
17 distinct possibilities, distinct embodiments, one
18 of them is not on, but into. Therefore, I believe
19 a POSITA would understand that to be not on the
20 surface, but under the surface.

21 Q. Let's look at this audio portion.
22 Paragraph 50 is talking about Figure 6. So let's

1 go to Figure 6.

2 A. Okay. Yes.

3 Q. Would you agree that reference number

4 610 is talking about the audio portion?

5 A. Yes.

6 Q. Sorry. Audio output portion?

7 So let's say that I had an electrode

8 that was an oval shape, similar to this audio

9 output portion, but maybe a slightly smaller oval

10 shape. If I set that electrode on top of the audio

11 output portion, would you agree that that is

12 positioned on the audio output portion?

13 MR. FERNANDO: Object to form.

14 THE WITNESS: I believe so. Sorry.

15 (Stenographer clarification.)

16 THE WITNESS: That's correct.

17 BY MR. BISENIUS:

18 Q. Now let's say that I sunk the electrode

19 into the audio output portion about halfway down,

20 so about half the electrode is sticking out of the

21 audio output portion and the other half of the

22 electrode has sunk into it. Would you consider

1 that to be molded into the audio output portion?

2 MR. FERNANDO: Object to form.

3 THE WITNESS: If I understand what
4 you're saying, are you saying that some of
5 that electrode is exposed and some of it is
6 molded into and underneath the surface? Some
7 of it -- I'm trying to understand your
8 description of it.

9 BY MR. BISENIUS:

10 Q. Correct. Some -- half of the electrode
11 is sunk into the audio output portion and the other
12 half is exposed.

13 A. And then -- and then remind me, what
14 was the beginning part of your question or the --
15 what was the question then about such a topology?

16 Q. Would you consider that electrode to be
17 molded into the audio output portion?

18 A. I think I'd probably say half of it is
19 molded into and half of it is on.

20 Q. If I sunk the electrode into the audio
21 output portion almost entirely until only the upper
22 surface of the electrode is exposed, would you

1 consider the electrode to be molded into the audio
2 output portion?

3 MR. FERNANDO: Object to form.

4 THE WITNESS: I'm not sure I'm
5 picturing what you're saying. I thought you
6 were -- I thought you were going to say all
7 of it but a little tiny bit of it is molded
8 into the plastic, but then you didn't say a
9 little bit of it is exposed. You had some
10 other description for the remainder that
11 isn't all of it. I missed that.

12 BY MR. BISENIUS:

13 Q. Yeah. So let's say we sunk, you know,
14 all of the thickness of the electrode into the
15 audio output portion and only the top surface of
16 the electrode is exposed, would you consider that
17 electrode to be molded into the audio output
18 portion?

19 MR. FERNANDO: Object to form.

20 THE WITNESS: Let me try to understand
21 what you're saying. Are you saying that the
22 electrode has some thickness?

1 BY MR. BISENIUS:

2 Q. Correct.

3 A. And it's like flush with the rest of
4 the surface of the plastic, but the surface of the
5 electrode, all of it is fully exposed?

6 Q. Correct.

7 A. Then I think it's on and not molded
8 into. And I may have misunderstood your earlier
9 question. When you said half and half, I didn't
10 understand you to say -- I did not understand you
11 to mean that half the thickness was pushed down in
12 but all of the surface exposed. If that's what you
13 meant, then I would still say that that is on and
14 not molded in.

15 Q. So is it your opinion that the term
16 "molded into" means that none of the electrode can
17 be exposed?

18 MR. FERNANDO: Object to form.

19 THE WITNESS: I believe that's correct,
20 that I take "molded into" to mean that --
21 that it's embedded, perhaps, deeply or at
22 some level below the surface of the outer

1 surface of the plastic enclosure, yes.

2 BY MR. BIENIUS:

3 Q. Is there any description in Markel of
4 the audio output portion 610 itself being made out
5 of a conductive plastic or another conductive
6 material?

7 (Witness reviews document.)

8 A. I believe that that Paragraph 50 is
9 consistent with and follows earlier description in
10 the specification, particularly Paragraph 37 that
11 says: (Reading)

12 Electrodes may generally
13 comprise conductive material. For
14 example, an electrode may comprise a
15 metallic surface exposed for user
16 contact. Also, for example, an
17 electrode may be formed from
18 conductive plastic or another material
19 that may be integrated into various
20 molded components of mobile
21 communication device.

22 And then it goes on to talk about

1 various conductive plastics.

2 Q. This paragraph --

3 A. I do believe that applies to the
4 exemplary embodiments in paragraphs that follow.

5 Q. In this paragraph, it is describing the
6 electrodes as being made from conductive metal or
7 conductive plastic, correct?

8 A. Yes, I think -- I think one has to
9 understand what it takes to have adequate
10 electrical contact with the user, and the
11 conductive plastics themselves are going to require
12 a highly conductive material, like metal, to be
13 formed with it in order for that plastic -- in
14 order for a conductive plastic to serve as the
15 surface conductor.

16 Q. So continuing with Paragraph 37, it
17 states that: (Reading)

18 An electrode may comprise a
19 metallic surface exposed for user
20 contact.

21 And then gives a second example that:
22 (Reading)

1 An electrode may be formed
2 from conductive plastic.

3 Is there any description in Markel of
4 the electrode having two layers, one of conductive
5 plastic and a separate layer of metal?

6 A. I believe that in describing the
7 electrodes as "comprised," being comprised of
8 conductive materials, it's not restricted to the
9 electrode being entirely of one material.

10 Q. But there's no express description of a
11 dual-layered electrode with a plastic layer and a
12 separate metal layer; is that correct?

13 A. I would say that a POSITA would
14 understand that a plastic, even a conductive
15 plastic surface alone, would be inadequate for
16 making electrical -- having adequate electrical
17 integrity in making contact with the skin of the
18 user.

19 Q. In Paragraph 37, both the example of a
20 metallic surface and a conductive plastic are
21 examples of materials used to make the electrode,
22 correct?

1 A. I agree. I think the electrode is
2 understood to be a complex structure that requires
3 a highly conductive material, even if there's more
4 than one component to it.

5 Q. So going back to Paragraph 50,
6 Paragraph 50 describes: (Reading)

7 A second electrode may
8 disposed --

9 Sorry. (Reading)

10 A second electrode may be
11 disposed on the audio output portion
12 610.

13 So this is describing the second
14 electrode and the audio output portion 610 as two
15 separate components, correct?

16 MR. FERNANDO: Object to form.

17 THE WITNESS: I'm sorry, what were the
18 two -- you said a second. I missed the last
19 part of your question, I'm sorry.

20 BY MR. BISENIUS:

21 Q. I'm in Paragraph 50. I am reading from
22 Paragraph 50 starting at line -- sorry, there is no

1 line numbers. About slightly more than halfway
2 down.

3 A. Uh-huh.

4 Q. The sentence starts: (Reading)

5 A second electrode may be
6 disposed on the audio output portion
7 610.

8 Do you see that?

9 A. Yes.

10 Q. So this is describing an electrode
11 that's a separate component from the audio output
12 portion 610; is that correct?

13 A. Yes.

14 Q. So going back to my earlier question,
15 is there any description in Markel of the audio
16 output portion 610 being made of conductive
17 material?

18 A. Again, I think a POSITA would
19 understand that you need a highly conductive
20 material, whether on the surface or molded into and
21 embedded under the surface, in order to make
22 adequate electrical connectivity to the user.

1 Q. Going back one sentence, Paragraph 50
2 states that: (Reading)

3 The first electrode may be
4 disposed on the main body portion,
5 e.g., molded into the main body
6 portion or positioned on the main body
7 portion.

8 And then continues: (Reading)

9 A second electrode may be
10 disposed on the audio output portion
11 610, e.g., molded into the audio
12 output portion 610 or positioned on
13 the audio output portion 610.

14 This is the section of Markel we were
15 discussing before about whether or not the
16 electrodes are molded into the device; is that
17 correct?

18 A. I believe so, yes.

19 Q. The next sentence says: (Reading)

20 Such electrode placement --
21 referring to that molded into
22 language -- may, for example, provide

1 for user contact with both electrodes.

2 So how could there be user contact with
3 both electrodes if the electrode is under the
4 surface of either the main body portion 620 or the
5 audio output portion 610?

6 MR. FERNANDO: Object to form.

7 THE WITNESS: Again, I think it
8 requires the understanding, a POSITA-level
9 understanding, of what is meant by the
10 complexity of the electrode, that this is
11 going to require a highly conductive material
12 be incorporated, either exposed on the
13 surface or just -- or molded into a less than
14 fully conductive material, like a plastic,
15 and that the user is making contact with the
16 full complexity of that electrode, even if
17 that means that the user's literal physical
18 contact is with the outer surface conductive
19 plastic, and the electrical connectivity
20 incorporates the conductive metal underneath.

21 BY MR. BISENIUS:

22 Q. But once again, there's no express

1 description of a dual-layered electrode with an
2 outer conductive plastic layer and a lower metal
3 layer; is that correct?

4 A. Again, I believe one -- a POSITA would
5 understand that plastic alone, without the use of
6 more conductive material making contact with that
7 plastic, would not serve adequately and would
8 require more conductive materials to make that
9 electrical integrity work.

10 Q. I'd like to go back to Paragraph 37.
11 About halfway down, Paragraph 37 says: (Reading)

12 Quote, For example, various
13 conductive plastics, e.g.
14 graphite-impregnated plastic or the
15 like, may provide sufficient
16 conductivity for an electrode to
17 perform adequately, end quote.

18 So wouldn't this express description in
19 Markel seem to contradict what you were just
20 stating about the adequacy of conductive plastic?

21 MR. FERNANDO: Object to form.

22 THE WITNESS: I don't think so. I

1 think it is possible there's an embodiment, a
2 material that's fully conductive as metal,
3 but I don't think so. I don't think even --
4 I don't believe that even
5 graphite-impregnated plastic is as conductive
6 as metal. Metals are much better conductors.
7 And I'm doubting that a single plastic
8 material would serve in its place.

9 Even if so, I don't think that 37 is
10 suggesting that the -- that plastic -- the
11 plastic used -- the conductive plastic used
12 would have to be the most conductive plastic
13 known to man.

14 BY MR. BIENIUS:

15 Q. So do you think Markel's teaching is
16 wrong?

17 A. I'm sorry, say again.

18 Q. Do you think that Markel's teaching
19 here is wrong?

20 MR. FERNANDO: Object to form.

21 THE WITNESS: I think that it may well
22 be the case that a graphite-impregnated

1 plastic provides sufficient conductivity,
2 particularly at the surface, but it still is
3 probably inadequate if it -- if the distance
4 of electrical current traveled is too great.
5 I suspect it's not going to be as conductive
6 as metal and will require making contact with
7 metal underneath.

8 BY MR. BISENIUS:

9 Q. You stated that the conductive plastic
10 would not be as conductive as metal. Is there any
11 indication in Markel that in order to perform
12 accurately for the purposes of Markel's device,
13 that full conductivity of a metal electrode would
14 be necessary?

15 A. Again, I believe a POSITA would
16 understand that anything less conductive than metal
17 is going to require combining a metal in the full
18 form of the electrode.

19 Q. I would like to return to Figure 2 of
20 Markel.

21 Looking at the example of the push
22 button in the lower middle, what do the dotted

1 lines represent?

2 (Witness reviews document.)

3 A. I believe they demarcate a region of
4 insulation.

5 Q. And above and below the region of
6 insulation are electrodes; is that correct?

7 A. I believe that's correct.

8 Q. Are the dotted lines visible to the
9 user in the actual implementation of Markel's
10 device?

11 MR. FERNANDO: Object to form.

12 THE WITNESS: I don't know if it's
13 visible.

14 BY MR. BISENIUS:

15 Q. Would the user of Markel's device be
16 able to visually identify the electrodes in the
17 example push button 240 with respect to each other?

18 MR. FERNANDO: Object to form.

19 THE WITNESS: I don't believe the
20 description explains whether or not that
21 would be visible to the user.

22 BY MR. BISENIUS:

1 Q. Turning to Figure 3. This figure shows
2 two more example push buttons with patterns on
3 them; is that correct?

4 (Witness reviews document.)

5 A. Can you identify where in the --

6 Q. I believe it's Paragraph 39.

7 A. Okay. Thank you.

8 Yes, I agree. They're patterned-shaped
9 electrodes.

10 Q. Can you, please, describe the patterns
11 that are on the push buttons in Figure 3?

12 A. I think one of them is heart-shaped and
13 one of them is a circle.

14 Q. What is the purpose of these patterns
15 shown on the push buttons in Figure 3?

16 MR. FERNANDO: Object to form.

17 THE WITNESS: I'm sorry. To notify a
18 user of the location of the electrodes.

19 BY MR. BISENIUS:

20 Q. So would you agree that the purpose of
21 these patterns is to allow the user to visually
22 identify the location of the electrodes?

1 A. I believe in this embodiment that's
2 true.

3 Q. So without the heart pattern on the
4 push button 310 shown on Figure 3, the presence of
5 the electrode on the push button wouldn't be
6 visible to the user; is that correct?

7 A. Oh, I don't know if that's true. It
8 may -- there may be embodiments where metal is
9 fully exposed and very clearly an electrode. It
10 may well be the case that in these very
11 embodiments, it's a metallic outer surface that's
12 shaped as a heart or circle, but I don't know that
13 they need to be shaped as such in order for the
14 user to recognize them as electrodes.

15 Q. So what would be the purpose of these
16 patterns if the electrodes were visually
17 identifiable without these patterns?

18 A. Presumably to look cool. I think it's
19 marketing. I don't know.

20 Q. Moving ahead to Figure 4. You rely
21 upon this embodiment depicted in Figure 4 of Markel
22 in your declaration; is that correct?

1 A. Yes.

2 Q. What are reference numerals 410B and
3 420B identifying in Figure 4?

4 (Witness reviews document.)

5 A. These are electrodes that are placed on
6 or molded into the device.

7 Q. The electrodes shown in Figure 4 are
8 positioned on the back of the device; is that
9 correct?

10 A. I'm not sure if they're confined to the
11 back. Hold on one second.

12 I'm not sure they're confined to the
13 back or may wrap around to the side as well.

14 Q. These electrodes are shown in black
15 while the body of the device is shown in white; is
16 that correct?

17 A. In this diagram, yes.

18 Q. Would you agree that there appears to
19 be a thin white gap along the sides between the
20 electrode and the edges of the device on both
21 sides?

22 MR. FERNANDO: Object to form.

1 THE WITNESS: No, I'm not appreciating
2 that.

3 BY MR. BISENIUS:

4 Q. The electrodes shown in Figure 4 are
5 visible to the user; is that correct?

6 A. I don't believe that's necessarily so,
7 particularly if they're molded into rather than on
8 the surface.

9 Q. If the electrodes aren't visible to the
10 user, why are they drawn in solid black rather than
11 using dotted lines?

12 A. I don't know. I assume the inventors
13 or the artist wanted to show where they're located
14 regardless of whether they're actually visible.
15 This may be a diagram. I believe this is a diagram
16 showing where they're placed. I can't speak to the
17 choice of solid -- solid black versus stippled or
18 dotted.

19 Q. But as we discussed earlier with
20 respect to Figure 2, Markel uses dotted lines to
21 show edges of electrodes that aren't necessarily
22 visible.

1 A. I'm not sure that's so. I don't
2 believe that we discussed that.

3 Q. How would the user know where to place
4 their fingers in order to contact the electrodes in
5 the example in Figure 4 if the electrodes were not
6 visible?

7 A. I would assume an instruction manual
8 would tell the user to hold the device on either
9 side, on both sides.

10 Q. I want to turn to Paragraph 33 of
11 Markel. Can you, please, read that paragraph to
12 yourself and let me know when you're done?

13 (Witness reviews document.)

14 A. Okay.

15 Q. I apologize for my pauses to cough.

16 In the second sentence in Paragraph 33,
17 Markel states: (Reading)

18 Quote, The mobile
19 communication device 100 may comprise
20 characteristics of any of a large
21 variety of mobile communication
22 devices, e.g., general purpose mobile

1 communication devices, end quote.

2 Do you see that?

3 A. Yes.

4 Q. What does the word "comprise" mean in
5 this sentence?

6 MR. FERNANDO: Object to form.

7 THE WITNESS: I would think that means
8 that among other functionality, it also
9 includes the various functions of well-known
10 general purpose mobile communication devices.

11

12 BY MR. BISENIUS:

13 Q. So when using the term "comprise," it's
14 identifying some characteristics of the mobile
15 device, but this is a nonexhaustive list; is that
16 correct?

17 MR. FERNANDO: Same objection.

18 THE WITNESS: Could you just -- I'm not
19 sure I'm following. Could you explain what
20 you mean?

21 BY MR. BISENIUS:

22 Q. Yeah. By using the word "comprise,"

1 it's identifying some characteristics of the device
2 but leaving it open-ended to indicate that the
3 device would include other unlisted
4 characteristics; is that correct?

5 A. I believe so. I don't know if we're
6 defining the use of the word "comprise" in all
7 cases, but I certainly agree that this invention is
8 saying -- is talking about other functions that
9 this device possesses beyond what's taught in this
10 patent, which is also using the device for
11 acquisition of an ECG. So yeah, I agree.

12 Q. Is it fair to say that the word
13 "comprise" is synonymous with the word "includes"
14 in this sentence?

15 MR. FERNANDO: Object to form.

16 THE WITNESS: In this sentence, I would
17 surely agree.

18 BY MR. BISENIUS:

19 Q. I want to go back to Paragraph 37 that
20 we were discussing earlier. As we talked earlier,
21 this paragraph is discussing materials that are
22 used to make the electrodes, correct?

1 A. Yes.

2 Q. The first two sentences in Paragraph 37
3 state: (Reading)

4 Quote, Electrodes may
5 generally comprise conductive
6 material. For example, an electrode
7 may comprise metallic surface exposed
8 for user contact.

9 Do you see that?

10 A. Yes.

11 Q. So this is describing that the
12 electrode could be made of a conductive material
13 such as metal; is that correct?

14 A. Yes.

15 MR. FERNANDO: Object to form.

16 BY MR. BISENIUS:

17 Q. And then in the next sentence, it
18 describes that another example for the electrodes
19 would be a conductive plastic; is that correct?

20 A. Yes.

21 Q. And so once again, that first sentence,
22 using the term "comprise," and it says it may

1 generally comprise conductive material, so do you
2 believe that it would be possible to form the
3 electrodes from another conductive material other
4 than metal or conductive plastic?

5 A. Again, I think "electrode" is a term
6 that not only is used the same way and depends
7 quite a bit on context, particularly reading
8 different prior art references, books, whatever.

9 I think electrodes often refer to a
10 compound structure, a complex structure. We see
11 this a lot when we talk about, for instance, the
12 ECG electrodes that we use in the hospital to
13 connect a patient to an ECG machine. It's not just
14 one material. It's complex. There's a whole, you
15 know, field of science and engineering on designing
16 electrodes for human use and it is comprised of
17 materials, plural. Usually for human use, an
18 electrode is complex and comprised of more than a
19 single material.

20 Q. So when it says "the electrode may
21 comprise a metallic surface," it's your opinion
22 that the term "comprise" means it could include

1 metallic surface and additional components?

2 A. I believe that an electrode, at the
3 least, has to have highly conductive material,
4 generally speaking metal, and that it may have
5 other materials, particularly that are interposed
6 between the metal and the skin. There are all
7 kinds of examples in medical ECGs where there are,
8 for instance, conductive jellies and adhesives that
9 are used that are interposed between the metal of
10 the electrode and the skin. And we consider all of
11 that to be -- to comprise the electrode.

12 Q. Then the next sentence says: (Reading)

13 Also, for example, an
14 electrode may be formed from
15 conductive plastic.

16 So it's using slightly different
17 terminology here. Rather than "comprise," it's
18 saying "formed from."

19 It would appear that the "formed from"
20 terminology is less open-ended and is telling you
21 exactly what material is used to make the
22 electrode; isn't that correct?

1 MR. FERNANDO: Object to form.

2 THE WITNESS: I -- I think that you're
3 taking the individual words and perhaps
4 losing the meaning. As a POSITA, I
5 understand this to mean that you have an
6 electrode. I think POSITAs understand what
7 you need in an electrode. I think POSITAs
8 understand that electrodes are not monolithic
9 or simple and that there are various
10 materials that could be used for different
11 parts of the total electrode.

12 I think that trying to interpret that an
13 electrode is limited to, for instance, a
14 single material because it's -- because at
15 least part of it is formed from something, to
16 me is not telling me the necessary entire
17 structure that a POSITA would understand is
18 required to have a working electrode.

19 MR. BISENIUS: All right. We've been
20 going for over an hour and I'm going to
21 switch to a different document, so now might
22 be a good time for a break. How long do you

1 want? Five minutes, ten minutes?

2 MR. FERNANDO: Ten minutes sounds good.

3 And we can go off the record.

4 (Recess taken from 11:04 a.m. to 11:14 a.m.)

5 (Exhibit Number 1007 was marked for identification.)

6 BY MR. BISENIUS:

7 Q. All right. Next I'd like to talk about
8 the Righter reference. This is US Patent
9 Number 5,191,891, which is Exhibit 1007 in this
10 proceeding.

11 A. Okay.

12 Q. Can you, please, turn to Figure 1A of
13 Righter?

14 A. Yes, just give me a moment, please.
15 Okay. Yes.

16 Q. In Figure 1A, what are reference
17 numerals 16 and 17 referring to?

18 (Witness reviews document.)

19 A. I believe those are buttons.

20 Q. Are you aware of any description in
21 Righter of the push buttons of 16 and 17 being used
22 as electrodes?

1 (Witness reviews document.)

2 A. I don't believe those are the
3 electrodes.

4 Q. In Figure 1A, what is reference
5 numeral 18 referring to?

6 (Witness reviews document.)

7 A. I think 18 is a serial output port.

8 Q. In Figure 1A, what is reference
9 numeral 15B referring to?

10 (Witness reviews document.)

11 A. I think 15B is a conductive electrode
12 that provides an analog ground signal to various
13 electronic components.

14 Q. Figure 1A depicts electrode 15B located
15 on the side of the housing of Righter's device; is
16 that correct?

17 MR. FERNANDO: Objection.

18 THE WITNESS: Which component are you
19 asking about, I'm sorry?

20 BY MR. BISENIUS:

21 Q. Oh, sorry, the electrode 15B. This is
22 located on the side of the housing of Righter's

1 device; is that correct?

2 A. Yes, I believe that's so.

3 MR. FERNANDO: Same objection.

4 BY MR. BISENIUS:

5 Q. Is it fair to say that the
6 electrode 15B is located approximately in the
7 center of the side of the housing of Righter's
8 device?

9 (Witness reviews document.)

10 A. I suppose it's somewhere in the midst
11 of the thickness of that device.

12 Q. All right. I'm going to turn to
13 Column 3 of Righter, starting at line 2. This
14 sentence starting at line 2, Column 3 reads:
15 (Reading)

16 Quote, By grasping this pair
17 of electrodes, 15B, 15C, the user
18 completes the lead 1 circuit and
19 activates the internal electronic
20 circuitry.

21 Do you see that?

22 A. Yes.

1 Q. Is it correct to say that the
2 electrodes 15B and 15C detect a heart signal of the
3 user when the user grasps the electrodes?

4 MR. FERNANDO: Object to form.

5 THE WITNESS: As long as 15A is also in
6 contact with the user.

7 BY MR. BISENIUS:

8 Q. Moving down Column 3, starting at
9 line 64, this paragraph is describing generating a
10 touch signal, TCH, based on user contact with the
11 electrodes; is that correct?

12 A. I'm sorry, which line?

13 Q. Sorry. I'm looking at the entire
14 paragraph that starts at line 64 of Column 3.

15 A. Got it.

16 Q. And this paragraph is describing
17 generating a touch signal, TCH, based on user
18 contact with the electrodes; is that correct?

19 A. I believe so.

20 Q. And then this paragraph continues on
21 into Column 4 and describes some signal processing
22 that is performed on the touch signal; is that

1 correct?

2 A. I believe that's correct.

3 Q. This paragraph states: (Reading)

4 Quote, A divider network

5 consisting of two resistors 31, 32

6 provides current from the power

7 supply, VCC, preferably consisting of

8 two, 3-volt lithium coin cell

9 batteries wired in parallel to the

10 noninverting input of the

11 comparator 30.

12 Do you see that?

13 A. Yes.

14 Q. What is a "divider network"?

15 MR. FERNANDO: Object to form.

16 THE WITNESS: A divider network is a
17 series -- typically a series of resistors or
18 other components where some of the voltage
19 difference between the -- that's interposed
20 across the source measuring the voltage, and
21 it renders it such that some of the voltage
22 drops across each of the resistive

1 components. And in this topology, I think
2 those components are referring to Figure 2 so
3 that the amount of the total sensed voltage
4 that enters the comparator or amplifier,
5 item 30, will be a portion of the total
6 voltage between ground and this source
7 voltage VCC.

8 BY MR. BISENIUS:

9 Q. So you mention that a divider network
10 is typically made up of resistors. Righter
11 describes this particular divider network is made
12 using two resistors; is that correct?

13 A. It's really two resistors. Yes, fair
14 enough, two resistors, correct. Two resistors and
15 then the amplifier comparator 30 connected to it,
16 uh-huh.

17 Q. And the power supply is made up of two,
18 3-volt lithium coin cell batteries wired in
19 parallel; is that correct?

20 (Witness reviews document.)

21 A. Yes.

22 Q. This portion of Righter, when it's

1 describing the divider network and the power
2 supply, Righter is using the term "consisting of."

3 A. Sorry, he's using the term what?

4 Q. "Consisting of." It describes the
5 divider network consisting of two resistors, and
6 then it describes the power supply preferably
7 consisting of two, 3-volt lithium coin cell
8 batteries. So it's using the term "consisting of."

9 Earlier we were talking about use of
10 the term "comprising" in Markel. What's the
11 difference between the term "consisting of" and the
12 term "comprising"?

13 MR. FERNANDO: Object to form.

14 THE WITNESS: I'm not sure I know. I
15 mean, I think in colloquial use and in
16 standard English use, I think they're very
17 similar. I'm not sure if there's a
18 difference in legal use. I recognize that
19 this may be written by an inventor or may be
20 written by a lawyer. I don't know. I don't
21 know that they're different.

22

1 BY MR. BISENIUS:

2 Q. Would you agree that when Righter is
3 describing these components as "consisting of"
4 other components, it's describing what the first
5 thing is made of? So when it says "the divider
6 network is consisting of two resistors," it's
7 describing what the divider network is made of?

8 MR. FERNANDO: Object to form.

9 (Witness reviews document.)

10 THE WITNESS: There are -- obviously,
11 there has to also be wire -- wires connecting
12 these resistors. So I guess it's talking
13 about two of the components. I don't know
14 that it's saying this is everything that
15 makes up the divider network.

16 (Exhibit Number 1001 was marked for identification.)

17 BY MR. BISENIUS:

18 Q. All right. I'm going to turn to the
19 '257 Patent which is Exhibit 1001.

20 Can you, please, turn to Claim 12 of
21 the '257 Patent, which is in Column 13?

22 A. Yes.

1 Q. Claim 12 depends directly from Claim 1;
2 is that correct?

3 A. Yes.

4 Q. And now turning back to Claim 1 on the
5 previous page, Claim 1 recites in part: (Reading)

6 Quote, A first pad that is
7 embedded in a first portion of the
8 enclosure, end quote.

9 Is that correct?

10 A. Yes.

11 Q. Does the term "embedded" have the same
12 meaning as the term "embedded in"?

13 MR. FERNANDO: Objection.

14 THE WITNESS: I'm not sure. I think
15 you'd have to show me context so that I can
16 understand the two instances.

17 BY MR. BISENIUS:

18 Q. Let's turn to Column 10 of the
19 '257 Patent, specifically starting at line 24 of
20 Column 10.

21 Can you read that paragraph to yourself
22 and let me know when you're done.

1 (Witness reviews document.)

2 A. Yes, I've read it.

3 Q. So part of the sentence states:

4 (Reading)

5 One or more leads can be
6 embedded in or adjacent to the
7 housing.

8 Would you agree that the sentence
9 indicates at least a difference in meaning between
10 "embedded in" versus "embedded adjacent to"?

11 MR. FERNANDO: Object to form.

12 THE WITNESS: I'm not -- I'm not sure
13 that they're mutually exclusive. It may be
14 that "embedded in" is perhaps a broader term
15 than "adjacent." I'm not sure.

16 BY MR. BISENIUS:

17 Q. Is it possible for a pad to be in
18 electrical contact with other component of a device
19 without the pad being embedded in that other
20 component?

21 MR. FERNANDO: Object to form.

22 THE WITNESS: I think you're going to

1 have to break that down for me. You said
2 "embedded in." It sounds like there may be
3 at least three different pieces to that
4 sentence. The pad, something it's connected
5 to, and something it's embedded in. I'm not
6 sure I caught the relationship of all of
7 those in your question.

8 BY MR. BISENIUS:

9 Q. All right. Yeah, let's say we have an
10 electrically conductive pad, and the electrically
11 conductive pad is embedded in another electrically
12 conductive component. Would you agree that those
13 two components are in electrical contact?

14 MR. FERNANDO: Object to form.

15 THE WITNESS: No, I'm not sure that's
16 necessarily true. I think there are
17 embodiments even here in the '257 where that
18 may not be true.

19 I think the claim's description itself,
20 for example, in Claim 1 talks about a second
21 lead and a second pad that's embedded in a
22 second portion of the enclosure, and I think

1 that can include, for example, the arrangement
2 in Figure 4A where it's embedded in.

3 I'm not sure. You'll have to give me a
4 little more explanation of what components
5 you're asking are embedded in what.

6 BY MR. BISENIUS:

7 Q. Sure. We can use an example from the
8 '257 Patent.

9 Going back to Column 9, starting at
10 line 36, it's talking about Figure 4B. You can
11 review this paragraph, but let me know if you would
12 agree that this is describing that the bezel 460 is
13 conductive and that the lead 472 is also
14 conductive.

15 (Witness reviews document.)

16 A. Yes, I've read it.

17 Q. Okay. So would you agree that this is
18 describing that the bezel 460 has electrical
19 conductivity and the lead 472 also has electrical
20 conductivity?

21 MR. FERNANDO: Object to form.

22 THE WITNESS: I believe that's correct.

1 BY MR. BISENIUS:

2 Q. So going to the actual Figure 4B where
3 it shows the relationship between the lead 472 and
4 the bezel 460, would you agree that the lead 472 is
5 in electrical contact with the bezel 460?

6 A. Yes.

7 Q. So my question is, is it possible for
8 two components to be in electrical contact without
9 one component being embedded in the other?

10 A. I think I would have to see it to tell
11 you whether I think that's embedded. Certainly
12 here in the '257, it gives examples of embedded
13 that I can see in Figure 4A and 4B, but I'm not
14 sure I can be so broad as to answer your question
15 without seeing specific examples you may be
16 referring to.

17 Q. Let's say I have two conductive pads.
18 I am outside of the device of the '257 Patent now.
19 Let's say I have two conductive pads. Each one has
20 a flat surface, and those two flat surfaces are
21 placed against each other, would you consider the
22 first pad to be embedded in the second pad?

1 MR. FERNANDO: Object to form.

2 THE WITNESS: I'm not sure that that --
3 I'm not sure of the context. I think in the
4 '257, embedded is -- the use "embedded" is
5 referring not just to the relationship
6 between the two, but that one of those
7 structures is this perhaps larger, hard
8 enclosure. I think "embedded" has a more
9 specific meaning than just that they're
10 touching each other.

11 BY MR. BISENIUS:

12 Q. So in that example, though, the two
13 flat pads would be in electrical contact, would you
14 agree?

15 MR. FERNANDO: Object to form.

16 THE WITNESS: If you're saying two
17 conductive pieces of metal that are touching
18 each other, I believe they're, then, in
19 electrical contact with each other.

20 BY MR. BISENIUS:

21 Q. So they wouldn't necessarily be -- the
22 first flat pad wouldn't necessarily be embedded in

1 the second flat pad; is that correct?

2 MR. FERNANDO: Same objection, asked
3 and answered.

4 THE WITNESS: I don't think I'd use the
5 term "embedded" there.

6 BY MR. BISENIUS:

7 Q. For a first component to be embedded in
8 a second component, would the second component --
9 sorry, would the second component need to at least
10 partially surround the first component?

11 I can ask that again without the cough
12 if you want me to.

13 A. No. I think then it, perhaps,
14 requires -- I think the answer is probably no.
15 When I look at Figure 4B, I don't know that I would
16 say that one component has to surround the other.
17 It may be -- at least in Figure 4B, it's inside
18 this enclosure that it's embedded in, but the '257
19 seems to indicate that it can be against the
20 undersurface and still be described as embedded.

21 Q. All right. I'd like to go back to your
22 declaration, Exhibit 1003, and starting at

1 Paragraph 83.

2 A. Okay.

3 Q. Are you at Paragraph 83?

4 A. Yes.

5 Q. All right. The second sentence of this
6 paragraph, you state: (Reading)

7 Quote, Markel further explains
8 that an electrode, or all electrodes,
9 or other sensors may be substantially
10 concealed or hidden from a user when,
11 for example, it comprises molded
12 conductive plastic with little or no
13 visible indication of the electrode's
14 presence. So -- end quote.

15 So here, you're discussing what we
16 talked about earlier, that the electrodes may be
17 made from molded conductive plastic; is that
18 correct?

19 A. That it comprises or includes molded
20 conductive plastic, yes.

21 Q. In this configuration in which the
22 electrodes are made from molded conductive plastic,

1 the presence of the electrodes is concealed because
2 they are visually similar or possibly even visually
3 identical to the surrounding nonconductive plastic
4 of the enclosure; is that correct?

5 A. Yes.

6 Q. Moving on to Paragraph 85, you state:
7 (Reading)

8 Quote, Markel also discloses
9 that an electrode, or other sensor,
10 may be placed on or proximate to an
11 audio output portion 142, e.g., a
12 speaker of the electronic device, end
13 quote.

14 What does Markel mean by "placed on an
15 audio output portion 142"?

16 A. I think "placed on," I would take to
17 mean that it's on the -- on the outside of the
18 audio portion.

19 Q. I'd like to skip ahead to
20 Paragraph 102. In this section, you're discussing
21 the preamble of Claim 1; is that correct?

22 A. Yes.

1 Q. And the preamble recites: (Reading)

2 Quote, An electronic device
3 for detecting a user's cardiac signal
4 comprising, end quote.

5 In your analysis of the preamble of
6 Claim 1, what do you identify as the "user's
7 cardiac signal"?

8 (Witness reviews document.)

9 A. Cardiovascular monitoring. So
10 "cardiovascular monitoring" is a broad term that
11 includes a variety of potential signals that can
12 certainly include ECG, but theoretically could also
13 include, for example, blood pressure or oximetry.

14 Q. So you're saying that the
15 cardiovascular monitoring capability inherently
16 indicates that there would be a user's cardiac
17 signal; is that correct?

18 A. Yes.

19 Q. But you haven't identified a specific
20 signal disclosed by Markel here; is that correct?

21 MR. FERNANDO: Object to form. Sorry.

22 Object to form.

1 THE WITNESS: The term
2 "cardiovascular" -- "cardiovascular
3 monitoring capability," I believe is
4 inclusive and understood to include, for
5 example, ECG. I think when -- as one reads
6 Markel, it's very clear that the particular
7 cardiovascular signal that's being monitored
8 is, in fact, the ECG. But I think the term
9 "cardiovascular monitoring" is broader than
10 referring only to ECG.

11 BY MR. BIENIUS:

12 Q. All right, moving on. I would like to
13 go to Paragraph 115 of your declaration. Here
14 you're discussing what you've identified as
15 element 1.c.i; is that correct?

16 A. Yes.

17 Q. And you've included a colored and
18 annotated version of Figure 6 here; is that
19 correct?

20 A. Yes.

21 Q. What component or components in the
22 embodiment shown in Figure 6 of Markel is the

1 claimed first pad?

2 A. Is the claimed first what?

3 Q. First pad.

4 (Witness reviews document.)

5 A. So again for Figure 6, in Paragraph 50,
6 Markel refers to the second -- a second electrode
7 may be disposed on the audio portion 610.

8 So the electrode that he's referring to
9 is understood to be consistent with the pad of the
10 '257.

11 Q. What component or components in the
12 embodiment shown in Figure 6 of Markel is the
13 claimed first portion of the enclosure?

14 A. I believe that shown at region 610 is
15 the audio output portion of the enclosure. That's
16 referring to that first portion of the enclosure.

17 Q. Does Markel describe a shape for the
18 electrode that's positioned on the audio output
19 portion of the enclosure?

20 (Witness reviews document.)

21 A. I don't think he -- I don't think
22 Markel limits specifically the shape of the

1 electrode. He shows the region of the enclosure in
2 which it's embedded.

3 Q. Is there any depiction of the actual
4 electrode in Figure 6, in your opinion?

5 A. I think Figure 6 shows where it's
6 embedded. I think the written description is
7 understood to show that it is positioned on that
8 portion or molded into that portion. It may,
9 therefore, be a shape that is that entire oval or
10 some subset of that oval.

11 Q. Moving forward to Paragraph 117.
12 You're still discussing element 1.c.i here,
13 correct?

14 (Witness reviews document.)

15 A. Yes, 1.b, yeah.

16 Q. Sorry, no. In Paragraph 117, you're
17 discussing element 1.c.i; is that correct?

18 A. Oh, sorry. It's referring back to
19 earlier explanation of 1.b, but this is in the
20 section talking about 1.c.i, yes.

21 Q. And you've included a colored and
22 annotated version of Figure 10 here, correct?

1 A. Yes.

2 Q. Is it fair to say that Figure 10 is a
3 block diagram of Markel's device?

4 A. I believe so.

5 Q. What component or components in the
6 embodiment shown in Figure 10 of Markel is the
7 claimed first pad?

8 (Witness reviews document.)

9 A. I believe the second electrode, 1022,
10 is the pad or includes the pad required for that
11 electrode.

12 Q. What component or components in the
13 embodiment shown in Figure 10 of Markel is the
14 claimed first portion of the enclosure?

15 A. I don't know that the block diagram
16 is -- Figure 10 is useful to show the enclosure. I
17 believe this is a block diagram of the electronics.

18 Q. Is it your opinion that the electrodes
19 1020, 1022, and 1024 shown here are equivalent to
20 the electrodes we previously discussed with respect
21 to Figures 4 and 6 of Markel?

22 MR. FERNANDO: Object to form.

1 BY MR. BISENIUS:

2 Q. I can rephrase my question.

3 Do you believe that the electrodes

4 1020, 1022, and 1024 shown in Figure 10 are

5 examples of the electrodes from the earlier

6 figures, Figure 4 and Figure 6, of Markel or are

7 these completely separate electrodes?

8 A. I think what's shown in Figure 10 in

9 the block diagram is the electrical connection to

10 the electrodes, and those electrodes, 1020, 1022,

11 and 1024, shown in this block diagram are intended

12 to represent the -- the electrical -- the

13 electrically conductive parts of the electrodes

14 shown in the earlier figures.

15 Q. The electrodes 1020, 1022, and 1024 of

16 Figure 10 shows extending from the exterior of the

17 device; is that correct?

18 MR. FERNANDO: Object to form.

19 THE WITNESS: I'm sorry, in Figure 10?

20

21 BY MR. BISENIUS:

22 Q. In Figure 10.

1 MR. FERNANDO: Same objection.

2 THE WITNESS: I don't believe Figure 10
3 is intended to show specifically the physical
4 structure of the device. I think it's a
5 block diagram showing where some components
6 interact with the exterior of the device.
7 But I don't -- I don't -- I wouldn't take
8 this block diagram to tell me where, for
9 instance, the enclosure -- where the outer
10 edge of the enclosure is. I don't think
11 that's the purpose of Figure 10. I think
12 this is a block diagram of the electronics.

13 BY MR. BISENIUS:

14 Q. So you don't believe that Figure 10 is
15 indicative of the actual shape of the electrodes;
16 is that correct?

17 MR. FERNANDO: Object to form.

18 THE WITNESS: I don't think it's
19 necessarily indicative of the shape of the
20 electrodes or the enclosure.

21 BY MR. BISENIUS:

22 Q. What do you believe is represented by

1 the large rectangle in Figure 10?

2 A. The -- the outer block of the
3 electronics. I believe it's saying all the
4 electronics of the device are included within this
5 block, within this rectangle.

6 Q. But it's showing the electrodes of
7 extending from that block; is that correct?

8 A. Again, I think that's showing where the
9 electronics are. I don't think this is
10 representative of the physical outer dimensions of
11 the device.

12 Q. All right. Moving ahead to
13 Paragraph 120. This is still under your discussion
14 of element 1.c.i; is that correct?

15 A. I believe that's correct.

16 Q. And you've included a colored and
17 annotated version of Figure 4 here; is that
18 correct?

19 A. Yes.

20 Q. Would you consider this part of your
21 analysis to be an alternative read of Markel's
22 teachings of Claim 1?

1 A. I don't think I understand your
2 question.

3 Q. Well, earlier you were pointing out
4 what you believe to be the first pad and the first
5 portion of the enclosure in the example in Figure 6
6 of Markel.

7 A. Okay.

8 Q. This is -- this Figure 4 is depicting a
9 different embodiment of Markel; is that correct?

10 A. Oh, a different embodiment. Yes, I
11 believe that's correct.

12 Q. So would you consider this to be an
13 alternative mapping of the components of Markel to
14 Claim 1 or is this part of your mapping that you
15 discuss with respect to Figure 6?

16 A. I think this is intended to be a second
17 mapping, another example where Markel teaches what
18 is claimed in the '257.

19 Q. What component or components in the
20 embodiment shown in Figure 4 of Markel is the
21 claimed first pad?

22 (Witness reviews document.)

1 A. So the second electrode, which I
2 believe is 420B, would constitute the first pad of
3 Claim 1 of the '257.

4 Q. What component or components in the
5 embodiment shown in Figure 4 of Markel is the
6 claimed first portion of the enclosure?

7 A. The first portion of the enclosure
8 would be the part of the device that that electrode
9 is embedded in.

10 Q. Is there a reference numeral that
11 identifies the first portion of the enclosure?

12 (Witness reviews document.)

13 A. Yes. Looking at the explanation in
14 Paragraph 45 of Markel, in the specification,
15 Markel says: (Reading)

16 A second electrode may, for
17 example, be placed on the right-side
18 portion 420.

19 Which I take that to be the enclosure.
20 I'm sorry, that's the electrode. And the -- the
21 electrode is 420 molded into region 420B.

22 So 420B is the enclosure region that

1 it's molded into and 420 in the specification is
2 the actual electrode.

3 Q. Is 420 identified in Figure 4?

4 A. I think the figure is less -- is less
5 complete than the description. And the description
6 says: (Reading)

7 A second electrode may, for
8 example, be placed on the right-side
9 portion, placed on or molded into
10 region 420B.

11 So I'm not sure there's a specific
12 number for the electrode itself, as I read the
13 description, and 420B refers to the part of the
14 enclosure in which the electrode is molded -- is
15 placed on or molded into.

16 Q. So the reference numeral 420B is
17 identifying that black rectangle, that's showing us
18 what you believe to be the first portion of the
19 enclosure; is that correct?

20 A. I believe that's correct.

21 Q. Does Figure 4 show the shape of the
22 electrode itself?

1 A. I don't believe the description limits
2 the shape of the electrode. We understand it's
3 molded into and included in that portion of the
4 enclosure and that that part of the enclosure may
5 include, for example, conductive plastic. But the
6 description does not limit the -- what portion of
7 that region is the shape of the electrode itself.

8 Q. And earlier we were talking about
9 Figure 10. You said that this was showing the
10 connections between electrical components of the
11 device but not the physical arrangement of those
12 components; is that correct?

13 MR. FERNANDO: Object to form.

14 THE WITNESS: I think I said something
15 close to that.

16 BY MR. BISENIUS:

17 Q. Is there any figure in -- that shows
18 the physical arrangement of the internal components
19 of the device?

20 (Witness reviews document.)

21 A. I think multiple figures show how
22 things may be arranged on the physical device,

1 within the enclosure of the physical device. I
2 think we went over figures that do that. So I
3 think you'd have to explain to me which particular
4 physical arrangement you're asking about and
5 whether or not that's shown in figures in Markel.

6 Q. Well, would you agree that Figure 4 is
7 showing the outside of Markel's device?

8 A. Yes. Well, yes, but also the right
9 part of Figure 4 is also indicative of where
10 components that are embedded in that outside
11 material reside.

12 Q. Okay. So I'm asking you if you can
13 identify a figure in Markel that shows the physical
14 arrangements of internal components of the device.

15 MR. FERNANDO: Objection, asked and
16 answered.

17 THE WITNESS: I think these figures
18 show it -- show exactly that. They show it
19 from an outside view, and then the written
20 description provides an understanding of how
21 they're arranged inside or underneath the
22 exterior surface.

1 BY MR. BISENIUS:

2 Q. I'd like to go back to Paragraph 109 of
3 your declaration. It's on page 50.

4 A. Okay.

5 Q. Here in the first sentence you state:

6 (Reading)

7 Markel discloses a main body
8 portion 110, annotated above in green,
9 which corresponds to the claimed
10 enclosure of element 1.a, end quote.

11 And above that, you show colored
12 versions of Figures 1, 4, and 6; is that correct?

13 A. Yes.

14 Q. Earlier you said that the reference
15 numeral 420B was identifying the first portion of
16 the enclosure, and yet here, you've stated that the
17 enclosure is colored in green, and yet what's
18 referred to as 420B is not colored green.

19 So it seems that you've identified --
20 you're referring to different portions of the
21 device as the enclosure. Here you're referring to
22 the insulating portion for 15 and the front part of

1 the casing of the device. And then you've changed
2 your reading later on. So I'm wondering which one
3 is the correct reading?

4 MR. FERNANDO: Object to form.

5 (Witness reviews document.)

6 THE WITNESS: I believe that the
7 enclosure has different parts to it. What's
8 shown as 110 does refer to the main body
9 portion. That's the part that's annotated in
10 green where we can identify 110. That
11 doesn't mean that there aren't other portions
12 of the enclosure. And I think the written
13 description of those regions 420 and 410B
14 make clear that they are parts of the
15 enclosure as well.

16 BY MR. BISENIUS:

17 Q. But your opinion that the reference
18 numeral 420B is identifying a portion of the
19 enclosure and not the claimed first pad; is that
20 correct?

21 MR. FERNANDO: Objection, form.

22 THE WITNESS: I'm going to go back and

1 read from Markel.

2 (Witness reviews document.)

3 THE WITNESS: Yes. When reading the
4 spec, it says: (Reading)

5 420B, the electrode may, for
6 example, be placed on the right side
7 of portion 420, e.g., placed on or
8 molded into region 420B, in various
9 exemplary configurations where regions
10 410B and 420B include conductive
11 plastic.

12 I understand that to mean that those are
13 regions or parts of the enclosure and the
14 electrodes are molded -- are placed on or
15 molded into those regions of the enclosure.

16 BY MR. BISENIUS:

17 Q. So the -- just to be clear, reference
18 numeral 420B is identifying what you to believe
19 be -- sorry, what you believe to be the first
20 portion of the enclosure in Claim 1; is that
21 correct?

22 A. Sorry. If you can still hear me, my

1 computer is making me re-login. Can you still hear
2 me?

3 Q. Yes.

4 A. My apologies. Just a timeout. Okay.
5 I'm back.

6 I'm sorry. Could you repeat your last
7 question?

8 Q. Yes. To be clear, reference
9 numeral 420B, in your opinion, is identifying what
10 you believe to be the first portion of the
11 enclosure of Claim 1; is that correct?

12 A. I believe in one embodiment that's
13 true.

14 Q. All right. I would like to skip ahead
15 to Paragraphs 122 and 123 of your declaration.

16 MR. FERNANDO: And, Rick, just a
17 heads-up, whenever you get to an appropriate
18 break point, we've been going about another
19 hour. If we could take a break.

20 MR. BISENIUS: Do we want to break for
21 lunch soon or do a shorter break here and
22 then lunch later?

1 MR. FERNANDO: I would defer to
2 Dr. Berger. I am happy to keep going, but up
3 to you.

4 THE WITNESS: If you want, we could do
5 a break. And then, Patrick, what time zone
6 are you in?

7 MR. BISENIUS: I'm Central, so I can do
8 lunch whenever. I'm fine.

9 THE WITNESS: It may make sense -- I'm
10 just trying to calculate when I'm going to
11 have dinner.

12 MR. FERNANDO: So let's maybe jump off
13 the record and we can talk about how long it
14 is.

15 (Recess taken from 12:17 p.m. to 12:27 p.m.)

16 BY MR. BISENIUS:

17 Q. All right. I want to turn to
18 Paragraphs 122 and 123 of your declaration.

19 A. Okay.

20 Q. You include an annotated version of
21 Figure 6 here, correct?

22 A. Yes.

1 Q. What component or components in the
2 embodiment shown in your annotated Figure 6 of
3 Markel is the claimed exterior surface of the first
4 portion?

5 (Witness reviews document.)

6 A. The first portion, the exterior surface
7 of the first portion here refers to that part of
8 the enclosure where the audio region resides. The
9 audio output portion, I'm sorry.

10 Q. In the Figure 4 embodiment of Markel,
11 what component or components in the embodiment
12 correspond to the claimed exterior surface of the
13 first portion?

14 A. Now we're going back to what we were --
15 you were asking me about before the break?

16 Q. I'm just talking about, you had
17 described that Figure 6 is one mapping of Markel to
18 the claims and Figure 4 was a different mapping of
19 Markel to the claims. So I'm asking in the
20 Figure 4 embodiment of Markel, what component or
21 components do you believe correspond to the claimed
22 exterior surface of the first portion?

1 (Witness reviews document.)

2 A. Okay. So in the embodiment shown in
3 Figure 6, as we said, it's that audio portion. In
4 Figure 4, we would understand it to be that side
5 portion of the -- that includes the back of the
6 device, that right-side portion 420 or 420B where
7 the -- that the electrode is molded into.

8 Q. All right, moving forward to
9 Paragraph 127 of your declaration. Here you're
10 addressing element -- what you've identified as
11 element 1.c.iii, correct?

12 A. Yes.

13 Q. And specifically, you're discussing
14 what you allege is: (Reading)

15 Quote, Apple's interpretation
16 of claim element 1.c.iii, end quote.

17 Is that correct?

18 A. Yes.

19 Q. Do you believe that the interpretation
20 that you've described as "Apple's interpretation of
21 claim element 1.c.iii" is the correct
22 interpretation of this claim element?

1 A. At least the way it's expressed in the
2 Complaint, Apple appears to point to something I
3 don't think is the -- that I think is not correct.
4 That's correct. Yes, you've stated it the way I
5 see it.

6 Q. So you don't believe that what you
7 allege as Apple's interpretation is correct?

8 A. Yes.

9 Q. What makes this claim interpretation
10 for element 1.c.iii that you've ascribed to Apple
11 incorrect?

12 A. Well, 1.c.iii requires that the first
13 pad is positioned underneath the exterior of the
14 first portion, and Apple has pointed to the
15 electrode pad itself and then refers to it as the
16 exterior surface of the enclosure, so -- and Apple
17 is also pointing to the same element as being the
18 first conductive pad. I believe the claim's
19 language says that the first conductive pad has to
20 be under, underneath the exterior surface of the
21 first portion.

22 Q. Did you review the Complaint in the

1 related District Court case prior to forming your
2 understanding of the alleged Apple's interpretation
3 for element 1.c.iii?

4 A. I'm not sure -- is that the same as the
5 Complaint that I'm reproducing here in my
6 declaration?

7 Q. Yes, that's the Complaint I'm referring
8 to.

9 A. Yes.

10 Q. Is your understanding of the alleged
11 Apple's interpretation for element 1.c.iii based on
12 your understanding of the Complaint in the related
13 District Court case?

14 A. Yes, I believe so.

15 Q. Is your understanding of the alleged
16 Apple's interpretation for element 1.c.iii based on
17 your discussions with AliveCor's attorneys?

18 MR. FERNANDO: Object. Sorry, just one
19 second, please.

20 So, Dr. Berger, you can answer that
21 "yes" or "no," to the extent you can, but I'd
22 caution you not to reveal the content of any

1 discussions with AliveCor's . . .

2 THE WITNESS: I form my own
3 interpretation and also discussed it with
4 attorneys.

5 BY MR. BISENIUS:

6 Q. Did you review the infringement
7 contentions from the related District Court case
8 prior to forming your understanding of the alleged
9 Apple's interpretation for element 1.c.iii?

10 MR. FERNANDO: And same objection.

11 Dr. Berger, you can answer that "yes" or
12 "no," but don't reveal the content of any
13 discussions with attorneys.

14 THE WITNESS: I reviewed it so that I
15 would understand issues. My focus was on the
16 invalidity questions expressed in my
17 declaration.

18 BY MR. BISENIUS:

19 Q. So just to be clear, I'm referring to a
20 different document. In your report, in your
21 declaration, in Paragraph 127, you refer to
22 "Apple's Complaint."

1 Are you aware that the Complaint in the
2 District Court litigation is a different brief than
3 the infringement contentions?

4 A. Oh, I'm sorry. No, I didn't understand
5 that.

6 Q. Okay. So the infringement contentions
7 are a different brief than the Complaint. You've
8 referred to the Complaint in your declaration. I'm
9 asking you, did you review the infringement
10 contentions from the related District Court case
11 prior to forming your understanding of the alleged
12 Apple's interpretation for element 1.c.iii?

13 MR. FERNANDO: Same instruction,
14 Dr. Berger. You may answer that "yes" or
15 "no," but don't reveal the contents of any
16 discussions with attorneys as to this other
17 document.

18 THE WITNESS: I don't believe so. Not
19 that I recall.

20 BY MR. BISENIUS:

21 Q. Did you review any claim construction
22 briefs from Apple for the related District Court

1 case prior to forming your understanding of the
2 alleged Apple's interpretation for element 1.c.iii?

3 A. I don't believe so.

4 Q. Did you speak to anyone at Apple or
5 representing Apple to confirm your understanding of
6 the alleged Apple's interpretation for element
7 1.c.iii?

8 A. No.

9 Q. Have you reviewed the Patent Owner's
10 preliminary response for this current IPR
11 proceeding?

12 A. Somewhat. Not in detail.

13 Q. Are you aware if Apple ever expressed
14 what you identify as Apple's interpretation for
15 element 1.c.iii as being correct in the Patent
16 Owner's preliminary response?

17 A. Are you -- are you asking me is it
18 consistent with the Patent Owner's response?

19 Q. I'm asking you, are you aware of any
20 portion of the Patent Owner's preliminary response
21 that identified what you allege is Apple's
22 interpretation for element 1.c.iii as correct?

1 A. I don't recall if there's something
2 that is different from what's shown here. To the
3 extent that this is what I reviewed in preparation
4 of my declaration, this is what I understand
5 Apple's position to represent.

6 Q. All right, moving ahead to
7 Paragraph 129 and 130. Here you are discussing
8 Markel's Figure 6 again; is that correct?

9 A. Yes.

10 Q. Could you, please, read Paragraph 130
11 out loud?

12 A. 130. (Reading)

13 Similarly, Markel's Figure 1,
14 annotated below, discloses an
15 electrode or other sensor may be
16 placed on, or proximate to, an audio
17 output portion 142, e.g., a speaker,
18 of the electronic device, which may,
19 for example, provide for electrode
20 contact within ear or cheek of a user
21 of the electronic device.

22 Q. So here you've stated that the

1 electrode positioned at the audio output portion of
2 Markel's device is positioned to directly contact
3 the ear or cheek of the user; is that correct?

4 A. Yes.

5 Q. So this electrode is on the exterior
6 surface of the device; is that correct?

7 A. Again, I think an important point here
8 is, what are the components of the electrode? So,
9 you know, that's a word not found in the '257.
10 Here I interpret the electrode to include the
11 conductive material, the most -- a metal conductive
12 material that would be, for example, proximate to
13 the audio output portion, but the electrode could
14 also be on the very surface. But in any case,
15 there's electrode contact to the extent that the
16 electrode may be a metallic or a highly conductive
17 surface or may include conductive plastic of the
18 enclosure.

19 Q. But as we discussed earlier, there's no
20 express description in Markel of a dual-layered
21 electrode with an outer plastic layer and an inner
22 metal layer; is that correct?

1 A. Well, again, I believe when it's saying
2 it may be placed on or proximate to, I think that's
3 clear to a POSITA that that means that it's on the
4 surface or under the surface, and therefore,
5 necessarily requires a -- in the second case,
6 requires that it be a dual-layer system.

7 Q. In your annotated version of Figure 6
8 here, you've colored the audio output portion in
9 yellow, correct?

10 A. Yes.

11 Q. And it's surrounded by green portions
12 of the casings; is that correct?

13 A. The figure shows that part of it
14 highlighted in yellow and the rest of the enclosure
15 shown in green, yes.

16 Q. And --

17 MR. FERNANDO: I'm sorry. I just want
18 to make sure I'm looking at the right place.
19 Are we looking above Paragraph 130 or below?

20 MR. BISENIUS: I am looking above
21 Paragraph 130 right now.

22 BY MR. BISENIUS:

1 Q. If the designer of Markel's device were
2 to place an electrode in the green region just
3 above the yellow region 610, would you consider
4 that electrode to be proximate to the audio output
5 portion?

6 A. I don't think so.

7 Q. If the designer of Markel's device
8 created an electrode that was oval-shaped, was an
9 oval outline with the center not filled in, and
10 that oval surrounded around the yellow portion 610,
11 would that be considered proximate to the audio
12 output portion?

13 MR. FERNANDO: Object to form.

14 THE WITNESS: I'm not sure. I took
15 "proximate" to mean embedded in, deep to, but
16 I suppose it could be broader than that and
17 also include other topologies where it's
18 nearby or surrounding that audio portion.

19 BY MR. BISENIUS:

20 Q. Wouldn't you agree that the ordinary
21 meaning of the term "proximate" to is "close to"?

22 MR. FERNANDO: Object to form.

1 THE WITNESS: It's interesting. As a
2 physician, "proximal" means closer to or
3 inside of. So I took it to mean within,
4 closer to, inside of. I suppose it could
5 have a broader meaning than that.

6 BY MR. BISENIUS:

7 Q. You know, in normal English, when
8 someone says that they're in proximity to a
9 location, say "I'm in proximity to a restaurant,"
10 that would mean I'm near the restaurant, wouldn't
11 it?

12 MR. FERNANDO: Object to form.

13 THE WITNESS: I don't know. Again, I
14 think it depends on context. And, you know,
15 again, in medical terminology with medical
16 devices, when we say something is -- we use
17 the term "proximal" to -- and I took
18 "proximate" to mean proximal to and that
19 means closer in than. So, you know, I think
20 it could mean either.

21 BY MR. BISENIUS:

22 Q. All right. I'd like to turn to Markel

1 again, Exhibit 1005.

2 So as we discussed earlier,
3 Paragraph 50 describes that the first electrode may
4 be disposed on the main body portion and second
5 electrode may be disposed on the audio output
6 portion. And then gives examples of molded into
7 the audio output portion or positioned on the audio
8 output portion.

9 Here it appears to be using the term
10 "molded into the audio output portion" as an
11 example of "disposed on." Wouldn't "disposed on"
12 seem to indicate that it's positioned on the audio
13 output portion rather than underneath the audio
14 output portion?

15 MR. FERNANDO: Object to form.

16 THE WITNESS: I think it's pretty clear
17 when it says "molded into" or "positioned on"
18 that those are two separate things. Yeah, I
19 think it's describing two different possible
20 arrangements.

21 BY MR. BISENIUS:

22 Q. But it's describing "molded on" as one

1 of the possible arrangements for "disposed on"; is
2 that correct?

3 MR. FERNANDO: Object to form.

4 THE WITNESS: No, it says "molded into"
5 or "positioned on."

6 BY MR. BISENIUS:

7 Q. But prior to that, it says: (Reading)

8 A second electrode may be
9 disposed on the audio output portion.

10 Do you see that?

11 A. Yes.

12 Q. And then molded into is one of the
13 examples for how that electrode may be disposed on;
14 is that correct?

15 MR. FERNANDO: Object to form, asked
16 and answered.

17 THE WITNESS: Yes, I think they're
18 describing something that the inventor used
19 the term "disposed on" before explaining what
20 the possibilities are meant by that, and
21 there within the parentheses, I believe the
22 inventor is giving two possibilities, that

1 it's molded into or positioned on.

2 BY MR. BISENIUS:

3 Q. If the electrode is positioned on the
4 audio output portion, would it be embedded in the
5 audio output portion?

6 A. I think "embedded in" could include
7 that.

8 Q. Are you relying on the description of
9 the electrode being molded into the audio output
10 portion to satisfy the claim requirement that the
11 first pad be embedded in a first portion of the
12 enclosure?

13 A. I'm relying on embedded in, for
14 "embedded in." Yes, I'm relying on this
15 description where it's positioned on or molded into
16 for that terminology of "embedded in," yes.

17 Q. All right. I would like to go back to
18 your declaration and moving on to Paragraph 131.

19 In Paragraph 131, you're back to
20 discussing the embodiment of Figure 4 of Markel; is
21 that correct?

22 A. Yes.

1 Q. Could you, please, read Paragraph 131
2 out loud?

3 A. (Reading)

4 Also with respect to Markel's
5 Figure 4 configuration, the second
6 electrode may be placed on the
7 right-side portion 420 of the
8 electronic device.

9 Gives the reference. (Reading)

10 Such electrode placement
11 allows the electrode to contact the
12 user through normal or typical use of
13 the electronic device. This is
14 illustrated in at least Markel's
15 Figure 4, annotated below.

16 Q. So here you've stated that the
17 electrode on the right-side portion 420 of Markel's
18 device is positioned to directly contact the user's
19 skin; is that correct?

20 A. Again, the electrode, the term
21 "electrode," being in contact may mean the
22 conductive metal or the more complex combination of

1 the metal and conductive plastic that it's molded
2 into.

3 Q. But earlier when discussing Figure 4,
4 you stated it was your opinion that the region 420B
5 is distinct from the electrode 420; is that
6 correct?

7 MR. FERNANDO: Object to form.

8 THE WITNESS: I think as I read
9 Markel's description in that paragraph, 420B
10 is referring to a region of the device that
11 includes the electrode but may be a region of
12 enclosure or plastic in which the electrode
13 is embedded.

14 BY MR. BISENIUS:

15 Q. And earlier we discussed that the
16 descriptions of conductive plastic are all
17 referring to electrodes and not to other portions
18 of the enclosure; is that correct?

19 MR. FERNANDO: Object to form.

20 THE WITNESS: I'm sorry, I don't recall
21 specifically what you're referring to.

22 BY MR. BISENIUS:

1 Q. Well, we can go back to Markel.

2 Paragraph 37 of Markel --

3 A. Yes.

4 Q. -- reads that: (Reading)

5 Also, for example, an
6 electrode may be formed from
7 conductive plastic or another
8 material.

9 And then later in Paragraph 40, the
10 second sentence states: (Reading)

11 For example, and without
12 limitation, an electrode may comprise
13 molded conductive plastic with little
14 or no visible indication to the
15 electrode presence.

16 So both of those examples are expressly
17 describing that the electrode can be made from
18 molded conductive plastic.

19 Can you identify any descriptions in
20 Markel that describe components other than the
21 electrodes themselves as being made from molded
22 conductive plastic?

1 A. Again, I think, one understands that
2 electrodes may comprise parts and materials and
3 that the -- and that it may be that the -- part of
4 it that -- the part of the electrode that is in
5 contact with the skin is conductive plastic, but
6 that doesn't mean that the electrode doesn't also
7 include components as it would necessarily require
8 in order to be functional, and that's going to
9 require something more conductive, like metal, that
10 resides in contact with plastic.

11 Q. So in Paragraph 131, you're describing,
12 though, that the electrode is in direct contact
13 with the user's skin; is that correct?

14 A. And again, electrode can refer to
15 the -- would refer to the combination of the outer
16 surface and the metal that resides underneath. Or
17 put another way, you're not going to have a solder
18 joint or connector directly to the plastic, you
19 would have metal, something -- highly conductive
20 metal, that's going to be part of the electrode
21 that's underneath a layer of conductive plastic if
22 the metal itself is not exposed.

1 Q. But once again, Markel does not
2 actually use the term "electrode" or ever describe
3 a two-layered electrode with a plastic outer layer
4 and metal inner layer; is that correct?

5 MR. FERNANDO: Object to form.

6 THE WITNESS: I think this is what one
7 would understand, a POSITA would understand,
8 that the electrode is going to be as, for
9 instance, described in Markel as embedded in
10 a second material like the plastic.

11 For example, both describing Figure 4,
12 but an electrode may, for example, be placed
13 on or molded into that region. And similarly
14 for Figure 6, saying that the electrode may be
15 disposed on the audio portion that is molded
16 into or positioned on.

17 So I think a POSITA would understand
18 that the electrode includes material that's
19 conductive, that's -- that has to be highly
20 conductive metal, and that if there's also a
21 plastic surface, then it's embedded or molded
22 into it.

1 BY MR. BIENIUS:

2 Q. But the next sentence, it says:

3 (Reading)

4 Such electrode placement may,
5 for example, provide for user contact
6 with both electrodes.

7 A. Where are you reading from? I'm sorry,
8 where are you?

9 Q. What -- you were reading from
10 Paragraph 50 of Markel?

11 A. Yes.

12 Q. Describing the second electrode may be
13 disposed on the audio output portion. The next
14 sentence states: (Reading)

15 Quote, Such electrode
16 placement may, for example, provide
17 for user contact with both electrodes
18 during the process of listening to the
19 MCD 100, end quote.

20 So it's expressly saying that the
21 previously described placement of the electrodes
22 provide for user contact with both electrodes,

1 correct?

2 MR. FERNANDO: Object to form, asked
3 and answered.

4 THE WITNESS: Yeah, I really think that
5 this is saying that the electrode is more
6 complex and that it has a conductive region
7 that's molded into conductive plastic and the
8 whole -- and the user is making contact with
9 that.

10 I think the term "electrode" is where
11 we're having some difficulty understanding
12 what it refers to, but I think that the
13 electrode, to a POSITA, is understood to be
14 either a metal -- highly conductive material
15 like metal alone or if it's -- if there's a
16 plastic outer surface, then it's going to
17 require that the electrode be both -- both
18 components.

19 BY MR. BISENIUS:

20 Q. Would you understand a heart sensor to
21 comprise one or more electrodes?

22 A. Particularly for the purpose of

1 recording an ECG?

2 Q. Correct.

3 A. Yes, it requires at least two
4 electrodes.

5 Q. All right, moving on to Paragraph 134
6 of your declaration. Here you're discussing what
7 you refer to as the, quote, Correct interpretation
8 of claim element 1.c.iii, end quote.

9 How does this interpretation of element
10 1.c.iii differ from the previous interpretation
11 that you identified as the incorrect
12 interpretation?

13 A. Well, here we --

14 MR. FERNANDO: Object to form. Sorry.
15 Object to form, asked and answered.

16 THE WITNESS: Here we understand that
17 that claim element 1.c.iii requires that the
18 highly conductive metal element, what I
19 believe is referred to as "the pad" of the
20 electrode in the '257, is not the same as the
21 exterior surface of the first portion of the
22 enclosure.

1 BY MR. BISENIUS:

2 Q. Continuing to the next paragraph,
3 Paragraph 135. On page 65, you quote part of
4 Markel's stating that: (Reading)

5 The, quote, electrode may be
6 formed from conductive plastic or
7 another material, end of quote.

8 So once again, here you're describing
9 that what is formed of the conductive plastic is
10 the electrode itself, not a portion of the casing;
11 is that correct?

12 MR. FERNANDO: Object to form.

13 (Witness reviews document.)

14 THE WITNESS: What was your specific
15 question? I'm reading -- I'm reading the
16 paragraph. I'm sorry.

17 BY MR. BISENIUS:

18 Q. So here you've quoted part of Markel
19 that states: (Reading)

20 This electrode may be formed
21 from conductive plastic or another
22 material, end quote.

1 So here, Markel is describing that the
2 electrode is conductive plastic, not that it's
3 positioned underneath a separate conductive plastic
4 layer; is that correct?

5 MR. FERNANDO: Object to form.

6 THE WITNESS: No, I think -- I think
7 part of the problem here is that the
8 conductive plastic may be part of the
9 electrode, but the conductive pad of the '257
10 is the more conductive, highly conductive
11 metal. So the electrode may be -- may have
12 exterior components, and I think that's true
13 in '257 too. I think in Figure 4B. I think
14 the electrode includes a pad and a different
15 material outside of it. And I think that's
16 exactly what's being described here of
17 components of the electrode that include a
18 conductive plastic on the outside and a more
19 conductive metal underneath.

20 BY MR. BISENIUS:

21 Q. Earlier in Paragraph 135, you state:

22 (Reading)

1 Quote, Markel teaches that an
2 electrode or all electrodes may be
3 substantially concealed or hidden from
4 a user with little or no visible
5 indication of the electrode presence,
6 end quote.

7 How does Markel describe that this
8 visual concealment of the electrodes is achieved?

9 (Witness reviews document.)

10 A. In that same paragraph, he says:

11 (Reading)

12 For example, and without
13 limitation, an electrode may comprise
14 molded conductive plastic with little
15 or no visible indication of the
16 electrode presence.

17 Q. So once again, this portion of Markel
18 is describing that the electrode is made from the
19 molded conductive plastic, correct?

20 MR. FERNANDO: Object to form.

21 THE WITNESS: Again, I think if what
22 touches the skin is the molded conductive

1 plastic, then the electrode necessarily has
2 to include the more conductive element that's
3 electrically connected to it.

4 BY MR. BISENIUS:

5 Q. Would you agree that the electrode is
6 concealed because the electrically conductive
7 plastic is visually similar to other portions of
8 the enclosure?

9 A. Yes, I believe so.

10 Q. And can you identify any portion of
11 Markel that actually describes a second metal pad
12 positioned under the conductive plastic electrode?

13 A. I believe we covered that. I think you
14 asked me that before and I pointed to the
15 description for Figure 4 and Figure 6 where it
16 talks about molding into a region of the enclosure
17 where -- that includes conductive plastic.

18 Q. Does it actually say that the region
19 includes conductive plastic in either of those two
20 places?

21 A. I think so. In, for instance, the
22 description of Figure 4, Paragraph 45, last

1 sentence, it says: (Reading)

2 In various exemplary
3 configuration, e.g., where regions
4 410B and 420B include conductive
5 plastic.

6 Q. I'd like to turn to Paragraph 47 of
7 Markel. This is talking about Figure 2 again. And
8 here it states that: (Reading)

9 The push button 220 may be
10 formed from a metallic material or
11 conductive plastic.

12 Is that correct?

13 A. Yes.

14 Q. So this is disclosing that the entire
15 push button would be made from either the metallic
16 material or the conductive plastic; is that
17 correct?

18 A. I don't know that it's saying there's
19 no other components.

20 Q. Does it expressly describe a
21 configuration in which the push button is made from
22 both a metallic material and a conductive plastic?

1 A. I think this is understood from earlier
2 portions that describes, again, in Paragraph 37 how
3 various materials may be formed to create these
4 electrodes.

5 Q. This paragraph continues on discussing
6 push button 240 and describes that it could have
7 first and second conductive plastic regions; is
8 that correct?

9 A. Yes.

10 Q. And here, it's expressly stating:

11 (Reading)

12 Quote, A fourth exemplary push
13 button 240 comprises a first electrode
14 242, e.g., a first conductive plastic
15 region, and a second electrode 244,
16 e.g., a second conductive plastic
17 region, end quote.

18 So this is again describing that the
19 electrodes themselves are the conductive plastic
20 region; isn't that correct?

21 MR. FERNANDO: Object to form.

22 THE WITNESS: Again, if the outer

1 surface is a plastic, even a conductive
2 plastic, a POSITA would understand that the
3 electrical connection is not going to be
4 directly to the plastic but is going to
5 require a conductor, a metal conductor,
6 formed, embedded underneath that plastic,
7 those two regions of plastic.

8 BY MR. BISENIUS:

9 Q. Going back to Paragraphs 39 and 40 of
10 Markel again, these paragraphs discuss that the
11 presence of the electrodes can be visually
12 concealed; is that correct?

13 A. I believe so.

14 Q. Are you aware of any other portions of
15 Markel other than these two paragraphs that discuss
16 visual concealment of the electrodes?

17 A. I'm sorry, I would have to search the
18 document.

19 Q. We can just move on.

20 All right. Going back to your
21 declaration, I'm still at Paragraph 135. And I'm
22 at the last two sentences of this paragraph, which

1 are on page 65.

2 A. Okay.

3 Q. You state: (Reading)

4 Quote, From this, a person of
5 ordinary skill in the art would have
6 been motivated to place the pad of the
7 second electrode underneath the
8 conductive plastic of the audio output
9 portion. This would have
10 substantially concealed or hidden the
11 pad of the electrode from the user,
12 which would have been desirable to
13 increase aesthetics of the device
14 while protecting the electrode, end
15 quote.

16 So here, are you proposing a
17 modification to Markel that would achieve Markel's
18 goal of substantially concealing the electrodes
19 from the user so that there's no or little visible
20 indication of the electrodes?

21 A. No, I think this is completely
22 consistent with what I've described all along and

1 what a POSITA would be motivated to do, which would
2 be to include in the electrode, which includes this
3 layer or region of conductive plastic, and then
4 have the pad or the highly conductive metallic part
5 of the electrode underneath, and therefore, hidden
6 from the user.

7 One could instead put the metallic
8 portion, the pad, on the surface, but then that may
9 be obvious to the user by putting the conductive
10 part of the electrode, the pad, underneath the less
11 conductive but still conductive plastic. It's
12 concealed.

13 Q. So is it your opinion that Markel does
14 not need to be modified in order to reach the
15 claims -- sorry, in order to reach the elements of
16 Claim 1?

17 MR. FERNANDO: Object to form.

18 THE WITNESS: I believe that's correct.
19 I think that the way Markel describes it with
20 the understanding of a POSITA, it renders the
21 claims -- the claim elements in Claim 1
22 obvious, yes.

1 BY MR. BISENIUS:

2 Q. So several times today you've described
3 that you believe a POSITA would recognize that in
4 at least some configurations, the electrodes of
5 Markel would have an outer conductive plastic layer
6 and then a lower metal electrode; is that correct?

7 A. A metal layer, together constituting
8 the electrode, and that metal layer is what I think
9 is -- what I understand the pad to be in the '257.

10 Q. Is there any description in Markel of
11 the physical arrangement of the conductive plastic
12 layer with respect to the metal layer that you've
13 just described?

14 MR. FERNANDO: Object to form, asked
15 and answered.

16 THE WITNESS: Yeah, again, I think -- I
17 believe this is the same or awfully similar
18 to the question you've asked me several times
19 where I've pointed to the descriptions in
20 Paragraphs 45 and 50 that talk about the
21 arrangement where the -- where there's
22 electrode molded into the conductive plastic.

1 I recognize that electrode, as is
2 understood, will include various components.
3 And here, where it's talking about embedding
4 it, molding it into the plastic, I believe
5 that's referring to the conductive metal part
6 of it. And I think that makes it pretty clear
7 to a POSITA what's being referred to here.

8

9 BY MR. BIENIUS:

10 Q. I'd like to go back to Paragraph 109
11 again. Well, Paragraphs 108 and 109.

12 A. Of my declaration?

13 Q. Of your declaration, yeah.

14 We talked about this earlier, and here,
15 you've got colored versions of Figures 1, 4, and 6,
16 correct?

17 A. Yes.

18 Q. Do you consider the audio output
19 portion 142 of Markel's device to be part of the
20 enclosure?

21 A. Yes. At least that exterior portion
22 there, yes.

1 Q. Is the display 140 part of the
2 enclosure?

3 A. I think -- I think not at least as I
4 understand the relationship of enclosure to display
5 in the '257. I think there are claims, we may get
6 to it, talking about the display as being something
7 held by the enclosure.

8 Q. All right. Figure 1 shows a number of
9 push buttons, specifically buttons 130, 132, 134,
10 136. Would you consider any or all of these push
11 buttons to be part of the enclosure?

12 MR. FERNANDO: Object to form.

13 THE WITNESS: I think if they're
14 physical buttons that can move in and out,
15 then probably not. I think, then, there are
16 elements, components that come through the
17 enclosure. I don't -- I don't recall, but I
18 don't -- but I think it's possible one could
19 have those as -- more or less like soft keys
20 that are embedded in the enclosure and then
21 that could be part of the enclosure.

22 BY MR. BISENIUS:

1 Q. Does Markel ever describe the
2 electrodes using the term "pad"?

3 A. I don't believe so. I think a
4 challenge for the POSITA reading both Markel and
5 '257 is that the term "pad" is not in Markel and
6 "electrode" is not '257. So a POSITA has to read
7 each of these with some understanding and
8 interpretation.

9 Q. All right. Sticking with your
10 declaration, I'm going to skip ahead to
11 Paragraph 136.

12 Here you state: (Reading)

13 Quote, Markel further teaches
14 that an electrodes pad need not be in
15 direct contact with the user and may
16 be adapted to detect cardiac activity
17 of a user that is conductively coupled
18 to the electrodes, e.g., by touching
19 the electrodes, end quote.

20 And you're quoting Paragraph 35 of
21 Markel here; is that correct?

22 A. Yes.

1 Q. Isn't it true that the actual text in
2 this paragraph of Markel refers to the cardiac
3 sensor, e.g., one or more electrodes and not a,
4 quote, pad?

5 MR. FERNANDO: Object to form.

6 (Witness reviews document.)

7 THE WITNESS: Again, in Markel, we have
8 the term "electrode," which I think the
9 POSITA understands to generally include that
10 which touches the skin and a highly
11 conductive substantial surface area, element,
12 that may be one and the same, but if embedded
13 in or under the conductive plastic, then the
14 electrode includes both that highly
15 conductive pad region and the surface plastic
16 in contact with the -- in physical contact
17 with the user.

18 BY MR. BISENIUS:

19 Q. But to be clear, Markel doesn't use the
20 term "pad," correct?

21 A. Markel doesn't use "pad," and the '257
22 doesn't use "electrode." So we have to understand

1 what each of them is referring to.

2 Q. If I had a long cylindrical -- a device
3 with a long cylindrical electrode like that's meant
4 to be held in a person's hand, would you consider
5 that electrode to be a pad?

6 MR. FERNANDO: Object to form.

7 THE WITNESS: Is that long cylindrical
8 device made of a metal?

9 BY MR. BISENIUS:

10 Q. Yeah, a metal electrode that's a long
11 cylinder that a user holds in their hand. You
12 know, maybe they hold one in each hand to measure
13 their cardiac signal. Would you consider those to
14 be pads?

15 MR. FERNANDO: Object to form.

16 THE WITNESS: I suppose it would be
17 functionally consistent with the way the '257
18 uses the term "pad." I will also say that
19 "pad" is something that I infer from reading
20 the '257. I think the term "electrode" is
21 more generally understood.

22 BY MR. BISENIUS:

1 Q. In your Paragraph 136, you identify a
2 portion of Markel that describes: (Reading)

3 Quote, A user that is
4 conductively coupled to the
5 electrodes, end quote.

6 Would a user that's directly contacting
7 an electrode be directly conductively coupled to
8 the electrode?

9 A. Yes.

10 Q. And in Paragraph 35 of Markel, Markel
11 describes: (Reading)

12 Quote, Touching the
13 electrodes, end quote, as an express
14 example of conductively coupling the
15 user to the electrode.

16 Is that correct?

17 A. I'm sorry, wasn't that one in the same?
18 What you were reading from my Paragraph 136 was
19 quoting Paragraph 35?

20 Q. Correct.

21 A. Are you asking a different question?

22 I'm sorry.

1 Q. My question is, so this is describing
2 an express example of conductively coupling the
3 user to the electrode through direct contact with
4 the electrode, correct?

5 A. Yes.

6 Q. And then later on in Paragraph 136, you
7 state that Markel describes, quote, a user --
8 sorry, scratch that.

9 You state: (Reading)

10 Quote, A person of ordinary
11 skill in the art would recognize that
12 the pad of an electrode can be
13 conductively coupled to a user through
14 an intermediate conductive material,
15 end quote.

16 But you haven't cited to any portion of
17 Markel to support that statement; is that correct?

18 A. Again, I'm saying a POSITA would
19 understand that. And again, I think that becomes
20 clear when one reads more in Markel and
21 particularly when talking about configurations
22 where the electrode is molded into conductive

1 plastic.

2 Q. Can you identify any figures that show
3 a configuration with an intermediate conductive
4 material covering an electrode?

5 A. Well, again, I think that Figure 4
6 shows that, particularly when reading the
7 description in Paragraph 45, for example.

8 MR. BISENIUS: All right. Let's go off
9 the record.

10 (Recess taken from 1:27 p.m. to 2:14 p.m.)

11 (Exhibit Number 1006 was marked for identification.)

12 BY MR. BISENIUS:

13 Q. Now I'd like to talk about
14 Exhibit 1006. I'm going to pronounce this name as
15 Nissila, even though it probably is not the right
16 pronunciation.

17 This is US Patent Number 6,775,566,
18 Exhibit Number 1006.

19 A. Yes, that's fine.

20 Q. All right. I'd like to start out with
21 Figure 4 of Nissila. Can you, please, describe
22 what is being depicted in Figure 4?

1 A. Yes. Hold on one second.

2 (Witness reviews document.)

3 A. Okay. So in Figure 4, just referring
4 also to the paragraph that describes it, I believe
5 we're seeing the monitoring device, an ECG
6 monitoring device, where we're seeing various
7 components that demonstrate where there's
8 electrical contact with the user and a central area
9 where there's a processing unit.

10 Q. Would you agree that Figure 4 is
11 showing an inner surface of Nissila's electrode
12 structure 100?

13 A. By "inner," I think -- do you mean the
14 surface that makes contact with the skin?

15 Q. Correct.

16 A. Yes, I agree.

17 Q. What is the reference numeral 101
18 identifying in Figure 4?

19 (Witness reviews document.)

20 A. It's the band of the structure that
21 goes against the skin.

22 Q. What is the reference numeral 118

1 identifying in Figure 4?

2 A. I think -- so 118 refer to electrodes.
3 118 and 122 are electrodes.

4 Q. What is the reference numeral 127
5 identifying in Figure 4?

6 A. It refers to 127 as an adhesive,
7 preferably a conductive glue.

8 Q. And Figure 4 is showing the electrodes
9 118 and 122 as being visually distinct from the
10 adhesive 127, correct?

11 A. Oh, I would interpret 127 as -- if it's
12 conductive, then it also covers the electrodes, or
13 at least what I'll refer to as the electrode pads,
14 the metallic portions 118 and 122.

15 Q. What is the reference numeral 116
16 identifying in Figure 4?

17 (Witness reviews document.)

18 A. I think 116 is the underside, the --
19 what we were -- when you asked which side is this
20 showing, it's showing the side of the device that
21 contacts the skin. I think 116 refers to the
22 entire surface of the band that is the underside of

1 the device.

2 Q. And Figure 4 shows two different hash
3 markings for portions of the band; is that correct?
4 Specifically, the electrodes 118 and 122 are shown
5 with the first fill pattern and the area
6 surrounding those electrodes is shown with the
7 second fill pattern; is that correct?

8 A. With the dashes. I think, in other
9 words, all of this is part of the underside of the
10 band, and I think the electrode portion where you
11 have what I think maps to the electrode pad is that
12 part of it, 118 and 122.

13 Q. And this is showing those electrodes as
14 being visually distinct from the surrounding
15 portions of the band; is that correct?

16 A. I believe that's correct.

17 Q. All right. I would like to turn to
18 Column 4 of Nissila, starting at line 35. In
19 lines 35 through 41, this section is indicating
20 that Figures 3, 4, and 5 are all directed towards
21 the same embodiment; is that correct?

22 (Witness reviews document.)

1 A. I think that's correct.

2 Q. Is this the embodiment of Nissila that
3 you described in your declaration?

4 (Witness reviews document.)

5 A. I believe so.

6 Q. Do you rely upon any other embodiments
7 of Nissila in your declaration?

8 (Witness reviews document.)

9 Q. I can maybe be a little more specific.
10 Do you rely on the embodiment depicted
11 in Figures 7 through 9 of Nissila in your
12 declaration?

13 A. I don't recall referring to it.

14 Q. And this -- going back to Column 4, the
15 brief description of the drawings. This describes
16 Figure 5 as a cross section of the electrode
17 structure; is that correct?

18 A. Yes.

19 Q. All right. Turning to Figure 5. This
20 figure identifies the electrode using both
21 reference numerals 118 and 122, correct?

22 A. That refers to -- yes, 118 and 122 in

1 Figure 5 refer to the same region shown in

2 Figure 4, yes, the electrode region.

3 Q. Is this because the two different
4 reference numerals, 118 and 122, are referring to
5 cross sections of Figure 5 representing the two
6 different sides of the band in Figure 4?

7 A. I believe that's correct.

8 Q. So if we took a cross section of the
9 left side of the band of Figure 4, it would look
10 like Figure 5, and if we took a cross section of
11 right side of the band in Figure 4, it would look
12 like Figure 5; is that correct?

13 A. I believe that's correct.

14 Q. All right. Sticking with Figure -- the
15 embodiment of Figures 4 and 5, what material is the
16 adhesive 127 made from?

17 (Witness reviews document.)

18 A. (Reading)

19 Preferably a conductive glue,
20 such as conductive solgel or a
21 conductive silicone glue.

22 Q. What material is the band 101 made

1 from?

2 A. (Reading)

3 The band 101 of electrode
4 structure 100 is of flexible, soft
5 material that fits the skin closely.

6 For instance, band 101 can be of
7 plastic, textile fiber, a combination
8 thereof or the like.

9 And is preferably disposable.

10 Q. What material are the electrodes 118
11 and 122 made from?

12 (Witness reviews document.)

13 A. (Reading)

14 Made of metal, electrically
15 conductive plastic or a similar
16 conductive material.

17 Q. I think you're reading from Column 5.

18 But just to be --

19 A. You asked me about 118 and 122; is that
20 right?

21 Q. Yes.

22 A. Yes.

1 Q. Just to be express, I am looking at the
2 paragraph in Column 5 that starts at line 33, and
3 this states: (Reading)

4 Quote, According to a second
5 embodiment, as in Figure 3 to 6, the
6 electrodes 118, 122 of the electrode
7 structure 100 consist of a membrane
8 119 that is located at both ends of
9 the electrode structure 100.

10 So this would seem to indicate that the
11 electrodes consist of a membrane; is that correct?

12 A. I agree that the electrode arrangement
13 includes a membrane that goes -- that is exterior
14 to or against the skin relative to what
15 electrode -- I'll call electrode pads 118 and 122.

16 Q. Where does Nissila say that the
17 membrane is exterior to the electrodes?

18 A. I think if you look at Figure 5, I
19 understand 119 to be pointing to a layer that is
20 beyond the structure 118.

21 Q. Isn't it really just pointing to the
22 black outer line of the structure 118?

1 MR. FERNANDO: Object to form.

2 THE WITNESS: I think it's adhering to
3 it, but I understand -- I think I understand
4 what "membrane" means. It is what comes in
5 contact with the person's skin surface, and
6 it can be an electrically conductive
7 adhesive.

8 BY MR. BISENIUS:

9 Q. The reference numerals 118 and 122 are
10 pointing to the bottom of the structure with the
11 diagonal hashes; is that correct?

12 A. Except that I think 119 extends as a
13 surface, as drawn there, just below, underneath or
14 against the skin relative to 118 and 122.

15 Q. But the reference numeral, the line
16 coming from the reference numerals 118 and 122,
17 appears to be pointing towards this bottom black
18 line of the component with the diagonal hash marks;
19 is that correct?

20 A. Yes, but there's a line there. And
21 119, I certainly believe as a membrane, covers over
22 that, or I'll say under that, as drawn here.

1 Q. But the line extending from the
2 reference numerals 118 and 122 is not crossing that
3 bottom black line, is it?

4 MR. FERNANDO: Object to form.

5 THE WITNESS: I'm not sure I understand
6 what you mean by "crossing."

7 BY MR. BISENIUS:

8 Q. There is a squiggly line, the reference
9 numeral line, extending from the two reference
10 numerals 118 and 122. It appears to touch the
11 black line at the bottom of the component with the
12 diagonal hash marks. Would you agree with that?

13 A. I think it's pointing to that area with
14 the hash marks, but I think when we read the
15 written description in the specification, it's
16 clear that 119 is a membrane that covers over that.

17 Q. Does the specification of Nissila
18 actually use that term, "cover"?

19 A. I think it's pretty clear reading this
20 paragraph that starts at line 32, 33, that the
21 membrane 119 -- okay, consist of a membrane 119.

22 And: (Reading)

1 The membrane 119 can thus come
2 into contact with the person's skin
3 surface or on the inner surface 116 of
4 membrane 119.

5 Again, I think 116 is clearly showing
6 and is described as the surface that's against the
7 skin. And so the inner surface 116 and membrane
8 119 is against the person's skin, and it's got an
9 electrically conductive adhesive, I think the only
10 purpose of which is to create electrical continuity
11 between the skin and electrode, or I'll call
12 electrode pads 118 and 122.

13 I just don't think there's any other
14 way to understand what "the membrane" is referring
15 to and what that "inner surface of membrane 116" is
16 referring to or the fact that it's conductive
17 material, conductive adhesive, other than to
18 understand that as a layer interposed between the
19 skin and electrode pads 118 and 122.

20 Q. Turning back to Figure 5, reference
21 numeral 116 is pointing to a part of the band that
22 touches the user's skin; is that correct?

1 A. It is the inner surface.

2 Q. But would you agree that that portion
3 of the band is what contacts the user's skin?

4 A. Yes.

5 Q. And reference numeral 116 is pointing
6 to a portion of the band that is on the exterior of
7 the electrodes 118 and 122; is that correct?

8 A. I think it's on the inner surface of
9 membrane 119, at least as I read that paragraph,
10 that line at line 42. I read it that membrane 119
11 comes in contact with the person's skin, or at
12 least the inner surface 116 of membrane 119 is
13 against the person's skin. And electrically --

14 Q. Looking at Figure -- sorry.

15 MR. FERNANDO: Oh, sorry. Go ahead.

16 Dr. Berger, were you done?

17 THE WITNESS: Yes.

18 BY MR. BISENIUS:

19 Q. Sorry. But looking at Figure 5, the
20 reference numeral 116 is pointing to a part of the
21 band outside of the electrodes 118 and 122; is that
22 correct?

1 A. It extends further east/west than the
2 surface. That doesn't mean that it isn't inclusive
3 of that part of it that covers electrodes 118 and
4 122.

5 Q. And in Figure 4, the reference numeral
6 116 appears twice, and in both cases, it's
7 identifying a portion of the band that is outside
8 of the area occupied by the electrodes 118 or 122;
9 is that correct?

10 MR. FERNANDO: Object to form.

11 THE WITNESS: That's where the line
12 goes. I think it's quite clear in reading
13 the specification that it includes -- it is
14 pointing to the entire surface of those two
15 halves of the band that come in contact with
16 the skin. I think it's not -- it is not
17 meant to say that that surface that 116 is
18 pointing to is exclusive of the hash-marked
19 areas of 118 and 122 in Figure 4.

20 BY MR. BISENIUS:

21 Q. In Figure 4, the diagonally hashed
22 areas are identifying the electrodes 118 and 122,

1 correct?

2 A. That's where they reside, yes.

3 Q. And it's showing the surface of the
4 device that contacts the user's skin, correct?

5 A. 116 is that surface.

6 Q. So would you agree that Figure 4 is
7 showing that electrodes 118 and 122 are on the
8 lower surface of the device that contacts the
9 user's skin?

10 MR. FERNANDO: Object to form.

11 THE WITNESS: Relatively. I think in
12 Figure 5, it becomes clear that they may not
13 directly touch the skin, but rather there's a
14 membrane 119 that is covering 118 and 122,
15 and that membrane is what actually contacts
16 the surface. Here we have both the face-on
17 view in Figure 4 and that cross section in
18 Figure 5 in a written description that, I
19 think, makes it pretty clear.

20 BY MR. BISENIUS:

21 Q. In Figure 5, the reference numerals 118
22 and 122 are pointing to a bottom surface, bottom

1 exposed surface, of the device that contacts the
2 user's skin; is that correct?

3 MR. FERNANDO: Object to form.

4 THE WITNESS: Well, I think if we --
5 absent the written description, we would have
6 127, 118, 122, 116, and I believe 119 all
7 pointing to -- all have squiggly lines that I
8 believe terminate at that same surface. So I
9 think to understand what each of those refers
10 to, one needs to read the written
11 description.

12 BY MR. BISENIUS:

13 Q. But reference numeral 119 is actually
14 pointing to the top of that same structure with the
15 diagonal hashes; isn't that correct?

16 A. No, I don't believe that's true. I
17 think it may include that. I think the way I've
18 drawn it shown at -- on page 153 of my declaration
19 shows where I believe the membrane resides. But I
20 think it's at least clear that that membrane is on
21 the surface that touches the skin.

22 Q. Well, while we're on your declaration,

1 on page 153, this is an annotated version of
2 Figure 5 that appears between Paragraphs 364 and
3 365. Is that where you're looking?

4 A. Yes.

5 Q. Your annotation of the membrane covers
6 the entire indicator line coming from reference
7 numeral 119; isn't that accurate?

8 A. Again, this is based on reading the
9 description. And I can -- where we say the
10 electrode pad is -- let me just see.

11 (Witness reviews document.)

12 A. Yes. I think 119 is clear from the
13 written description that it's on the surface that
14 touches the skin and it may also surround the
15 electrode pad 118 and 122.

16 Q. Does Nissila actually include the term
17 "surround" to describe the relationship between 119
18 and 118 and 122?

19 A. I think he described it as an electrode
20 comprising a membrane 119.

21 (Witness reviews document.)

22 Q. So I think you're reading from

1 Paragraph 364 of your declaration; is that correct?

2 A. Yes.

3 Q. So here in the third sentence of that
4 paragraph, you state: (Reading)

5 Nissila further discloses an
6 electrode comprising a, quote,
7 membrane 119, end quote, that is,
8 quote, made of metal, electrically
9 conductive plastic or a similar
10 conductive material, end quote.

11 But if we look to the section of
12 Nissila that you cited here, which is Column 5,
13 lines 32 to 37, what it actually says is:
14 (Reading)

15 The electrodes 118 and 122 of
16 the electrode structure 100 consists
17 of a membrane 119.

18 Why did you feel it necessary to change
19 the language from "consist of" to "comprising"?

20 A. I don't know. I know you're focused on
21 those two different words, but I think they're
22 largely synonymous.

1 Q. In your opinion, you don't see a
2 difference between the term "consist of" and the
3 term "comprising"; is that correct?

4 MR. FERNANDO: Object to form.

5 THE WITNESS: Maybe in some contexts
6 they're not the same, but I certainly mean
7 them to be the same here.

8 BY MR. BISENIUS:

9 Q. Does Nissila ever use the word
10 "enclose" or "enclosed" to describe a relationship
11 between components 118 and 122 and the membrane
12 119?

13 A. I'll have to do a search to see if
14 "enclosed" is there. I think -- I think the
15 description of it, though, with the membrane 119
16 against the skin, and therefore, 118 and 122 are
17 making contact with the other surface of the
18 membrane. And then in combination with the figure
19 itself, the membrane 119, I would say encloses the
20 electrode pads 118 and 122.

21 Q. My question is, does Nissila use the
22 term "enclose" to describe that relationship?

1 A. I'd have to search it. If you want, I
2 can search.

3 Q. Yeah. If you have an electronic copy,
4 that'd be great.

5 A. Well, I'll go to the -- for some reason
6 it's not letting me go to this file. Found that
7 website. Let me see, is it just that file or do I
8 have to reboot, reload? Oh, I think I have to --
9 maybe it's timed out or something, I don't know.
10 Let me try again. Okay.

11 (Witness reviews document.)

12 A. I don't find the word "enclose" in
13 Nissila.

14 Q. Does Nissila ever use the term "embed"
15 or "embedded" to describe the relationship between
16 the components 119 and 122 and the membrane 119?

17 (Witness reviews document.)

18 A. I don't find that term. I think -- you
19 know, again, I think that there are many different
20 ways of expressing something that may or may not
21 use the same word as in another document.

22 Q. So correct me if I'm wrong, but I think

1 we're in agreement that Nissila describes the
2 membrane 119 as contacting the wearer's skin; is
3 that correct?

4 A. Yes.

5 Q. Now, going back to that first sentence
6 of this paragraph that starts at line 33 of
7 Column 5. It states: (Reading)

8 Quote, According to a second
9 embodiment --

10 A. I'm sorry, Nissila?

11 Q. Sorry. I meant Nissila Column 5
12 starting at line 33.

13 A. Yeah.

14 Q. This paragraph starts out: (Reading)

15 Quote, According to a second
16 embodiment, as in Figure 3 to 6, the
17 electrodes 118, 122 of the electrode
18 structure 100 consist of a membrane
19 119 that is located at both ends of
20 the electrode structure 100 at the
21 electrode 118, 122 and is made of a
22 metal, electrically conductive plastic

1 or a similar conductive material, end
2 quote.

3 Is it possible that what's being
4 described here is that each of the electrodes 118
5 and 122 is a membrane 119 that is either conductive
6 plastic or metal?

7 MR. FERNANDO: Object to form.

8 THE WITNESS: Well, I don't think so
9 because -- because I don't think that would
10 be described as a membrane. And I think it
11 describes 119 -- I don't think you would use
12 the term "membrane" to describe the material
13 that's composing 118 and 122.

14

15 BY MR. BISENIUS:

16 Q. Can you turn back to --

17 A. And, in fact, it also says that the
18 membrane 119 can come in contact -- let me see.

19 (Witness reviews document.)

20 A. I think 119 is described separately
21 from 118 and 122 as a separate structure, a
22 separate surface, and not the same thing as 118 and

1 122.

2 Q. Can you turn back to the front page of
3 Nissila?

4 Do you see on the cover page where it
5 says "Foreign Application Priority Data," and
6 indicates patent application filed October 18th,
7 2000. Do you see that?

8 A. Which line are you looking at?

9 Q. It's between 30 and 51.

10 A. On the very front page?

11 Q. Very front page. Sorry. Not Column 1
12 but the front page.

13 A. Yeah, filed September 13th, 2001.

14 Q. But then lower than that, it has a
15 "Foreign Application Priority Date." Or sorry,
16 "Foreign Application Priority Data."

17 Do you see that?

18 A. Yes.

19 Q. And there it lists an application filed
20 October 18th, 2000. Do you see that?

21 A. Yes.

22 Q. Do you know what the letters "FI" there

1 mean?

2 A. I'm going to guess Finland.

3 Q. That's correct.

4 So this is claiming priority to a
5 Finnish patent application. Do you think it's
6 possible that use of a slightly odd term such as
7 "membrane" might be due to translation from the
8 original Finnish?

9 MR. FERNANDO: Object to form.

10 THE WITNESS: I have no reason to
11 believe that, but I don't know.

12 BY MR. BISENIUS:

13 Q. If you had to define the term
14 "membrane," what definition would you ascribe to
15 it?

16 MR. FERNANDO: Object to form.

17 THE WITNESS: Thin material that covers
18 something.

19 BY MR. BISENIUS:

20 Q. So you believe that a membrane needs to
21 cover a different object?

22 A. That's -- that's how I use it, yes.

1 Q. Did you ever review the original
2 Finnish patent application on which Nissila is
3 based?

4 A. Not specifically, and I don't, myself,
5 speak Finnish.

6 Q. Let's turn to Paragraph 358 of your
7 declaration.

8 At the end of Paragraph 358, this is --
9 you're, once again, have this reproduced version of
10 Figure 5 that you've annotated at the end of
11 Paragraph 358, correct?

12 A. I'm sorry, say that again.

13 Q. At the end of Paragraph 358, you've
14 included a marked-up and annotated version of
15 Figure 5 of Nissila.

16 A. Yes.

17 Q. Does that green line in your marked-up
18 version of Figure 5 appear in the original Figure 5
19 of Nissila?

20 A. No, the green line does not. It's not
21 green in Nissila.

22 Q. Does that line appear in a different

1 color in Nissila?

2 A. Black.

3 Q. How did you determine which black lines
4 to color green and which black lines to not color
5 green?

6 A. Well, I think it's clear that the
7 membrane extends across the part of the band that
8 touches the skin. I think that it may well be that
9 that black line that goes up and around the
10 electrode pad is also of the same membrane
11 material, but I don't know that it must be.

12 Q. Turning back to the unmarked Figure 5
13 in Nissila, this shows the reference numeral 119
14 pointing to the top of the structure. So at least
15 the top of the structure would need to be the
16 membrane 119, wouldn't it?

17 A. I don't think so. I really think that
18 when I -- that -- again, the only way to understand
19 and interpret what 119 must include -- and you can
20 see that that line goes through and finds itself
21 overlying or parallel to a hash of 118 itself. But
22 I don't think it's possible to interpret 119, the

1 membrane, which is against the person's skin as
2 anything but including at least that bottom surface
3 in that cross section that touches the skin.

4 Q. So as I mentioned before, the actual
5 words in Nissila say: (Reading)

6 Electrodes 118, 122 of the
7 electrode structure 100 consist of a
8 membrane 119.

9 So if this were interpreted that the --
10 each of the electrodes 118 and 122 are a member --
11 membrane 119, wouldn't it be true that the membrane
12 119 would contact the user's skin?

13 MR. FERNANDO: Object to form.

14 THE WITNESS: Well, it may be that the
15 electrode is a combination of a metal and a
16 different material 119 and that combined
17 structure includes a membrane that contacts
18 the skin.

19 BY MR. BISENIUS:

20 Q. Did you add the green line to Figure 5
21 in Nissila or did someone else add the green line?

22 MR. FERNANDO: One second, Dr. Berger.

1 So I think that this is going to get into
2 conversations with attorneys relating to
3 drafting of the declaration, so I'm going to
4 instruct you not to answer.

5 BY MR. BISENIUS:

6 Q. Earlier you stated that you believe the
7 green line along your marked-up version of Figure 5
8 of Nissila contacts the skin of the user; is that
9 correct?

10 A. The membrane contacts the user, yes.

11 Q. And you've represented the membrane
12 with the green line in your marked-up version of
13 Figure 5; is that correct?

14 A. Yes.

15 Q. And in your marked-up version of
16 Figure 5, you show the green line extending across
17 the entire bottom surface of the device; is that
18 correct?

19 A. I think it could.

20 Q. Do you ever show any other
21 configuration for this green line in any of your
22 marked-up versions of figures from Nissila?

1 (Witness reviews document.)

2 A. No, I think my -- my renditions, some
3 of which also show the skin, but are consistent in
4 where the membrane is depicted.

5 Q. I'd like to look at Figure 4 in Nissila
6 again. As we previously discussed, Figure 4 shows
7 electrodes 118 and 122 using a diagonally hashed
8 fill pattern, and that's visually distinct from the
9 surrounding dash line fill pattern labeled with the
10 reference numerals 127 and 116; is that correct?

11 MR. FERNANDO: Object to form.

12 THE WITNESS: I think they refer to
13 different things, but that doesn't mean that
14 they're exclusive of each other. So, for
15 instance, I think the bottom -- the inner
16 surface of the structure 116 can -- can be
17 covered by an adhesive 127 that is also
18 covering a membrane that is also covering 118
19 and 122. In other words, from Figure 4
20 alone, you cannot infer that regions shown
21 are exclusive of one another.

22 BY MR. BISENIUS:

1 Q. If we adopt your reading of Nissila in
2 which the membrane 119 is separate from the
3 electrodes, if the membrane 119 really did extend
4 across the entire bottom of the device as you've
5 depicted in all of your marked-up versions of
6 Figure 5, wouldn't Figure 4 show a uniform visual
7 appearance across the entire bottom of the device?

8 MR. FERNANDO: Object to form.

9 THE WITNESS: No. Then how would
10 anybody know the relative location of these
11 different components? That's why I'm saying
12 that your -- surely, 116, which is the inner
13 surface is inclusive of everything within
14 that area. There's nothing saying the inner
15 surface is exclusive of where the electrodes
16 are. And similarly, there's nothing to say
17 that when you see 118 and 122 where those
18 regions lie in a face-on depiction, that it's
19 exclusive of a covering over them.

20 BY MR. BISENIUS:

21 Q. Going back to Column 4 of Nissila. In
22 the brief description of Figure 4, which is at

1 line 38, it says: (Reading)

2 Figure 4 shows an inner
3 surface of the electrode structure of
4 Figure 3.

5 So it's actually literally describing
6 that it's showing the inner surface, correct?

7 A. Wait, I'm sorry. Where are you?

8 Q. Column 4, line 38, the brief
9 description of Figure 4.

10 A. Yes.

11 Q. This is saying: (Reading)

12 Quote, That Figure 4, quote,
13 shows an inner surface of the
14 electrode structure, end quote.

15 A. Okay.

16 Q. So it's not describing Figure 4 as a
17 cross section, is it?

18 A. Right. It's a face-on view.

19 Q. And in that face-on view, the
20 electrodes 118 and 122 are visually distinct from
21 the surrounding area; is that correct?

22 MR. FERNANDO: Object to form.

1 THE WITNESS: But surely, they're part
2 of -- they're part of the inner surface or
3 covered by a membrane, which is part of the
4 inner surface. I mean, by your -- I don't
5 know if you're suggesting that 116, the inner
6 surface, cannot be including this area 122
7 and 118?

8 BY MR. BIENIUS:

9 Q. No, I'm giving it something slightly
10 different. In your marked-up version of Figure 5
11 you show what you describe as a membrane extending
12 across the entire bottom surface, the entire inner
13 surface of the device, whereas Figure 4 seems to
14 contradict that because it shows that the
15 electrodes 118 and 122 are visually distinct from
16 the outer portions of the band.

17 So doesn't that seem to contradict your
18 interpretation of Figure 5?

19 MR. FERNANDO: Object to form.

20 THE WITNESS: No. I think -- but if I
21 were to understand your argument where all
22 Figure 4 can show is literally a single -- a

1 single surface, then -- if there's one smooth
2 surface, you're saying it would show up as
3 one form of stippling, and then there would
4 be no way of showing where different parts
5 that are immediately under or part of that
6 inner surface would reside.

7 Again, it -- if you were to say that in
8 Figure 4 it can't show a membrane except to
9 show its extent, then by that argument, you
10 could never show any of the layers that are
11 there in Figure 5. You just have -- you would
12 necessarily have to just have one color or one
13 stippling all the way across. And then it
14 wouldn't be useful, it wouldn't show where
15 those electrodes reside. It's still showing
16 what the undersurface looks like, but that
17 doesn't mean that there isn't some layer
18 that's covering over it.

19 Again, it would be as if to say that
20 just because 116 says that it's the inner
21 surface, that that's somehow not inclusive of
22 118 and 122. I just think that's too literal

1 a reading to gain any understanding of what
2 the inventors intended to show.

3 BY MR. BISENIUS:

4 Q. So is it your interpretation that
5 Figure 4 is showing a cross section --

6 A. No.

7 Q. -- of the device underneath the
8 membrane 119?

9 A. No, it's not a cross section. That's
10 what Figure 5 is. I'm just saying that to say that
11 with the presence of a membrane, you would then not
12 be able to show what's immediately underneath that
13 membrane, if I understand your argument. You would
14 have to show the membrane with some other stippling
15 that would then obscure what the inventor is
16 intending to show in Figure 4.

17 Q. I want to turn to Figure 1 in Nissila.
18 Figure 1 is showing a prior art device
19 that's distinct from the invention of Nissila.
20 Would you agree?

21 A. I believe that's the intent.

22 Q. Would you agree this is a fairly bulky

1 device?

2 A. I think -- I think Nissila has intended
3 to show that the invention is less bulky than that
4 prior art figure.

5 Q. Looking at Column 1, the paragraph
6 starting at line 58, Nissila describes its prior
7 art device as "rigid," correct?

8 A. Relatively rigid.

9 Q. Now, turning to Figure 2, this shows
10 the supposedly improved device of Nissila, correct?

11 A. I believe that's correct.

12 Q. And would you agree that this device is
13 significantly smaller than the prior art device?

14 A. Yes.

15 Q. Would you agree that this device takes
16 up significantly less space on the user's body than
17 the prior art device?

18 A. Certainly as shown comparing Figure 2
19 to Figure 1, yes.

20 Q. Turning to Column 2, starting at
21 line 59 of Nissila, can you read that paragraph to
22 yourself and let me know when you're done.

1 A. Column 2, 59. That's just a single
2 sentence. You're saying the paragraph that
3 follows.

4 Q. Sorry, the paragraph that follows,
5 yeah, 61.

6 A. Okay.
7 (Witness reviews document.)

8 A. Okay.

9 Q. This paragraph is describing that the
10 solution of Nissila's device is that: (Reading)

11 Quote, The band-like component
12 of the electrode structure is of
13 flexible, soft material that fits the
14 skin closely, and as a consequence, is
15 comfortable and inconspicuous to wear
16 and does not chafe the skin, end
17 quote.

18 Do you see that?

19 A. Yes.

20 Q. So would you agree that this portion of
21 Nissila describes that what makes its device
22 inconspicuous is that it is made from flexible,

1 soft material that fits the skin closely?

2 MR. FERNANDO: Object to form.

3 THE WITNESS: I'm not sure it's what
4 makes it inconspicuous. I think it's what's
5 supposed to make it comfortable.

6 BY MR. BISENIUS:

7 Q. Would you agree that through use of the
8 term "inconspicuous," Nissila is identifying that
9 its goal is for other people not to be able to
10 notice that the user is wearing the monitoring
11 device?

12 MR. FERNANDO: Object to form.

13 THE WITNESS: I don't know. I think in
14 both of these, in the prior art and the --
15 and in Nissila, the user is probably wearing
16 outer clothes. So I think the nature of
17 being inconspicuous is more one of comfort,
18 but I think the combination of being smaller
19 and flexible both speak to that.

20 BY MR. BISENIUS:

21 Q. Is there any discussion in Nissila of
22 visually obscuring the presence of the electrodes

1 themselves with respect to the rest of the device?

2 A. Well, I think the electrodes are on the
3 part of the device that's against the skin, so
4 they're going to be rendered unseen when worn, but
5 may very well be obvious when taken off. It could
6 well be that the purpose of the membrane is to both
7 enhance comfort and to make the device look cool
8 and make it seem more like just a Band-Aid that's
9 being worn than something metallic and electrical.

10 MR. BISENIUS: We've been on for --
11 sorry, off the record.

12 (Discussion held off the record.)

13 (Recess taken from 3:19 p.m. to 3:26 p.m.)

14 BY MR. BISENIUS:

15 Q. All right. I want to go back to your
16 declaration, Exhibit 1003, again, and this time to
17 Paragraph 189, which is on page 88.

18 A. Okay.

19 Q. In this paragraph, you cite to an
20 exhibit you refer to as "Hobson," correct?

21 A. Yes.

22 Q. Have you provided any motivation to

1 combine Markel with Hobson?

2 A. No, I don't believe so.

3 Q. Have you described any -- sorry.

4 A. Not as a separate grounds of
5 obviousness, if that's what you're referring to. I
6 think this is just simply providing a reference to
7 understand about conductivity of materials.

8 Q. Have you described any reason to choose
9 aluminum or stainless steel for the insulating
10 region?

11 MR. FERNANDO: Object to form.

12 THE WITNESS: I'm sorry?

13 MR. FERNANDO: Object to form.

14 You can answer.

15 THE WITNESS: I think, in fact, '257 is
16 a bit unclear on this point itself. I think
17 aluminum -- I think metals, in general, are
18 very good conductors. Aluminum is usually an
19 excellent conductor. I think in order for
20 aluminum or steel to be insulating, while not
21 explained in the '257, I think it would have
22 to be as a component in a more complex

1 material that is not pure aluminum or pure
2 steel. These are both metals. As pure
3 materials, they are quite conductive. And
4 aluminum itself, as a pure material, is -- is
5 an excellent conductor.

6 BY MR. BISENIUS:

7 Q. Continuing on to Paragraph 192 on the
8 next page. Here you cite to Exhibit 1011, correct?

9 A. I have to -- yes, I have to find where
10 Exhibit 1011 is.

11 (Witness reviews document.)

12 Okay. Yes.

13 Q. And you also refer to Exhibit 1012 in
14 this paragraph; is that correct?

15 A. Yes. So these are Sujdak and Geddes
16 references, yes.

17 Q. Have you offered any motivation to
18 combine Markel with either Exhibit 1011 or 1012?

19 MR. FERNANDO: Object to form.

20 THE WITNESS: Again, these are intended
21 as providing information that a POSITA would
22 know.

1 BY MR. BISENIUS:

2 Q. Moving forward to -- well, starting at
3 Paragraph 194. In your analysis of Claim 6, do you
4 provide any opinions on the conductivity of
5 Markel's insulating region 415?

6 (Witness reviews document.)

7 A. That it's an insulating region. I
8 think my understanding is consistent with the way
9 it's described in Markel at Paragraph 45.

10 Q. But you don't discuss any specific
11 conductivity properties of the insulating region
12 415 other than it is an insulator; is that correct?

13 A. That's specifically with respect to
14 which claim element, of which claim?

15 Q. I'm talking about your analysis of
16 Claim 6 as a whole.

17 A. Let me go back and read Claim 6.

18 (Witness reviews document.)

19 A. Where I talk about Markel's explanation
20 for this is in Paragraphs 174 and 175, which I
21 refer back to when talking about Claim 6. And so
22 Paragraphs 174 and 175 and 83 to 84, I point to

1 Markel, explaining that insulating region 415 can
2 separate regions where the conductive plastic
3 resides.

4 I don't think it's challenging for a
5 POSITA to know how to develop an insulator,
6 particularly when working with plastic, as these
7 enclosures are described. Plastic without
8 modifying it is highly insulative, very poor
9 conductor.

10 Q. Do you provide any opinions comparing
11 transmission distance to the thickness of the
12 second portion of Markel's enclosure?

13 MR. FERNANDO: Object to form.

14 THE WITNESS: And where are you
15 referring to with "transmission distance"?

16 BY MR. BISENIUS:

17 Q. So looking at the last two elements of
18 Claim 6. Let me find the paragraphs. Elements 6.d
19 and 6.e. You start at Paragraph 208 on page 95.

20 6.d states: (Reading)

21 At least the thickness of the
22 second portion is constructed from

1 material having a second conductivity.

2 And element 6.e states: (Reading)

3 The second conductivity is
4 defined such that the second
5 electrical signal is not able to be
6 transmitted through material having
7 the second conductivity over a
8 distance larger than the thickness of
9 the second portion.

10 So my question is, have you provided
11 any opinions comparing transmission distance to the
12 thickness of the second portion of Markel's
13 enclosure?

14 MR. FERNANDO: Same objection.

15 THE WITNESS: Not quantitatively, just
16 as in the '257, it's not quantitative, it's
17 qualitative, that if you have a conductor
18 that's a poorer conductor than metal, it's
19 going to have electrical transmission
20 properties that depend on distance. And I
21 think that's obvious.

22 Then it's a matter of choosing the

1 conductivity of the material or creating the
2 conductivity of the material by how a plastic
3 is doped with conductive impurities such that
4 it will be adequately conductive over a short
5 distance, but less so over a larger distance.

6 I think that's -- those are engineering
7 choices.

8 BY MR. BISENIUS:

9 Q. Is there any disclosure in -- sorry.
10 Is there any disclosure in Markel of the thickness
11 of the second portion of the enclosure?

12 A. Again, not quantitatively but
13 qualitatively that the electrode, what I will map
14 to being the electrode pad is embedded in the
15 material in the enclosure. So it's something small
16 compared to the width of the overall device.

17 Q. Can you identify any disclosure in
18 Markel regarding the thickness of its electrodes?

19 A. Now again, the electrodes can -- the
20 electrodes can include the electrode pad,
21 conductive pad, and a surface of moderately
22 conductive plastic. I don't believe Markel is

1 quantitative about those thicknesses in the same
2 sense that the '257 is descriptive and not
3 quantitative.

4 Q. But you would agree that there is no
5 description in Markel of the thicknesses of its
6 electrodes; is that correct?

7 MR. FERNANDO: Object to form.

8 THE WITNESS: I think it's one -- it's
9 something that one can infer when there's an
10 electrode embedded in the enclosure than --
11 or as shown in those figures, for example, in
12 Markel Figure 4. I think a POSITA would
13 understand that whatever material the
14 electrode pads are embedded in is of a
15 thickness that's much smaller than that
16 region 415 that separates them, you know,
17 probably by at least an order of magnitude,
18 maybe two orders of magnitude. I think
19 that's very clear, understanding what "molded
20 into" means and what the dimensions, the
21 relative dimensions of the width of the
22 device are.

1 BY MR. BISENIUS:

2 Q. I want to go back to Paragraph 135 of
3 your declaration that we discussed earlier.

4 A. Okay.

5 Q. Here you're quoting a part of Markel,
6 specifically Paragraph 40, and you state:
7 (Reading)

8 Quote, An electrode or all
9 electrodes may be substantially
10 concealed or hidden from a user with
11 little or no visible indication of the
12 electrode presence, end quote.

13 A. Okay.

14 Q. Is it possible for something to be
15 hidden without being underneath something else?

16 MR. FERNANDO: Object to form.

17 THE WITNESS: I suppose there's more
18 than one way to hide something.

19 BY MR. BISENIUS:

20 Q. So the fact that something is hidden
21 does not in and of itself mean that it's underneath
22 another object; is that correct?

1 MR. FERNANDO: Same objection.

2 THE WITNESS: I think simply saying
3 that something is hidden, by itself does not
4 explain fully how it's hidden. I think
5 "molded into" makes it clearer.

6 BY MR. BISENIUS:

7 Q. Does Markel describe any method to
8 conceal the presence of an electrode other than
9 forming the electrode from molded conductive
10 plastic?

11 MR. FERNANDO: Object to form.

12 THE WITNESS: I think the wording is a
13 little different from what you just said. It
14 says: (Reading)

15 For example, a second
16 electrode may be placed on the right
17 side of portion 420 or molded into
18 region 420.

19 I think that's different from just
20 saying it's molded plastic.

21 BY MR. BISENIUS:

22 Q. Does -- are you reading from

1 Paragraph 50 right now?

2 A. Forty-five.

3 Q. Forty-five.

4 Does Paragraph 45 discuss visually
5 concealing the electrodes?

6 A. I think that's understood even if it's
7 not -- I don't think every single paragraph has to
8 recapitulate everything that comes before it in
9 terms of purpose. I think one would understand
10 from what was written earlier that that would be
11 the purpose or a purpose of molding it into the
12 region 420B.

13 Q. Turning back to Paragraph 40. This
14 paragraph discusses making the electrode or other
15 sensor substantially concealed, correct?

16 A. Yes.

17 Q. Does this paragraph describe any way to
18 substantially conceal the electrode other than
19 forming the electrode of a molded conductive
20 plastic?

21 A. I mean, it goes on to say "in various
22 exemplary scenarios," and I think the purpose of

1 the paragraphs that follow is to provide those
2 exemplary scenarios. And so I take Paragraph 45,
3 just five paragraphs after Paragraph 40, to shed
4 light on one such way.

5 I don't think it's possible for the
6 entire meaning that you're looking for to reside in
7 a single paragraph unless the entire specification
8 were a single paragraph.

9 Q. So is it fair to say that you believe
10 that Markel describes various ways to conceal the
11 presence of electrodes; is that correct?

12 A. I think so.

13 Q. Why would a POSITA need to add
14 Nissila's membrane to its electrodes, to the
15 electrodes of Markel, if Markel's electrodes are
16 already concealed?

17 A. Honestly, I don't think one needs to.
18 I think it adds strength to point out that there's
19 another reference that makes it that much clearer
20 that the conductive -- the highly conductive part
21 of the electrode, which I will call the electrode
22 pad, may be covered by another moderately

1 conductive component. I actually think it's quite
2 clear in Markel, but I think Nissila shows this in
3 cross section as well.

4 MR. BISENIUS: Let's go off the record.

5 (Recess taken from 3:49 p.m. to 3:54 p.m.)

6 BY MR. BISENIUS:

7 Q. Just a few more questions.

8 Has a court ever precluded you from
9 offering an opinion?

10 A. I don't believe so.

11 Q. Are you aware of any court that has
12 ever criticized one of your opinions?

13 A. Yes.

14 Q. Can you explain the details of how the
15 court criticized your opinion?

16 A. Yes. I was involved in litigation
17 between Medtronic and Mirowski Family Ventures, and
18 the attorneys -- and I represented Mirowski Family
19 Ventures. And Medtronic sought to preemptively
20 declare they were not infringing on a patent, and
21 the attorney for -- the attorney that I worked with
22 for Mirowski Family Ventures decided that we only

1 need address the particular claim elements that
2 Medtronic contended, preemptively, that they were
3 not infringing on. But the -- but because that
4 alone was voluminous, the attorney decided that we
5 did not need to map all the other claim elements.
6 He changed his mind at trial and asked a bunch of
7 questions that were not covered in the written
8 declarations. And that was brief and deemed
9 conclusory, I believe going all the way to the
10 Supreme Court.

11 Now, I can also tell you that
12 Medtronic, despite their delight in that decision,
13 also found me to be such a credible witness that
14 they hired me after that to represent them in a
15 couple of patent litigation cases.

16 But the record stands that some of my
17 testimony was deemed conclusory.

18 Q. Can you think of any other examples
19 which a court has criticized one of your opinions?

20 A. It may well be, I don't know. I'm
21 sorry, that's the one I know of.

22 Q. Have you ever been convicted of a

1 felony?

2 A. No.

3 Q. Have you ever been convicted of any
4 crime related to acts of dishonesty or fraud?

5 A. No.

6 MR. FERNANDO: Object to form.

7 THE WITNESS: Sorry to jump in so
8 quickly, but that's a firm, no.

9 BY MR. BISENIUS:

10 Q. Have you prepared any written opinions
11 for the related District Court case involving the
12 '257 Patent?

13 A. I don't believe I prepared anything
14 beyond my declarations for the '257 and the '619
15 for IPR proceedings.

16 MR. BISENIUS: No further questions.

17 MR. FERNANDO: Can we go off the
18 record?

19 (Discussion held off the record.)

20 (Recess taken from 3:58 p.m. to 4:04 p.m.)

21 MR. FERNANDO: No further questions
22 from us. We'll pass the witness as well, and

1 I think that we're concluded.

2 MR. BISENIUS: Thanks.

3 MR. FERNANDO: Off the record.

4 (Signature reserved.)

5 (Deposition concluded at 4:05 p.m. EDT)

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Amy A. Brauser, RPR RMR CRR
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3
4 Case: AliveCor, Inc. v. Apple, Inc.
Date of deposition: March 27, 2024
5 Deponent: Ronald David Berger, M.D., Ph.D., F.H.R.S.

6
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10 Deposition Date: March 27, 2024

11 Page No. Line No. Change

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