

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

ALIVECOR, INC.,	)	
Petitioner,	)	Case No.
	)	IPR2023-00948
v.	)	IPR2023-00949
	)	U.S. Patent
APPLE, INC.,	)	10,866,619 B2
Patent Owner.	)	

DEPOSITION OF RONALD D. BERGER, M.D., PH.D.,

April 13, 2024

8:59 a.m. Eastern Daylight Time

Reported by: Lori J. Goodin, RPR, CLR, CRR,
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1 SATURDAY, APRIL 13, 2024, 8:59 a.m. EDT

2 PROCEEDINGS

3 * * *

4 Whereupon,

5 RONALD D. BERGER, M.D., PH.D.,

6 a witness called for examination, having been
7 first duly sworn, was examined and testified as
8 follows:

9 * * *

10 EXAMINATION

11 BY MR. AMON:

12 Q. Good morning, sir. Could you please
13 state your full name for the record.

14 A. Ronald David Berger.

15 Q. And Dr. Berger, could you provide a
16 business address for the record, as well.

17 A. Yes, I generally for this sort of
18 work use my home address which is 3502 Garden
19 View Road, Baltimore, Maryland 21208.

20 Q. Dr. Berger, I understand that you
21 were deposed just a few weeks ago in a separate
22 but related matter?

1 A. Correct.

2 Q. Prior to that deposition, had you
3 been deposed before?

4 A. In, not -- not related to this
5 matter to Apple V AliveCor.

6 But I have been involved in a number
7 of patent litigation cases in which I have been
8 deposed. And I have also been deposed in other
9 sorts of proceedings, particularly medical
10 malpractice cases as an expert witness.

11 Q. And, if you could estimate, how many
12 times do you think you have sat for deposition?

13 A. I think for medical malpractice
14 cases, probably 30 to 40 times.

15 For patent litigation, I think about
16 a dozen depositions.

17 Q. So, given your experience, I just
18 want to refresh your understanding of how the
19 deposition should be conducted just to make sure
20 that we are on a level playing field. Is that
21 okay with you?

22 A. Surely.

1 Q. Okay. So, you understand that you
2 have taken an oath here. Yes?

3 A. Absolutely. Yes.

4 Q. And that oath requires you to tell
5 the truth. Yes?

6 A. Yes.

7 Q. The whole truth. Yes?

8 A. Yes.

9 Q. And nothing but the truth. Correct?

10 A. Yes.

11 Q. And you will do that here today?

12 A. Absolutely.

13 Q. And I apologize for stepping on your
14 toes there on your answer. And that leads me to
15 another kind of key rule.

16 It is very important that we try not
17 to talk over one another. So, if you will give
18 me the courtesy to get my answers out, I will
19 extend that same courtesy to you in responding
20 completely.

21 Can we agree on that?

22 A. Yes.

1 Q. And that is especially true when,
2 you know, in these remote depositions because
3 there is always a little bit of lack of clarity
4 when somebody is finished speaking.

5 So, I will try to do my best to not
6 step on your toes. Fair?

7 A. Fair. Understood.

8 Q. If for any reason you don't
9 understand a question, will you please let me
10 know?

11 A. Yes.

12 Q. And is it fair that if you don't ask
13 me to clarify a question, that you have a
14 reasonable understanding of what I am asking?

15 A. I suppose so. I think it may happen
16 that I think I understand but maybe I am not
17 realizing what you are saying.

18 And I have been in depositions where
19 my attorney has stepped in to say hold on,
20 perhaps you didn't understand the question.

21 I don't know if that is allowed
22 here. But, I think sometimes that can happen.

1 Q. And I appreciate that response. And
2 I guess that leads to another important point
3 about this process.

4 Your attorney, Mr. Douglas, may pose
5 objections to some of my questions from time to
6 time.

7 But unless he expressly instructs
8 you not to answer, you understand that you are
9 obligated to answer, given the oath that you have
10 provided. Yes?

11 A. Yes.

12 Q. I will try to take a break about
13 every hour just so that the court reporter and
14 others can get up, take bio breaks, do whatever
15 they need, about ten minutes.

16 If at any point you need a break
17 during the deposition, will you please let me
18 know?

19 A. Yes. Thank you.

20 Q. The only thing I ask is if we can
21 agree, if there is a question pending, and absent
22 an attorney/client assertion, that you answer the

1 question before we take a break.

2 Will you agree to that?

3 A. That is fine. Uh-huh, yes.

4 Q. Any reason that you can't provide
5 your best, most accurate testimony here today?

6 A. No.

7 Q. No medication that would impair your
8 ability to testify?

9 A. No.

10 Q. Well rested?

11 A. Reasonably so. I am a little
12 dependent on the caffeine that I am drinking
13 here.

14 Q. I understand and I empathize. But
15 that won't impair your ability to testify?

16 A. Not at all.

17 Q. And, Dr. Berger, you understand that
18 you are here, to be deposed on two declarations
19 that you have submitted in two separate inter
20 partes review proceedings.

21 Correct?

22 A. Yes.

1 Q. And you have an understanding that
2 those IPR proceedings -- is it okay if I refer to
3 them as IPRs?

4 A. Certainly.

5 Q. Those IPRs are IPR Number 2023-00948
6 and IPR 2023-00949.

7 A. Correct.

8 Q. And those are IPRs that were filed
9 by AliveCor against Patent Number 10,866,619. Is
10 that correct?

11 A. Correct, yes.

12 Q. And both IPRs relate to U.S. Patent
13 Number 10,866,619. Correct?

14 A. Yes.

15 Q. If I refer to that patent as
16 the '619 patent, will you understand what I am
17 referring to?

18 A. Yes.

19 Q. And you understand -- well, let me
20 take a step back.

21 It seems that you have been looking
22 at some documents that are next to you; is that

1 correct?

2 A. Yes.

3 Q. Could you tell me what you have with
4 you?

5 A. Yes, it is a binder. I can sort of
6 hold it up for a sec. It is one of those big
7 binders. And in it are, I think most of the
8 relevant exhibits. I have not marked them at
9 all.

10 And it includes the exhibit by
11 exhibit numbers or describe them, whichever you
12 like.

13 Q. No, no. That is fine. Let me
14 confirm a couple of things about that.

15 You said that there are no
16 annotations, markings or notes in any of the
17 exhibits that you have there and are referencing?

18 A. Correct.

19 Q. Have you placed any flags or any
20 other types of markers that would indicate
21 certain things in those documents?

22 A. No.

1 Q. And, let me ask you, do you have
2 with you Exhibit 1003, which is your declaration
3 for the 948 IPR?

4 A. Yes.

5 Q. And I know that when we received it,
6 we received it in two parts.

7 Could you give me the totality of
8 pages that are included in your Exhibit 1003 for
9 IPR ending in 948?

10 A. Okay. It starts with the title
11 page. And Roman numerals for the table of
12 contents.

13 And then it goes with regular
14 ordinal numbers up through the -- let's see.
15 Hold on one sec.

16 My signature is on Page 196. It is
17 not labeled but the page before it is 195. And
18 then there is an appendix, Appendix A, which I
19 don't believe has page numbers but it -- but it
20 says Exhibit 1003. At the bottom right corner it
21 goes up to Exhibit 1003.234.

22 Q. Okay. Wonderful.

1 A. And I see that the exhibit
2 numbers -- I'm sorry. The exhibit numbers at the
3 bottom, maybe that is the easiest way to put it,
4 that they go all of the way through, yes, in
5 order, all of the way up to Exhibit 1003.234.
6 Yes, sorry.

7 Q. Yes, that is very helpful.

8 MR. AMON: So, since you already
9 have that with you, I'm going to load these
10 into the Chat so that the court reporter and
11 everybody else has all of the relevant
12 documents.

13 Bear with me one second, please.
14 And if you will just indulge me one second.
15 I'm going to load up the second part of this.

16 (Whereupon, previously marked
17 Exhibit 1003 (619-1),
18 first referral.)

19 BY MR. AMON:

20 Q. And, Dr. Berger, you are free to
21 download these documents, and look at them. Like
22 I said, we got your declaration in two parts.

1 Both of the documents that I put
2 into the Chat and which are now available for you
3 to download are what I understand constitute the
4 entirety of your declaration in this
5 IPR 2023-00948, Exhibit 1003.

6 A. Okay. Very good. I am downloading
7 now, just so that I have it electronically as
8 well.

9 It will take me a moment here just
10 to get my screen organized. Okay.

11 Q. And, Dr. Berger, I'm also now
12 loading into the Chat for you to download what
13 are the two parts of Exhibit 1003 to
14 IPR Number 2023-00949.

15 A. Okay. Very good. I am on a small
16 laptop screen so it is a little challenging.

17 I may -- I will use those if I need
18 to, to search. But in general I will probably be
19 working from my hard copies.

20 Q. Which is fine, Dr. Berger. And I
21 just wanted to make sure to go through a couple
22 of just procedural questions.

1 If you could open up the two parts
2 of Exhibit 1003 to the 948 declaration -- sorry.
3 To the 948 IPR. Excuse me.

4 A. And so you want me to open up part,
5 the -- the first of the two or the second half?

6 Q. I actually want you to open up both,
7 because I just want to make sure that what I
8 provided you is a complete copy of your
9 declaration. I just --

10 A. Okay. All right. Let me take a
11 look at the pages, just to be sure. Okay, so --

12 I see, the first one goes through
13 Page 117. The next part -- these are the numbers
14 at the very bottom. It starts at 118 and goes
15 to 234.

16 Let me look at the --

17 Q. If we could finish with the -- let's
18 deal with the 948 declaration first.

19 A. The 948 declaration. I have all of
20 the pages that you have sent. It appears to be
21 the entirety of my declaration, between those two
22 parts.

1 Q. Okay. And if you look at page, what
2 is labeled in the second part as Page 196, which
3 is not actually labeled. It is the page
4 following 195 at the bottom.

5 A. I see. And are you referring to the
6 page numbers in the center of the bottom of the
7 page, not the exhibit page numbers?

8 Q. You know, that is a great
9 clarification.

10 Why don't we refer to the exhibit
11 page number. So, I would ask you to turn to the
12 bottom right-hand corner where it reads
13 Ex 1003.206.

14 A. Yes, the signature page.

15 Q. Yes.

16 A. Got it.

17 Q. And that is, that will be easier for
18 everybody. I will refer to those pages.

19 So, can you confirm that that is
20 your signature on Ex. 1003.206?

21 A. Yes, it is.

22 Q. And, did you apply your signature to

1 this declaration on June 7th, 2023?

2 A. Yes. Yes, I did.

3 Q. And do you have any reason to
4 believe that this is not a duplicate copy of the
5 declaration that you have in your binder next to
6 you?

7 A. No, I have no reason to think that.

8 Q. Okay. If we could go through the
9 same process with the declaration for the 949 IPR
10 matter. So the other two documents, please.

11 (Whereupon, previously marked
12 Exhibit 1003 (619-2),
13 first referral.)

14 THE WITNESS: Yes. And, I am
15 finding the signature page. Oh, I think I
16 just zipped past it. Okay. It appears to be
17 Exhibit 1003.240. Correct?

18 BY MR. AMON:

19 Q. I am going to confirm that for you.
20 That is what I have as well. So, let me ask you
21 first an additional question.

22 Does it appear that Exhibit 1 --

1 that the two parts that I have loaded into the
2 Chat of Exhibit 1003 for the 949 IPR matter, that
3 that is a complete and accurate copy of the
4 declaration that you submitted in the 949 IPR?

5 A. I believe so. Let me state that I
6 am obviously not examining it and comparing it
7 page by page to the hard copy I have.

8 But, certainly the page numbers
9 reconcile from beginning to end. And my
10 signature appears on the same numerical page.

11 And I have no reason to think they
12 differ at all.

13 Q. Okay. That is -- thank you. That
14 is very helpful.

15 And just so we are dotting the Is
16 and crossing the Ts, your signature is applied in
17 the declaration in the 949 on Page
18 Exhibit 1003.240, correct?

19 A. Correct.

20 Q. And, you applied that signature on
21 June 7th, 2023?

22 A. Yes.

1 Q. And you have no reason to believe
2 that the version of your declaration that I have
3 given you is any different than the hard copy
4 that you have in your binder. Correct?

5 A. That's correct.

6 MR. AMON: I'm going to load one
7 more document for the time being into the
8 Chat. And if you could download this one,
9 let me know when you have it.

10 (Whereupon, previously marked
11 Exhibit 1021,
12 first referral.)

13 THE WITNESS: Got it.

14 MR. AMON: And let me know when you
15 have it open and have had a chance to review
16 it, please.

17 THE WITNESS: I have it and I have
18 reviewed it. Yes. I mean I have looked at
19 it -- I'm sorry. I have scanned through it.

20 BY MR. AMON:

21 Q. Fair enough. What is Exhibit 1021?

22 A. Assuming this is Exhibit 1021 that I

1 have just opened, it is my CV, my curriculum
2 vitae.

3 Q. Okay. And I note that this version
4 of your CV is dated April 26, 2023.

5 Is that correct?

6 A. Yes.

7 Q. Does this CV accurately reflect your
8 educational and professional experience?

9 A. Yes. And was completely up to date
10 as of that date.

11 Q. Understood. And let me ask some
12 questions related to subsequent events that may
13 have happened.

14 Since the CV, which is Exhibit 1021,
15 was prepared, have you conducted any additional
16 clinical research that was sponsored by AliveCor?

17 A. No.

18 Q. Outside of being retained for these
19 IPRs, and the other IPRs that you were deposed on
20 a couple of weeks ago, have you accepted any
21 research funding from AliveCor?

22 A. No.

1 Q. Aside from the work related to these
2 IPRs, have you received any other type of
3 monetary payments from AliveCor?

4 A. No.

5 Q. Have you received any devices for
6 any clinical studies that were donated by
7 AliveCor?

8 A. No. No.

9 Q. Dr. Berger, who are you currently
10 employed by?

11 A. Johns Hopkins University.

12 Q. And, is John Hopkins your sole
13 employer?

14 A. And I am self-employed in doing
15 consultative work.

16 Q. Fair enough. You are not currently
17 employed in -- as an employee of any medical
18 device companies or any other organizations other
19 than John Hopkins?

20 A. Yes. And just for the record, I
21 will state that it is Johns Hopkins. We are very
22 sensitive to that final S.

1 Q. Fair enough. I will make sure to
2 try to emphasize the Johns Hopkins portion of it.

3 A. Thank you.

4 Q. I understand that you are a
5 practicing cardiologist?

6 A. Yes.

7 Q. And can you explain to me what your
8 practice consists of mostly?

9 A. Yes. I spend roughly half my time
10 in clinical work which is devoted to cardiac
11 arrhythmias, heart rhythm management, both
12 complicative and the treatment of arrhythmias, a
13 lot of that.

14 Some of that is diagnostic but a lot
15 of that is therapeutic with invasive procedures,
16 implanting devices, performing ablations.

17 The other half of my time is split
18 between administrative duties, running the --
19 both in my division of cardiology, I am the
20 Director of Inpatient Cardiology, but I am also
21 the Director of the Fellowship Program
22 specifically devoted to training in cardiac

1 arrhythmias, what we call cardiac
2 electrophysiology. And I also supervise fellows
3 in research projects.

4 Q. Do you maintain a lab for your own
5 research activities?

6 A. Not separate from the clinical lab.
7 So, the research that I oversee is clinical
8 research that takes place in our clinical
9 laboratories.

10 Although, I also assist in
11 overseeing research projects that do take place
12 in some of the animal laboratories at Johns
13 Hopkins.

14 Q. You said, and I believe, correct me
15 if I'm wrong, that the majority of your research
16 is related to diagnostic aspects. Is that fair?

17 A. Oh, I think the -- I think my
18 research activities over the years has involved
19 both diagnostic and therapeutic modalities for
20 cardiac arrhythmias.

21 But almost all of it has been
22 related to cardiac arrhythmias in a broad sense.

1 But it is a subspecialty of
2 cardiology and that is my area.

3 Q. And with respect to your areas of
4 research, say since, from 2010 to the present,
5 has that involved the development of any medical
6 devices?

7 A. I don't believe so. I think -- no,
8 that is not true.

9 I have been involved in the
10 development of some technology for
11 defibrillation. And --

12 Q. Can you explain -- sorry. I didn't
13 mean to cut you off. Go ahead.

14 A. Yes, I have been involved in the
15 development of technology to try to make the
16 shocks involved for defibrillators less painful.

17 Q. And what was your involvement in
18 that research?

19 A. I was one of the inventors of the
20 technology. And we pursued the development of
21 that first in animal studies and then we started
22 in clinical -- in clinical investigation.

1 And we continue that project now in,
2 in a clinical project, testing a novel shock wave
3 form in patients who are undergoing implantable
4 defibrillator replacement.

5 Q. And when you say you are one of the
6 original inventors of that technology, what was
7 your contribution to the inventions?

8 MR. DOUGLAS: Object to form.
9 Scope.

10 BY MR. AMON:

11 Q. You can go ahead and answer, sir.

12 A. It is a long project that has
13 spanned several decades and most of my career
14 while at Johns Hopkins. That it is a problem
15 that I became interested in early in my academic
16 career and developed several different ideas and
17 concepts, to try to solve what I think is a big
18 problem which is when patients have an
19 implantable defibrillators, the shock that they
20 get from the device is, perhaps, life saving but
21 at the same time it is miserably painful.

22 And so I actually have -- you can

1 see in my CV, I can point out to you a whole
2 series of patents that cover different ideas,
3 different concepts for trying to mitigate the
4 pain of these shocks.

5 The current iteration that I
6 conceived of and then modified with my
7 co-inventors is to modify the waveform that
8 delivers the shock.

9 And then I oversaw the animal
10 testing of that, again with one of my very close
11 colleagues. And then I have been overseeing the
12 human investigation of that as well.

13 I think you may have asked me more
14 specifically about the patents. I can't recall
15 your question.

16 I can, I can pontificate on this for
17 hours on this if you let me so I will ask you to
18 rein me in on it.

19 Q. Fair enough. And I appreciate your
20 response.

21 I did not ask you about that.

22 I asked you about your involvement

1 in contributing towards the development of the
2 technology. But let me be more pointed in my
3 question.

4 I believe you testified that you
5 came up with the concepts for the -- modifying
6 the waveform.

7 Is that part of the invention that
8 you contributed?

9 A. Yes.

10 MR. DOUGLAS: Object to form.

11 Scope.

12 BY MR. AMON:

13 Q. And, as part of that process, it
14 seems from your testimony that you have put
15 together devices, test devices to implement those
16 inventions.

17 Is that fair?

18 A. Yes, the -- you know, they are of a
19 size that would not supplant the current
20 implantable device, but embodies the technology
21 and is in a form that allows the concept to be
22 tested.

1 Q. And with respect to the -- and I
2 will call them test devices because that is what
3 it sounds, or research devices, whichever you
4 prefer.

5 A. Uh-huh, that is fine.

6 Q. With respect to those research
7 devices, did you yourself build the devices or
8 did you work with others to build the devices?

9 MR. DOUGLAS: Object to form and
10 scope.

11 THE WITNESS: I built, with my own
12 hands built the very first version.

13 But then when it evolved into
14 clinical testing it required additional
15 safety features.

16 And so we engaged a professional
17 engineer to build the clinical --
18 investigational clinical grade research
19 device.

20 BY MR. AMON:

21 Q. And I believe you testified a moment
22 ago that the current version of the research

1 devices is not of the size that could replace
2 current implantable devices.

3 Did I understand your testimony
4 correctly?

5 A. Correct. It is roughly the size of
6 a toaster oven.

7 Q. And, is it fair that one of the
8 challenges you all face is being able to take
9 those inventions and make them smaller such that
10 they could be eventually implanted into a human
11 subject?

12 MR. DOUGLAS: Object to form.
13 Scope.

14 THE WITNESS: That would and will be
15 a future challenge. Yes.

16 BY MR. AMON:

17 Q. And would you agree, Dr. Berger,
18 that, in fact, taking large scale medical devices
19 and making them smaller is challenging in all
20 aspects of electrical mechanical engineering?

21 MR. DOUGLAS: Form, scope.

22 THE WITNESS: Well, yes. But I

1 think a lot of those challenges have been
2 traversed over the decades.

3 And, in fact, if we can -- in this
4 particular case, if we can prove that the
5 modified waveform actually does what we hope
6 it will do, it would be -- it would actually
7 be relatively straightforward as we have been
8 able to show, to take -- to modify existing
9 implantable defibrillators so that they could
10 provide that waveform.

11 And that, in fact, is even one of
12 the more recent patents in the portfolio. I
13 can't remember if it was allowed by the time
14 that version of the CV came out.

15 But, anyway, it -- you know again I
16 think your comment may be generally true.

17 But specifically, the technology to
18 allow for that miniaturization has been
19 around now for a few decades.

20 BY MR. AMON:

21 Q. But you would agree, for example, if
22 you are taking a printed circuit board with

1 certain functionality from a phone and trying to
2 place that on to a smart watch, that
3 miniaturization process includes certain
4 challenges.

5 Is that fair?

6 MR. DOUGLAS: Object to form.

7 Scope.

8 THE WITNESS: Again, I think the
9 answer to that question, I think, depends on
10 the era that it is being asked.

11 I think, you know, 30 years ago,
12 that may have been a greater challenge.

13 I think, you know, honestly,
14 earlier, when I was in college in the 1970's,
15 I spent a couple of summers working at Texas
16 Instruments. And what was already being
17 accomplished in miniaturization and putting
18 what might otherwise be on a large printed
19 circuit board into a single little tiny
20 silicon chip had already been solved.

21 That is what we were doing. This
22 was almost, you know, 50 years ago.

1 So, yes, there are challenges. I'm
2 just saying that I think that a lot of those
3 challenges were traversed decades ago.

4 BY MR. AMON:

5 Q. Dr. Berger, have you ever done any
6 development work on cellular phones?

7 MR. DOUGLAS: Objection, scope.

8 THE WITNESS: No. Not personally.

9 BY MR. AMON:

10 Q. Have you done any development work
11 on PDAs?

12 MR. DOUGLAS: Scope.

13 THE WITNESS: No.

14 BY MR. AMON:

15 Q. Have you done any development work
16 on smart watches?

17 MR. DOUGLAS: Object to scope.

18 THE WITNESS: No.

19 BY MR. AMON:

20 Q. Have you done --

21 And putting aside the current
22 research that you are conducting, have you done

1 any development work on any medical devices that
2 have been commercialized?

3 A. Yes.

4 Q. And can you tell me a little bit
5 about that, please.

6 A. Yes. A couple of technologies.

7 One is a technology to determine the
8 depth of compression applied during CPR, and then
9 a technology that during CPR removes artifacts
10 from the ECG, and both of those technologies were
11 licensed by ZOLL.

12 And let me think about other
13 technology that has been licensed.

14 And then there is a technology that
15 I am an inventor on developing a system of
16 catheters for invasive EP study and ablation that
17 are compatible with magnetic resonance imaging.
18 And that led to the development of a publically
19 traded company called Imricor.

20 And so, that is commercially
21 available outside the U.S. and in clinical trials
22 in the U.S.

1 Q. And, sir, you mentioned something
2 called EP.

3 Could you tell me --

4 A. Oh, I'm sorry. EP is
5 electrophysiology.

6 Q. Thank you.

7 A. I think I used it in the context of
8 EP study, so, a diagnostic electrophysiologic
9 study.

10 Q. And do you still have ownership
11 interest in that company?

12 A. Yes.

13 Q. Are you employed by that company in
14 any capacity?

15 A. No.

16 Q. And you said that their products are
17 available outside the U.S., correct?

18 A. I believe they received -- I am
19 pretty sure they received allowance approval in
20 the European Union for sale.

21 Q. And with respect to the, what I
22 understand the three medical devices that you

1 just described, the system for measuring
2 compressions, the system for removing certain
3 artifacts from ECG waveforms and this catheter
4 product, are any of those considered portable
5 medical devices?

6 MR. DOUGLAS: Object to form.

7 THE WITNESS: Well, one of the
8 technologies -- this is why I was thinking
9 about it when you asked about cell phone
10 development.

11 So, one of those technologies, the
12 ability to assess the extent of compression
13 during CPR. Well, that is commercially
14 implemented in the pads of defibrillator pads
15 for AEDs, Automatic External Defibrillators.

16 In addition to the algorithm is also
17 implemented in the smartphone app.

18 And I don't know if anybody has that
19 app anymore. But it was implemented in a
20 ZOLL AED app for smartphones.

21 BY MR. AMON:

22 Q. And that was an algorithm

1 development. Correct?

2 A. Yes, that is correct.

3 Q. It wasn't a physical component that
4 went into the cellular phone, correct?

5 A. Well, it took advantage of the
6 accelerometer in the phone.

7 And for the engineering nerds on
8 this call, if you integrate acceleration twice,
9 you get displacement. And that is how it worked,
10 is to calculate displacement, which is the key
11 variable that is being sought during CPR.

12 Q. But you didn't develop the
13 accelerometer that was on the phone.

14 You just took advantage of the
15 accelerometer that was already there. Fair?

16 A. Fair. That is true.

17 MR. DOUGLAS: Form.

18 BY MR. AMON:

19 Q. Any other portable medical devices
20 that you have developed that come to mind that
21 you commercialized?

22 A. Not that I can think of that have

1 been commercialized.

2 Q. Dr. Berger, if we could turn now to
3 your declarations. And just some general
4 questions about your declarations.

5 Did you review this declaration to
6 prepare for this deposition here today?

7 A. Yes.

8 Q. Are there any corrections that you
9 would like to make to either of the declarations?

10 A. No.

11 Q. Is it fair that the declaration,
12 Exhibit 1003, in the 948 IPR contains totality of
13 your opinions that you have advanced in that IPR
14 petition, the 948 petition?

15 MR. DOUGLAS: Object to form.

16 THE WITNESS: I believe so.

17 Certainly as of that date, I don't know if
18 they will be the totality of my opinions if
19 there are rebuttals offered by Apple.

20 But certainly as of that date and as
21 far as I know, as of the present, these are
22 the totality of my opinions.

1 BY MR. AMON:

2 Q. And same question with respect to
3 your declaration in the 949 IPR.

4 Does your declaration, Exhibit 1003,
5 submitted in the 949 IPR encompass the totality
6 of the opinions that you, as of this date, are
7 advancing?

8 MR. DOUGLAS: Object to form.

9 THE WITNESS: Yes. Yes, that's
10 correct.

11 BY MR. AMON:

12 Q. Now, if I could ask you to turn to
13 Exhibit 1003 in your -- sorry. Exhibit 1003 for
14 the 948 IPR.

15 A. Yes. I have it.

16 Q. And specifically, if you could turn
17 to paragraph starting at 68. And I will tell you
18 the page numbers in a moment.

19 But it is 1003.45 --

20 A. Got it.

21 Q. -- if that helps.

22 A. Yes.

1 Q. And, as I understand it, between
2 Paragraphs 68 and Paragraphs 93, is where you
3 identify the prior art that is the basis for your
4 patentability opinions regarding Claims 1
5 through 10 of the '619 patent.

6 Is that fair?

7 A. Between Paragraphs 68 and 97.

8 Q. Yes.

9 A. Is that what you said?

10 Q. Yes.

11 A. Yes, that's correct. Those are the
12 prior art references used in the various grounds
13 for the invalidity arguments, yes.

14 Q. And let me ask a question on that,
15 Dr. Berger.

16 You used the word "invalidity."

17 Do you have an understanding
18 regarding a difference between the term
19 "invalidity" and "unpatentability"?

20 MR. DOUGLAS: Form.

21 THE WITNESS: I'm not sure, I'm not
22 sure if I do. So, perhaps you can explain

1 the particulars of the terms so --

2 BY MR. AMON:

3 Q. Well, let me ask a different
4 question.

5 You said you had been involved in
6 other patent litigation matters in the past?

7 A. Yes.

8 Q. Were those other IPR matters or
9 district court matters?

10 A. Both.

11 Q. And, as it relates to the district
12 court matters, were you retained as an expert for
13 purposes of validity or of infringement or both?

14 A. Both.

15 Q. And, with respect to the invalidity
16 aspects that you opined in those district court
17 matters, did you have an understanding of what
18 the burden of proof was to show that the patents
19 were invalid in district court?

20 A. I'm not sure that I have -- I'm not
21 sure that I have that answer from, from the legal
22 description.

1 I, I have explained my understanding
2 of the legal burdens in my declarations, in
3 particular at Pages 7 through 12, where I talk
4 about the legal standards, particularly as it
5 relates to anticipation, obviousness, et cetera.

6 There have been other, other issues
7 in other proceedings that I have been involved.

8 If you are asking me a question
9 outside of what I cover in that part of my
10 declaration, then I will have to ask you to be
11 more specific.

12 Q. Sure. And just so that the record
13 is clear, when you said Pages 7 to 12, we are
14 referring to page, Exhibit 1003.17 through
15 1003.22. Correct?

16 A. What was the last page that you
17 said?

18 Q. Through 1003.22.

19 A. Oh, dot 22.

20 Dot 23.

21 Q. Okay. Dot 23, yes. Thank you.

22 So, if I could ask you to read

1 Paragraph 21 on Page Exhibit 1003.17 to yourself
2 and let me know when you have done that.

3 A. Yes, I have read it.

4 Q. And the question that I was asking
5 you before. At Paragraph 21, you write, "I
6 understand that in this proceeding AliveCor has
7 the burden of proving that the challenged claims
8 are invalid by preponderance of the evidence."

9 Did I read that correctly?

10 A. Yes.

11 Q. And do you know if that same
12 standard, preponderance of the evidence, applies
13 in district court?

14 MR. DOUGLAS: Form, scope.

15 THE WITNESS: I'm not sure.

16 BY MR. AMON:

17 Q. Let me ask you to turn to Page
18 Exhibit 1003.24, and the discussion of a person
19 of ordinary skill in the art.

20 A. Yes, I am there.

21 Q. And so is it fair that Paragraphs 37
22 and 38, you provide your understanding of what a

1 relevant person of ordinary skill in the art

2 would be for purposes of the '619 patent?

3 A. Yes.

4 Q. And you state in those paragraphs

5 that you, yourself, had those capabilities as of

6 the time of the alleged invention of the '619.

7 Correct?

8 A. Correct.

9 Q. But, to be fair, Dr. Berger, your

10 experience is actually substantially greater than

11 what you define as a person of ordinary skill in

12 the art, as of the date of the invention of

13 the '619.

14 Correct?

15 MR. DOUGLAS: Object to form.

16 THE WITNESS: Well, I think I have

17 some areas of expertise that may not be

18 necessary to be somebody of ordinary skill in

19 the art.

20 But they, but they may or may not be

21 relevant, either.

22 You know, for example, I'm a

1 physician. You know, I have managed patients
2 with the sort of arrhythmias that the -- that
3 can be diagnosed with the sorts of products
4 manufactured by the parties in this case.

5 That gives me additional insight and
6 experience on the usefulness of the products,
7 perhaps.

8 But I don't think that that is
9 necessary to be a POSITA. And I don't think
10 it puts me in a position that, that gives me
11 a different opinion about the, about what a
12 POSITA would know in terms of the relevance
13 for developing the technology itself.

14 BY MR. AMON:

15 Q. Dr. Berger, you have a Master in
16 Science from MIT from the Department of
17 Electrical Engineering Computer Science.
18 Correct?

19 A. Yes.

20 Q. You also have a Doctorate of
21 Philosophy from MIT from the Department of
22 Engineering and Computer Science, correct?

1 A. Yes.

2 Q. And that is separate and apart from
3 your medical degree from Harvard. Correct?

4 A. Correct.

5 Q. And you got your Ph.D. and your M.D.
6 simultaneously?

7 A. They were contemporaneous. That is
8 correct. They were, and then awarded in the same
9 year, yes.

10 Q. And you received both your Ph.D. and
11 your M.D. in 1987?

12 A. Correct.

13 Q. And since at least 1993, you have
14 been, in some capacity, a professor at Johns
15 Hopkins University. Correct?

16 A. The term "professor" refers to a
17 certain academic rank. It would be as if I were
18 to say well, you have been a partner in a law
19 firm ever since you first joined the law firm.

20 So, it is a rank that is earned over
21 time. But I joined the faculty as assistant
22 professor and then over -- but have been on the

1 faculty at Johns Hopkins since 1993, correct.

2 Q. And since at least 2005, based on
3 your CV, it appears that you have been a full
4 professor of medicine at Johns Hopkins. Is that
5 fair?

6 A. Correct.

7 Q. And, are you -- and I don't know,
8 forgive my ignorance.

9 But are you a tenured professor at
10 Johns Hopkins today?

11 A. Yes.

12 Q. And since your tenure at Johns
13 Hopkins, you have engaged in research related to
14 electrophysiology, correct?

15 A. Yes.

16 Q. And you have developed medical
17 devices in that time as well, correct?

18 A. Yes.

19 Q. So, it is fair, then, that you have
20 substantially more experience than a person of
21 ordinary skill in the art, as of the date of the
22 alleged invention of the '619?

1 MR. DOUGLAS: Object to form.

2 THE WITNESS: Again, I, I think I
3 have experience that is in addition to the
4 minimum requirements to be a POSITA in these
5 proceedings.

6 I don't, I don't think that that
7 additional experience is necessarily relevant
8 to the development of the technology at issue
9 here. And I don't think that that means that
10 my opinions are different from those of a
11 POSITA that has not, for example, had the
12 medical background that I have.

13 BY MR. AMON:

14 Q. Dr. Berger, do you think that
15 something that may be obvious to you would not
16 necessarily be obvious to a POSITA?

17 MR. DOUGLAS: Object to form.

18 THE WITNESS: I think things that
19 are -- that may be obvious to me in terms of
20 clinical relevance, that would be true.

21 I think that in terms of, in terms
22 of obviousness, not in the colloquial

1 meaning, but in the legal meaning for the
2 patent proceedings, I don't think that is the
3 case.

4 BY MR. AMON:

5 Q. Turning back to your declaration, at
6 Paragraphs 68 to 97. And let me know when you
7 are there. And just to make your life a little
8 bit easier hopefully, I believe that is at,
9 starting at Page 1003.45.

10 A. Yep. I've got it.

11 Q. As I understand your declaration,
12 you identify four pieces of prior art that form
13 the basis for your opinions.

14 Is that correct?

15 A. Yes, that's correct.

16 Q. And those four prior art references
17 are Kim, which is Exhibit 1004.

18 Is that one of them?

19 A. Yes.

20 Q. The second one is Jung, and please
21 forgive my pronunciation, but it is spelled
22 J-U-N-G, Exhibit 1005 to the IPR.

1 A. Yes, that's correct.

2 Q. The third one is Meyers, which is
3 Exhibit 1007 to the IPR.

4 A. Yes.

5 Q. And the last one is Chang, which is
6 Exhibit 1015 to the IPR.

7 A. That's correct.

8 Q. And those are the same four pieces
9 of prior art that you analyzed for purposes of
10 your declaration in the 949 IPR matter.

11 Is that correct?

12 A. Yes, that is correct.

13 Q. Dr. Berger, could I ask you to turn
14 starting at Paragraph 47 of your declaration.
15 And that is on Page 1003.31. And let me know
16 when you are there.

17 A. Yes, I'm there.

18 Q. And starting at Paragraph 47 and
19 going through Paragraph 52, you have a discussion
20 regarding sealing of button assemblies and
21 biometric sensors; is that correct?

22 If you look back at the title, it is

1 on Section B.

2 A. Yes, that's correct.

3 MR. AMON: Lori did you get

4 Dr. Berger's last answer? His answer was
5 kind of muffled.

6 THE REPORTER: I got it, yes. His
7 answer was yes, that is correct.

8 BY MR. AMON:

9 Q. And if I could ask you to turn to
10 Paragraph 51. And let me know when you are
11 there.

12 A. I am there.

13 Q. And if you could read Paragraph 51
14 and 52 to yourself and let me know when you have
15 done that.

16 A. Yes, I have read it.

17 Q. Dr. Berger, at Paragraphs 51 and 52,
18 as I understand it, you have a discussion of
19 overmolding, and specifically overmolding as a
20 sealing technique.

21 Is that fair?

22 A. I think that is fair.

1 Q. And, in your opinion, overmolding is
2 one way that you can seal things. True?

3 A. I think that is true. It is a way
4 of -- it is a way of applying a seal. It is a
5 manufacturing technique for applying a seal, yes.

6 Q. And, in if your opinion -- or, let
7 me take a step back.

8 Part of the reason that you have a
9 discussion of overmolding here in this section is
10 because some of the claims of the '619 talk about
11 overmolding.

12 Is that correct?

13 A. Yes, that is correct.

14 Q. And as you understand it, is the
15 '619 talking about overmolding as a technique or
16 what mechanism for sealing the button assembly
17 that is claimed in the '619 patent?

18 MR. DOUGLAS: Object to form.

19 THE WITNESS: I think we could -- it
20 may be relevant to go to specific places in
21 the '619 where this comes up in the claims.

22 But I think it is fair to say that

1 overmolding is mentioned in the '619. And
2 the purpose here is to say that to the extent
3 that overmolding is contemplated in the '619,
4 that technique was well known in the art.

5 And this is citing references just
6 to explain and demonstrate that the technique
7 of overmolding to apply a seal was known to a
8 POSITA.

9 BY MR. AMON:

10 Q. And that is fair. And, I have
11 loaded into the Chat for you to download, you may
12 already have a copy of it, the '619 patent.

13 Because I wanted to make sure that
14 you have access to the '619 patent whenever you
15 want to reference that.

16 Oh, sorry. I have to hit send. So
17 now it should be there.

18 (Whereupon, previously marked
19 Exhibit 1001,
20 first referral.)

21 THE WITNESS: Waiting for it.

22 BY MR. AMON:

1 Q. It is coming through. It should be
2 there now.

3 A. Yes. Got it.

4 Q. And if you could go ahead and open
5 up what has been premarked as Exhibit 1001.

6 Let me know when you've got it.

7 A. I've got it. Again, it may be
8 easier for me to refer to my hard copy, but I've
9 got it uploaded as well.

10 Q. And that is fine. I want to make
11 sure that the record is clear on this.

12 Exhibit 1001 is U.S. Patent
13 Number 10,866,619.

14 Correct?

15 A. Let me look one more time. Yes,
16 that is correct.

17 Q. And that is the subject of -- or the
18 subject patent of your declarations in the 948
19 and 949 IPRs, correct?

20 A. Correct.

21 Q. And if we go to, really the last
22 page of the '619 patent.

1 A. Yes.

2 Q. And if we read Claim 4. And let me
3 know when you have done that, to yourself,
4 please.

5 A. Yes, I have done that.

6 Q. Claim 4 reads, "The electronic
7 device of Claim 1, wherein the seal is overmolded
8 around the portion of the flexible conduit."

9 Did I read that correctly?

10 A. Yes.

11 Q. And so, based on the claim language
12 itself, overmolding is a technique for applying a
13 seal to the buttons that are claimed in the '619
14 patent. Correct?

15 MR. DOUGLAS: Object to form.

16 THE WITNESS: To apply a seal where
17 desired within that button assembly.

18 BY MR. AMON:

19 Q. Yep. Now, if I could ask you to
20 turn back to your declaration, and specifically
21 Paragraph 52 of your declaration. And that is
22 on -- sorry.

1 51 of your declaration which is on
2 Page 1003.34.

3 A. Okay. I'm there.

4 Q. Let me know when you are there.

5 A. Yep.

6 Q. In Paragraph 51, you, among others,
7 you make reference to a reference called Vittu,
8 V-I-T-T-U. Do you see that?

9 A. Yes.

10 Q. And you write that, "Vittu discloses
11 an overmolding or injection molding process in
12 which a mold material, for example an epoxy
13 resin, is injected around the components and then
14 cured to create an overmolded component."

15 Is that a fair characterization of
16 what you wrote?

17 A. Yes.

18 Q. Now in that process that you are
19 describing there, is it fair that the resin would
20 form over and around any structures that are
21 placed on the surface that it is being injected
22 into?

1 MR. DOUGLAS: Object to form.

2 THE WITNESS: I think it would be
3 helpful to bring up that exhibit.

4 I will tell you that here at home I
5 don't have that exhibit with me, so that is
6 one I would need to have you send for
7 download. And then I will have to review on
8 my laptop.

9 BY MR. AMON:

10 Q. Okay. We are, we are almost at a
11 time for a break, so maybe we can get that at the
12 break and then we can upload it.

13 But is it fair that when you are
14 overmolding in the process, just generally
15 speaking, if you can describe -- well, let me
16 take a step back.

17 Have you worked on the development
18 of overmolding processes?

19 MR. DOUGLAS: Object to form.

20 THE WITNESS: Oh, I haven't -- I'm
21 sorry -- Chris, I missed it. Did you object?

22 MR. DOUGLAS: You can answer,

1 Dr. Berger.

2 THE WITNESS: I haven't personally
3 been involved in overmolding.

4 As I say, I have had some
5 connections with industry, so I'm aware of
6 it. But, I haven't personally developed
7 overmolding.

8 BY MR. AMON:

9 Q. Have you ever used overmolding
10 techniques?

11 A. I think it is fair to say that I
12 have injected epoxy into spaces to seal them, you
13 know, but not, not, not in the same sense as for
14 medical devices.

15 Q. Okay. But when you have injected
16 epoxys into spaces to seal them, you would
17 consider that an overmolding technique that you
18 have used?

19 A. In a general sense. Again, I think
20 the important point here is that it is a
21 controllable process so that there is a form that
22 one injects into to get the shape of the seal

1 that is desired.

2 I can't say that that is something
3 specifically that I have employed in my, in my,
4 you know, own personal use of a similar process.

5 Q. In your experience and your
6 understanding of the process, when you inject
7 that sealing epoxy or resin or whatever material
8 is being used to seal, it generally forms to
9 whatever cavity you are injecting it to, and
10 forms tight seals to essentially make everything
11 watertight.

12 Is that fair?

13 MR. DOUGLAS: Object to form.

14 THE WITNESS: I -- overmolding, I
15 think, has a broader use than simply for
16 creating watertight seals. I think it is a
17 way of filling a space, filling a void for
18 other reasons as well.

19 And depending on how it is used and
20 the material used and the mold form into
21 which it is injected, it can serve various
22 purposes.

1 And I think one of them is to create
2 a watertight seal.

3 BY MR. AMON:

4 Q. And that is a fair point,
5 Dr. Berger.

6 Regardless of the purpose, when you
7 inject the resin or whatever material you are
8 using for overmolding, it fills the void and
9 creates a tight connection, I don't want to say
10 seal, but a tight connection to whatever
11 structures it is being injected into.

12 Is that fair?

13 MR. DOUGLAS: Form.

14 THE WITNESS: Again, I don't know if
15 I want to say that is always the case. But
16 certainly that is a common use of it to form
17 a tight, watertight seal around the
18 structures that the resin or material is
19 injected around.

20 MR. AMON: I try to be a man of my
21 word. We have been going for a little over
22 an hour.

1 So, why don't we take maybe a
2 ten-minute break.

3 THE WITNESS: That is fine.

4 MR. AMON: We will come back at
5 10:20 your time, if that is okay.

6 THE WITNESS: Perfect.

7 MR. AMON: Thanks.

8 (Recess taken -- 10:09 a.m.)

9 (After recess -- 10:20 a.m.)

10 BY MR. AMON:

11 Q. Dr. Berger, at the break, did you
12 have any discussions about the substance of your
13 testimony with your counsel?

14 A. No.

15 Q. Okay. I have loaded up into the
16 Chat Exhibit 1004.

17 (Whereupon, previously marked
18 Exhibit 1004,
19 first referral.)

20 BY MR. AMON:

21 Q. If you could open that up and let me
22 know when you have done that.

1 A. Yep, I've got it.

2 Q. And, Dr. Berger, could you tell me
3 what Exhibit 1004 is, please?

4 A. It is Patent 10,620,828 by Minsik
5 Kim, et al.

6 Q. And Exhibit 1004 is the Kim prior
7 art reference that you analyzed in your
8 declarations; is that correct?

9 A. Yes. It is the version submitted
10 and allowed by the U.S. Patent Office.

11 Q. Fair. And most of your analysis is,
12 with respect to Exhibit 1004, the U.S. version,
13 correct?

14 A. I think it is fair to say that in
15 all applicable places, I made sure that it
16 comported with the English translation of the
17 Korean patent as well.

18 Q. Fair. But the principal analysis is
19 based on 1004, the version of the patent allowed
20 by the U.S. Patent Office. Correct?

21 MR. DOUGLAS: Object to form.

22 THE WITNESS: I think it is both. I

1 think that the quotes that show up in my
2 declaration are from the U.S. Patent version.

3 BY MR. AMON:

4 Q. Dr. Berger, do you speak Korean?

5 A. No, I don't, and rely on the
6 translator who does -- who did.

7 Q. And I just wanted to make sure that
8 you didn't do your own translation or your own
9 interpretation of the original.

10 A. No. Hardly. I did not.

11 Q. If I could ask you to turn in your
12 declaration starting at Paragraph 103. And I
13 will tell you that that is, starts on
14 Page 1003.58.

15 A. I am there.

16 Q. And, as I understand it, between
17 Paragraphs 103 and 111, is your analysis of where
18 you believe Kim allegedly discloses Element 1.a
19 of Claim 1 of the '619 patent, an enclosure
20 having an enclosed volume and an opening formed
21 in the side wall. Correct?

22 A. That's correct.

1 Q. Now, at Paragraph 108 is where I
2 understand your discussion of the opening formed
3 in the side wall starts.

4 Is that fair?

5 A. I think that is fair.

6 MR. AMON: Lori, did you get
7 Dr. Berger's answer?

8 THE REPORTER: I did. Yes, thank
9 you.

10 THE WITNESS: Good, okay.

11 BY MR. AMON:

12 Q. In the second sentence of
13 Paragraph 108 you write, "For example, Kim
14 discloses an opening 711 (Exhibit 1004, 18:19-24;
15 Exhibit 1022, Paragraph 132), which corresponds
16 to the claimed opening formed in a side wall of
17 Element 1.pre."

18 Dr. Berger, what side wall of
19 Element 1.pre are you referring to?

20 A. Of the enclosure.

21 Q. Can you point me to where
22 Element 1.pre claims a side wall?

1 A. I'm sorry. I'm sorry. I don't
2 understand the question.

3 Q. Sure. If you go back to
4 Element 1.pre which starts on Page 1003.5. Let
5 me ask a simpler question.

6 Dr. Berger, is there a typo in
7 Paragraph 108 where you should actually be making
8 reference to Element 1.a as opposed to 1.pre in
9 the sentence I just read.

10 A. Okay, give me a moment to figure
11 that out.

12 Q. Sure.

13 A. I believe that is correct. 1.pre
14 refers to the electronic device in the preamble.

15 And this is meant to say an opening
16 formed in the side wall of the enclosure. And I
17 believe that should have read 1.a.

18 Q. Okay. So -- just so that the record
19 is clear, the second sentence for Paragraph 108
20 should read: For example, Kim discloses an
21 opening 711 which corresponds to the claimed
22 opening formed in the side wall of Element 1.a?

1 A. I believe that is correct.

2 Q. Okay. In the next sentence in that
3 same paragraph you reference that Kim discloses
4 that in the opening 711, a part of the home
5 button 760-1 which is a combined button may be
6 positioned.

7 Did I read that correctly?

8 A. Yes.

9 Q. And here you are citing to a part of
10 Kim specifically Column 18, Lines 23 to 24.
11 Correct?

12 A. Yes.

13 Q. Okay. Now, is it your opinion that
14 that reference there is talking about the side
15 wall in Figure 18, which is on the previous page,
16 which you have cited on the previous page?

17 A. Okay. Let me go to the reference.

18 I think this paragraph makes
19 reference to Figure 7, though it is the same
20 callout number in Figure 18.

21 So, I think that button could be
22 placed -- I think it may be the same button, just

1 shown in a different figure.

2 Q. Okay. So, if we go to Column 18,
3 starting at Line 21 -- or, excuse me. Starting
4 at Line 19. And let me know when you are there.

5 A. Yep, I'm there.

6 Q. Okay. Starting at Line 19 and going
7 through Line 24. Column 18 of Kim reads:

8 "In Figure 7B, the combined button
9 located at a lower portion of the front surface
10 of the electronic device 701 may be implemented
11 as a home button 760-1.

12 "The display 710 or a display panel
13 may include an opening 711 (or a cutout). In the
14 opening 711, a part of the home button 760 which
15 is the combined button may be positioned."

16 Did I read that section correctly?

17 A. Yes.

18 Q. Now, if we go to 7, Figure 7b
19 specifically, and I can -- in Kim. Let me know
20 when you are there.

21 A. Yes.

22 Q. Button 760-1 is located on the front

1 surface of the device. Isn't it?

2 MR. DOUGLAS: Object to form.

3 THE WITNESS: I think it is at the
4 bottom of the front. And there may be a
5 cutout there so that it is on the bottom
6 front edge.

7 BY MR. AMON:

8 Q. But it is the bottom front edge. It
9 is not the same side edge that you are pointing
10 to in Figure 18. Is it?

11 MR. DOUGLAS: Object to form.

12 THE WITNESS: I don't know that it
13 points to the exact same embodiment as in
14 Figure 18.

15 BY MR. AMON:

16 Q. Okay. And if we go back and read
17 from Column 18, starting at Line 19, it
18 specifically says, the disclosure reads, "In
19 Figure 7b the combined button located at a lower
20 portion of the front surface of the electronic
21 device 701." Right?

22 So, in Figure 7, it is on the front

1 surface, correct?

2 A. In Figure 7. But, in Figure 18, it
3 clearly shows it on the side. And Kim makes
4 clear that the same button could be, could be in
5 other locations than the front.

6 Q. And you will agree with me that
7 Figure 18 is a different embodiment than
8 Figure 7. Correct?

9 A. I think Figure 18 shows the button
10 in a different embodiment.

11 Q. Dr. Berger, if you would go to
12 Figure 18. Could you identify where in Figure 18
13 item number 760-1 is displayed?

14 MR. DOUGLAS: Object to form.

15 THE WITNESS: I'm sorry. I missed
16 that. Say again.

17 BY MR. AMON:

18 Q. Sorry. If you go to Figure 18 --
19 let me ask it as a different question.

20 Is a home button 760-1 identified
21 anywhere in Figure 18?

22 A. No.

1 Q. Okay. Could you turn to
2 Paragraph 109 of your declaration, Dr. Berger.
3 Let me know when you are there.

4 A. Okay. Just give me a second.

5 Q. Sure.

6 A. I'm sorry. Where did you want me to
7 go to?

8 Q. Sure. I was asking if you could
9 turn to Paragraph 109 of your declaration.

10 A. Yes.

11 Q. Let me know when you are there.

12 A. I am there.

13 Q. At Paragraph 109 you write that Kim
14 further contemplates that the combined button is
15 a button assembly within the opening formed in
16 the side wall. General concept.

17 Did I paraphrase that paragraph
18 correctly?

19 A. Okay. I am looking at the specific
20 places.

21 Could you just ask the question
22 again?

1 Q. Sure, Dr. Berger. And I will just
2 read directly from Paragraph 109 of your
3 declaration.

4 You write, "Kim further contemplates
5 that the combined button is a button assembly
6 within an opening formed in the side wall."

7 It is the first sentence of
8 Paragraph 109. Did I read that paragraph
9 correctly?

10 A. Yes.

11 Q. If I could ask you to turn to the
12 Kim reference, Exhibit 1004. And specifically if
13 you could go to columns -- to Column 2, Lines 29
14 to 34.

15 And let me know when you are there.

16 A. Yes. I am there.

17 Q. And, if you could read Lines 29
18 to 34 at Column 2 to yourself and let me know
19 when you've done that.

20 A. I have read it.

21 Q. Now, at Column 2 of Kim, the
22 inventor writes, "According to various

1 embodiments of the present disclosure, the
2 electronic device having a combined button
3 implemented as a combination of a physical button
4 and a virtual button in response to an increase
5 in screen sizes provided together with methods
6 for controlling the combined button."

7 Dr. Berger, is it fair to say that a
8 person of ordinary skill in the art would
9 understand that Kim's disclosed combined button
10 is a combination of a physical button and a
11 virtual button?

12 A. I think there is more explanation
13 than that. But, yes, I agree that is what that
14 paragraph says.

15 Q. Would you agree that Kim is defining
16 the combined button of this disclosure as having
17 both a physical button and a virtual button?

18 MR. DOUGLAS: Object to form.

19 THE WITNESS: I think, broadly
20 speaking, that is what the words in Column 2
21 teach, yes.

22 BY MR. AMON:

1 Q. Now, you would also agree that Kim's
2 disclosure of a combined button doesn't
3 necessarily require inclusion of a biometric
4 sensor.

5 Is that fair?

6 MR. DOUGLAS: Object to form.

7 THE WITNESS: Now I'm going to have
8 to do some --

9 BY MR. AMON:

10 Q. And maybe I can help you out in this
11 regard.

12 But, go ahead and do whatever you
13 were going to do. And maybe I can help you a
14 little bit.

15 A. Okay.

16 Q. And let me know when you are ready
17 so that I can re-ask the question so that the
18 record is clean, please.

19 A. All right. It is going to take me a
20 little while because now we are getting to a
21 different claim element.

22 Q. Sure.

1 A. I think a lot of the explanation of
2 the combined button is --

3 Q. Dr. Berger, before you continue to
4 answer, I just want to make sure the record is
5 clean. So, if I could ask the question and then
6 you can answer it.

7 Are you ready with the information
8 that you had in mind?

9 A. I'm not sure. I was going to answer
10 the question, the prior question, and say --

11 Q. And that is what I am going to ask.
12 I am just going to ask the same question again
13 just so the record is clean.

14 A. Okay.

15 Q. Okay. Now, you would agree with me,
16 Dr. Berger, that Kim's disclosed combined button
17 doesn't necessarily include or require inclusion
18 of a biometric sensor?

19 MR. DOUGLAS: Object to form.

20 THE WITNESS: There are plenty --
21 there certainly is plenty of description of
22 including a biometric sensor.

1 I don't know that it is -- that the
2 scope of the invention excludes other sorts
3 of sensors, other, other functions.

4 BY MR. AMON:

5 Q. So, in Paragraph 209 you cite to Kim
6 at Column 13, Lines 46 to 53.

7 A. Wait, which paragraph of mine?

8 Q. Sure. Paragraph 109, at the very,
9 very end, last sentence, you cite to Kim at
10 Column 13, Lines 46 to 53.

11 A. I cite to Kim 17 -- Column 17. Is
12 that what you said?

13 Q. No. Column 13, Line 46 to 53.

14 A. Okay. Yes. Correct.

15 Q. Okay. And if I could ask you to
16 turn to Kim, Exhibit 1004, Column 13, starting at
17 Line 46. Let's go there.

18 A. Yes, I'm there.

19 Q. You will have to bear with me
20 because I have to get there.

21 And, in fact, if we go back up a
22 little bit just so we can read the entire

1 paragraph.

2 If we go back up to line about 42.

3 And can you read 42 to about 53 to
4 yourself, and let me know when you've done that.

5 A. Okay. Yes, I have read it.

6 Q. Okay. Now, in that paragraph in
7 Column 13, Kim discloses that, "As shown in
8 Figure 4, the electronic device 401, may include
9 a display 410, which may be a touch screen
10 display, a housing 420, an optical sensor 430, a
11 receiver 440, a camera 450, and a home button 460
12 (or a fingerprint sensor) which is one of
13 combined buttons."

14 Did I read that sentence correctly?

15 A. Yes.

16 Q. And then that same paragraph
17 continues.

18 "The combined buttons may include a
19 recent apps button (or key) 461 and a back button
20 (or key) 462, as well as a home button 460."

21 Did I read that second sentence
22 correctly?

1 A. I believe so, yes.

2 Q. "In addition, the combine buttons
3 may further include a power button (764 in Figure
4 18) and/or a volume button not shown."

5 Did I read that correctly?

6 A. Yes.

7 Q. So, Dr. Berger, would you agree with
8 me that a person of ordinary skill would
9 understand that the combined buttons that Kim is
10 disclosing do not necessarily require inclusion
11 of a biometric sensor?

12 MR. DOUGLAS: Object to form.

13 THE WITNESS: I agree that it, that
14 the description includes the -- contemplates
15 that a biometric sensor such as a fingerprint
16 sensor is one of the contemplated functions
17 of a combined button.

18 But it may alternatively include
19 functions that I would not consider biometric
20 sensors.

21 BY MR. AMON:

22 Q. And, in fact, in Kim's disclosure

1 that we just read, really the only place where he
2 is referencing a biometric sensor, in this
3 example a fingerprint sensor, is as is part of
4 the home button.

5 Is that fair?

6 A. I think he is saying the combined
7 button may include a power button.

8 So, I would interpret this, and I
9 think a POSITA would interpret this, that the
10 various functions can be included in buttons
11 other than a home button, for example the power
12 button shown specifically in Figure 18, 764.

13 And I don't think there is any
14 reason to think that what is written in this
15 paragraph excludes various combinations, for
16 example a fingerprint sensor and a power button
17 together, as would be contemplated in Figure 18.

18 Q. Dr. Berger, I'm going to apologize.
19 At the very beginning, I did not hear what the
20 beginning of your response was.

21 A. I'm really sorry. I have not had
22 any problem. Everybody missed what I said?

1 MR. DOUGLAS: It appears to me that
2 it is on the Realtime, but it was a little
3 light.

4 THE WITNESS: Okay, I will try
5 again.

6 BY MR. AMON:

7 Q. Okay.

8 A. My read of figure -- of this
9 paragraph says that various combinations are
10 contemplated. And that includes what a physical
11 button can do and what a, quote, virtual button
12 can do.

13 And that the physical button could,
14 for example, be the power button on the side wall
15 as shown in Figure 18 and that the combined
16 button could include other functions such as a
17 fingerprint sensor.

18 And that one would understand that
19 these various combinations are all contemplated.

20 And it even says the combined button
21 is not limited to the home button, at the very
22 end of that paragraph.

1 Q. I agree that, that it reads that the
2 combined button is not limited to the home
3 button.

4 But the only place in this paragraph
5 that there is a disclosure of a fingerprint
6 sensor is as an alternative to the home button.

7 Is that fair?

8 MR. DOUGLAS: Object to form.

9 THE WITNESS: You are saying that
10 the fingerprint sensor that is described here
11 is separate from the combined button?

12 BY MR. AMON:

13 Q. What I am saying, Dr. Berger, is
14 that if you read the description, it says, "and a
15 home button 460 (or a fingerprint sensor)," which
16 is one of the combined buttons.

17 And the only place in that paragraph
18 where any biometric sensor is disclosed is as an
19 alternative to the home button.

20 MR. DOUGLAS: Object to form.

21 THE WITNESS: I think the only place
22 where a fingerprint sensor is written is in

1 that -- is right after mentioning the home
2 button.

3 But the common sense understanding
4 of this paragraph is that one would combine
5 various functions into what is called the
6 combined button.

7 And the paragraph specifically says
8 the combined button is not limited to the
9 home button. And I would understand, and I
10 think a POSITA would understand, reading this
11 paragraph in its entirety, is that the
12 fingerprint sensor could be combined with the
13 physical button and that physical button need
14 not be limited to the home button.

15 BY MR. AMON:

16 Q. Dr. Berger, can we agree that there
17 is no express disclosure in that paragraph that
18 we just read of combining the fingerprint sensor
19 with the power button?

20 And I want to be crystal clear in my
21 question.

22 There is no express disclosure in

1 that paragraph of combining the fingerprint
2 sensor with the power button?

3 MR. DOUGLAS: Object to form.

4 THE WITNESS: I think it is
5 expressed very clearly, actually.

6 I think the last sentence of the
7 paragraph makes it very clear that the home
8 button is an example, but the combined button
9 is not limited to the home button.

10 So, I think it is expressed very
11 clearly in reading the whole paragraph that
12 specifically a power button, as shown in
13 Figure 18, could be the alternative to the
14 home button and include the virtual
15 functions, particularly a fingerprint sensor.

16 BY MR. AMON:

17 Q. Okay. If I could ask you to turn to
18 the next paragraph in your declaration,
19 Paragraph 110.

20 A. Yes.

21 Q. In that paragraph you make reference
22 to reference Polany, Exhibit 1013.

1 Do you see that about three-quarters
2 of the way down?

3 A. Yes.

4 Q. I just want to make sure, you are
5 not relying on Polany as part of your analysis
6 with Kim. Are you?

7 A. No, I'm sorry, I'm referring to
8 Polany as an example of what a POSITA would
9 understand.

10 Q. But your analysis in this section is
11 limited to an analysis of Kim. Correct?

12 MR. DOUGLAS: Object to form.

13 THE WITNESS: I'm relying on -- in
14 this section I'm relying on Kim alone, but
15 with the interpretation and understanding of
16 a POSITA.

17 BY MR. AMON:

18 Q. And that interpretation is provided
19 by Polany?

20 A. Well, I'm using Polany as an example
21 to understand that a person of ordinary skill in
22 the art would understand that an insulated button

1 assembly can be constructed, not necessarily just
2 on the front, but can be placed on the rear or
3 the side wall of the device as well.

4 Q. And that is something that is based
5 on your understanding is expressly disclosed in
6 Polany?

7 A. I'm using Polany as an example of
8 what a POSITA would understand.

9 Q. I would like to turn to your
10 analysis of Limitation 1.c of the '619 patent.

11 And, that starts on Page 1003.65.
12 And to be clear, your analysis of Element 1.c in
13 light of Kim.

14 Let me know when you are there.

15 A. Yes, I am there.

16 Q. And as I understand it, your
17 opinions related to Element 1.c are contained
18 between Paragraphs 116 and 129.

19 Is that correct?

20 A. Yes.

21 Q. And then you further break down
22 Element 1.c into Sub Element 1.c.i and 1.c.ii.

1 Correct?

2 A. That's correct.

3 Q. And, with respect to Element 1.c.i,
4 you identify that portion of the limitation as a
5 button assembly within the opening, the button
6 assembly comprising an input number having an
7 input surface.

8 Is that correct?

9 A. Yes.

10 Q. And the analysis for that sub
11 limitation is between Paragraphs 118 and 122?

12 A. Yes.

13 Q. Now, going to Paragraph 118, and if
14 you could read that to yourself and let me know
15 when you've done that.

16 A. Yes. I have read it.

17 Q. Now, in Paragraph 118, you are
18 making reference to Figure 18, correct?

19 A. I show -- yes, that is part of what
20 I describe, yes.

21 Q. And specifically you are pointing to
22 a combined button as being element 764 from

1 Figure 18 which you have highlighted in purple.

2 A. That's correct.

3 Q. And, that is what you are mapping as
4 being the button assembly claimed in
5 Element 1.c.i of the '619 patent.

6 Correct?

7 A. Well, I am referring to other -- I
8 go on in Paragraph 119 to show what I am mapping
9 in another figure, Figure 10b.

10 But in Paragraph 118, I am calling
11 out that element in Figure 18.

12 Q. Right. And in Paragraph 118, you
13 are pointing to the button 764 as the button
14 assembly within the opening, the button assembly
15 comprising an input member having an input
16 surface.

17 Correct?

18 A. Correct.

19 Q. And just so we are clear, when claim
20 Element 1.c.i talks about within the opening, you
21 understand that that is the opening that is in
22 the side wall from Element 1.a.

1 Correct?

2 A. Yes.

3 Q. And as you have just pointed out,
4 then in Paragraph 19, you change your --

5 A. 119, yes.

6 Q. Sorry, 119. I'm sorry if I
7 misspoke. 119.

8 You change your analysis and now we
9 are addressing Figure 10. Fair?

10 MR. DOUGLAS: Object to form.

11 THE WITNESS: I don't know that I
12 changed my analysis. I think the way I put
13 it is Figure 18 shows where the combined
14 button could be located in the side wall.

15 And then, and then in Paragraph 119,
16 where I show Figure 10b, it shows a
17 cross-section of how that button might appear
18 in an embodiment contemplated in Kim.

19 BY MR. AMON:

20 Q. Okay. Now, in Paragraph 119, you
21 specifically write that, "Kim's Figure 10b
22 annotated below shows a cross-sectional view of

1 the combined button."

2 And then you cite -- let me pause
3 there.

4 Did I read that correctly?

5 A. Yes.

6 Q. Okay. And then for that you cite to
7 Column 21, Lines 20 through 22. Correct?

8 A. Let me just take a look at the
9 reference.

10 Q. Well, but hold on, Dr. Berger. If
11 you could answer my question.

12 You are citing right there
13 Exhibit 1004, Column 21, Lines 20 through 22,
14 right?

15 A. That, yes, that is what is written
16 in Paragraph 119, yes.

17 Q. Okay. And, in your quotation in
18 Paragraph 119, you inserted in brackets the word
19 "the" before combined button. Correct?

20 A. Yes.

21 Q. Do you have an understanding if the
22 word "the" has any special meaning or

1 understanding in the context of patents?

2 MR. DOUGLAS: Object to form.

3 THE WITNESS: I think it refers back
4 to what is mentioned earlier in the patent
5 claim.

6 BY MR. AMON:

7 Q. So, and that is different from the
8 article "a" for purposes of patent
9 interpretation. Correct?

10 MR. DOUGLAS: Object to form.

11 THE WITNESS: I believe in the
12 claims construction the word "the" is
13 referring back to earlier mention of that
14 item in the claim.

15 I think in the specification "a" and
16 "the" may not have a different meaning. But
17 I --

18 But, that is my understanding.

19 BY MR. AMON:

20 Q. So, let me ask, Dr. Berger, did you
21 insert the word "the" in Paragraph 119 in the
22 quoted portion before combined button to make

1 reference that you are referring back to the
2 button that you identified in Figure 18?

3 A. Hold on. I don't think I did so, so
4 specifically as that.

5 I think it is more to indicate that
6 we are talking about the button as written in
7 Claim 1, Element 1.c, a button assembly with the
8 opening, the button assembly comprising.

9 So, again, I, I -- as I recall the
10 reason for this was to say, this is referring to
11 the button in the claims language of the one, of
12 the '619.

13 Q. And that is the same button assembly
14 that you are pointing to in Figure 18 in
15 Paragraph 118 of your declaration. Correct?

16 A. Again, Figure 18 shows the location
17 of the button. It shows the, the button assembly
18 and where the input member is seen.

19 And then in Figure 10b it shows what
20 this button, a, the, this button would look like
21 in cross-section.

22 Q. So, it sounds like you are reading

1 now from the Kim reference at column, at

2 Column 21. Is that correct, Dr. Berger?

3 A. No, no, I was not reading when I
4 just said that sentence.

5 Q. Okay. Well, can we go to Kim,
6 Column 21. And let me know when you are there.

7 A. I am there. Column 21. Which
8 lines?

9 Q. Sure. And we are going to go to the
10 lines that you specifically cite. Lines --
11 Column 21, Lines 20 through 22. And let me know
12 when you are there.

13 A. 20 through 22. Describing what
14 Figure 10a and 10b show. Okay. Yes.

15 Q. And if you could read that to
16 yourself and let me know when you've done that.

17 A. Yes, I have read it.

18 Q. Kim writes at Column 21, Lines 20
19 through 22 that, "Figures 10a and 10b show a
20 front view and a cross-sectional view of a
21 combined button of an electronic device according
22 to still another embodiment."

1 Did I read that correctly?

2 A. Yes.

3 Q. Okay. And so you -- when you quoted
4 that section in your declaration, you changed the
5 article "a" to the article "the." Correct?

6 A. And we are on my paragraph --

7 Q. 119.

8 A. 119, yes.

9 Q. And as I understood your testimony,
10 your testimony a moment ago, that is because you
11 wanted to make reference to the button assembly
12 that is referenced in the claim. Correct?

13 A. I believe so, yes.

14 Q. And you will agree with me that
15 Element 1.c is the first time that a button
16 assembly limitation appears in Claim 1.

17 Correct?

18 MR. DOUGLAS: Looks like we have
19 lost Dr. Berger.

20 MR. AMON: All right. We will give
21 him a moment to come back in. Lori, can we
22 go off the record until he comes back,

1 please?

2 THE REPORTER: We are off the
3 record.

4 (Recess taken -- 11:17 a.m.)

5 (After recess -- 11:19 a.m.)

6 THE WITNESS: I believe that is
7 correct.

8 BY MR. AMON:

9 Q. Thank you for that.

10 MR. AMON: It is a little
11 anticlimactic, Dr. Berger. I have been going
12 for about another hour and like I say I try
13 to be a man of my word.

14 Do you want to take another break,
15 and --

16 THE WITNESS: That will be good.

17 MR. AMON: Before we go -- well, we
18 can go off the record.

19 (Recess taken -- 11:20 a.m.)

20 (After recess -- 12:29 p.m.)

21 BY ATTORNEY1:

22 Q. Dr. Berger, just to confirm, did you

1 have any conversations with your counsel about
2 the substance of your testimony?

3 THE WITNESS: Absolutely no
4 conversation. I was struggling with my own
5 technical challenges.

6 BY MR. AMON:

7 Q. And I understand that. And I know
8 that you were communicating with them, you know,
9 unrelated to the substance of your testimony.

10 A. You are exactly right.

11 Q. Yeah, that is why I just focused my
12 question on the substance of your testimony.

13 A. No conversation at all on that, no.

14 Q. Okay. Before we took our break, we
15 were discussing your testimony at Paragraphs 118
16 and 119 of your declaration in the 948 IPR
17 matter.

18 Do you recall that?

19 A. Yes.

20 Q. Now, at paragraph -- let me start
21 over. I apologize.

22 At Paragraph 119, we were having a

1 discussion about Figure 10a and 10b from the Kim
2 prior art reference, 1004.

3 Do you recall that?

4 A. Yes.

5 Q. And if I can ask you to turn to the
6 Kim reference, 1004, and specifically to go to
7 Figure 10, 10a and 10b. And let me know when you
8 are there.

9 A. Yes, I am there.

10 Q. You are faster on the draw than I
11 am.

12 Dr. Berger, is there anyplace in
13 either Figure 10a or 10b where you see that the
14 patent identifies button assembly number 764?

15 A. Not in this figure. Not in these
16 Figures a and b, 10a and b.

17 Q. Okay. So if we move to your
18 analysis regarding element c -- 1.c.ii. I
19 believe that starts at Paragraph 123 of your
20 declaration on Page 1003.69.

21 Is that correct?

22 A. Yes.

1 Q. And take whatever time you need to
2 review this.

3 But essentially your analysis is at
4 Paragraphs 123 to 129.

5 Correct?

6 A. Yes.

7 Q. And, in this section you are
8 continuing your analysis of a claim element from
9 the '619 patent with respect to Kim and
10 specifically to Figure 10b of Kim. Correct?

11 A. That is the figure that I used to
12 show the various elements that are relevant to
13 these parts of this limitation, yes.

14 Q. And if you could, if I could ask you
15 to read Paragraph 124 of your declaration, and
16 let me know when you have done that. To yourself
17 is fine.

18 A. Okay. Yes, I have done so.

19 Q. And in that paragraph, part of the
20 structure that you identify from Kim is the
21 disclosure from Kim of a capacitive fingerprint
22 sensor 240p2 embedded in a physical button 760a

1 which is disclosed in Figure 10. Yes?

2 A. Yes.

3 Q. And in, for that capacity
4 fingerprint sensor 240p2, you cite to the Kim
5 reference 1004 at multiple places, including
6 Column 20, Line 57 to 59, and Column 22, Lines 11
7 through 12.

8 Is that fair?

9 A. Yes.

10 Q. Now could I ask you to turn to Kim
11 and specifically to go to Column 21, starting at
12 around Line 63. And let me know when you are
13 there.

14 A. Yes, I am there.

15 Q. Okay. And if you could read to
16 yourself Column 21, starting at around Line 63
17 over to Column 22 around Line 3. And let me know
18 when you've done that.

19 A. The bottom of 21 to the top of 22,
20 did you say?

21 Q. Yes, please.

22 A. Yes, I read it.

1 Q. Okay. So, in that section Kim is
2 disclosing that "The electronic device may
3 acquire (or capture) the user fingerprint through
4 the first fingerprint sensor corresponding to the
5 physical button 760a and the second fingerprint
6 sensor corresponding to the virtual button 760b
7 in the home button 760."

8 Did I read that first sentence
9 correctly?

10 A. Yes.

11 Q. That paragraph goes on to say that
12 "The electronic device 701 may compose
13 fingerprint images 241a and 241b respectively
14 obtained by the first and second fingerprint
15 sensors into a single fingerprint image 241."

16 Did I read that second sentence
17 correctly?

18 A. Yes.

19 Q. Now, so would a person of ordinary
20 skill in the art understand that in Figure 10,
21 which is what we are discussing here, the
22 fingerprint sensor actually is composed of a

1 first and second fingerprint sensor?

2 A. I think that a POSITA would
3 understand that it may. I don't think it is
4 required.

5 But I think that they would
6 understand that that is -- there is an
7 opportunity to have additional sensors placed
8 above or below, to the side of or around the
9 central button.

10 Q. And in fact in Figure 10 the
11 disclosure includes a first and second
12 fingerprint sensor, correct?

13 A. In, yes, in Figure 10, it does.
14 Yes, uh-huh.

15 Q. So, in that same paragraph that we
16 were just reading from, from your declaration,
17 Paragraph 124. And let me know when you are back
18 there.

19 A. From where?

20 Q. Your declaration.

21 A. Oh, I see, Paragraph 124.

22 Q. Paragraph 124. Yes.

1 A. Yes, right.

2 Q. And let me know when you are there.

3 A. I am there.

4 Q. Okay. In the, I believe it is the
5 second sentence of that paragraph, you make
6 reference to Kim's capacitive fingerprint
7 sensor 240p2 embedded in the physical
8 button 760a. Correct?

9 A. Correct.

10 Q. Now if we look back at -- and you
11 can do it from the image of 10b that you have
12 captured in your declaration or go to the source
13 material. It doesn't matter.

14 But if you can look at Figure 10b.

15 A. Yes.

16 Q. There are actually multiple
17 structures labeled 240p2. Correct?

18 A. That is correct. Both, both within
19 the button and on either side of it, perhaps
20 surrounding it.

21 Q. And so therefore, at least based on
22 the disclosure that you cite, the fingerprint

1 image or the user fingerprint is captured by the
2 fingerprint 242 which would encompass both 240p2
3 under the button and on the sides of it.

4 Correct?

5 MR. DOUGLAS: Object to form.

6 THE WITNESS: As I think we read, it
7 may, it may do so.

8 The Kim reference discloses that
9 there may be additional sensors outside of
10 the button and I think that is what is being
11 shown as an example here in Figure 10.

12 BY MR. AMON:

13 Q. And, Dr. Berger, do you believe that
14 that use of additional sensors 240p2 not only
15 underneath the button but also to the, adjacent
16 to the physical button, that that would improve
17 the device's ability to read a fingerprint?

18 A. I don't know, I don't know if that
19 is the case. I think it is possible. I don't
20 know that it requires the -- that.

21 I think the -- it depends on the
22 surface area of the central button itself.

1 You know, so, for example, if the
2 central button -- if the button there with the
3 sensor there in the middle, you know, if that is
4 a relatively small surface area then I would
5 imagine there may be the need for additional
6 sensors.

7 If that central button has
8 substantial surface area on its own, for instance
9 if it were an elongated button, then it may be
10 superfluous or unnecessary to have additional
11 sensors.

12 Q. So, if I understood your testimony a
13 moment ago, it somewhat depends on the size of
14 the physical button. And the smaller the
15 physical button the more likely you would need
16 additional sensors around to accurately measure a
17 fingerprint.

18 Is that fair?

19 MR. DOUGLAS: Object to form.

20 THE WITNESS: Well I'm not a
21 fingerprint expert. But, I think, you know,
22 capturing a certain amount of surface area

1 may improve the accuracy.

2 And so, I could imagine that, you
3 know, for instance, what is shown here as a
4 relatively small central home button on that
5 front view in Figure 10a may be advantaged by
6 having additional sensors, beside, above
7 below or around.

8 I could similarly imagine that if
9 you had a larger, longer button, for
10 instance, you know, that which is shown in
11 the other embodiment in Figure 18, you know,
12 it may not require that.

13 It, too, might be advantaged by
14 having a separate sensor beside it or, you
15 know, further towards the top or bottom
16 relative to that elongated button shown in
17 Figure 18.

18 MR. DOUGLAS: Mike, if you are
19 asking a question, you are on mute. I'm
20 sorry.

21 MR. AMON: Thanks, Chris. I
22 apologize.

1 BY MR. AMON:

2 Q. I was going to say, Dr. Berger, if
3 we could move to your analysis of Element 1.e
4 which I believe starts at Paragraph 135 on Page
5 Exhibit 1003.76.

6 A. Yes, I'm there.

7 Q. And as I understand it, your
8 analysis of Kim vis- -vis Element 1.e of the '619
9 patent is contained at Paragraphs 135 to 140.

10 Is that correct?

11 A. Yes.

12 Q. Now in your analysis, specifically
13 Paragraph 136, do you identify Kim's disclosure
14 of the physical -- sorry, of the flexible PCB 706
15 which you opine corresponds to the claim flexible
16 conduit of Element 1.e.

17 Correct?

18 A. Yes.

19 Q. Dr. Berger, is it fair that flexible
20 conduit doesn't necessarily have to include a PCB
21 at all?

22 MR. DOUGLAS: Object to form.

1 THE WITNESS: I think the conduit
2 could represent different technologies. I
3 think a flexible PCB would be a favorable one
4 for the purpose.

5 BY MR. AMON:

6 Q. And just so the record is clear,
7 when we are talking about PCB collectively, that
8 is referring to a Printed Circuit Board, correct?

9 A. Printed Circuit Board, correct. The
10 flexible printed circuit board.

11 Q. Dr. Berger, do you know if the '619
12 patent discloses a flexible PCB at all?

13 A. Honestly, I would have to search
14 through it. I think it uses the term "flexible
15 conduit" throughout.

16 I think that again -- I think
17 flexible PCB is a particularly favorable type of
18 flexible conduit.

19 But I don't -- I'm not sure of the
20 term PCB appears in the '619.

21 Q. And to hopefully help you, I have
22 just uploaded into the Chat a OCR version of

1 the '619 patent.

2 And let me know when you have it
3 downloaded and have it open.

4 A. Thank you. It takes a moment here.
5 Okay. It mentions a PCB. Let me -- I have it
6 open and I'm searching it now.

7 Yes, it mentions PCB specifically in
8 regard to communication with a switch, yes.

9 Q. Okay. But, is the term "flexible
10 PCB" anywhere in the '619 patent?

11 A. Oh boy, okay. Hold on a sec. I'm
12 not finding those words combined together.

13 I don't find flexible PCB together.

14 Q. And I believe that you said or
15 testified a moment ago that the '619 does use
16 flexible conduit repeatedly. Correct?

17 A. Yes.

18 Q. And so, is it fair that a POSITA
19 reading the '619 patent would understand that the
20 disclosure in the '619 patent of a flexible
21 conduit is different than its disclosure of a
22 PCB?

1 A. I think a POSITA would understand
2 that a flexible PCB is one particular design
3 choice for a flexible conduit.

4 I think flexible conduit would
5 include a flexible PCB.

6 Q. But a flexible conduit could also
7 include things that don't have a flexible PCB.
8 Fair?

9 A. I suppose, I suppose it could be
10 other -- take other forms, wires and a conduit
11 that aren't necessarily printed onto a circuit
12 board.

13 Again, I think a PCB is a
14 particularly favorable way of developing a
15 flexible conduit.

16 Q. And when you say a flexible PCB is a
17 particularly favorable method of creating a
18 flexible conduit, what makes you say that?

19 A. Well, a PCB has I think some
20 manufacturing advantages and can be made flat.
21 And so I think that -- the opportunity to have
22 small conductors that are precisely positioned

1 and insulated from each other, you know, the way
2 a printed circuit board is made with a mask is so
3 that it can be very precisely designed, will be
4 flexible, reproducible and can be, you know,
5 manufactured in mass.

6 Q. Dr. Berger, in the last 24 years,
7 have you worked on the design of any flexible
8 PCBs?

9 A. In the last 24 years? I don't
10 believe in that time frame.

11 Q. In the last 24 years, have you
12 consulted for any companies in their development
13 of a flexible PCB?

14 A. Not specifically for that element.

15 Q. Dr. Berger, could I ask you to turn
16 in your declaration to Page 1003.103.

17 Let me know when you are there.

18 A. Yes, this is around, this is around
19 Paragraph 203 for Claim 4.

20 Q. Correct.

21 A. Uh-huh. Yes, I am there.

22 Q. Now, at Paragraphs 203 to 208 is

1 where you discuss your analysis of Kim vis- -vis

2 Claim 4. Correct?

3 A. Yes. Correct.

4 Q. And Claim 4 is the electronic device

5 of Claim 1 wherein the seal is overmolded around

6 the portion of the flexible conduit. Correct?

7 A. Yes.

8 Q. Does Kim -- and let me do this so

9 that you can have an electronic copy of it. Give

10 me one second.

11 Okay. I have loaded Kim 1004 into

12 the Chat. If you could download that and let me

13 know when you've done that.

14 A. Okay, I have Kim up.

15 Q. Okay. Does Kim anywhere use the

16 term "overmolded" in its disclosure?

17 A. I don't believe so.

18 Q. And in Paragraph 204 and 205

19 and 206, you are not citing any specific

20 reference from Kim that discloses overmolding.

21 Correct?

22 MR. DOUGLAS: Object to form.

1 THE WITNESS: What I am explaining
2 particularly in Paragraph 206 is that
3 overmolding is a well known, well understood
4 manufacturing means for accomplishing a seal.

5 BY MR. AMON:

6 Q. Okay. But you will agree with me
7 that there is no disclosure of overmolding in
8 Kim?

9 MR. DOUGLAS: Object to form.

10 THE WITNESS: Kim itself -- sorry.

11 Kim itself does not explicitly state
12 how that seal is manufactured.

13 That is why I am saying that a
14 POSITA would understand there are different
15 ways of manufacturing it.

16 And so a POSITA would know that
17 overmolding is a way of accomplishing the
18 seal that Kim describes.

19 BY MR. AMON:

20 Q. And so for your analysis, you are
21 relying on a POSITA's knowledge and training for
22 purposes of implementing overmolding.

1 Is that fair?

2 A. I think that is fair, yes.

3 Q. One thing that I want to ask you
4 about.

5 In Paragraph 205, and let me know
6 when you are there and have had a chance to
7 review it, to yourself.

8 A. Yes. I am there.

9 Q. At Paragraph 205 you write, "Thus
10 Kim explicitly discloses at least the electronic
11 device of Claim 1 wherein the seal is adjacent
12 with the portion of the flexible conduit."

13 Did I read that correctly?

14 A. Yes.

15 Q. And you would agree with me that a
16 POSITA would understand adjacent to mean close or
17 near.

18 Is that fair?

19 A. Yes, probably touching.

20 Q. You believe that adjacent requires
21 touching?

22 A. I'm not sure it always does.

1 I would have to see it in context.

2 Q. Well, you use the word "adjacent" so
3 that is why I am asking.

4 How do you interpret adjacent in
5 that context?

6 A. In contact with.

7 Q. Okay, Dr. Berger, we are going to
8 switch gears a little bit here.

9 And I'm going to load what has been
10 previously marked as Exhibit 1005 into the Chat.

11 (Whereupon, previously marked
12 Exhibit 1005,
13 first referral.)

14 THE WITNESS: Okay. Give me a few
15 moments because I'm also going to pull out
16 the hard if that is all right.

17 BY MR. AMON:

18 Q. Perfectly fine.

19 A. One moment. You have loaded it into
20 the Chat. Jung and Meyers.

21 Q. Yes, I put both in the Chat. So,
22 feel free to download them at your convenience

1 and pull out both hard copies.

2 A. Thank you. Okay. I think I am all
3 of the way there.

4 Q. Okay, Dr. Berger, Exhibit 1005,
5 Jung, and it is spelled J-U-N-G, but I will
6 pronounce it Jung.

7 This is part of the -- or one of the
8 prior art references that you rely on for your
9 Ground Number 3, in your analysis of the claims
10 of the '619 patent. Correct?

11 A. Correct.

12 Q. And the version that I provided to
13 you, does that appear to be a true and correct
14 copy of the Jung reference that you have
15 analyzed?

16 A. Yes.

17 Q. And you have a hard copy of that
18 same prior to art reference with you, correct?

19 A. Yes.

20 (Whereupon, previously marked
21 Exhibit 1007,
22 first referral.)

1 BY MR. AMON:

2 Q. Same questions as it relates to
3 Exhibit 1007, Meyers; is that the other prior art
4 reference that you rely on for your Ground
5 Number 3 declaration?

6 A. Yes.

7 Q. Is the version that I provided to
8 you, does that appear to be a true and correct
9 copy of the Meyers reference that you have
10 analyzed?

11 A. I believe so, yes.

12 Q. And you have a hard copy of that
13 same prior art reference with you?

14 A. Yes.

15 Q. Now as I understood your declaration
16 and your analysis, you opined that the claims of
17 the '619 patent are supposedly obvious in light
18 of the combination of Jung, in view of Meyers.

19 Is that fair?

20 A. Yes.

21 Q. Now in your opinion does Jung
22 disclose any structure for the button assembly

1 required by Claim 1 of the '619 patent?

2 A. I believe Jung describes having a
3 button or a key and what it might contain that it
4 would be, for example, waterproof and include a
5 biometric sensor such as a fingerprint sensor.

6 But the specific structural elements
7 of the button are not explained. The detail is
8 not there in Jung. That is why I am relying on
9 the combination of Jung and Meyers.

10 Q. And you referenced a moment ago that
11 Jung discloses the possibility of having a button
12 and that it might include, for example, a
13 fingerprint sensor or something.

14 Are you relying on Jung Exhibit 1005
15 at Paragraph 60 for that?

16 A. Yes, I believe that is, that is
17 where he describes the module generally as it
18 appears in the block diagram shown in Figure 2.

19 And I believe that would be -- the
20 hardware for it would be that which connects in
21 through the opening for the button assembly.

22 Q. But for the actual structure of the

1 button assembly.

2 So, for example, at Paragraphs 258
3 through, I believe, 272, which is Element 1.c
4 that is what claims the button assembly. There
5 you are primarily relying on Meyers to disclose
6 this structure of the button assembly, correct?

7 A. The structure that accomplishes what
8 is described in Jung as having those components
9 or potential components, yes.

10 Q. And I have a question about how you
11 are combining the two, and I just want to make
12 sure my understanding is correct.

13 Specifically with respect to
14 Element 1.d, starting at Paragraph 273 and going
15 through Paragraph 278.

16 A. Okay.

17 Q. And I want to focus on the Figure 1
18 that you have created on Page 1003.136.

19 A. Okay, yes.

20 Q. And the paragraphs describing it,
21 Paragraph 277 right there.

22 A. Yes.

1 Q. And is it fair, Dr. Berger, that
2 what you are describing here is that the -- let
3 me make sure I get this right.

4 That you are inserting the
5 waterproofing structure from Jung into the button
6 assembly of Meyers where you have annotated with
7 a red box in the Meyers button structure?

8 A. I would word it differently. I
9 think probably the way the figure shows that I
10 might have -- let me just change the words a
11 little bit.

12 The button assembly of Meyers from
13 that Element 122 on up would be inserted into
14 Jung into that opening, into that more or less
15 oval shaped opening right down on top of the,
16 that flexible conduit with the seal underneath
17 the flexible conduit.

18 Q. Okay. And the reason I ask is
19 because the way it shows it is you are inserting
20 the flexible conduit from Jung into the button
21 assembly with the red box annotation.

22 Is that fair? I mean that is what

1 you are showing in your annotated Figure 1?

2 MR. DOUGLAS: Object to form.

3 THE WITNESS: Yes. I'm not sure
4 that the -- I'm not sure that the red box
5 there -- I think the red box would represent
6 the bottom, or what is visible, not in the
7 entire red box --

8 I'm sorry. So, let me put it this
9 way. Yeah, I think I understand what you are
10 asking me. Let me see if I can answer it
11 properly.

12 The red box in the left side of the,
13 of what I have shown in this combined
14 Figure 1 does not represent all of the red
15 box on the right side.

16 The red box on the left side should
17 be thought of as falling into part of what is
18 shown in the red box on the right side. And
19 the particular part that it plops down into
20 is the -- is in that green slot there.

21 What you see there is the green
22 seal. I think to be fair, you know, perhaps

1 that red box should be just above those
2 little fasteners.

3 But, in any case, that whole
4 assembly goes into that opening that looks
5 more or less oval in Jung.

6 BY MR. AMON:

7 Q. So, let me, if you look back at the
8 prior page, 125 of your declaration --

9 A. Yes.

10 Q. -- or, sorry, 1003.135.

11 A. I understand.

12 Q. So, the green seal that you are
13 pointing to is the combination of what is listed
14 as Element 50 and 40 which combine to create 60.

15 Is that fair?

16 A. Yes. And the seal is that I believe
17 that Element 50 there.

18 Q. Okay. And, Element 50 fits into the
19 Meyers assembly where you have annotated the red
20 box.

21 Is that fair?

22 A. Again, I would -- the way I would

1 look at it is Element 122 of Meyers is pushed
2 down onto the visible components within that oval
3 slot in Figure 10 of Jung.

4 Q. Okay. I think that explains what I
5 was curious about.

6 Dr. Berger, is it fair that -- the
7 reason that you believe you would want to combine
8 the button structure of Meyers with the, with the
9 button assembly -- sorry, the button structure of
10 Meyers with the seal of Jung is to improve its
11 waterproofing to improve its seal
12 characteristics. Is that fair?

13 MR. DOUGLAS: Object to form.

14 THE WITNESS: No, I'm not sure that
15 is a fair representation.

16 I think that Jung provides an
17 understanding of how to create a waterproof
18 seal for a button, a multicomponent button
19 that would then communicate with the inside
20 of the device.

21 I think what, what -- Jung explains
22 what that button is supposed to do. And I

1 think one who wants to manufacture a button
2 that has those functions that can, that can
3 readily be inserted into the waterproof seal
4 system of Jung would turn to Meyers which
5 provides exactly that, the button, a
6 multicomponent button, a multifunction
7 button, particularly one that includes a
8 fingerprint sensor and would fit nicely and
9 neatly into the structure of Jung, into the
10 seal structure of Jung.

11 BY MR. AMON:

12 Q. Dr. Berger, if I could ask you to
13 turn to Meyers Exhibit 1007, and specifically to
14 Paragraph 0130 in Meyers.

15 A. Yes, I am there.

16 Q. And, have you read Paragraph 130 to
17 yourself?

18 A. Yes.

19 Q. Now, at Paragraph 130, Meyers is
20 disclosing that it includes a gasket 1025 and
21 that that gasket will prevent dirt, sweat, water
22 and the like from entering the interior of the

1 electronic device.

2 Correct?

3 A. Yes. Let me just look at the
4 element. Let's see. I just want to see the
5 figure, that 1025.

6 I know where the gasket is in other
7 figures. I will have to find a figure to see
8 where that is referring to, unless you know where
9 that is.

10 Q. I don't know where it is. Let me
11 see if I can help you. I don't believe it is
12 disclosed -- that there is a figure that
13 discloses 1025. But you are welcome to keep
14 looking.

15 A. I see a 1025 in Figure 13.

16 Q. Okay.

17 A. And in Figure 12.

18 Q. You are right, yes.

19 A. And I think an important point,
20 there is also a gasket described, by the way, in
21 Figure 1, I don't know that that is the same
22 gasket as the one in 1025.

1 And, you know, I think there may be,
2 indeed, multiple gaskets and multiple seals with
3 multiple -- with differing functions.

4 Q. Okay. But if Meyers also discloses
5 a gasket that is designed to keep out water,
6 dust, sweat and other contaminants from the
7 interior of the electronic device, why would the
8 person be motivated to combine that with Jung,
9 with Jung's seal?

10 A. Well, I think Jung provides a
11 particularly favorable way of doing so.

12 I think that there is an improvement
13 in using Jung, and I think Jung shows a
14 particularly favorable way of preventing fluid,
15 dirt, et cetera, from getting into the device.

16 I think it is an advantageous way of
17 doing it that one would seek to adopt.

18 Q. How would you know that it would be
19 an improvement over the disclosure of the gasket
20 that Meyers already includes?

21 A. Well, I think the, I think the
22 disadvantage of the way it is shown in Meyers is

1 that when that button presses down fluid, dirt
2 and grime can get into that space that you can
3 see for instance in Figure 12.

4 And so it may be advantageous to
5 have more than one sealing point.

6 But since there is going to be
7 electronics within that space that then have to
8 get from -- that require electrical connection to
9 the internal enclosed volume where the processor
10 and battery reside, that would be an opportunity
11 for fluid or external, external material that
12 gets into that space through the opening of the
13 button.

14 And so it would be advantageous to
15 seal that off at the floor of the, of that
16 opening space there.

17 Q. Okay. I appreciate that
18 information.

19 Dr. Berger, could you point me to
20 where in your declaration you articulate the
21 benefit that you just told me about in your
22 deposition?

1 A. So, it is really in Paragraph 242
2 that I am explaining that a POSITA would have
3 known that it is important to seal a fingerprint
4 sensor because fingers can introduce potentially
5 damaging moisture and dust. And I talk about
6 that.

7 And that a person of ordinary skill
8 in the art would have been motivated to
9 waterproof the fingerprint sensor button using
10 Jung's key waterproof structure.

11 I'm not sure if that is every word
12 that I provided in the question that you asked me
13 before this.

14 But, but that is where I am
15 explaining that fluid and dirt and grime can get
16 in there, particularly through the part that may
17 be depressed. And the waterproofing structure of
18 Jung is particularly adapted to prevent that from
19 getting into the electronics of the device.

20 Q. But you would agree with me that
21 nowhere in that discussion did you mention that
22 Meyers had already a waterproofing gasket.

1 Correct?

2 A. I didn't mention that particularly
3 in 242.

4 As I said, there are other gaskets
5 that I didn't mention, either.

6 There is a gasket within the button
7 of Meyers, but I don't think that that is
8 advantageous -- as advantageous as Jung in
9 preventing fluid and dirt from getting into the
10 enclosed volume of the device.

11 Q. Dr. Berger, if I could ask you to
12 turn to your analysis at Paragraphs 306 to 312.

13 And that starts on Page 1003.146.

14 A. Okay, yes.

15 Q. And this is where you are discussing
16 your opinion that the combination of Jung and
17 Meyers discloses a seal that is overmolded around
18 the portion of the flexible conduit. Correct?

19 A. Yes.

20 Q. And your analysis is contained in
21 Paragraphs 306 to 312 regarding Claim 4 of
22 the '619 in view of Jung and Meyers. Yes?

1 A. Yes.

2 Q. Now, at Paragraph 307 of your
3 declaration on Page 1003.147, you are citing from
4 Jung at Paragraph 122. Correct?

5 A. I believe so. Hold on one sec.

6 Q. Sure.

7 A. Yes, correct.

8 Q. And specifically you emphasized a
9 portion of Jung's disclosure from Paragraph 0122.
10 And let me just read from your Paragraph 307.

11 You write that, "Jung teaches that
12 the electronic device adopting the
13 key-waterproofing structure and the method of
14 waterproofing a key, according to various
15 embodiments of the present disclosure, may be
16 made of two processes, such as a process of
17 forming the silicon-not-attached portion for
18 assembling the flexible printed circuit board in
19 the insert-injected product after the circuit
20 board bracket and the silicon rubber are sealed
21 through the insert injection, and a process of
22 bonding only the silicon-not-detached portion for

1 waterproofing after assembling the flexible
2 printed circuit board through the silicon mounted
3 attached portion."

4 Did I read that correctly?

5 A. Yes.

6 Q. And you emphasize the words "a
7 process of forming the silicon-not-attached
8 portion for assembling the flexible printed
9 circuit board in the insert-injected product."
10 Correct?

11 A. Yes.

12 Q. Now, you didn't cite any figure from
13 Jung that shows this alleged process. Correct?

14 MR. DOUGLAS: Object to form.

15 THE WITNESS: Not specifically to a
16 figure here, no.

17 BY MR. AMON:

18 Q. Okay. And, it is your opinion that
19 this disclosure discloses the additional
20 requirement of Claim 4 that requires the seal is
21 overmolded around the portion of the flexible
22 conduit. Fair?

1 A. I believe so.

2 Q. Now, is it correct that the process
3 that you have emphasized is occurring after the
4 circuit board bracket and the silicon rubber are
5 sealed through the insert injection?

6 A. I'm not sure. I am suggesting that
7 the, that a way of forming the seal is to have
8 all of the structures positioned, even if not yet
9 connected and then inject the seal once those are
10 in place with a form or a mold that holds the
11 structures in place while the seal is then
12 injected.

13 Q. But you will agree with me that the
14 portion of Jung that you are citing expressly
15 reads, "The process of forming the
16 silicon-not-attached portion for assembling the
17 flexible printed circuit board in the
18 insert-injected product after the circuit board
19 bracket and the silicon rubber are sealed through
20 the insert injection."

21 Correct?

22 A. In other words, I think what Jung is

1 saying is that you can take, for example, the
2 bottom part of that button assembly and have that
3 in place and then inject the seal and then attach
4 everything else above that.

5 Q. Well, but Jung is saying that the
6 circuit board and the silicon rubber are already
7 sealed, correct? That is what the plain language
8 reads.

9 MR. DOUGLAS: Object to form.

10 THE WITNESS: In other words, the,
11 when you look at -- when you look for
12 instance at Jung at the Figure 10, for
13 instance, I believe what Jung is saying is
14 that you can have that printed circuit board.
15 You can have part of the assembly above that.

16 Obviously you are not going to, you
17 are not going to inject into -- inject a
18 product that has no restraint on it.

19 So, you've got to have the mounting
20 bracket of what slides in there in place.
21 You don't have to have the whole button
22 assembly yet there.

1 But you've got to have the bottom
2 part of the, that is going to form the roof
3 of what gets injected. You inject it.

4 And then you still have that part of
5 the printed circuit board or stick coming
6 around and sticking out.

7 BY MR. AMON:

8 Q. Okay. I think I understand your
9 answer. Thank you, Dr. Berger.

10 MR. AMON: We have been going for
11 over an hour. Why don't we take a ten-minute
12 break and then we will come back.

13 THE WITNESS: Sounds good, thank
14 you.

15 MR. AMON: Thank you.

16 (Recess taken -- 1:36 p.m.)

17 (After recess -- 1:45 p.m.)

18 BY MR. AMON:

19 Q. Dr. Berger, if I could ask you to
20 turn to your analysis of the Chang prior art
21 reference, vis- -vis Claims 1 through 10 in
22 Exhibit 1003. And I believe that starts at --

1 A. Did you say the Chang reference?

2 Q. Yes, so, your analysis of Chang --

3 A. Okay.

4 Q. -- which I believe starts at -- give
5 me one second.

6 A. I'm going to want to get a little
7 bit organized here as well.

8 Q. Let's go to Paragraph 350.

9 A. Okay. And did you want to put that
10 in the Chat?

11 Q. Yes. Thank you for reminding me. I
12 will put that into the -- it is loading up now.

13 (Whereupon, previously marked
14 Exhibit 1015,
15 first referral.)

16 BY MR. AMON:

17 Q. So, and just -- let me know when it
18 is there. And you can download it and open it
19 up, please.

20 A. Okay. I am all of the way there.

21 Q. Dr. Berger, what is Exhibit 1015?

22 A. This is the Chang reference is U.S.

1 Patent 10,133,910.

2 Q. And this is the same Chang reference
3 that you use as a basis for your opinions
4 regarding ground four in your declaration.
5 Correct?

6 A. Correct.

7 Q. Any reason to believe that the
8 version of Chang that I gave you is not a
9 complete copy of the Chang reference that you
10 analyzed?

11 A. No.

12 Q. And, do you have a hard copy of the
13 Chang reference with you?

14 A. Yes.

15 Q. And, just to summarize, you believe
16 that the Chang reference anticipates and/or
17 renders obvious the Claims 1 -- the Claims 1
18 through 10 of the '619 patent. Correct?

19 MR. DOUGLAS: Object to form.

20 THE WITNESS: I believe Chang
21 anticipates or renders obvious Claims 1, 2, 6
22 and 9 of the '619 patent.

1 BY MR. AMON:

2 Q. Fair enough. Now I want to focus in
3 on your analysis of Element 1.f in view of Chang,
4 and specifically that is at Paragraph 389 which
5 is on page -- starts on Page 1003.182.

6 A. Yes. Got it.

7 Q. And just so we are on the same page,
8 Element 1.f claims, "A portion of the flexible
9 conduit is sandwiched between the seal and the
10 sealing surface or between the seal and the
11 enclosure."

12 Did I read that correctly?

13 A. Yes.

14 Q. And on Page 1003.183 above
15 Paragraph 390, you have copied a figure from
16 Chang, Figure 3, and added some color coding.
17 Correct?

18 A. And made an alteration in the
19 implementation of the seal itself.

20 Q. Sorry. In the Figure 3 on
21 Page 1003.183, you altered the flexible conduit?

22 A. Which page of my -- 1003.183?

1 Q. Yes.

2 A. Yes, so. Here, as I believe I
3 explained, I am providing what a POSITA would do
4 to understand the Chang disclosure for another
5 embodiment of the seal item 600.

6 And so you will see that that
7 appears to be slightly different than what Chang
8 refers to actually as the alternative embodiment
9 which is what is shown in the original Figure 3
10 as, for example, on my Page 167, or that is to
11 say Exhibit 1003.177.

12 Q. Okay. And I guess that is what I
13 wanted to focus on, so I appreciate you
14 highlighting that.

15 If we look, for example, at Chang's
16 Figure 3 on your Page 1003.177.

17 Let me know when you are there.

18 A. Yes, I am there. Uh-huh.

19 Q. So, is it correct -- well, in
20 Chang's original, is the flexible conduit in your
21 opinion sandwiched between the seal and the
22 sealing surface that you have identified?

1 MR. DOUGLAS: Object to form.

2 THE WITNESS: I think that Chang
3 describes it in such a way, but then when he
4 provides the figure in, that we are referring
5 to of his Figure 3 as shown in
6 Exhibit 1003.179, that is where he shows what
7 he refers to as the alternative, where the
8 seal has an annular shape, a loop, or a ring
9 shape.

10 And in that particular construction
11 in his -- what he refers to as the
12 alternative construction, that may not be
13 literally sandwiched.

14 BY MR. AMON:

15 Q. And, when you say that he describes
16 the flexible conduit 500 sandwiched between the
17 seal 600 and the sealing surface 470, where are
18 you -- where in Chang are you relying on that
19 disclosure?

20 A. Okay. So, for example, in
21 Column 12, line, the paragraph that starts at
22 Line 12.

1 "The sealing member 600 may be
2 interposed between the lower plate and the
3 fingerprint recognized member 450 in order to
4 block external foreign matter and the opposite
5 face -- end faces of the first sealing member 600
6 may be respectively attached to the top face of
7 the lower plate 470 and the bottom face of the
8 fingerprint recognized member 450."

9 So, I think there he is describing a
10 topology that would be understood to be
11 sandwiching it.

12 Q. Now, you will agree with me that 600
13 is the seal that you have identified in Chang's
14 Figure 3. Correct?

15 A. Yes.

16 Q. And you will agree with me that the
17 sealing surface is 470, correct?

18 A. Yes.

19 Q. And 450 is the fingerprint
20 recognizing member. Correct?

21 A. Yes.

22 Q. In the section that you have just

1 read from Chang, Column 12, starting at Line 12,
2 there is no disclosure of what you are pointing
3 to as the flexible conduit 500.

4 Correct?

5 A. Not in that section. Not in that
6 paragraph.

7 Q. Okay. So, let me ask a follow-up
8 question.

9 Any other place that you would point
10 to in Chang that would identify that the flexible
11 conduit is between -- the flexible conduit 500 is
12 between the seal 600 and the sealing surface 470?

13 A. I'm not sure. I am referring to the
14 description of Figure 3 as showing it.

15 Now you are asking me where, where
16 does that explain figure -- I mean I think it is
17 shown very clearly in Figure 3.

18 Q. Well, let me just ask, Dr. Berger,
19 on that point.

20 You believe that Figure 3 on your
21 Page 1003.177, which is the original Figure 3
22 from Chang, that that shows the flexible conduit

1 sandwiched between the seal 600 and the sealing
2 surface 470, correct?

3 A. In the original figure, I think the
4 seal surrounds a portion of the flexible conduit.

5 I'm saying that there is a couple of
6 different ways -- probably only a couple of
7 different ways of accomplishing a seal -- of
8 having that seal perform its function. And one
9 would be to surround the structure and the other
10 would be to cover it.

11 And so, I think the location of the
12 seal is not what is in question. It is the
13 structure of the seal. And that is why I am
14 showing an alternative -- well, again, Chang
15 refers to this as the alternative.

16 But I think a primary or different
17 way of doing it is what I am showing in the
18 Figure 3 altered on Page Exhibit 1003.183.

19 Q. Right. And you are pointing to
20 Column 12, starting at Line 12 through Line 19 of
21 Chang as disclosing that alternative structure
22 where the seal is, it sits on top of the conduit.

1 Correct?

2 A. And it says that the seal is between
3 lower plate 470 and the fingerprint recognizing
4 member 450.

5 Q. I appreciate that, Dr. Berger. I
6 think I understand your testimony.

7 One last set of questions that I
8 need to ask you. And I apologize if I asked you
9 these already. I just don't remember.

10 With respect to your research and
11 development over the last 25 years, have you
12 worked on the research and development of
13 creating any hardware for smart watches?

14 MR. DOUGLAS: Object to form.
15 Scope.

16 THE WITNESS: Not specifically, no.

17 MR. AMON: Let me take a short
18 break, if we could take five minutes. I may
19 be at the end of my questions.

20 (Recess taken -- 2:02 p.m.)

21 (After recess -- 2:10 p.m.)

22 MR. AMON: Dr. Berger, I have no

1 further questions. Thank you very much for
2 your time today.

3 THE WITNESS: Thank you.

4 MR. DOUGLAS: And, Dr. Berger, we do
5 not have any questions. Thank you for
6 appearing on a Saturday.

7 THE WITNESS: Thank you.

8 (Whereupon, signature not having been waived,
9 the deposition suspended at 2:11 p.m. EDT)

10 * * *

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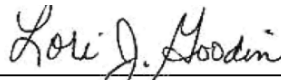
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2

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6 in which this deposition was taken; and, further, that I am
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1 Ronald D. Berger, M.D., Ph.D., c/o
Alston & Bird LLP

2 1120 South Tryon Street, Suite 300
Charlotte, North Carolina 28203

3

4 Case: AliveCor, Inc. v. Apple, Inc.

Date of deposition: April 13, 2024

5 Deponent: Ronald D. Berger, M.D., Ph.D.

6

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12

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