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BEFORE THE
UNITED STATES INTERNATIONAL TRADE COMMISSION

In the Matter of:) Investigation No.
CERTAIN MOBILE DEVICES) 337-TA-750
AND RELATED SOFTWARE)

Hearing Room A

United States
International Trade Commission
500 E Street, Southwest
Washington, D.C.

Friday, September 30, 2011

VOLUME V

The parties met, pursuant to the notice of the
Judge, at 9:00 a.m.

BEFORE: THE HONORABLE THEODORE R. ESSEX

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20 *** Index appears at end of transcript ***

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P R O C E E D I N G S

(9:00 a.m.)

1 JUDGE ESSEX: Let's come to order.

2 Complainants, where are we at?

3 MR. POWERS: We are beginning our
4 rebuttal case, Your Honor.

5 JUDGE ESSEX: All right. We don't
6 have anything to take up before your rebuttal
7 case?

8 MR. POWERS: No, Your Honor.

9 JUDGE ESSEX: All right. Then let's
10 begin.

11 MR. FERGUSON: Good morning, Your
12 Honor.

13 JUDGE ESSEX: Good morning.

14 MR. FERGUSON: We call back to the
15 stand Dr. Vivek Subramanian.

16 JUDGE ESSEX: Good morning, Doctor.

17 THE WITNESS: Good morning.

18 JUDGE ESSEX: I would remind you, you
19 have previously been sworn in this case and you
20 are still under oath as you take the stand
21 here.

22 //

23 //

1 Whereupon--

2 VIVEK SUBRAMANIAN,
3 a witness, called for examination, having previously
4 been duly sworn, was examined and testified further as
5 follows:

6 JUDGE ESSEX: Please be seated.

7 THE WITNESS: I understand, Your
8 Honor.

9 JUDGE ESSEX: All right.

10 MR. FERGUSON: Thank you, Your Honor.
11 We did distribute Dr. Subramanian's rebuttal
12 notebooks already, so those should be up there
13 with you.

14 DIRECT EXAMINATION

15 BY MR. FERGUSON:

16 Q. Good morning, Dr. Subramanian.

17 A. Good morning.

18 Q. You should have a binder in front of
19 you that contains your rebuttal witness
20 statement. Do you have that?

21 A. Yes, I do.

22 Q. And is that marked CX-569C?

23 A. Yes, it is.

24 Q. And can you turn, please, to the last
25 page of this document and let us know if that

1 is your signature?

2 A. Yes, it is.

3 Q. And it is dated September 6th; is that
4 right?

5 A. That's correct.

6 Q. And did you give the answers to the
7 questions that were posed in this rebuttal
8 witness statement?

9 A. Yes, I did.

10 MR. FERGUSON: Pass the witness, Your
11 Honor.

12 CROSS-EXAMINATION

13 BY MR. DeFRANCO:

14 Q. Good morning, Doctor.

15 A. Good morning.

16 Q. We're going to speak this morning
17 about invalidity issues relating to the '607
18 patent; is that correct?

19 A. I understand.

20 Q. The '607 patent is up on the screen.
21 Obviously you spent a lot of time with this
22 patent in your work on this case.

23 Now, let's turn to the background of
24 the invention section of this patent. And you
25 are aware generally, Doctor, that the

1 background section gives some information about
2 the state of the art prior to what's set forth
3 as the invention in a given patent. Is that
4 fair?

5 A. That is certainly one of the things
6 that is often placed in the background section.

7 Q. Part of the purpose of the background
8 is to tell people who want ultimately to find
9 out about the scope of the invention as to what
10 was done by others before. Fair enough?

11 A. Yes, that's reasonable.

12 Q. A bit of information? This is the
13 starting point, this is the background of
14 what's in the field. Fair enough?

15 A. Are you referring specifically to this
16 or the background section generally?

17 Q. Generally, generally.

18 A. Yes, I think generally background
19 sections do contain information about what was
20 already in the field at the time.

21 Q. You said specifically to this. This
22 background generally did the same thing, didn't
23 it, for the '607 patent? It gives some
24 information about what was in the field prior
25 to the invention that's later set forth?

1 A. Yes, some of that information is
2 certainly contained in the background of the
3 '607 patent.

4 Q. Now, you have seen many patents. It
5 is common in patents to not only discuss the
6 prior art generally, but sometimes to
7 specifically reference certain pieces of prior
8 art. You have seen that in patents before?

9 A. I have.

10 Q. An example, in many of the patents we
11 have looked at in this case for different
12 reasons, the background would say something
13 about the prior art, and then it would say,
14 well, here is an example of this patent and
15 what it discloses, here is an example of that
16 patent and what it discloses, that sort of
17 thing; is that correct?

18 A. I have certainly seen that in numerous
19 patents. To be honest, sitting here right now,
20 I would have to look at the patents to confirm
21 that that exists, but I certainly agree that it
22 is generally true.

23 Q. And then they go on, patents often go
24 on to say, now, there is the prior art, let's
25 discuss the advance in this particular patent?

1 A. Yes, that's a structure that's quite
2 common.

3 Q. Now, just for the record, the '607
4 patent talks about the field, but it doesn't
5 specifically call out any prior art references
6 in particular. Is that fair?

7 A. You mean within the background of the
8 invention section?

9 Q. Yes, sir.

10 A. Yes, there are no specific references
11 called out in the background of the invention
12 section and discussed within the text of the
13 same.

14 Q. Okay. But it does talk about what was
15 in the field at the time, and I would like to
16 walk through that just a little bit. Okay?

17 So if we start off in the first
18 paragraph, it talks about -- actually, there
19 are two sections I should point out, the field
20 of the invention and the description of related
21 part. Do you see that?

22 A. I do see those two sections.

23 Q. The first paragraph under the
24 description of the related art, that is very
25 general background about different types of

1 input devices; is that correct?

2 A. Yes, that's a reasonable way of
3 describing that paragraph.

4 Q. For example, lines 14 to 16 talks
5 about buttons, keys -- buttons or keys, mice,
6 track balls, touch pads, joy sticks, and then
7 touchscreens and the like. Do you see that?

8 A. Yes, I do see that language.

9 Q. We care more, of course, about
10 touchscreens. The next sentence reads,
11 "touchscreens, in particular, are becoming
12 increasingly popular because of their ease and
13 versatility of operation as well as their
14 declining price."

15 Do you see that?

16 A. Yes, I see that language.

17 Q. You don't disagree with that, do you?

18 A. No, I generally don't disagree with
19 that.

20 Q. So let's move on a little bit to keep
21 walking through the background. If we go down,
22 Ryan, to line 24, that's fine. The background
23 section goes on in the next paragraph and
24 states, "touchscreens typically include a touch
25 panel, a controller, and a software driver."

1 Do you see that?

2 A. Yes, I see that language.

3 Q. And then the next paragraph, if we go
4 down, Ryan, if you could move down to the next
5 paragraph, it says, "there are several types of
6 screen technologies including resistive,
7 capacitive, infrared, surface acoustic wave,
8 electromagnetic, near-field imaging, et
9 cetera."

10 Do you see that?

11 A. I do.

12 Q. Now, that's a survey of the different
13 types of touchscreens that were available in
14 the field at the time, sir?

15 A. That's a listing of the various types
16 that were generally available at that time,
17 yes.

18 Q. Okay. But in this case, in
19 particular, we're interested in one particular
20 type. Would you point that out for us?

21 A. Which type?

22 Q. Yes, which type.

23 A. In general, this patent is
24 specifically focused on capacitive
25 touchscreens.

1 Q. And of course, in this case, we have
2 talked about two different types of capacitive
3 touchscreen devices. Would you tell us what
4 those two types are?

5 A. Certainly. Broadly, we have talked
6 about capacitive touchscreens that are
7 so-called self-capacitive touchscreens and
8 capacitive touchscreens that are mutual
9 capacitive touchscreens.

10 Q. And then the next paragraph, I don't
11 think, is terrifically important unless there
12 is something you want to say about it. It
13 talks about one of the technologies we're not
14 interested in here, do you see that, sir,
15 surface acoustic wave technologies? Do you see
16 that, sir?

17 A. In the paragraph starting at line 34?

18 Q. Yes.

19 A. I apologize, starting at line 50?

20 Q. Yes, I'm sorry, line 50.

21 A. That is one of the technologies that
22 it talks about in that paragraph, but certainly
23 the first line is about surface acoustic wave
24 technologies.

25 Q. Okay. The last paragraph, I believe

1 it is fair to say, is sort of the segue I was
2 alluding to earlier. In other words, the
3 background has discussed what was in the field
4 generally and then it goes on to say, now, here
5 is the problems with what's out there, what's
6 in the field.

7 Do you see that, sir? Do you want to
8 take a look at that?

9 A. I see that section.

10 Q. Well, let's -- that's great, Ryan.
11 Thanks.

12 So let's just take a minute or two and
13 go through the rest of the background section.
14 The first sentence says, "one problem found in
15 all of these technologies is that they are only
16 capable of reporting a single point even when
17 multiple objects are placed on the sensing
18 surface."

19 Do you see that?

20 A. I do.

21 Q. It says, "that is, they lack the
22 ability to track multiple points of contact
23 simultaneously."

24 Do you see that, sir?

25 A. I do.

1 Q. That's what we have been referring to
2 in this case as multi-point or multi-touch? I
3 am not sure which word you prefer. The ability
4 to sense when two different touch points are
5 being placed on a given screen?

6 A. You can use either. I will understand
7 what you mean. If I don't understand, I will
8 certainly ask you for clarification.

9 Q. So it is fair, isn't it, to say that
10 the inventors or the patent applicants at that
11 time at that portion of the background section
12 were saying, this is what the prior art is
13 lacking, it is lacking the ability to sense two
14 touch points at one time, also known as
15 multi-touch; is that fair?

16 A. This was one of the problems that the
17 patent identified in the description on
18 description of the related art with respect to
19 the technologies available at the time.

20 Q. Yes.

21 A. And that includes the technologies
22 that we have listed previously.

23 Q. Exactly. That's the first problem,
24 right, that it discusses in this background
25 section, right, the ability -- the lack of the

1 ability in the prior art to sense two touch
2 points; that is, to have multi-touch?

3 A. Yes, that is one problem that the
4 patent says is found in all of these
5 technologies, where these technologies refers
6 to resistive, capacitive, et cetera, as we have
7 discussed previously.

8 Q. Okay. Then it goes on and it gives a
9 little bit more information. I think that's
10 what you were alluding to. It says, "in
11 resistive and capacitive technologies, an
12 average of all simultaneously occurring touch
13 points are determined and a single point which
14 falls somewhere between the two, between the
15 touch points is reported."

16 Do you see that?

17 A. I do.

18 Q. And I think that's something that you
19 have discussed a bit earlier in this case.
20 That's an elaboration on what was discussed
21 earlier in the paragraph; that is, the lack of
22 the ability of the prior art to distinguish
23 between two touch points.

24 Is that fair, sir?

25 A. Yes, that is.

1 Q. Okay. And I think the last bit of
2 that paragraph is not particularly relevant,
3 unless there is something you wanted to say
4 about it. Now --

5 A. So there is a relevance to that as
6 well, but --

7 Q. Okay. But not to capacitive
8 necessarily, is there, sir, in that last
9 sentence? It is referring to different
10 technologies, surface wave and infrared? Do
11 you see that?

12 A. That particular section is
13 specifically talking about surface wave and
14 infrared technologies, where it says it is
15 impossible to discern the exact position of
16 multiple touch points that fall in the same
17 horizontal or vertical lines due to masking.

18 However, the issues associated with
19 masking exist in capacitive technologies as
20 well.

21 Q. Okay. But it doesn't -- in that
22 sentence, for what it is worth, it is talking
23 about surface wave and infrared in particular
24 with respect to that issue; is that fair?

25 A. Yes, I agree with that.

1 Q. And then the last paragraph goes on to
2 say that these problems are particularly
3 problematic in tablet PCs, where one hand is
4 used to hold the tablet and the other is used
5 to generate touch events.

6 Do you see that, sir?

7 A. I see that sentence.

8 Q. Okay. Now, a tablet is -- we all know
9 what a tablet is. It is like a tablet device
10 like an iPad device, is that how you think of a
11 tablet?

12 A. With respect to what we're referring
13 to here, yes.

14 Q. Okay. And why don't we just show --
15 Ryan, maybe you can just leave column 2 and put
16 the first page of figures on the left-hand
17 side.

18 Now, in that paragraph, it references
19 figures 1A and 1B. Do you see that? It says,
20 "holding a tablet 2 causes the thumb 3 to
21 overlap with the edge of the touch sensitive
22 surface of the touchscreen."

23 Do you see that, sir?

24 A. Yes, I see that language.

25 Q. Generally, it is depicting the

1 problems in the prior art with respect to the
2 lack of the ability to sense multiple touches
3 using a tablet device and someone using two
4 fingers.

5 Do you see that?

6 A. Actually, what this section is
7 describing is how tablets are affected by the
8 problems that we have discussed in the prior
9 art section.

10 Q. Better put, okay.

11 Now, by the way, you were here for
12 Mr. Hotelling's testimony?

13 A. Yes.

14 Q. At the beginning of the case?

15 A. Yes, I was.

16 Q. And I believe he said something to the
17 effect of the project -- that the development
18 project for a product that Apple had in mind at
19 the time that led to the inventions in the '607
20 patent was a tablet-like device.

21 Do you remember that?

22 A. Yes.

23 Q. It wasn't a phone or anything else, he
24 specifically said it was a tablet. Do you
25 recall that, sir?

1 A. In terms of the origination of the
2 project, yes, I believe that's true.

3 Q. Okay. So to summarize, sir, we have
4 been through the background section. We have
5 looked at some of the figures that are
6 referenced.

7 We have discussed the capacitive
8 disclosure relating to capacitive technologies.
9 Nothing in the background section says anything
10 to the effect that multi-touch was available in
11 some form prior to this patent. Is that fair?

12 A. No, I disagree. It says that there
13 are problems with having multiple touches.
14 That's as far as it goes. If you are asking
15 me, is there explicit disclosure of a system
16 that accurately detects multiple touches, yes,
17 I agree that didn't exist.

18 Q. There is no specific disclosure of a
19 multi-touch device in the background section?

20 A. Of a system that can accurately detect
21 multiple touches? Absolutely, I agree.

22 Q. And there certainly is no disclosure
23 of a system that solved the problem of being
24 able to detect multiple touches; is that fair,
25 sir?

1 A. In the background?

2 Q. Yes.

3 A. Yes, I agree.

4 Q. Okay. Let's turn to one of the prior
5 art references in this case that's been
6 discussed a bit, the SmartSkin reference.
7 Obviously you have spent a lot of time with
8 that.

9 Let's put up on the screen RDX-28.002.
10 A little bit of background for the record, sir.
11 This is one of the prior art references that
12 Motorola is relying on in this case for its
13 invalidity assertions.

14 You're aware of that?

15 A. Yes, I believe it was also cited
16 within the patent.

17 Q. And there should be a date, Ryan, in
18 the lower left, if you can blow it up at the
19 bottom. It says published in April 20 to 25th,
20 2002.

21 Do you see that, sir?

22 A. I do.

23 Q. And you were here for Mr. Hotelling's
24 testimony, you're aware that this is -- the
25 SmartSkin device is one of the devices that the

1 inventors were aware of in the course of their
2 development work that led to the '607 patent,
3 sir?

4 A. In the time frame over which the
5 project ran, I do understand that they were
6 aware of the SmartSkin device somewhere in that
7 period.

8 Q. Okay. Now, let's turn to the next
9 slide, which is RDX-28.003. And this slide is
10 actually -- it is a slide within a slide or
11 there is a slide within this slide. It is
12 CDX-009.037, which if I have it right, this is
13 the demonstrative in which you set forth the
14 contours of your view as to what was lacking in
15 the SmartSkin reference.

16 Is that fair?

17 A. Yes, I believe that's right.

18 Q. And I want to understand something.
19 It says multi-touch under Motorola's
20 construction. You're saying that SmartSkin
21 lacked multi-touch under Motorola's
22 construction in this case?

23 A. Under specific aspects of Motorola's
24 construction, yes.

25 Q. And at least part of the basis for

1 your opinion is that multi-touch would require
2 scanning every sensor location across the plane
3 of a touch panel at exactly the same instance
4 in time?

5 A. Under Motorola's construction?

6 Q. Yes.

7 A. Yes.

8 Q. Okay. Now, for infringement purposes
9 in this case, I want to talk about how this
10 relates to your infringement analysis.

11 It was your testimony earlier that the
12 Motorola accused products met the multi-touch
13 limitation under Motorola's construction; is
14 that right?

15 A. Yes, I believe so.

16 Q. For example, you said that Motorola's
17 accused products met the multi-touch aspect of
18 the preamble of the claim 1, for example, of
19 the asserted claims in this case?

20 A. Could you point me to the specific
21 section of my --

22 Q. Sure. Let's put up question 260 and
23 the answer, please, Ryan.

24 Do you see there, sir, in the first
25 sentence, "the accused products also satisfy

1 this limitation," and we're talking about the
2 preamble in the question, "under Motorola's
3 proposed construction for the same reasons
4 discussed with respect to the preamble under
5 Apple's proposed constructions." Do you see
6 that?

7 A. With respect to this question, yes, I
8 see that.

9 Q. The way that is phrased, if I have it
10 correct, under either party's construction, the
11 multi-touch limitation in your infringement
12 analysis is met, as it is set forth in the
13 preamble; is that fair?

14 A. Could I have my report that has this,
15 so I can look at the question it is referring
16 to?

17 Q. Sure, absolutely.

18 A. It is not this one. It is not this
19 one -- it's not in the rebuttal report. This
20 is in the initial witness statement. And you
21 said question 260?

22 Q. Yes, sir.

23 A. I see that.

24 Q. Okay. Just a couple of examples as to
25 why you found infringement of this limitation.

1 You said that the Motorola accused
2 products recognize multiple touches and have
3 the abilities to use multi-touch gestures; is
4 that correct? I believe that's right in that
5 paragraph that you are taking a look at.

6 A. Yes, it is there.

7 Q. You have also said that the accused
8 Motorola products recognize certain gestures;
9 is that correct, sir? And if you take a look
10 at this section, this answer where it reads,
11 "for example," do you see that? Do you see
12 there some examples?

13 A. Yes.

14 Q. Of what is done in the Motorola
15 products that led you to find infringement of
16 the multi-touch aspects of claim 1?

17 A. Yes.

18 Q. For example, you pointed out pinch to
19 zoom; is that correct?

20 A. That is correct.

21 Q. You pointed out that the hardware is
22 necessarily arranged in a certain way to meet
23 the multi-touch limitation; is that correct,
24 sir?

25 A. That's correct.

1 Q. Let's turn to the next slide, please,
2 Ryan. Now, when we turn to the SmartSkin
3 reference, obviously you don't find that the
4 SmartSkin reference is anticipatory, as
5 Motorola found; is that correct?

6 A. I do not find that.

7 Q. And is part of your rationale for
8 that, sir, the fact that, in your opinion,
9 SmartSkin does not have the ability to
10 recognize multiple touches under Motorola's
11 construction?

12 A. With respect to Motorola's
13 construction, SmartSkin does not have the
14 ability to detect them at exactly the same time
15 since it scans.

16 If the intent of Motorola's
17 construction is to indicate that it has to
18 happen at exactly the same time, then it would
19 not meet it under Motorola's construction.

20 Q. Let's take a look at part of the
21 disclosure in the SmartSkin reference. It says
22 -- and you have been through this reference in
23 detail before, right, sir?

24 A. I have reviewed this reference.

25 Q. Let's -- you know what, let's put up

1 -- Ryan, could you put up the first page of
2 JTX-367.001. Let's put this -- we're going to
3 spend a few minutes on this. Let's put this
4 reference in perspective and go through the
5 abstract like we went through a bit of the
6 background of the '607 patent, okay? Fair
7 enough?

8 A. I understand.

9 Q. Could you blow up the abstract,
10 please, Ryan.

11 The first sentence says, sir, "This
12 paper introduces a new sensor architecture for
13 making interactive surfaces that are sensitive
14 to human hand and finger gestures."

15 Do you see that, sir?

16 A. I do.

17 Q. And there is some disclosure -- we
18 will get to it -- there is some text, there is
19 some figures that show using finger touches or
20 finger gestures. Is that fair enough, sir?

21 A. You mean within the examples within
22 SmartSkin?

23 Q. Yes.

24 A. Yes, there is some descriptions of
25 that.

1 Q. The next sentence goes on and reads,
2 "the sensor recognizes multiple hand positions
3 and shapes and calculates the distance between
4 the hand and the surface by using capacitive
5 sensing and a mesh-shaped antenna."

6 Do you see that, sir?

7 A. I do.

8 Q. "In contrast to camera-based gesture
9 recognition systems, all sensing elements can
10 be integrated within the surface and this
11 method does not suffer from lighting and
12 occlusion problems."

13 Do you see that, sir?

14 A. I see that language as well.

15 Q. And I think the last couple of
16 sentences are a bit more compelling. It says,
17 "this paper describes a sensor architecture, as
18 well as two working prototype systems: A
19 table-size system and a tablet-size system."

20 Do you see that, sir?

21 A. I do.

22 Q. There has been references several
23 points during the course of this hearing about
24 the table-size system, but you don't dispute,
25 sir, that this reference, the SmartSkin

1 reference, also disclosed a tablet-sized
2 system; is that fair?

3 A. That's correct.

4 Q. And it goes on to say, "it also
5 describes several interaction techniques that
6 would be difficult to perform without this
7 architecture."

8 Do you see that, sir?

9 A. I see that language.

10 Q. So let's go back to RDX-28.004, which
11 shows a blowup of figure 2 and some text
12 relating to figure 2.

13 So there has been a bit of discussion
14 about figure 2 in this case, but at least this
15 portion says at the bottom, "the system
16 time-dividing transmitting signal sent to each
17 of the vertical electrodes and the system
18 independently measures values from each of the
19 receiver electrodes."

20 Do you see that, sir?

21 A. I see that language. This is in
22 reference to the -- this is the second
23 paragraph of the discussion of figure 2.

24 Q. Yes. And it says, "these values are
25 integrated to form two-dimensional sensor

1 values, which we called proximity pixels. Once
2 these values are obtained, algorithms similar
3 to those used in image processing, such as peak
4 detection, connect region analysis, and
5 template matching, can be applied to recognize
6 gestures."

7 Do you see that, sir?

8 A. I believe you misread it. It is
9 connected region analysis, but otherwise I
10 think you read it correctly.

11 Q. And then the conclusion at least in
12 that paragraph says, "as a result, the system
13 can recognize multiple objects." In parens,
14 for example, hands. If the granularity of the
15 mesh is dense, the system can also recognize
16 the shapes of the objects. Do you see that,
17 sir?

18 A. There is no "also," but otherwise you
19 read it correctly.

20 Q. You don't dispute -- thanks for that.
21 You don't dispute that is specific disclosure
22 that's set forth in the SmartSkin reference?

23 A. That language is there, yes.

24 Q. Now, is it your opinion that that
25 doesn't disclose the ability -- well, would you

1 say, sir, that the disclosure in figure 2 and
2 the related text sets forth a mutual
3 capacitance system?

4 A. The disclosure in figure 2 and the
5 related text is certainly a system that
6 exploits mutual capacitance.

7 Q. And it is your testimony, sir, that --
8 well, do you believe this does not disclose the
9 ability to detect multiple touches?

10 A. With respect to the detection of
11 multiple touches alone, no, I haven't taken
12 that position.

13 Q. Okay. What's your position with
14 respect to multiple touches?

15 A. With respect to SmartSkin?

16 Q. Yes, sir.

17 A. With respect to Apple's construction,
18 I have not taken a position that SmartSkin does
19 not disclose the ability to detect multiple
20 touches in the system shown in figure 2.

21 With respect to Motorola's
22 construction, if Motorola's construction is
23 intended to mean that detection has to occur at
24 exactly the same time, then it does not meet
25 the requirements of that construction.

1 Q. Okay. But if detection does not have
2 to occur at exactly the same time, again, then
3 you would find disclosure of that element in
4 this reference for either construction; is that
5 fair?

6 A. So you are asking me to start from the
7 hypothetical that Motorola's construction does
8 not require detection --

9 Q. If that were the case, yes.

10 A. I understand. If Motorola's
11 construction does not require detection to
12 occur at exactly the same time, then I believe
13 at least with respect to this portion, where we
14 are just talking about the ability to detect
15 multiple touches, then figure 2 shows that.

16 Q. Okay. Now, generally, we have been
17 through this in detail before, I am sure you
18 have read it many times.

19 Figure 2 and the associated text in
20 SmartSkin, would you say that that discloses a
21 mutual capacitance touch system that is
22 configured to recognize the relative
23 positioning of two different objects?

24 A. Could I have the question again,
25 please?

1 Q. Would you read it back?

2 THE REPORTER: "Question: Figure 2
3 and the associated text in SmartSkin, would you
4 say that that discloses a mutual capacitance
5 touch system that is configured to recognize
6 the relative positioning of two different
7 objects?"

8 THE WITNESS: I have no disagreement
9 with that statement with respect to figure 2.

10 BY MR. DeFRANCO:

11 Q. Just for the record, I don't want to
12 belabor it. I want to move through some of the
13 figures in the SmartSkin reference that depict
14 that visually.

15 Let's turn to the next slide. Figure
16 7, for example, shows a person using two hands
17 to move objects, to move around the SmartSkin
18 surface and move two images.

19 Do you see that?

20 A. Figure 7, if we look at the left, it
21 shows two halves of this image apart from each
22 other. And then the right-hand side of figure
23 7 shows that they have been pushed together.
24 So that's what it calls concatenating two
25 objects.

1 reference?

2 A. These are certainly some of the
3 gestures that are discussed within the
4 SmartSkin reference and, indeed, I do agree
5 that these do involve multiple touches.

6 Q. Let's talk a bit about transparency
7 and your opinion about what is or what is not
8 disclosed in the SmartSkin reference with
9 respect to transparency. Okay?

10 A. I understand.

11 Q. Let's go to slide RX-28.006. Again,
12 sir, in the discussion in this hearing about
13 SmartSkin, and this particular paragraph about
14 transparency, and obviously you think there is
15 some shortcomings as to the scope of the
16 disclosure of this particular paragraph; is
17 that fair enough?

18 A. It is my opinion that there are
19 significant deficiencies with respect to this
20 paragraph. This paragraph is a discussion --
21 it falls within the section on future work.

22 Q. I'm sorry, I didn't mean to cut you
23 off. We're going to go through your issues. I
24 just wanted to set that premise, okay?

25 A. I understand.

1 Q. But my point is that hopefully there
2 are some things we can agree on. And I just
3 want to establish that first, okay?

4 A. I don't know if we will or not.

5 Q. Okay. Well, let's give it a shot,
6 okay? So in this paragraph, can we at least
7 agree that it is disclosing the use of a
8 transparent sensor such as can be manufactured
9 or etched using ITO?

10 A. In fact, this section discloses the
11 possibility in future work of using transparent
12 electrodes in a SmartSkin sensor that could be
13 obtained by using ITO.

14 Q. Okay. You are referring to, I
15 believe, the beginning of the section. And I
16 didn't mean to not point that out to you, but
17 you said that before at the hearing, that the
18 future, I believe the future -- let's put that
19 up.

20 If you put the entire -- go back to
21 the entire page, Ryan. I want to point out
22 what the Doctor is referring to. Conclusion
23 and directions for future work.

24 I think that's what you are referring
25 to, sir, that the section that talks about

1 transparent electrodes, electrodes that could
2 be made out of transparent materials such as
3 ITO, that falls in a section of the SmartSkin
4 reference that's entitled conclusions and
5 directions for future work. Do you see that?

6 A. It does. It is not in a section
7 that's related to what they have done. In
8 fact, specifically it will not work with figure
9 2.

10 Q. Now, sir, you don't dispute, though,
11 again, figure 2 discloses a mutual capacitance
12 device?

13 A. That's correct.

14 Q. Okay. So I just want to make sure,
15 though, when you are referring to future work,
16 what that says in that paragraph about ITO, you
17 don't dispute that that's an accurate statement
18 as to what the article reference had said at
19 the time?

20 A. I mean, if you are asking me, do the
21 words indium tin oxide appear in that section,
22 the answer is yes. However, it is my opinion
23 for detailed technical reasons that that will
24 not -- that firstly, that is in a future work
25 section and that will not work with respect to

1 the mutual capacitance system of figure 2.

2 Q. Okay. But let's go back. Can you
3 blow up that particular paragraph?

4 Now, by the way, sir, you're aware
5 that a person can apply for a patent without
6 actually having made a prototype that's covered
7 by each and every claim of a particular patent;
8 is that true?

9 A. With respect to prototyping,
10 absolutely.

11 Q. Right. For example, as we have seen
12 during this hearing by way of example, patents
13 often have many dependent claims, right?

14 A. Yes.

15 Q. For example, dependent claims can
16 branch off an independent claim and lay out
17 individually different materials that can be
18 used for a particular aspect of an invention.
19 Is that fair?

20 A. Yes, that's certainly possible.

21 Q. And one of the reasons for that is the
22 inventors want to make sure that they don't
23 have a claim that's so broad that it is going
24 to be invalidated by the prior art, so if it
25 comes time for an assertion, they can point to

1 one that's a bit more specific and would
2 hopefully avoid the prior art, while at the
3 same time capturing the accused device. Fair
4 enough?

5 A. I can't comment on the inventor's
6 intent for doing what they do, but that would
7 certainly be an outcome of having narrower
8 claims being dependent on broader independent
9 claims.

10 Q. And this patent, in particular, the
11 '607 patent, before we get back to SmartSkin,
12 it discusses ITO, doesn't it?

13 A. Yes, there are claims that mention
14 ITO. And within the spec, it talks about ITO.

15 Q. Well, I don't think there are claims
16 that specifically -- well, let me go back.

17 It discusses ITO in the specification
18 in a number of places, correct?

19 A. Yes.

20 Q. But it doesn't specifically reference
21 any other type of transparent material, does
22 it?

23 A. I'd have to check. Give me one
24 second. And by transparent, you mean
25 transparent conductor, not glass or plastic or

1 glass member?

2 Q. Yes, yes.

3 A. I believe that's right. I believe
4 that says with a transparent conducting medium
5 such as indium tin oxide, but it doesn't offer
6 other alternatives that do exist, but the only
7 one it specifically calls out as an example is
8 ITO.

9 Q. Right. Were there other alternatives
10 at that time that existed to use as a
11 transparent conductive material?

12 A. Yes.

13 Q. In the devices we're talking about?

14 A. Yes.

15 Q. None of those are disclosed?

16 A. Explicitly disclosed?

17 Q. Yes.

18 A. Beyond the statement -- beyond the
19 statement saying such as, yes, I agree. The
20 only specific disclosure of a particular
21 material is ITO.

22 Q. And in your deposition, if I have it
23 right, you talked about characteristics of ITO
24 specifically that are -- that one needs to
25 consider in determining exactly how to

1 implement or use ITO in a mutual capacitance
2 device that's intended to have multi-touch
3 capabilities.

4 Do you recall that, sir?

5 A. I recall discussing the properties of
6 ITO in the context of how it would behave in
7 various systems.

8 Q. Right. Sure. Right? I mean, things
9 like thickness, the width, the shape are
10 considerations, right, for how ITO is going to
11 behave in a particular implementation? Isn't
12 that fair?

13 A. Generically, yes.

14 Q. Resistance, you referred to
15 resistance. The resistance of the material
16 itself impacts other characteristics that may
17 be relevant to the use in the particular
18 device, sir. Is that correct?

19 A. That's absolutely true, because the
20 resistivity of ITO is quite poor.

21 Q. Right. And certain characteristics or
22 features that are relevant to its transparency
23 are a function of resistivity; isn't that true,
24 sir?

25 A. If you are asking me, is there a

1 tradeoff between transparency and resistance,
2 the answer is yes. If you are asking me if
3 there is a tradeoff between transparency and
4 resistivity, that's not necessarily true.

5 Q. Okay. Yes, between resistance, there
6 is a tradeoff with transparency; is that
7 correct, sir?

8 A. Yes, in the specific case where you
9 reduce resistance by increasing thickness, you
10 degrade transparency.

11 Q. And some of the other characteristics
12 are capacitance, you said, correct?

13 A. ITO on its own is a conductor. When
14 we talk about capacitance of it, it would be
15 when configured in some other system.

16 Q. But control, in terms of -- I am
17 simply asking in terms of the considerations
18 that go into designing a transparent
19 multi-touch system using ITO, you list the
20 characteristics, one is control of the
21 capacitance of the particular device at issue;
22 is that fair?

23 A. Of the various capacitances of the
24 device at issue, yes, that would be true.

25 Q. Yes.

1 A. There is not a single capacitance.

2 Q. I apologize for speaking over you.

3 The capacitance of the ITO that's
4 being used is part of that, isn't it?

5 A. Capacitance is measured between -- is
6 a measure of -- capacitance is, in fact,
7 defined as DQ/DV , it is how much charge changes
8 for a given change in voltage. So there has to
9 be a reference.

10 You can't talk about the capacitance
11 of ITO on its own.

12 Q. Yes, no, absolutely. But in
13 determining DQ over DV , you take into
14 consideration the capacitance effect of the
15 ITO?

16 A. If you are talking about a capacitor
17 which includes one or more terminals made of
18 ITO, then in the calculation you would take
19 into account the area, among other things, of
20 the ITO.

21 Q. And in designing a particular product,
22 you are certainly going to take into account
23 the area of the ITO and how it impacts
24 capacitance of the device overall.

25 A. Yes, I agree with that.

1 Q. Dispersion, you also mentioned
2 dispersion as another characteristic. Can you
3 tell us what dispersion is?

4 A. Certainly. Dispersion is the change
5 in capacitance as a function of frequency and
6 more specifically it is the change in
7 dielectric constant as a function of frequency.

8 Q. Okay. Another characteristic, another
9 variable that needs to be taken into account
10 when designing a mutual capacitance transparent
11 device that has multi-touch capability; is that
12 fair?

13 A. I'm sorry, I didn't understand the
14 question.

15 MR. DeFRANCO: Would you read it back?

16 THE REPORTER: "Question: Okay.
17 Another characteristic, another variable that
18 needs to be taken into account when designing a
19 mutual capacitance transparent device that has
20 multi-touch capability; is that fair?"

21 THE WITNESS: Again, I still don't
22 understand the question.

23 BY MR. DeFRANCO:

24 Q. I'm sorry, I was talking about
25 dispersion. Dispersion is another one of those

1 characteristics that needs to be taken into
2 account in designing a mutual capacitance
3 multi-touch device that is transparent. Fair
4 enough?

5 A. Yes, I agree with that.

6 Q. Those three characteristics relate or
7 are all factors in the implementation of ITO --
8 using ITO; is that fair enough?

9 A. In such a device?

10 Q. Yes.

11 A. With respect to such a device, you do
12 consider the characteristics we talked about.
13 Dispersion is actually more related to the
14 dielectric, not to the ITO itself.

15 Q. But it is a factor?

16 A. In terms of doing the design of a
17 mutual capacitance system, you would consider
18 dispersion.

19 Q. Yes. And the characteristics that we
20 discussed, to the extent they relate or are
21 impacted by ITO, the same would be true of
22 other materials that could be used as a
23 conductor in a given device?

24 A. If you are asking me, do the
25 properties of the conductor affect the ability

1 to implement a system, the answer is
2 absolutely, yes.

3 Q. Well, you said that -- we agreed, at
4 least, that ITO is discussed or disclosed in
5 the '607 patent, right?

6 A. Yes.

7 Q. And you agreed that there were no
8 other examples of a transparent conductive
9 material specifically disclosed. Is that
10 correct?

11 A. The only specific example was ITO,
12 yes.

13 Q. And I think you said there are other
14 examples in the field.

15 A. You mean, am I aware of other
16 materials?

17 Q. Yes.

18 A. Yes. In fact, I work on them. That's
19 how I know about them.

20 Q. And as of your deposition -- by the
21 way, you have never yourself designed or made a
22 mutual capacitance multi-touch device using
23 ITO; is that correct?

24 A. I have never made one.

25 Q. You have never done that yourself?

1 A. I have never made one myself. That's
2 absolutely true.

3 Q. My question, going back, simply is the
4 characteristics that you identified for us,
5 resistance, capacitance, dispersion, relating
6 to the material in a multi-touch sensor, those
7 would vary based on the material, wouldn't
8 they, sir? They would be different for ITO
9 versus some other conductive material that you
10 might consider?

11 A. Resistance will certainly vary.
12 Capacitance in the structure, if you use the
13 same area, will not vary very much. In fact,
14 it probably won't vary at all. And dispersion
15 is primarily dependent on the dielectric, not
16 on the conductor itself.

17 Q. Okay. Now, but it is your opinion,
18 sir, that prior to the '607 patent, one of
19 skill in the art would not know how to
20 properly, correctly or effectively deposit ITO
21 for use as an electrode in a mutual
22 capacitance, multi-touch device that could
23 detect more than one touch. Is that correct?

24 A. To realize said device, yes, I agree.

25 Q. And, again, part of your criticism of

1 SmartSkin is that it doesn't teach one of skill
2 in the art how to do the -- how to do that,
3 excuse me, in the section where it talks about
4 using transparent ITO as the sensor in a
5 multi-touch device; is that fair?

6 A. That is certainly one of my
7 criticisms.

8 Q. Okay. Let's be fair. Let's talk
9 about the '607 patent, okay? Let's put it on
10 the same playing field.

11 Ryan, let's bring up -- I have made
12 some slides of this last night just to move
13 forward through this a little more quickly.
14 We're going to put up different sections of the
15 patent, rather than having to refer you to it.

16 Ryan, let's turn first to RDX-006.
17 And I will tell you, sir, what I would like to
18 do is look through for every reference of ITO
19 in the patent. If there is something I am
20 missing, something that comes to mind, feel
21 free to look at the spec itself, but I tried to
22 capture the relevant sentences that discussed
23 ITO and a bit around it to put it in context.

24 A. I understand.

25 Q. Fair enough? But you are certainly

1 free to refer to anything else. So, Ryan, we
2 should have RTX-007. I guess that's 6. Sorry
3 about that.

4 So, this is column 5, lines 27 to 67
5 of the '607 patent. Do you see that?

6 A. Yes.

7 Q. This, if I have it right, is the first
8 reference to ITO in the '607 patent and it
9 says, "in order to produce a transparent
10 touchscreen, the capacitance sensing nodes are
11 formed with a transparent conductive medium
12 such as indium tin oxide (ITO)."

13 Do you see that, sir?

14 A. I do.

15 Q. And, again, before you mentioned, it
16 says such as, implying there are others, but
17 certainly it doesn't disclose any others; is
18 that right?

19 A. It does not disclose any other than
20 explicitly disclosing indium tin oxide, but
21 that is provided in an exemplary fashion.

22 Q. Okay. And, by the way, it goes on to
23 discuss self-capacitance, sensing arrangements
24 and patterns for the remainder of that
25 paragraph and then we also put the beginning of

1 the next paragraph there, sir, excuse me, that
2 discusses mutual capacitance.

3 Do you see that?

4 A. I see those paragraphs.

5 Q. Okay. Now, it is fair to say, though,
6 in this first discussion, there are no specific
7 details about how to implement or use ITO in a
8 mutual capacitance multi-touch device that's
9 transparent, is there, sir?

10 A. Well, beyond saying that in a mutual
11 capacitance system, you have groups of
12 spatially separated lines formed on two
13 different layers, there is no additional
14 disclosure beyond what's already shown on the
15 screen.

16 Q. That's all that's said there, right?
17 It doesn't discuss some of the characteristics
18 we talk about earlier, like impact on
19 resistance?

20 A. These paragraphs do not mention
21 resistance, capacitance -- well, they do
22 mention capacitance, but they do not mention
23 resistance or dispersion.

24 Q. And they don't give any other details
25 about the ITO, right? I mean, it is fair to

1 say, isn't it, that at least based on this
2 paragraph alone, somebody skilled in the art
3 who is trying to replicate the mutual
4 capacitance device that can sense multiple
5 touches would need to do some experimentation,
6 wouldn't they?

7 A. If you're asking me if they have never
8 deposited ITO before and they had to deposit
9 it, would they have to learn how to tune the
10 deposition parameters? Yes, I agree. The key
11 point is, however, the system of the '607
12 patent actually will work because the
13 disclosure of the circuitry allows it to work
14 with ITO.

15 Q. Okay. But at least in terms of --
16 we're talking now about depositing the ITO, the
17 shape of the ITO, the thickness of the ITO,
18 other characteristics of the ITO, how
19 transparent it is going to be based on the
20 resistivity, those factors we discussed
21 earlier, those details are not disclosed in
22 this portion; is that fair?

23 A. In the paragraphs you have got on the
24 screen in RDX-28.007, I agree completely.

25 Q. Let's turn to RDX-28.008. Again, sir,

1 marching through just the ITO disclosures in
2 the '607, this is the next one we found. It
3 says, "The electrodes 102 and sense traces 106
4 can be made from any suitable transparent
5 conductive material. By way of example, the
6 electrodes 102 and traces 106 may be formed
7 from indium tin oxide."

8 This one is a little different, sir.
9 It doesn't say it on the slide, but I believe
10 this is referring to the self-capacitance
11 embodiment. Nevertheless, it is discussing
12 ITO. Do you see that, sir?

13 A. This section is discussing ITO.

14 Q. And then when it -- when it refers to
15 any suitable transparent -- any suitable
16 transparent conductive material, again, it
17 gives an example, the one example is ITO. Do
18 you see that, sir?

19 A. The explicitly called out material is
20 indeed ITO.

21 Q. Now, the first sentence, as long as
22 we're here, says the electrodes and traces may
23 be placed on the member using any suitable
24 patterning technique, including, for example,
25 deposition, etching, printing and the like.

1 Do you see that, sir?

2 A. I do.

3 Q. Now, that's -- when it says any
4 suitable patterning technique, is that
5 referring to the fact that those patterning
6 techniques were known in the field at the time?

7 A. With respect to these, yes.

8 Q. With respect to the way to deposit ITO
9 on a substrate. Is that fair?

10 A. With respect to how to deposit --
11 actually, here it is specifically pattern --
12 how to pattern ITO on a substrate, it is making
13 clear that there are multiple ways to do that
14 and they were known at the time.

15 Q. Okay. You could do it by deposition,
16 etching, and printing and the like, but it
17 doesn't discuss any specific processes for
18 doing that deposition, the etching, or the
19 printing. Is that fair?

20 A. If by that you mean, does it give the
21 details on how to do the deposition, how to do
22 the etching, how to do the printing? Yes, I
23 agree, there is no further detail provided.

24 Q. And would you agree that how the
25 deposition is done, how the etching is done,

1 how the printing is done may affect the
2 physical characteristics of the ITO?

3 A. You mean such as resistivity, et
4 cetera?

5 Q. Yes.

6 A. Yeah, they do.

7 Q. Now, do you recall being asked at your
8 deposition, sir, to explain where in the '607
9 patent the inventors teach or disclose how to
10 create ITO electrodes as claimed in the patent?

11 A. I recall some discussion of that.

12 Q. And do you recall saying that there is
13 a fairly substantive discussion in column 10,
14 sir?

15 A. Yes.

16 Q. And do you recall --

17 A. Well, I don't recall saying
18 specifically that, but it certainly would be a
19 section I would refer to.

20 Q. Well, we can put it up. The answer
21 that I have, sir, and this is at your
22 transcript 220, line 12 to 211, line 16, you
23 were asked: Well, I guess let me ask you,
24 where in the '607 patent do they teach or even
25 disclose how to create ITO electrodes as

1 claimed in the asserted claims of the patent?

2 And I don't mean to test you, sir.

3 You are welcome to look at your transcript of
4 course. It says: Well, there is one fairly
5 substantive discussion in column 10.

6 Do you see that, sir?

7 A. I don't, but I have no reason to doubt
8 I said that.

9 Q. Why don't we put that up on the
10 screen, Ryan. Why don't you get the next
11 question and answer. Go down to line 16,
12 please.

13 So we have put, this is continuous, it
14 is just two different pages. That's why there
15 is two different boxes.

16 A. I understand.

17 Q. The top question, sir, is what I just
18 asked you.

19 "Question: Well, I guess, let me ask
20 you, where in the '607 patent do they teach or
21 even disclose how to create ITO electrodes as
22 claimed in the asserted claims of the patent."
23 Do you see that, sir?

24 A. I see that question.

25 Q. It is a general question, you were

1 asked to identify the ITO disclosure in the
2 '607 patent. Do you remember that?

3 A. That appears to be the case.

4 Q. And it appears to be the case, doesn't
5 it, that you pointed specifically to the
6 discussion in column 10 that we just took a
7 look at. Isn't that correct, sir?

8 A. That's true.

9 Q. And not that you doubted this, but
10 just so it is clear, you called that at the
11 time a fairly substantive discussion. Is that
12 correct, sir?

13 A. That is what I said.

14 Q. And, in fact, you went down in
15 response to the next question, you specifically
16 read that portion of column 10 as part of your
17 answer to set forth what you viewed at the time
18 as a fairly substantive discussion. Is that
19 correct?

20 A. That's true.

21 Q. Okay. Let's turn to the next
22 disclosure of ITO in the '607 patent. And this
23 should be on slide 009. It is the '607 patent,
24 column 12, lines 35 to 45.

25 Do you see in this paragraph again it

1 is talking about the touchscreen, it works its
2 way down to ITO at the end, but it begins, "the
3 touchscreen 134 includes a transparent
4 electrode layer that is positioned over a glass
5 member 138."

6 Do you see that, sir?

7 A. I see that language.

8 Q. Now, it says at the end, "in most
9 cases, the electrode layer 136 is disclosed on
10 the glass member 138 using transparent --
11 sorry, "using suitable transparent conductive
12 materials and patterning techniques such as ITO
13 and printing."

14 Do you see that?

15 A. Yes, I do.

16 Q. Once again, the only suitable
17 conductive material disclosed is ITO; is that
18 correct, sir?

19 A. In terms of the example provided, yes.
20 The only example provided is ITO.

21 Q. And the example provided here is in
22 terms of the deposition technique in this
23 particular instance, it is patterning
24 techniques using a printing method. Is that
25 fair?

1 A. That's correct.

2 Q. Okay. It doesn't say anything more
3 about printing, it just says that's one of the
4 techniques that can be used. Is that correct,
5 sir?

6 A. In the sentence you have provided,
7 yes, it only says you can use printing. It
8 doesn't give any details.

9 Q. So let's move on to the next reference
10 in the '607 patent. This is slide 10. It
11 should have column 13, line 62 to column 14,
12 line 5.

13 A. I see that.

14 Q. And, again, sir, this portion of the
15 specification, and if I have it correctly, this
16 is referring to figure 9 of the patent, there
17 has been some time spent in the case on figure
18 9. I probably should have started there.
19 Ryan, do you mind putting up figure 9 of the
20 '607 patent for a moment.

21 Just for reference purposes, sir, do
22 you recall figure 9?

23 A. I do recall figure 9.

24 Q. And figure 9 is a mutual capacitance
25 example where we have drive and sense lines; is

1 that correct, sir?

2 A. Yes, I agree with that.

3 Q. So let's go back, Ryan, to RDX-28.010.
4 Again, the last sentence in this section after
5 pointing out the different lines in figure 9,
6 it says, "furthermore, the lines 52 can be made
7 from any suitable transparent conductive
8 material. By way of example, the lines may be
9 formed from indium tin oxide." Do you see
10 that, again, sir?

11 A. I believe the lines are 152, not 52,
12 but otherwise you read it correctly.

13 Q. Yes, sir. Thank you.

14 Now, let's take a look at RDX-010.
15 And this is column 14, lines 60 to column 15,
16 line 23. Okay. The good news is this is the
17 last reference. It is a bit longer, but I just
18 want to work through it for a moment.

19 Okay, you have seen this portion
20 before?

21 A. Yes.

22 Q. I want you to have it in mind. I see
23 you are reading it. When you are done kind of
24 going through it, would you let me know?

25 A. Certainly. I have read it.

1 Q. Let's just read in for the record the
2 first couple of lines. It says, "as mentioned
3 above, the lines in order to form
4 semi-transparent conductors on glass, film or
5 plastic, may be patterned with an ITO
6 material."

7 Do you see that?

8 A. Yes.

9 Q. Now, by the way, this says glass,
10 film, or plastic. Are those different types of
11 materials on which ITO can be placed using the
12 techniques that were discussed earlier such as
13 etching or printing?

14 A. Etching doesn't place the ITO.
15 Etching removes the ITO. But with respect to
16 could you deposit ITO on glass, film, or
17 plastic as called out here, the answer is yes.

18 Q. Yes. You are right, sir. The ITO is
19 deposited and then the portions of the ITO film
20 that are not going to be used in the final
21 configuration of the device are etched away.
22 Is that correct, just like you etched away
23 glass to make a pattern? Is that true?

24 A. Yes, that's a reasonable description.

25 Q. And the characteristics of the

1 substrate material, be it glass or film or
2 plastic, that's going to affect the deposition
3 process and the process that's used to create
4 the resulting pattern, if it is etching, for
5 example. Isn't that true, sir?

6 A. There is some impact of the substrate
7 on the deposition. It depends -- the amount of
8 impact depends on the deposition technique, et
9 cetera.

10 Certainly usually you can get higher
11 quality ITO on glass than you do on plastic,
12 for example.

13 Q. But if you are using plastic, for
14 example, there is -- the characteristics of
15 plastics varies widely in terms of the features
16 that a polymer engineer or a chemical engineer
17 would discuss. Isn't that true? You know
18 that, sir, right?

19 A. For better or worse, I have been
20 working on plastic based electronics for many
21 years now and, yes, the properties of the
22 plastic do impact the layers that are put on
23 top of it.

24 Q. Properties are things such as
25 hardness; is that correct?

1 A. Yes.

2 Q. And those properties are impacted or
3 those properties need to be taken into
4 consideration in the manufacturing process, for
5 example, when you are depositing the ITO layer.
6 Isn't that true?

7 A. When you are integrating your system,
8 in other words, you are figuring out how you
9 are going to do the deposition, the space
10 within which you can choose the deposition
11 characteristics you want to use do depend on
12 the properties of the substrate.

13 Q. Okay. And the use of the device
14 itself -- well, I'm sorry.

15 Not only do the characteristics of the
16 substrate affect the deposition process, there
17 are also characteristics of the substrate that
18 must be taken into account when the device
19 itself is ultimately used. Is that fair?

20 A. You mean in terms of the design of the
21 device, the overall device?

22 Q. Yes, sir.

23 A. Yes. That's true.

24 JUDGE ESSEX: Pardon me. Let me
25 interrupt you just a moment.

1 I read this as well, and I am reading
2 the paragraph, it is talking about in order to
3 prevent the aforementioned problem, the dead
4 areas between the ITO may be filled, and I
5 don't see the dead areas as an aforementioned
6 problem in that. It doesn't make sense to me.
7 Can you help me out with that at all?

8 THE WITNESS: Certainly, Your Honor.
9 Actually, it is easy to do it with a figure.
10 So we can do it with figure 9, if we could have
11 figure 9, I can explain from there.

12 Actually, let's use figure 10. That's
13 even better.

14 So, Your Honor, if you look at figure
15 10, each of these (indicating) represents a
16 stripe of ITO.

17 JUDGE ESSEX: Right.

18 THE WITNESS: So in this example, we
19 deposit a blanket film of ITO that covers the
20 entire plastic. And then we etch it out from
21 certain regions to form these lines. So now
22 what you are left with if you were to look at
23 the sheet of plastic, you have some regions
24 that have ITO.

25 JUDGE ESSEX: Right.

1 THE WITNESS: And other regions that
2 don't. Now, it turns out the refractive index,
3 an optical property of a material, is different
4 for ITO and for plastic and is different for
5 ITO and for air.

6 It is also -- let's say you were then
7 going to put this in a sandwich where, for
8 example, you put a glue layer on top and then
9 sandwich them together. Well, it may be
10 different for the ITO to the glue.

11 So now you have a problem. You are
12 looking at a sheet of plastic. Some regions,
13 the light is going through ITO, which has one
14 refractive index. And the other regions, it is
15 going through glue, which has a different
16 refractive index.

17 And so the eye perceives a shimmer
18 because there is a variation in refractive
19 index. So the dead area discussion is
20 referring to the areas between the ITO where
21 the ITO was removed.

22 JUDGE ESSEX: Okay. So it is a poorly
23 written paragraph then? It didn't talk about
24 the refractive -- all right. The problem of
25 the dead areas wasn't mentioned until it came

1 up with filling those areas up, and --

2 THE WITNESS: Yes, Your Honor. I
3 think the reason they called it -- they hadn't
4 explained what dead areas were before, but in
5 the previous paragraph they discussed etching
6 away the ITO. So that etching process creates
7 the dead areas.

8 JUDGE ESSEX: Okay. I'm sorry for the
9 interruption. Go ahead.

10 BY MR. DeFRANCO:

11 Q. So going back and following up on His
12 Honor's comment, it says in the second
13 paragraph, "in order to prevent the
14 aforementioned problem, the dead areas between
15 the ITO may be filled with index matching
16 materials." Do you see that, sir?

17 A. With indexing matching materials, yes,
18 I see that.

19 Q. Yes. I am having a little trouble
20 reading this morning.

21 It doesn't disclose any specific index
22 matching materials, does it, sir?

23 A. You mean a specific example of an
24 indexing matching material?

25 Q. Yes.

1 A. That's true, it does not.

2 Q. And ITO, again, as you said earlier, I
3 believe you said was the transparency is going
4 to be a function of resistivity; is that
5 correct?

6 A. The parameters that affect
7 transparency also have resistivity.

8 Q. Okay. So you could, based on the way
9 your system is designed and the way the ITO is
10 deposited, the way the ITO is etched away, if
11 etching is used, all of that may ultimately
12 affect the transparency of the ITO when it is
13 in the completed device, is that fair?

14 A. The way the ITO is deposited --

15 Q. Let me ask a better question. I'm
16 sorry.

17 A. That's fine.

18 Q. There are characteristics of the ITO
19 itself that impact the transparency; is that
20 right?

21 A. Yes, that's true.

22 Q. There are certainly different brands,
23 types, versions of ITO on the market. There
24 was back in the 2003 time frame, wasn't there?

25 A. There are certainly different

1 manufacturers who brand their ITO with their
2 respective brand names.

3 Q. Right.

4 A. And they have different properties.

5 Q. Different properties, different types,
6 different costs, different characteristics. Is
7 that true?

8 A. If by -- I don't know what exactly you
9 mean by types, but they certainly have
10 different properties and they are targeted at
11 different costs and they are available in
12 different substrates.

13 Q. And they have different
14 transparencies?

15 A. Yes.

16 Q. And they have different properties?

17 A. That's true as well.

18 Q. And all of that is going to impact the
19 transparency when the ITO is ultimately used in
20 any device, such as a pad or a phone. Isn't
21 that true?

22 A. Yes, that's true.

23 Q. And this is talking about somehow you
24 have got to come up with an index matching
25 material that is going to appear to the user

1 that the transparency is uniform. Is that
2 correct?

3 A. That is the goal of this section, yes.

4 Q. Okay. And, in other words, you don't
5 want somebody to look at their pad or their
6 phone and see some sort of hint or trace of the
7 ITO lines, that would be unappealing to a user
8 of the device. Is that fair?

9 A. Certainly that's the general problem
10 that they are trying to address, yes.

11 Q. Okay. So after all the work that's
12 done to design a device, to pick the ITO, to
13 figure out the characteristics you need to
14 choose the brand with a certain transparency,
15 to deposit it, to etch it away, you have got to
16 figure out, if you choose to do so, what
17 indexing material to use to put in between the
18 lines to make sure that that unpleasant effect
19 doesn't occur. Is that fair, sir?

20 A. Yes, I generally agree with that.

21 Q. Okay. And you will agree it is going
22 to take a little bit of experimentation for
23 somebody skilled in the art to figure out
24 exactly what indexing material to use to
25 achieve that result in a particular device. Is

1 that correct?

2 A. If you are given an unknown system,
3 you would have to measure its properties and do
4 some experimentation. It is not a significant
5 amount with respect to that.

6 Q. Okay. But you will agree that in this
7 particular implementation, the inventors didn't
8 disclose what indexing material they used, did
9 they?

10 A. That's true.

11 Q. They didn't disclose how they were
12 able to choose a proper or appropriate indexing
13 material; isn't that correct?

14 A. Beyond saying that you could use an
15 index, a matched index material?

16 Q. Yes.

17 A. I agree. I mean, that does give the
18 guideline. It says you would use a matched
19 index material but, yes, I agree, beyond that,
20 they haven't said what material to use, for
21 example.

22 Q. Okay. And somebody skilled in the art
23 would take that guideline and determine what
24 indexing material to use in their own
25 configuration?

1 A. Yes.

2 Q. So going back, we started to talk
3 about the disclosure of ITO in this particular
4 section and just to finish up on that, it says,
5 "as mentioned above, the lines in order to form
6 semi-transparent conductors on glass, film, or
7 plastic, may be patterned with an ITO
8 material."

9 Do you see that?

10 A. You are reading the first line again?

11 Q. Yes.

12 A. Yes.

13 Q. Then it goes on, "this is generally
14 accomplished by depositing an ITO layer over
15 the substrate surface, and then by etching away
16 portions of the ITO layer in order to form the
17 lines."

18 Do you see that, sir?

19 A. I do.

20 Q. And it says, "as should be
21 appreciated, the areas with ITO tend to have
22 lower transparency than the areas without ITO."

23 Do you see that, sir?

24 A. I do.

25 Q. We have discussed that at length. And

1 that phrase, doesn't it imply it should be
2 appreciated by somebody in the art who has used
3 ITO before; is that correct?

4 A. Oh, yes. You mean someone of skill in
5 the art who read it would know what that means?
6 Yes.

7 Q. Yes. Okay. So we have walked through
8 now, sir, I believe, if I have it right, all
9 the portions of the '607 specification that
10 specifically reference ITO. Is that fair?

11 A. With respect to the referencing of ITO
12 itself, that's true. We haven't looked at the
13 circuit, for example.

14 Q. We haven't looked at the circuit, but
15 at least in discussing ITO, its properties,
16 what particular brand or type should be used,
17 dispersion characteristics, resistivity
18 characteristics, its impact on the capacitance,
19 all of those issues with respect to ITO itself,
20 we have covered the portions of the '607 patent
21 that in any way discuss ITO; is that correct,
22 sir?

23 A. With respect to the discussion of ITO
24 itself, that is true. We haven't discussed how
25 that's impacted by the circuit choices that you

1 make.

2 Q. Okay. There are other design choices
3 that may impact the type of ITO and the
4 characteristics that it has that are used in a
5 particular device; is that fair?

6 A. There are certainly design choices.
7 There is also a sort of fundamental circuit
8 topology choices, which are not simple design
9 choices.

10 Q. Correct. And those are -- all of
11 those are going to impact a particular ITO
12 that's used in the device and how it is
13 deposited and the ultimate configuration?

14 A. They will. And more generally, they
15 may determine whether you can use ITO or not.

16 Q. And how would one skilled in the art
17 determine whether they can use ITO or not in a
18 particular configuration, by experimenting?

19 A. Certainly one thing you could do if
20 you were given a particular circuit topology
21 would be do a significant amount of
22 experimentation. And in some cases, it
23 wouldn't work, and then you would essentially
24 be driven to do invention, come up with a new
25 topology that does work.

1 Q. Now, let's talk a little bit about
2 another feature that you say is lacking in the
3 SmartSkin reference. I believe another one is
4 you don't believe that SmartSkin discloses a
5 concept of layering and how that's covered in
6 the elements of the asserted claims of the '607
7 patent?

8 A. With respect to specific layers,
9 that's true.

10 Q. And in your opinion, generally, sir --
11 why don't we put up question number 118 and the
12 answer. And here, sir, you say the layer
13 limitations are those limitations that require
14 the use of two different layers of conductive
15 lines in the touch sensor. All of the asserted
16 claims require these limitations.

17 Do you see that?

18 A. These layer limitations, yes, I see
19 that.

20 Q. And you go on to say those are lacking
21 in SmartSkin; is that right?

22 A. I say that the limitations that are
23 missing are identified in this particular CDX.

24 Q. Now, is it also your opinion, sir,
25 that SmartSkin doesn't disclose layers because

1 it uses a copper mesh?

2 A. You are talking about in relation to
3 figure 2? That's true.

4 Q. Yes. Well, figure 2 of SmartSkin, you
5 are referring to?

6 A. Correct.

7 Q. Let's put up figure 2 and let's put up
8 a paragraph that we haven't looked at yet,
9 which should all be in slide 28.012.

10 Let's go through the same drill, sir.
11 Let's see what you and I can agree upon with
12 respect to figure 2, its disclosure as set
13 forth in the figure itself and the related text
14 of the SmartSkin article. Okay?

15 You will agree with me, won't you,
16 that SmartSkin discloses a grid of transmitter
17 and receiver electrodes. Isn't that fair?

18 A. Yes, those are called out in the
19 second sentence of the paragraph on RDX-28.012.

20 Q. And that is shown in figure 2 as well,
21 isn't it? Can you point that out for us?

22 A. Certainly. If you are referring to
23 the grid of transmitter and receiver electrodes
24 using the language on RDX-28.002, the grid it
25 is specifically referring to, it is

1 specifically referring to with respect to
2 figure 2 is this grid of vertical and
3 horizontal copper wires.

4 Q. And is it your opinion that the sensor
5 grid of electrodes in SmartSkin as shown in
6 figure 2 could not be implemented as having one
7 layer for the drive electrodes and having a
8 different layer for the sense electrodes?

9 A. I understand the question. Could I
10 have the CDX that you referred to or that I
11 referred to earlier in reference to the
12 question and answer you put up, please?

13 Q. You mean your -- where I said this is
14 what you said was lacking?

15 A. Yes.

16 Q. Sure, sure.

17 A. Thank you.

18 Q. It is a small fee. Let me find it.
19 It should be slide 003. Is that the one you
20 wanted to see, sir?

21 A. Yes. Thank you. No, it was the one
22 in answer to the -- was this the one I
23 referenced in the question you put up? I can
24 find it. If you put the question up again, I
25 can find it. I have the binder in front of me.

1 Q. Was it from your witness statement?

2 I'm sorry.

3 A. I believe so.

4 Q. Okay. So let's find -- let's see if
5 we can get that back. Hold on.

6 A. I have them in front of me now if you
7 want.

8 Q. You have the paragraph?

9 A. Yes. The question is up there and I
10 found the --

11 Q. Got it. Great. Is that what you
12 wanted to refer to, sir?

13 A. Yes, thank you.

14 Q. Okay. Now, my question was, sir, is
15 it your testimony that the sensor grid that is
16 the drive lines and the sense lines that are
17 shown in figure 2 of the SmartSkin reference
18 could not be implemented in a device that had
19 different layers for each?

20 A. With respect to layers as used in
21 claims 1 and 10, for example? Yes, that's
22 correct.

23 Q. Yes. And your opinion for that is
24 because it is a copper mesh to create the
25 capacitance nodes; is that correct?

1 A. These are copper, and that is one of
2 the reasons for my opinion, yes.

3 Q. But you will agree, won't you, that
4 based on the disclosure of figure 2 in the
5 SmartSkin reference, the use of copper wires in
6 a mutual capacitance device could take on a
7 variety of configurations, couldn't it?

8 A. You mean if you are using copper
9 wires, could you do them in different ways?

10 Q. Yes.

11 A. Generally, yes, I agree, you could use
12 copper in different ways.

13 Q. Okay.

14 A. In this system.

15 Q. Well, specifically, for example, you
16 could use copper wires in a mutual capacitance
17 configuration where the layers for the drive
18 and sense lines are spatially separated,
19 couldn't you?

20 A. You could use copper wires such that
21 the wires are separated. Those would not meet
22 the layer requirement of the claims.

23 Q. But you could -- you could use them in
24 separate layers? In other words, outside of a
25 mesh configuration, couldn't you, sir?

1 Q. And this is what's been referred to in
2 the case as a Rekimoto Japanese patent
3 application. You're aware of that, sir?

4 A. I am. I believe he is the lead
5 author.

6 Q. Let's put on the screen, please,
7 RDX-28.013.

8 Sir, this Rekimoto reference, this is
9 from one of the Sony engineers who also
10 authored or coauthored the SmartSkin article
11 that we talked about earlier. Do you recall
12 that, sir?

13 A. Yes, I believe so.

14 Q. And this is one of the references that
15 Motorola relies on as prior art for its
16 position that the asserted claims of the '607
17 patent are invalid in this investigation.
18 You're aware of that, sir?

19 A. Yes, I'm aware that this is one of the
20 pieces of art that Motorola relies on.

21 Q. By the way, the prosecution history in
22 this case is pretty voluminous, just in terms
23 of number of pages. Is that correct?

24 A. It does have a large number of pages.

25 Q. It has got -- for example, it has got

1 a copy of at least many if not most, possibly
2 all -- I didn't check -- but many of the
3 articles that are cited on the front of the --
4 or towards the beginning of the '607 patent as
5 prior art; is that correct?

6 A. There are certainly some of them. I
7 also have not checked if all of them are there.

8 Q. Okay. I counted, and we have been
9 through this, it is over 300 references cited
10 in the front of the '607 patent.

11 A. I believe that's correct.

12 Q. And the examiner read many of those
13 references in considering this application. Is
14 that fair?

15 A. Certainly I would assume the examiner
16 did.

17 Q. And the vast majority -- you will see,
18 we can put something up, and I will represent
19 to you that at the end of the several pages of
20 references -- why don't we put it up, so I get
21 this right, Ryan.

22 It is page 5 of the '607 patent at the
23 end of the reference list. One more page.
24 Blow that up.

25 Do you see there, sir, it says cited

1 by the examiner?

2 A. You mean with -- just the phrase, yes,
3 I see the phrase.

4 Q. Okay. Now, if I have it right, and
5 the number is not particularly important, if
6 you look through the list of five pages of
7 references, I think there is about ten or so
8 that are starred as having been cited by the
9 examiner. And my question simply is it your
10 understanding that those are references that
11 the examiner had found in a search and cited as
12 part of this patent application process? Is
13 that fair?

14 A. I think what it does mean is that
15 these were references that were cited by the
16 examiner. I can't say how they went about
17 finding them, but they were certainly cited.

18 Q. That's fair enough. And the majority,
19 maybe all of the rest of the 300-plus
20 references were cited by the applicants. Is
21 that fair?

22 A. By that you mean they were provided by
23 the applicant during the prosecution process?

24 Q. Yes.

25 A. Yes, I agree with that.

1 Q. Now, I'm sure you have been through
2 the prosecution history and know it all by
3 heart, as I do, but the citations took place
4 over the course of the prosecution of the '607
5 patent, the citations to -- I'm sorry. Let me
6 start again. That's a poor start.

7 You're aware of something called an
8 information disclosure statement, sir?

9 A. Yes.

10 Q. Called an IDS, that's where the
11 applicants will send in a form that lists all
12 the references they're aware of. You are aware
13 of that?

14 A. Yes.

15 Q. And I think there was an early one
16 with something less than 300 references on
17 which one of the SmartSkin references, I
18 believe the article that we discussed, was
19 disclosed. If you don't recall that, it is
20 fine. If you do --

21 A. I believe I recall that being
22 disclosed.

23 Q. And then there were later IDSs that
24 discussed additional references. At some point
25 toward the end, Rekimoto was disclosed on a

1 separate IDS by the applicants. Are you aware
2 of that, sir?

3 A. Which Rekimoto are you referring to
4 now?

5 Q. The one that -- the Japanese patent
6 application that we looked at.

7 A. Yes, I believe so.

8 Q. Now, I didn't see -- and if you did, I
9 would like you to point it out for me -- I
10 didn't see any specific discussion by the
11 applicants about SmartSkin, the article,
12 Rekimoto, the Japanese patent application in
13 particular. Do you understand my question,
14 sir?

15 A. I understand. You are asking me if
16 there is any explicit discussion of those two
17 pieces of art.

18 Q. Right. For example, you have seen
19 prosecution histories sometimes, although there
20 is not requirement, an applicant may say here
21 is a particularly pertinent reference out of
22 all of those that are disclosed, not only that,
23 you should focus on these particular portions,
24 and here is why our invention is different than
25 what's disclosed in those paragraphs.

1 Fair enough?

2 A. I have seen patents that contain that
3 information -- or applications that contain
4 that applications.

5 Q. Right. And applicants often sometimes
6 explain why a particular portion of a reference
7 doesn't disclose what they are claiming as
8 their invention. You have seen that, too, sir,
9 right?

10 A. Yes.

11 Q. For example, they may say look at this
12 section on this article, it says X, Y, and Z,
13 and I am one skilled in the art, let me tell
14 you how this is different from what I am
15 claiming as my invention. Right? You have
16 seen that before, sir?

17 A. I haven't seen that specific language,
18 but conceptually, I agree that general concept
19 does exist in patent applications.

20 Q. There are reasons to do that, for
21 example, you can imagine maybe there is a
22 reference that sounds good and the inventors
23 may want to go out of their way to defuse that
24 before the rejection when the patent examiner
25 sees it? Is that a possibility or don't you

1 know?

2 A. That is certainly a reasonable reason
3 to do that. I couldn't look into some other
4 applicant's head and see what his reasons were.

5 Q. It is certainly a reasonable reason to
6 do that to also help the Patent Office a bit
7 when there is a large volume of references for
8 the patent examiner to wade through, isn't that
9 fair?

10 A. That would be another reason to do it.
11 Again, I mean, I'm not able to look into an
12 applicant's head and predict his intent.

13 Q. But that's a reasonable explanation as
14 to why you might want to do that? You have
15 seen that occur in prosecution histories other
16 than the '607, is that fair?

17 A. I have seen that occur. I don't -- I
18 can't comment on the intent for why it did
19 occur.

20 Q. Okay.

21 A. But it is an explanation that you have
22 postulated and I have no reason to disagree
23 with it.

24 Q. And going back to where I started, you
25 didn't see any of that in the prosecution

1 history of the '607 patent; is that fair, with
2 respect to SmartSkin or the Rekimoto, the
3 Japanese patent application. Is that fair,
4 sir?

5 A. Yes, I think that's fair.

6 Q. And one of the reasons that, again, if
7 you can't speculate, fine, but one of the
8 reasons that applicants -- well, let me start
9 again. Let me ask a better question.

10 I take it you have also seen in
11 prosecution histories that there is back and
12 forth on particular references between the
13 patent examiner and the applicant's attorney
14 about the scope of disclosure of particular
15 references; is that correct?

16 A. Yes.

17 Q. And I take it you have seen that there
18 could be a rejection based on the examiner's
19 interpretation or reading of a reference and
20 particular portions that he or she thinks are
21 relevant as invalidating art, either alone or
22 together with some other reference. Is that
23 fair?

24 A. Yes.

25 Q. And it is common also to have the

1 inventors come back and say I'm skilled in the
2 art as well, here is the work I'm doing, let me
3 explain to you why someone else skilled in the
4 art, in my opinion, would not read that
5 paragraph to have the same disclosure as you
6 are reading it to have? Have you seen that?

7 A. I can't recall if I have specifically
8 seen that, but it certainly sounds like
9 something that could happen.

10 Q. But, again, none of that discussion
11 occurred in your review from what you have seen
12 of the prosecution history of the '607 patent,
13 is that fair, sir?

14 A. With respect to these references?
15 With respect to Rekimoto?

16 Q. Exactly. With respect to SmartSkin
17 and Rekimoto.

18 A. Yes, that didn't explicitly happen, I
19 agree.

20 Q. The first IDS, I can put it on the
21 screen, but my memory of the first IDS in the
22 prosecution history showed a list of other
23 sources and articles that had the web location
24 of the article that was being referenced.

25 Do you recall that, sir?

1 A. I don't specifically. Maybe you could
2 put it up. I don't doubt you, but I don't
3 recall specifically.

4 Q. Okay. Do you recall, sir, that there
5 were a couple for which no web site location
6 was provided and one of those was the SmartSkin
7 article?

8 A. No, again, as I said, I don't recall
9 the specifics of the IDS. If you pull it up or
10 if you want to represent that that is the case,
11 I am happy to proceed.

12 Q. Okay. No, I will represent that
13 that's the case. If we find a mistake,
14 somebody will correct me.

15 But you are aware, sir, that the
16 inventors in this case at some point prior to
17 filing their patent application were aware of
18 the Sony, they were aware of the Sony web site
19 that contained information about the SmartSkin
20 project that Sony was working on at the time.
21 Do you recall that?

22 A. Well, given that you have represented
23 that the web link was provided, that would make
24 sense.

25 Q. I'm representing to you, sir, that

1 there was an e-mail between the inventors,
2 which I can show you, and I want to be clear, I
3 am not --

4 A. I understand. I thought we were still
5 talking about the IDS.

6 Q. Let me start back. It is my fault for
7 the confusion.

8 Segueing away from the prosecution
9 history, going to the record relating to
10 communications with the inventors, you're aware
11 that there was an e-mail from one inventor to
12 the other saying, you know, identifying the
13 SmartSkin article. Are you aware of that, sir?

14 A. Yes.

15 Q. And you're aware, sir, that that
16 e-mail contained a link to the web where the
17 article could be found; is that correct?

18 A. Yes, I believe so.

19 Q. Okay. And that that link showed
20 generally the information about the work that
21 the Sony engineers were doing at the time. Do
22 you recall that? You have been to that link,
23 haven't you?

24 A. I have.

25 Q. You have seen the SmartSkin article

1 we're talking about is there, haven't you seen
2 that, sir?

3 A. Yes.

4 Q. You have seen that that link discloses
5 the patent applications that were in play at
6 the time. Do you recall that?

7 A. I don't know. You mean it lists the
8 patent applications?

9 Q. Let me -- let me ask a different
10 question.

11 That link is where the video that's
12 been shown in this case is available, you're
13 aware of that, sir?

14 A. The video?

15 Q. The video of the SmartSkin?

16 A. Yes.

17 Q. Now, let's turn back to the Rekimoto
18 patent application we were discussing earlier.
19 We started with RDX-28.013. Just to put this
20 back in context, that's the Japanese patent
21 application relating to the work of the Sony
22 engineers who were involved in the SmartSkin
23 project back in the 2003 time frame, sir; is
24 that correct?

25 A. Sorry, could I have the question

1 again, please?

2 Q. I will just reask it. Just for
3 reference sake, this is the Japanese patent
4 application by Mr. Rekimoto, one of the Sony
5 engineers working on the SmartSkin project in
6 the 2002, 2003 time frame; is that correct?

7 A. Yes, the application date of this
8 appears to be May 21st, 2001.

9 Q. Okay. And the publication date, as
10 long as we're talking about dates, is November
11 29th, 2002. Do you see that in the upper
12 right?

13 A. Yes.

14 Q. Okay. Now, the next slide, to save
15 time, we have put the two side-by-side. We
16 have put next to figure 2 of the SmartSkin
17 reference, figure 1 of the Rekimoto.

18 Do you see that, sir?

19 A. I see them side-by-side, yes.

20 Q. And there is some similarity between
21 the overall configuration and structures of the
22 mutual capacitance devices shown in those two
23 figures, would you say that much?

24 A. There are similarities, for example,
25 both definitely use a voltage amplifier in the

1 read circuit.

2 Q. Okay. So let's turn to slide
3 RDX-28015. Now, this is figure 9 from the
4 Rekimoto patent application. Do you see that,
5 sir?

6 A. Yes, but to be clear, I remember there
7 were two versions going around. And I believe
8 the certified version has slightly different
9 language. Isn't it organic display from the
10 non-certified version and electromagnetic is
11 what it said on the certified version?

12 Q. We will take a look at that at the
13 break, sir, and confirm. I don't -- is there a
14 material difference?

15 A. Well, actually, I think organic is the
16 right language. I think -- but I do believe
17 just because there are two things floating
18 around, we should make sure if we're talking
19 about the certified one, we're using the right
20 figures.

21 And if the figures are correct, I am
22 happy to proceed. Either way, I do believe it
23 should really be organic, even if it says
24 electromagnetic.

25 Q. We will confirm that and make sure

1 we're talking about the same version that you
2 have in mind.

3 A. All right.

4 JUDGE ESSEX: Do you have a bit more
5 with this witness?

6 MR. DeFRANCO: Yes, Your Honor.

7 JUDGE ESSEX: Then this might be a
8 good time to take a break. I will let you
9 confirm that so you can come back and have the
10 right figures.

11 We're in recess until a couple minutes
12 before the hour. And, Doctor, I urge you not
13 to talk to others about your testimony.

14 THE WITNESS: I understand, Your
15 Honor.

16 (A recess was taken at 10:41 a.m.,
17 after which the trial resumed at 10:58 a.m.)

18 JUDGE ESSEX: Go back on the record.
19 Are we ready?

20 MR. DeFRANCO: Yes, Your Honor.

21 JUDGE ESSEX: Proceed.

22 BY MR. DeFRANCO:

23 Q. Let's go back for a second, Doctor, to
24 a topic that we discussed shortly before the
25 break. That's the disclosure of SmartSkin in

1 the prosecution history. And Ryan, let's just
2 put up that information disclosure reference
3 that I referred to earlier. It is JX-005.0077.

4 For the record, sir, this is an
5 example of an information disclosure statement,
6 this particular one is out of the prosecution
7 history for the '607 patent. You have seen
8 this before; is that right?

9 A. Yes, I have.

10 Q. And as you and I discussed, there is a
11 number of references disclosed. Ryan, if you
12 would go to the next page. That's the
13 signature from the patent attorney, we can move
14 on to the list of references, it is the first
15 list, and if you turn over to the next page,
16 Ryan, I believe at the top, if you can blow
17 that up, you see that that's the Rekimoto
18 article that we looked at earlier, sir. Do you
19 see that?

20 A. Yes.

21 Q. And later on, I believe there is
22 another copy of this where the boxes are
23 checked off indicating that the examiner
24 considered the references that are disclosed
25 here. Do you recall that, sir?

1 A. Not specifically, but I have no reason
2 to disagree.

3 Q. Okay. And I referenced web site
4 locations for some of the references that were
5 cited. You don't see one disclosed here, a web
6 site location for the Sony work that was done
7 including the article and the video that we
8 generally mentioned before, sir, is that
9 correct?

10 A. You mean outside of the direct
11 reference to the article? There doesn't appear
12 to be any other reference to Sony here.

13 Q. Okay. And we said later on, the
14 Japanese patent application we discussed was
15 also disclosed and considered. Do you remember
16 that?

17 A. I remember us talking about the
18 Japanese article.

19 Q. All right. Just -- have you seen the
20 video that was available at the time of the
21 SmartSkin?

22 A. I have seen a video, yes.

23 Q. It was shown once in this case. I
24 would like to just bring it up again as long as
25 we're at this point and go through it briefly.

1 (Video playing.)

2 Hold it for one second, Ryan. What we
3 just saw, sir, with fingers moving, is that
4 sort of the pinch to zoom that we talked about?

5 A. The gesture is similar to the gesture
6 of the pinch to zoom. That is not the pinch to
7 zoom obviously.

8 Q. It is a similar gesture in the way
9 that appears?

10 A. In terms of the way the fingers move,
11 it appears to be a two-finger gesture that
12 involves changing the spacing between the two
13 fingers.

14 Q. And there is, there is movement of a
15 figure based on multiple touches on a mutual
16 capacitance device; is that fair, sir?

17 A. Yes, I agree with that.

18 Q. Let's keep going with the video,
19 please.

20 (Video playing.)

21 We have manipulation of a different --
22 this is manipulation of a Mac, do you see that,
23 sir, making it larger with two fingers and
24 moving it around?

25 A. Yes, and you will see the projected

1 features on the back of his hand because the
2 image is coming from on top.

3 Q. That's right. The image itself is
4 projected down but the fingers are actually
5 doing the manipulation through the circuitry
6 that's part of this mutual capacitance device
7 itself; is that fair?

8 A. The fingers are running on the surface
9 of this opaque device, and then there is
10 circuitry connected to it, specifically the
11 voltage detection circuitry, and then there is
12 associated circuitry to ultimately determine
13 what gets projected from the projector on top.

14 Q. Okay. It is not -- this is not a
15 transparent configuration. Is that what you
16 are saying, sir?

17 A. That is exactly what I am saying,
18 among other things.

19 Q. But it is a mutual capacitance with
20 multi-touch as we can see from this video?

21 A. Yes, I agree with that.

22 Q. Let's finish it up, Ryan, please.

23 (Video playing.)

24 That's it. Thanks.

25 So just to follow up on one other

1 point, sir, before the break, let's bring up
2 RDX-3.016. This is the e-mail. You have seen
3 this e-mail before, haven't you, sir? This is
4 an e-mail from the inventor, one of the
5 inventors on the '607 patent, Mr. Strickon, to
6 the Q79 brainstorming groups that included the
7 other two inventors. You were here for that
8 testimony?

9 A. I was. By the way, should this be on
10 the confidential record? Sorry.

11 Q. That's probably the case. Let's take
12 that down.

13 A. Sorry. I know it is not my job, but I
14 noticed the C, so --

15 Q. Yes. I appreciate that. We will come
16 back to that.

17 JUDGE ESSEX: We're going on the
18 confidential record?

19 MR. DeFRANCO: I don't think it is
20 worth the time, Your Honor. We will move on.

21 JUDGE ESSEX: All right. We're not
22 going on the confidential record, gentlemen.

23 MR. DeFRANCO: We're going to skip it.
24 Thanks.

25 BY MR. DeFRANCO:

1 Q. Now, let's go back to RDX-28.015.
2 This is the figure and portion of the text from
3 the Japanese patent application that we were
4 talking about, sir. Do you recall that before
5 the break?

6 A. I do.

7 Q. And you had --

8 A. This is part of the text, not all of
9 it.

10 Q. Certainly. This is part of the text
11 that relates to the figure, figure 9, that is
12 shown there from the Rekimoto Japanese patent
13 application; is that correct, sir?

14 A. It is part of it. Really the
15 description associated with figure 9 runs all
16 the way to paragraph 68.

17 Q. Well, feel free to refer to any other
18 additional text, if you need to.

19 A. Thank you.

20 Q. This -- for the record, your question
21 about the source of this, this is the version
22 of the Japanese patent application that was
23 included with the certified file history of the
24 '607 patent. Are you with me?

25 A. I understand.

1 Q. There was in this case exactly as you
2 said, there was a certified translation
3 prepared of the individual prior art
4 references. And if you prefer to refer to
5 that, I can put that piece up or if this is
6 acceptable, we can work off this slide. Either
7 way is fine.

8 A. I can work off this slide, since I
9 know the differences between the two.

10 Q. Okay. Now, when we talk about this
11 Rekimoto patent application, you will see there
12 that it refers to figure 9 as it schematically
13 depicts the cross-sectional of a non-contact
14 user input device 1 that is constituted so as
15 to be united with a display device comprising
16 an electroconductive polymer-based light
17 emitting element, which is to say, an organic
18 LED.

19 Do you see that, sir?

20 A. I do.

21 Q. And it goes on to say, "as shown in
22 this figure, an electrode layer and a cathode
23 electrode layer comprising an electroconductive
24 polymer are stacked with an insulating layer
25 comprising an organic material therebetween."

1 Do you see that, sir?

2 A. I do.

3 Q. And this particular text and the
4 figure in this prior art reference is
5 disclosing the layers of the drive and the
6 sense lines in the prior art; is that correct,
7 sir?

8 A. No, this is disclosing layers of an
9 organic LED and it says you can modulate an AC
10 signal on to the organic LED to measure
11 capacitance.

12 In fact, the cathode is categorically
13 not transparent, even today. Nobody knows how
14 to make a transparent cathode for an OLED. If
15 we did, it would be a huge deal. I have been
16 working on OLEDs for more than a decade. There
17 is categorically no transparent cathode layer
18 for an OLED that exists today.

19 Q. At least this shows a separate layer
20 configuration, wouldn't you say that much, sir?

21 A. Independent of transparency?

22 Q. Yes, independent of transparency?

23 A. Yes, I agree with that.

24 Q. Okay. Now, let's bring up RDX-016,
25 please. Actually, let's first start with

1 question 121 and the answer, so we can get some
2 reference, please, Ryan, in the Doctor's
3 rebuttal witness statement.

4 Now, this simply shows, sir, that in
5 your opinion the glass member limitations are
6 those limitations that require the use of glass
7 or plastic elements in the sensor structure; is
8 that correct?

9 A. Yes.

10 Q. So if we go back down, Ryan, to
11 RDX-28.016, this is the paragraph that talks
12 about the layout of the electrodes in the
13 SmartSkin reference and then also the use of
14 transparent ITO to the conductive elements. Do
15 you see that, sir?

16 A. The top version does say that other
17 layouts are possible. The bottom version is
18 from the future work, it is not -- it doesn't
19 actually work in the system disclosed.

20 Q. Right. The system disclosed doesn't
21 actually use ITO; is that correct?

22 A. It doesn't and, in fact, it couldn't.

23 Q. But it does disclose a possibility of
24 using transparent ITO as electrodes in a mutual
25 capacitance device, doesn't it, sir?

1 A. Actually, what it says is for future
2 work, the work that should be done is to
3 develop these. It doesn't say it will work.
4 It doesn't say it can be done. It says this is
5 the work that needs to be done. It is
6 discussing future inventions that need to
7 happen.

8 Q. It talks about at least for these
9 individuals the possibility of their future
10 work including substituting ITO as the
11 conductive material.

12 A. It says that these are future
13 directions that people could pursue and
14 certainly that list of people would likely
15 include the authors saying we may want to do
16 this.

17 Q. Okay. And they actually say we may
18 want to do this in the context of a flat panel
19 display. Do you see that, sir?

20 A. By saying it can be mounted in front
21 of a flat panel display?

22 Q. Yeah. It says because most of today's
23 flat -- let me back up.

24 This is the -- I am in the bottom
25 portion of the ITO section. Do you see that?

1 A. I do.

2 Q. It says, "this sensor can be mounted
3 in front of a flat panel display or on a
4 rear-projection screen." Do you see that, sir?

5 A. I see that.

6 Q. Okay. It says, "because most of
7 today's flat panel displays rely on
8 active-matrix and transparent electrodes, they
9 can be integrated with SmartSkin electrodes."

10 Do you see that, sir?

11 A. I do.

12 Q. Okay. Now, let's go back to where we
13 were a moment ago, the Rekimoto patent
14 application. Let's bring up slide 28-017. And
15 this slide, again, this has the version of the
16 Rekimoto translation that is in the certified
17 prosecution history. And if there is something
18 else you would like to refer to in that, sir,
19 please do so, of course.

20 Do you see paragraphs 24 and 25 there
21 talk about stacking of an anode electrode layer
22 and a cathode electrode layer?

23 A. Yes, and that's referring to the
24 discussion of figure 9, which I have already
25 told you is not transparent.

1 Q. Okay. But it goes on to say that the
2 reason for doing this is combining the sensor
3 with an LCD display. Do you see that, sir?

4 A. No. In fact, this is not with an LCD
5 display. This is with an OLED. An OLED system
6 is an emissive system that emits down through
7 the glass so the background does not have to be
8 transparent and is, in fact, not transparent.
9 Because we don't know how to make an lower
10 function material that is transparent. Nobody
11 knows how to do it.

12 Q. But at least you will agree that these
13 references do disclose ITO for use as a
14 transparent material for use in a mutual
15 capacitance device?

16 A. This reference? No, this has no
17 discussion of ITO.

18 Q. So the SmartSkin article by the same
19 authors of this patent application disclose the
20 use of ITO; is that correct, sir?

21 A. The SmartSkin article by Rekimoto, who
22 is one of the authors of the article, does say
23 that as future work, it would be desirable --
24 or one direction for future work would be to
25 develop a system using ITO. It doesn't say how

1 to do that. Nor does it actually work.

2 JUDGE ESSEX: Doctor, what do you mean
3 it doesn't actually work? The Smartphones seem
4 to work every day that I see them.

5 THE WITNESS: Yes, Your Honor.

6 JUDGE ESSEX: So it does actually
7 work?

8 THE WITNESS: No, Your Honor. With
9 respect to SmartSkin --

10 JUDGE ESSEX: What is the fact you are
11 talking about it. You are dancing around it.
12 Tell me what it is.

13 THE WITNESS: Certainly, Your Honor.
14 If you look at SmartSkin, if we can have figure
15 2 of SmartSkin, I can point out what the issue
16 is, Your Honor.

17 Thank you. Your Honor, if you look at
18 figure 2 of SmartSkin, figure 2 of SmartSkin
19 uses receivers that are voltage sensing
20 systems. SmartSkin itself points out that the
21 signal strength that it gets is extremely low.

22 That is an inherent characteristic of
23 using voltage sensing, you are very sensitive
24 to, among other things, the resistivity of the
25 lines.

1 They use copper lines for a reason.
2 They need the very high conductivity of these
3 copper lines. If you go to ITO, which is 100
4 times less conductive than copper, this system
5 won't function.

6 So in the accused products, it works
7 because they are not -- I don't know if this
8 should be on the confidential record -- it is a
9 general statement, I am not going to refer to
10 any art -- in the accused products and also for
11 that matter in the '607 patent, it works, it is
12 able to meet the requirements of the preamble,
13 et cetera, and still implement transparency and
14 the relevant claims because it doesn't use
15 voltage sensing. A consequence of this sensing
16 scheme is that it cannot implement a
17 transparent system.

18 JUDGE ESSEX: What about voltage
19 sensing?

20 THE WITNESS: I'm sorry, Your Honor?

21 JUDGE ESSEX: What does it substitute
22 for voltage sensing?

23 THE WITNESS: So the version that is
24 used in the '607 and as it turns out is also
25 used in the accused products are systems that

1 count charge. They don't sense voltage. And
2 that turns out to be critical.

3 JUDGE ESSEX: Was that known to people
4 of ordinary skill in the art in 2002 or '3?

5 THE WITNESS: I have never seen
6 anything -- I have not seen any art with
7 respect to use of charge counting in a mutual
8 capacitance system before the '607, Your Honor.
9 So I think that '607 is the first one to show
10 that.

11 JUDGE ESSEX: All right. Go ahead.

12 BY MR. DeFRANCO:

13 Q. We were looking at RDX-28.017. Do you
14 recall that?

15 A. Yes.

16 Q. And you refer to the OLED, the organic
17 LED. Do you see that?

18 A. Yes.

19 Q. It also refers to a liquid crystal
20 display. Do you see that?

21 A. I do.

22 Q. It says "or." Either one or the
23 other; is that right, sir?

24 A. Correct, but with respect to figure 9,
25 it is OLED specific.

1 Q. But it does say it can also be used
2 with a liquid crystal display; is that correct,
3 sir?

4 A. Independent of figure 9, yes, the
5 words liquid crystal display do appear in this
6 section.

7 Q. Just one moment. Let's turn to, back
8 to the '607 patent for just a moment, please.
9 Let's take a look at figure 13.

10 Figure 13, sir, that is the inverted
11 amplifier that deals with N length parasitic
12 capacitance, negating the impact of parasitic
13 capacitance; is that correct, sir.

14 A. In fact, figure 13 is the amplifier
15 circuit that is used for overall sensing. One
16 of the things it does do is figures out how to
17 separate out the effect of parasitics. And the
18 way it does that to get accurate sensing is by
19 counting charge. Figure 13, this configuration
20 is a circuit that counts charge.

21 Q. Would you say that's a fairly
22 straightforward or simple circuit that's found
23 generally in textbooks at the time, sir? Isn't
24 that a fair characterization?

25 A. You mean that circuit on its own, did

1 it exist?

2 Q. Yes.

3 A. Yes.

4 Q. Okay. And wouldn't you also say, sir,
5 that one of skill in the art at the time prior
6 to the '607 patent, knew you could sense
7 capacitive charge by using a circuit that could
8 count charge. Isn't that fair, sir?

9 A. Prior to the '607, with respect to --
10 with respect to a touchscreen or with respect
11 to just counting charge?

12 Q. Just generally, sir.

13 A. So it was known that you could count
14 charge by using a surrogate such as this to
15 count charge.

16 Q. And would you say as a followup that
17 that would not be known by one skilled in the
18 art that it could be used in a mutual
19 capacitance system, is that what your testimony
20 is?

21 A. It is my testimony that nobody, prior
22 to the '607, no one figured out -- and there is
23 certainly no evidence of it -- that anybody
24 figured out that you could finally get to use
25 ITO in these mutual capacitance systems that

1 implement multi-touch.

2 And the way to allow the use of ITO,
3 the way to get to a system that could deal with
4 these higher resistivity materials such as ITO
5 is to count charge instead of measuring
6 voltage.

7 Q. And for your opinions in this case,
8 sir, did you take into account the testimony
9 from at least one of the inventors that the
10 SmartSkin disclosure was at least part of the
11 inspiration for what ultimately came -- became
12 their inventions as claimed in the '607 patent?

13 A. I did read the testimony. I believe
14 you are referring to the Strickon testimony?

15 Q. Yes.

16 A. I read that.

17 Q. And you don't dispute that testimony,
18 do you, sir?

19 A. The testimony is what it is. I have
20 no basis beyond that.

21 Q. Okay. Did you discuss that with
22 Mr. Strickon at all?

23 A. I have never spoken to Mr. Strickon.

24 Q. All right. Thank you for that. Let's
25 turn to another reference, the other reference

1 we're going to cover today, which is the Perski
2 reference.

3 You're aware that that's another
4 reference that Motorola relies on in this case
5 for its position that the asserted claims of
6 the '607 patent are invalid. You're aware of
7 that, sir?

8 A. I'm aware that it is being relied on
9 by Motorola for that purpose.

10 Q. Let's turn to slide RDX-28.020.
11 Actually, go back to 019, Ryan. Let's start
12 with that briefly.

13 Just for the record, sir, you have
14 spent a reasonable amount of time with these
15 references. The filing date of the Perski
16 patent itself, the '455 patent, is January 15th
17 of 2004; is that correct, sir?

18 A. Yes.

19 Q. You are aware of that Perski
20 provisional application, the filing date for
21 that is early February of 2003, February 10th
22 or so, sir; is that correct?

23 A. I'm sorry, where is the date?

24 Q. There is a couple of dates.

25 A. There is February 9th on the bottom of

1 that page.

2 Q. Yeah. At least on the front page of
3 the document, it says February 9th, 2003. Do
4 you see that, sir?

5 A. I do.

6 Q. Okay. And there is also a third
7 reference in this group or family. It is the
8 Morag '662, which we will talk a little bit
9 about later, but you have reviewed that as
10 well, haven't you?

11 A. Yes.

12 Q. Now, it is your testimony with respect
13 to this Perski reference, your opinion is that
14 it fails to disclose, enable, or render obvious
15 the multi-touch limitations required by the
16 asserted claims under either of the parties'
17 proposed constructions. Is that correct, sir?

18 A. That's correct.

19 Q. So if we turn to the next slide,
20 RDX-28.020, the limitations not disclosed,
21 that's the fifth bullet point down if I'm
22 counting that correctly, do you see that, it is
23 multi-touch?

24 A. Yes, that's referring to the preamble
25 limitations.

1 Q. So by way of comparison, you had a
2 longer list as to what was not disclosed in the
3 SmartSkin references, we're talking about one
4 feature, multi-touch, that you believe is not
5 disclosed in the Perski reference. Is that
6 fair?

7 A. We are talking about the preamble
8 based limitations related to multi-touch.

9 Q. Yes, sir.

10 A. Okay.

11 Q. Now, let's show briefly paragraph 74
12 in your rebuttal witness statement. Okay. So
13 briefly this is where you characterize
14 multi-touch in the two set of asserted claims
15 here. For example, with respect to claims 1 to
16 7, you say that the detection of multiple
17 touches or near touches that occur at the same
18 time and at distinct locations where the
19 production of distinct signals representative
20 of the location as required by claim 1 and
21 dependent claims 2 to 7. Do you see that, sir?

22 A. I do.

23 Q. And then with respect to claim 10, you
24 have the characterization that's below that,
25 the recognition of multiple touch events that

1 occur at different locations on the touch panel
2 at the same time at distinct points across the
3 touch panel.

4 Do you see that?

5 A. Yes.

6 Q. And you go on to provide a bit of
7 additional information, sir; is that correct?

8 A. Yes.

9 Q. Okay. Now, in your opinion, Perski
10 suffers from the same problems as the prior art
11 to the '607; is that correct?

12 A. Some of them, yes.

13 Q. Okay. Some of them. And more
14 specifically, in your view, Perski is directed
15 to a single touch device; is that correct?

16 A. Yes, that's primarily true.

17 Q. You don't think -- in your opinion, it
18 doesn't disclose multi-touch or the processing
19 required for multi-touch; is that fair?

20 A. In my opinion, it does not disclose
21 the multi-touch limitations as required
22 therewith by the relevant claims of the '607
23 patent.

24 Q. Okay. Let's turn to the next slide.
25 We're going to go through a bit in the

1 remaining time of some slides that show
2 different portions of the disclosure of the
3 Perski references. Okay? Are you with me?

4 A. I am.

5 Q. All right. Slide 021, do you see
6 there that it is an excerpt from the Perski
7 specification that says, "the goal of the
8 finger detection algorithm in this method is to
9 recognize all of the sensor matrix junctions
10 that transfer signals due to external finger
11 touch."

12 Do you see that, sir?

13 A. I do.

14 Q. "It should be noted that this
15 algorithm is preferably able to detect more
16 than one finger touch at the same time."

17 Do you see that, sir?

18 A. I do see that language.

19 Q. No dispute that it explicitly says
20 that the algorithm is preferably able in Perski
21 to detect more than one finger touch at the
22 same time?

23 A. That language does exist in Perski.

24 Q. Okay. Let's go to the next slide,
25 please, slide 22. A little bit more detail, a

1 little in the provisional application. I just
2 want to be clear. We're going to be going back
3 and forth between these related documents. In
4 the interest of time, to do it more
5 efficiently, I am going to take it a subject
6 matter at a time, but this is from the Perski
7 '808 provisional, the cover page that we looked
8 at, it is Exhibit RX-303 on page 4.

9 Okay? You have seen this document
10 before?

11 A. I have.

12 Q. Okay. Do you see, sir, that it says,
13 "the goal of the finger detection algorithm in
14 this method is to recognize all of the sensor
15 matrix junctions that bypass signals due to
16 external finger touch." Do you see that, sir?

17 A. I do.

18 Q. It goes on to say, "it should be noted
19 that this algorithm is able to detect more than
20 one finger touch at the same time."

21 That's the same discussion we saw in
22 the other Perski document about being able to
23 detect more than one touch, for example, two
24 touches obviously; is that correct, sir?

25 A. That's what this particular language

1 says, this further language that specifically
2 says it is too slow.

3 Q. Okay. Let's go on to slide 023. This
4 is a figure that we have seen earlier in this
5 hearing, sir. I am sure you recognize it out
6 of Perski.

7 A. Yes, I do.

8 Q. And do you see that next to that is
9 associated language that relates to the figure
10 2 that's depicted there? It says that right in
11 the text. Do you see that, sir?

12 A. Yes.

13 Q. And do you see that it states that a
14 two-dimensional sensor matrix 20 lies in a
15 transparent layer over an electronic display
16 device? Do you see that, sir?

17 A. Yes.

18 Q. And it says, "an electric signal 22 is
19 applied to a first conductor line 24 in the
20 two-dimensional sensor matrix."

21 Do you see that, sir?

22 A. I do.

23 Q. And this has -- this configuration in
24 Perski, this has drive and sense lines, doesn't
25 it, no doubt?

1 A. The second embodiment, the version
2 we're talking about here?

3 Q. Yes, sir.

4 A. Yes, I agree with that.

5 Q. Okay, this particular embodiment shows
6 the drive lines, number 22 with that arrow
7 showing an alternating signal being applied.
8 Do you see that?

9 A. Yes. An AC voltage is applied at 22.

10 Q. Right. And then the arrow that's
11 exiting, that's the sense line at item 30. Is
12 that correct, sir?

13 A. That is, that is the particular sense
14 line associated with that node, produces a
15 voltage, and then later on they actually
16 disclose some voltage sensing circuitry for
17 that.

18 Q. They do disclose voltage sensing
19 circuitry for that, for those sense lines in
20 Perski; is that right?

21 A. Well, they actually disclose a voltage
22 sensing circuit for another embodiment. That's
23 the only sensing circuit that they actually
24 disclose, but with respect to this, they also
25 say you are sensing the voltage signals coming

1 out.

2 Q. Okay, fair enough.

3 This particular portion goes on to
4 read, "a finger 26 touches the sensor 20 at a
5 certain position, increases the capacitance.
6 between the first conductor line 24 and the
7 orthogonal conductor line 28 which happens to
8 be at or closest to the touch position."

9 Do you see that, sir?

10 A. Yes.

11 Q. That's the same concept, mutual
12 capacitance we have been over and over again,
13 the finger touches, it impacts the capacitance,
14 which is detected by the sensing circuit and
15 then the rest of the operation is performed; is
16 that fair, sir?

17 A. If you are asking me if this is
18 conceptually mutual capacitance, I don't
19 disagree with that.

20 Q. Now, if we turn over to RDX-24, this
21 is some additional text that goes with that
22 same figure, sir, okay? It says, "a number of
23 procedures for detection are possible."

24 You have seen this before, haven't
25 you?

1 A. Yes.

2 Q. It says, "the most simple and direct
3 approach is to provide a signal to each one of
4 the matrix lines in one of the matrix axes, one
5 line at a time, and to read the signal in turn
6 at each one of the matrix lines on the
7 orthogonal axis." Do you see that?

8 A. I do.

9 Q. That is describing generally how the
10 sense operation is implemented in this
11 embodiment of Perski; is that correct?

12 A. Yes, and in this particular
13 embodiment, it discusses scanning all the way
14 across node by node.

15 Q. And this is a transparent
16 configuration that's intended or can be
17 displaced over a display device. Isn't that
18 true?

19 A. It is transparent as described here.
20 This section doesn't specifically talk about
21 putting it over a display, but it certainly is
22 transparent.

23 Q. You don't dispute that this Perski
24 device is transparent, do you?

25 A. No, I do not.

1 Q. And in terms of these procedures, the
2 specification goes on in Perski and it says
3 this method enables the detection of multiple
4 finger touches. Do you see that, sir?

5 A. I do and you will note it doesn't say
6 at the same time there. And further in the
7 next paragraph, it goes on to say this is too
8 slow.

9 Q. Okay. But at least you agree with me
10 in this particular paragraph, it does talk
11 about a transparent device and it talks about
12 how that is implemented in a particular
13 configuration and goes on to say specifically
14 that this method enables the detection of
15 multiple finger touches. Is that correct?

16 A. It does, but not at the same time.

17 Q. Now, let's turn to slide RDX-026,
18 skipping ahead a little bit, Ryan. Now, we're
19 back again, sir, to the provisional application
20 of Perski. And there is an excerpt at the top
21 of the provisional application on page 4 along
22 with figure 2 from the provisional application.

23 Do you see that there?

24 A. Yes, I do.

25 Q. Now, just briefly, you don't dispute

1 that figure 2 shows a matrix of transparent
2 conductive lines and as we said before there
3 are drive and sense lines shown there?

4 A. This is indeed a matrix. I believe
5 there is description of the use of
6 transparency. And there are indeed drive and
7 sense lines.

8 Q. Okay. And if we -- and that's
9 discussed in that portion of the Perski
10 provisional disclosure. Do you see that in
11 that paragraph?

12 A. That portion doesn't mention
13 transparency, but I believe it is mentioned
14 somewhere else.

15 Q. Okay.

16 A. But that is generally related to
17 figure 2.

18 Q. Well, let's look at transparency with
19 respect to figure 2. If we go to the next
20 slide, slide 27, you will see the excerpt at
21 the top, doesn't that disclose transparency?
22 It says, "the present invention utilizes a
23 patterned transparent conductive foil system,
24 used for detecting the location of an
25 electromagnetic stylus on top of a display

1 surface in order to enable multiple and
2 simultaneous finger inputs directly on the
3 display."

4 Do you see that, sir?

5 A. I do.

6 Q. So there it is saying for sure with
7 that question, it is transparent, obviously,
8 you don't disagree with that?

9 A. I don't.

10 Q. It also discloses that the purpose for
11 that is to enable multiple and simultaneous
12 finger inputs directly on display. Do you see
13 that, sir?

14 A. It does say that. In fact, in the
15 main body, it goes on to say it is too slow.

16 Q. Okay. Let's turn to slide 28. Again,
17 a little bit more about this figure 2. It
18 says, "the most simple and direct approach is
19 to provide a signal to each of the matrix
20 lines, in one of the matrix axes, one line at a
21 time, and to read the signal at each one of the
22 matrix lines on the orthogonal axis."

23 Do you see that, sir?

24 A. I do.

25 Q. Okay. It says, "it is possible to

1 sample a group of reception lines at the same
2 time, and even to sample all reception lines
3 simultaneously, thus reducing the number of
4 lines to N." Do you see that, sir?

5 A. Thus reducing the number of steps to
6 N?

7 Q. Yes, sir.

8 A. Yes, I see that.

9 Q. Now, I would like to turn for a moment
10 to the Morag provisional, which is, I believe,
11 incorporated by reference in the Perski '455
12 patent. Is that your understanding, sir?

13 A. I understand that's what's being
14 claimed, yes.

15 Q. Okay. So if we go to the next slide,
16 slide 29, please, Ryan, you have seen this
17 figure 1 from the Morag provisional; is that
18 right, sir?

19 A. I believe so. Let me just turn to it,
20 please. Yes, I see it.

21 Q. And you have also looked at that text,
22 and there is some highlighted text there in the
23 middle. I won't read that, but you have seen
24 that before, sir, haven't you?

25 A. Yes, I have.

1 Q. Now, if you look at that language in
2 that paragraph, sir, wouldn't you say that
3 generally discusses that there is reception
4 from the sensing lines, there is filtering and
5 amplification of the signal, there is sampling
6 into a digital representation, and then sending
7 that digital representation out to a DSP or
8 digital signal processor; is that right, sir?

9 A. DSP is digital signal processor, but,
10 I'm sorry, I am looking for the language.

11 Q. Okay.

12 A. So it does say it amplifies the
13 signal. It says it filters out irrelevant
14 frequencies. It says it samples it into a
15 digital representation. And it says it
16 forwards it for further digital processing.

17 Q. And would you agree that the digital
18 representation is processed to determine the
19 position of one or more objects and then that's
20 sent to some other circuitry?

21 A. Well, that's not described here, but
22 certainly if that were the desired operation,
23 you would -- that would be something you would
24 probably do in the digital domain.

25 Q. So where it states the digital unit 3

1 is responsible for running the digital
2 processing algorithms, the outcome of the
3 digital process is the position of one or more
4 physical objects, typical stylus, which is
5 forward to the host via interface 7."

6 Do you see that, sir?

7 A. It is typically but, yes, I see that
8 language.

9 Q. And it is using the information that's
10 received from the mutual capacitance grid to
11 send the data to the digital processing
12 algorithm so that it can detect the position of
13 more than one physical device. Isn't that
14 true, sir?

15 A. Yes, I agree with that.

16 Q. Okay. Now, let's take a look at -- at
17 least in terms of that language you don't
18 dispute Perski is talking about how to use an
19 algorithm and associated circuitry to detect
20 multiple touches in a transparent device?

21 A. You mean Perski by incorporating
22 Morag?

23 Q. Yes, sir.

24 A. I understand. So with respect to the
25 incorporation, in Morag, it certainly says what

1 you do with what comes out of the grid. And if
2 I didn't answer your question fully --

3 Q. No, you did, thank you.

4 A. Okay.

5 Q. Just want to turn briefly to another
6 version of the Perski figures on which we have
7 added some items. It is RDX-28030. I know you
8 have spent significant amount of time with
9 this. Just for the record and make sure we're
10 on the same page, this is figure 2 from the
11 Perski with some colorization of the drive and
12 sense lines. Do you see that, sir? Sense
13 lines are in red. Drive lines are in blue, one
14 each, in each of these two depictions?

15 A. I see that.

16 Q. And in the original Perski, what was
17 the circle that's yellow on top, what did that
18 reflect that was a circle in the drawing as it
19 originally existed?

20 A. That is generally pointing to a
21 particular node on the figure.

22 Q. And we have added a node. Do you see
23 that, a node below each one of those?

24 A. I see that.

25 Q. The Perski references we have been

1 talking about, they disclose the ability to
2 sense two different touches at two different
3 locations on a mutual capacitance transparent
4 device. Isn't that, sir?

5 A. Not at the same time. Yes, I agree.
6 If you are talking about timing, yes, it does.

7 Q. So your opinion is that it can detect
8 more than one, just not simultaneously?

9 A. So there is two possibilities. If it
10 uses the technique disclosed, it is too slow to
11 do it simultaneously. If it uses the so-called
12 faster technique, it is not able to actually
13 detect multiple touches accurately.

14 Q. Okay. And that is one of the bases on
15 which you, in your opinion, distinguish the
16 Perski references; is that correct?

17 A. That is something I have considered,
18 yes.

19 Q. Now, do you remember that any specific
20 disclosure in the '607 patent that teaches the
21 detection of multiple fingers at the exact same
22 time? In other words, is that explicitly
23 discussed anywhere in the '607 patent?

24 A. If by exact same time, you mean at the
25 same picosecond, no. In fact, that's not a

1 requirement. But what is a requirement is that
2 it appears at the same time to the user. And
3 that's my opinion with respect to claim
4 construction.

5 Q. I don't want to quibble about times.
6 In terms of what it says in the '607
7 specification, there is no discussion about how
8 the invention gives the ability to detect two
9 touches or multiple touches at the exact same
10 time; is that correct?

11 A. And by exact, you mean not as
12 perceived by the user but realtime?

13 Q. Yes, in realtime?

14 A. I agree with that.

15 Q. And there is some -- as you said, if
16 there is fingers that are spread apart, not
17 this configuration, if my fingers are spread
18 apart on a device that's implemented using the
19 '607 patented technology, there is going to be
20 some time lag there as you were suggesting,
21 isn't there, sir?

22 A. Not as perceived by the user, but in
23 terms of picosecond differences, for example,
24 yes, absolutely.

25 Q. Certainly, but that's because of the

1 way that the sense lines are scanned, right,
2 from one side to the other, they are not
3 scanned at exactly the same time. Isn't that
4 correct, sir?

5 A. If you mean do you read all the nodes
6 simultaneously to the exact fraction, no, you
7 do not.

8 Q. And I don't remember, you haven't done
9 any tests in this case as to whether a very
10 short, precise touch by two fingers at exactly
11 the same time could be detected by devices that
12 implemented the '607 invention?

13 A. You mean have I taken a phone and
14 tried that?

15 Q. Yes. Have you done any -- well, have
16 you done any tests to see whether those two
17 touches could be recognized at an instantaneous
18 point in time?

19 A. As perceived by me, yes, they clearly
20 are. Are you asking me, have I used some sort
21 of ultra high speed camera to figure out if
22 they are actually perceived within picoseconds
23 of each other, no.

24 Q. You haven't done any tests in that
25 regard, that's all I am asking?

1 A. In that regard, no.

2 Q. So then if we go back to this figure
3 that we're looking at, RDX-28030, there is no
4 discussion, if you look at -- consider those
5 two yellow points or two points of touch in the
6 Perski configuration, there is no discussion in
7 Perski that if there were a single large touch,
8 for an example, it could be recognized as two
9 different touches, if we talk about that
10 hypothetical.

11 A. I disagree. The Perski reference says
12 I believe you detect node by node and each node
13 corresponds to a touch. So if by large you are
14 allowing it to overlap, that wouldn't
15 necessarily follow.

16 Q. Let's take a look at column 14, lines
17 15 to 19 of the -- I think the easiest way to
18 do this, Ryan, is to go back to slide RDX-021.
19 Just where we were before, sir, at least there
20 is a specific disclosure in Perski that the
21 algorithm is able to detect more than one
22 finger touch at the same time, do you see that,
23 sir, that's the goal of the Perski reference?

24 A. That is what it says with regard to
25 the goal in RX-708 at column 14, lines 15

1 through 19.

2 Q. I thought you had said in a portion of
3 your rebuttal witness statement that a single
4 large touch could cause an output signal to
5 detect more than one conductor line and the
6 Perski detection method would register this as
7 two touches instead of one. Is that right,
8 sir?

9 A. Perhaps you could point me to it, but
10 that does sound like something I said.

11 Q. We can look at it, but you don't
12 disagree with that?

13 A. I don't disagree with that.

14 Q. Okay. So going back to Perski again
15 where we started, Perski never discusses that
16 as being a problem; isn't that true, sir?

17 A. You mean does he say this is a
18 shortcoming of his method?

19 Q. Yes.

20 A. With respect to that, no, I don't
21 believe so. He didn't recognize it, but it is.

22 Q. You have taken a look at the witness
23 statements of the fact witnesses in this case
24 that relate to the '607 patent, specifically
25 you have read Mr. Hotelling's witness

1 statement, haven't you, sir?

2 A. Yes, I have.

3 Q. Okay. And you actually considered
4 that, I think you may have referenced that in
5 some of your own testimony in the case, but be
6 that as it may, you have read that testimony,
7 haven't you?

8 A. His witness statement? Yes, I have.

9 Q. And in his witness statement, he
10 identifies three classes of touch detection.
11 Do you recall that, sir?

12 A. Not specifically, but I'm not -- I
13 don't have it in front of me right now.

14 Q. Okay. Well, let's put up -- I don't
15 know if you have this, Ryan, but the Hotelling
16 witness statement, question and answer 21.

17 MR. FERGUSON: Excuse me, Your Honor,
18 I think this is confidential.

19 JUDGE ESSEX: Well, I don't -- is this
20 Apple confidential?

21 MR. FERGUSON: This would be Apple
22 confidential.

23 JUDGE ESSEX: All right.

24 MR. DeFRANCO: Let me try to do it
25 without putting that on the screen.

1 JUDGE ESSEX: All right. You are
2 going to try to avoid going into confidential?

3 MR. DeFRANCO: I would like to.

4 JUDGE ESSEX: You want to stay on the
5 public record?

6 MR. DeFRANCO: Yes, sir.

7 JUDGE ESSEX: All right. Go ahead.

8 BY MR. DeFRANCO:

9 Q. If we talk about a class of touch
10 detections, a touch detection system that takes
11 two touch points and averages them, which I
12 believe is shown as a problem with the prior
13 art in figure 1A. Do you recall that, where
14 there is a little plus sign between the two?

15 A. By figure 1A, you are referring to
16 figure 1A of the '607 patent?

17 Q. Yes.

18 A. Yes.

19 Q. Perski is not one -- doesn't suffer
20 from that problem, does it, the ability to not
21 have to average two touch points, right?

22 Clearly Perski could separate, was an advance
23 over that class of touch devices, wasn't it,
24 sir?

25 A. You are asking me with reference to

1 the node by node scanning method?

2 Q. Yes.

3 A. In the node by node scanning method,
4 Perski does not talk about averaging, so he
5 doesn't suffer from that problem.

6 Q. And you didn't see anything in there
7 that said that Perski needed to average two
8 touches as the prior art did because of
9 limitations in terms of the configuration of
10 the electrodes and processing technology, that
11 sort of thing, correct?

12 A. I don't believe I saw any discussion
13 of averaging with respect to being a problem in
14 that regard.

15 Q. Okay. And if we talk about a second
16 category or class of detection devices, those
17 that suffer from shadowing, you would agree,
18 wouldn't you, that Perski doesn't suffer from
19 the shadowing problem of that second category
20 or class of touchscreen devices, does it?

21 A. You are talking about the scanning,
22 the node by node scanning version, not the
23 version that actually groups nodes?

24 Q. Yes, right.

25 A. Because the grouping one does suffer

1 from it. But the node-by-node scanning one
2 would not suffer from the shadowing behavior.

3 MR. DeFRANCO: One moment, Your Honor.
4 I am trying to avoid the confidential record.

5 JUDGE ESSEX: I understand.

6 MR. DeFRANCO: Your Honor, with that,
7 I am going to finish with the
8 cross-examination -- conclude
9 cross-examination.

10 JUDGE ESSEX: All right.

11 MS. KATTAN: I have no questions, Your
12 Honor.

13 MR. FERGUSON: Your Honor, it might
14 make sense if we take our lunch break now. I
15 think that would speed up the redirect. And
16 that would also then allow the recross to occur
17 right after my redirect and we can take it all
18 in one shot. Get it done quicker.

19 JUDGE ESSEX: All right. That makes
20 some sense.

21 Doctor, we're going to go to recess.
22 Again, let me remind you to discuss anything
23 you want, other than your testimony and the
24 matters contained in your report.

25 All right. We're in recess. We will

1 be back in an hour, about ten until 1:00.

2 (Whereupon, at 11:49 a.m., a lunch
3 recess was taken.)

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1 AFTERNOON SESSION

2 (12:50 p.m.)

3 JUDGE ESSEX: All right. Are we
4 ready?

5 MR. FERGUSON: We are, Your Honor.

6 JUDGE ESSEX: All right. Back on the
7 record. Go ahead.

8 REDIRECT EXAMINATION

9 BY MR. FERGUSON:

10 Q. Good afternoon, Dr. Subramanian.

11 A. Good afternoon.

12 Q. I would like to start with claim 1 of
13 the '607 patent, JX-2. And you touched on the
14 preamble of claim 1 several times during your
15 cross-examination. Do you remember that?

16 A. Yes, I do.

17 Q. I would like to start by breaking down
18 some of the elements in the preamble, so,
19 Chris, could we start with a transparent
20 capacitive sensing medium. Great.

21 First of all, can you just briefly
22 explain what your opinion is with respect to
23 what that means?

24 A. Certainly. With respect to this
25 portion of the preamble, the words transparent

1 capacitive sensing medium indicate that the
2 touch panel that we're talking about will
3 comprise something that is transparent and it
4 is going to use capacitive sensing.

5 So those are two requirements of a
6 system that would implement claim 1.

7 Q. Okay. And now, Chris, let's go and
8 highlight in a different color "detect multiple
9 touches or near touches that occur at a same
10 time and at distinct locations in a plane of
11 the touch panel."

12 And, again, can you explain your
13 opinion with respect to what that claim
14 language means?

15 A. Certainly. This claim language says,
16 firstly, that we have to be able to detect
17 multiple, which means more than one touches or
18 near touches. And those touches would occur at
19 the same time and be in distinct locations on
20 the plane of the touch panel.

21 Now, what does that mean by distinct
22 locations in a plane of the touch panel? That
23 means we are able to detect when the touches
24 are made in different locations on the plane of
25 the touch panel.

1 We actually get some guidance on what
2 that means from the specification itself and,
3 further, we get guidance from later portions of
4 the preamble of claim 1.

5 Q. And let's go to that. Let's use one
6 more color and highlight "to produce distinct
7 signals representative of a location of the
8 touches on the plane of the touch panel for
9 each of the multiple touches."

10 And, again, can you tell us what your
11 opinion is with respect to what that language
12 means?

13 A. Certainly. This language requires
14 that the touch panel of claim 1 must be able to
15 produce signals representative of the location
16 of the touches, so it has to produce a signal
17 for the touch, the multiple touches that we
18 have discussed above, that are on the plane of
19 the touch panel, and those signals must be
20 distinct for each of the multiple touches.

21 We get further guidance on what
22 distinct means with respect to the multiple
23 touches by looking at the specification. In
24 particular, if we look at a section that
25 actually I discussed earlier in the

1 cross-examination portion where we were looking
2 at the section describing the prior art, there
3 was criticisms of the state of the technology
4 at the time, specifically identifying issues
5 associated with averaging and shadowing.

6 And the general problems they have in
7 being able to accurately distinguish multiple
8 touches. So based on the clear teaching away
9 from the problems of the prior art and the need
10 to solve those problems, put together, the
11 preamble requires, first, that the system be
12 transparent; second, that it be capacitive in
13 terms of the sensing it uses; and, third, that
14 it be able to accurately detect multiple
15 touches.

16 And that specifically means it needs
17 to not suffer from the shadowing, averaging, et
18 cetera, style problems. And it needs to be
19 able to do them in such a way that it can
20 produce distinct signals representative of the
21 locations and it must be able to do that at a
22 same time.

23 The specification teaches us that at a
24 same time means at the same time as perceived
25 by the user.

1 Q. Okay. Now, with that claim language
2 informing your opinions with respect to the
3 prior art, let's take a look at the SmartSkin
4 reference that you were questioned about during
5 the cross-examination. This is JX-367. Of
6 course you remember being asked questions about
7 this, right?

8 A. Yes, I do.

9 Q. And you have expressed an opinion that
10 the SmartSkin reference does not anticipate the
11 asserted claims of the '607 patent. Is that
12 right?

13 A. Yes, I have expressed that opinion.

14 Q. Okay. Let's start with looking at
15 figure 2 of the SmartSkin reference. And this
16 was used during your cross-examination?

17 A. Yes, it was.

18 Q. And I want to just set a little bit of
19 groundwork here. Figure 2 shows the touch
20 panel as used in SmartSkin. Is that right?

21 A. That's correct. This is, in fact, the
22 schematic representation of the SmartSkin touch
23 panel and, in fact, it describes both of the
24 embodiments in terms of how it is set up, both
25 the table embodiment and the tablet embodiment

1 use this.

2 Q. They both -- both embodiments that are
3 disclosed use this representation which is
4 figure 2?

5 A. That's correct.

6 Q. And what material in these embodiments
7 is used for the drive and sense lines that are
8 shown at the top of the figure?

9 A. The drive and sense lines for both
10 embodiments based on figure 2 are copper.

11 Q. Is copper transparent?

12 A. No, copper is not transparent. In the
13 thicknesses that are used here, it is entirely
14 opaque.

15 Q. Now, you were shown the SmartSkin
16 video during your cross-examination. Do you
17 remember that?

18 A. I do.

19 Q. What material, to your knowledge, was
20 used for the drive lines and sense lines in
21 that video?

22 A. I believe the video I was shown was
23 for the tablet version, and that version uses
24 copper for the drive and sense lines.

25 Q. All right. And you were asked a

1 number of questions about the conclusion
2 section of the SmartSkin reference, JX-367,
3 that referred to the future work that might be
4 able to be done with respect to indium tin
5 oxide. Do you remember those questions?

6 A. I recall the discussion of the future
7 work on indium tin oxide.

8 Q. Okay. Can indium tin oxide be
9 substituted for the copper lines that are shown
10 in figure 2 of the SmartSkin reference in a
11 manner that would be simple to implement?

12 A. No, as I have already said during my
13 cross-examination, you could not take the
14 system of figure 2 and replace the copper with
15 indium tin oxide. Doing so would result in a
16 non-working system. It is not a drop-in
17 replacement. The circuits of figure 2 would
18 not work with an ITO mesh.

19 Q. Let's talk a little bit about the
20 disclosures of the use of indium tin oxide in
21 the '607 patent versus the disclosure, such
22 that it is, in the SmartSkin reference.

23 So, Chris, can we go back to the
24 patent, please, the '607 patent, JX-2. And can
25 we put up in the patent column 14, starting at

1 line -- starting at line 44 all the way through
2 column 15, ending at line 23. Chris, column
3 14, line 44, please. I think that's different
4 than what you have up there. Okay, great.

5 And then through column 15, line 23.

6 Can you fix the column 15 a little
7 bit? There we go. Thank you.

8 Here is the disclosure. You were
9 asked a few questions about this in your
10 cross-examination, although not all this
11 material was on the screen. First of all,
12 let's focus on the disclosure at column 14,
13 line 44, that paragraph, where it discusses the
14 lines that are used in the '607 patent.

15 And I wanted to focus in on the
16 section that discloses the size of the lines.
17 Now, can you tell us by looking at that whether
18 the '607 patent provides any guidance to the
19 reader with respect to the thickness and width
20 of the lines that should be used?

21 A. Yes, it does. Specific examples are
22 provided at, for example, starting at line 54,
23 it talks about the pitch of the sensing and
24 driving lines of being about five millimeters,
25 and talks about line widths as well on the

1 order of 1.05 and 2.10 millimeters, so it does
2 provide some examples of the kinds of numbers
3 that could be used.

4 Q. And then in the next paragraph column
5 14, around line 60, is there a discussion with
6 respect to some of the issues that result when
7 one uses ITO in a touchscreen sensor?

8 A. Yes, it does. Specifically it does
9 point out the issues related to transparency
10 and resistivity and talks about how those are
11 typically resolved.

12 Q. And then you were asked some
13 questions, I think, by His Honor with respect
14 to column 15, the paragraph that begins around
15 line 8 regarding the dead areas and the need to
16 have a uniform optical retarder. Is that
17 right?

18 A. That's right.

19 Q. Again, can you just quickly cover that
20 one more time.

21 A. Certainly. With respect to the
22 discussion of dealing with the dead areas
23 between the ITO, the issue is that ITO has a
24 different refractive index than typical polymer
25 materials such as a glue or a plastic.

1 And also different refractive index,
2 for example, than many glasses. And so if you
3 have a layer that has multiple ITO lines and
4 spaces in between that are either air or filled
5 with a glue or filled with a polymer of some
6 sort, you have a difference in the refractive
7 index in the stripes versus in what are called
8 the dead regions, the spaces between the
9 stripes.

10 The problem with that is then if you
11 have a user looking at the display, he
12 perceives a layering, which depending on how
13 far you are from the display, either shows
14 itself as little bands or even as a shimmer of
15 the display.

16 Q. Okay.

17 A. So that's a problem because it results
18 in a poor perception of the quality of the
19 transparency, and the patent describes that and
20 discusses potential ways of dealing with that.

21 Q. So now, Chris, let's go back to
22 JX-367, the SmartSkin reference, and let's go
23 to page 7. And can we blow up the paragraph on
24 the right that says use of transparent
25 electrodes.

1 Can you read for us the first sentence
2 in this section.

3 A. Certainly. The section says, "a
4 transparent SmartSkin sensor can be obtained by
5 using indium tin oxide (ITO) or a conductive
6 polymer."

7 Q. Is there any other disclosure in the
8 SmartSkin reference about how ITO could be used
9 in a SmartSkin sensor?

10 A. No, there isn't. This is suggested as
11 future work and that's why it is not
12 significant discussion. This is just to say
13 this could be an idea someone could work on,
14 but we don't -- it hasn't been done and it is
15 not disclosed how to do it.

16 Q. So between the '607 patent disclosure
17 and the SmartSkin reference with respect to a
18 teaching of how to use ITO on a touchscreen
19 device, which one provides more guidance to the
20 person of skill in the art?

21 A. Well, even with respect to the ITO
22 itself, there is clearly substantially more
23 guidance within the '607 patent.

24 Q. Let's go back to figure 2 of SmartSkin
25 again. You can take off the '607 disclosure.

1 Let's blow that back up.

2 Now, Dr. Subramanian, you said on
3 cross-examination that ITO will not work with
4 figure 2. Do you recall that?

5 A. I do.

6 Q. I would like you to provide an
7 overview right now of why you have that belief.

8 A. Certainly. As I pointed out in
9 response to His Honor's question, the receivers
10 used in figure 2 -- and these are the only
11 receivers disclosed within the SmartSkin
12 reference, or for that matter in the SmartSkin
13 patent application as well, are voltage
14 amplifiers. What they do is they are used to
15 determine the voltage on the rows.

16 So, in other words, when the wave
17 signal of figure 2 is applied to what we're
18 calling the drive lines, capacitive coupling
19 results in voltage being present at the end of
20 the sense lines that feed to the receiver.

21 The circuitry of figure 2 is used to
22 measure that voltage. And we know that because
23 we see these amplifiers shown here and those
24 which are shown as triangles, and that's the
25 classic representation of an amplifier.

1 Q. Okay.

2 A. And they are called as such. They are
3 called amps.

4 Q. Now, let's juxtapose that with what's
5 disclosed in the '607 patent. Chris, can you
6 keep this side-by-side. Let's go to the '607
7 patent and shows figures 12 and 13.

8 Again, at a high level, can you tell
9 us what is disclosed in figures 12 and 13 of
10 the '607 patent?

11 A. Certainly. Figures 12 and 13 show
12 conceptually how the sensing is actually done.
13 In particular, what you notice in figure 12, we
14 see a schematic representation of what happens
15 in this mutual capacitance system.

16 The drive signal is shown as 228, and
17 it is applied to the left of this capacitor.
18 That's the two parallel lines. And you notice
19 it has an arrow going through it.

20 That arrow indicates that it is a
21 variable capacitor. And let me explain what
22 that means.

23 This capacitance over here represents
24 the capacitance between the drive line and the
25 sense line. And that capacitance changes

1 depending on whether there is a finger nearby
2 or not.

3 So that's what the arrow means. The
4 arrow indicates that the value can change.

5 So there is a drive line signal
6 applied on 222. And it is coupled to the sense
7 line to 224. And then ultimately feeds to the
8 circuit, 230.

9 230 is the sensing circuit. And the
10 described sensing circuit of figure 13 would
11 conceptually fit in there and that is, in fact,
12 called out specifically as being a circuit that
13 is going to count charge.

14 So the circuit -- the system described
15 with respect to this mutual capacitance system
16 of the '607 patent is a system that counts
17 charge and uses that to make a determination as
18 to the presence or absence of a finger.

19 Now, that's important because you see
20 that it is using a different metric for doing
21 this determination. Instead of using voltage,
22 which is what's used in SmartSkin, it uses
23 charge.

24 Q. Now, can you explain why that is
25 significant when you are using ITO as the

1 material for the row and sense lines?

2 A. Certainly. At a high level, the
3 advantage of using charge over using voltage is
4 you become significantly less sensitive to the
5 resistance of the lines. Voltage is extremely
6 sensitive to the resistance of the lines. If
7 you count charge, it is not.

8 I can explain that further. I could
9 draw it and make it clear.

10 MR. FERGUSON: Your Honor, with your
11 permission, would we be able to have
12 Dr. Subramanian use the boards here to sketch
13 out his analysis with respect to the use of the
14 counting charge versus voltage?

15 JUDGE ESSEX: Yes. I am just
16 wondering how we're going to mic him up.

17 MR. FERGUSON: I actually have a
18 wireless mic right here, Your Honor.

19 JUDGE ESSEX: Then proceed.

20 MR. DeFRANCO: Your Honor, just to
21 state an objection, Your Honor. If he could
22 just point out where this is in his witness
23 statements, please.

24 JUDGE ESSEX: Well, I'm going to allow
25 it because I asked the question and we have

1 raised the difference between voltage and
2 charge. And the difference between the
3 SmartSkin and the others. So I think it was
4 covered.

5 I don't exactly do cross-examination,
6 but it has become a fair point in our record so
7 I am going to allow it.

8 THE WITNESS: Thank you, Your Honor.
9 So, Your Honor, I will, on these easels, I will
10 first --

11 JUDGE ESSEX: One other thing. If you
12 want to come out so you can actually see what
13 he is doing, any of the attorneys, if your view
14 is impeded, please feel free to leave your seat
15 and find a place where you can watch.

16 MS. KATTAN: Thank you, Your Honor.

17 BY MR. FERGUSON:

18 Q. Now, let's just set the stage for the
19 question. Can you explain for us what the
20 difference is with respect to using a voltage
21 sensor as in SmartSkin versus using a charge
22 counter in the '607 patent and, in particular,
23 why that's important when you are using ITO as
24 the drive and sense line material.

25 A. Certainly. To start, it is best if I

1 first explain how at a conceptual level a
2 mutual capacitance system works. So, Your
3 Honor, I will start by that.

4 In a mutual capacitance system, as
5 everybody has agreed, to my knowledge, in this
6 case, we have rows and we have columns. And
7 they are, in the cases we're looking at, are in
8 different layers.

9 Now, it turns out when you have two
10 conductors in different layers, there is a
11 capacitance that exists between them. So I'm
12 going to draw that like this (indicating).

13 These parallel lines are the standard
14 schematic used globally to indicate a
15 capacitance. In a mutual capacitance system,
16 we have a drive line where we apply a signal.
17 Typically it is an alternating current. Some
18 sort of current that is time variant. And I
19 will explain why we do that in a minute.

20 And then on the sense line we have
21 some sort of sensing circuit. And I am just
22 going to call it S for now. If Your Honor
23 would like, I can draw a little higher up.

24 JUDGE ESSEX: No, that's fine.

25 THE WITNESS: Now the basic concept

1 then at the highest level for this mutual
2 capacitance system is that if we apply a time
3 variant signal here, we want to be able to
4 detect something here (indicating).

5 By the way, the reason we use time
6 variant signals is capacitors will actually
7 allow electrons to flow, if the electrons are
8 time variant. In other words, if the signal
9 that is applied is varying with time, the
10 capacitor actually allows some current to flow.

11 So this is the conceptual level at
12 which a mutual capacitance system works. So to
13 explain the difference, the next step then
14 would be for me to work through each of those
15 individually.

16 BY MR. FERGUSON:

17 Q. Can we do that? Why don't you
18 explain, with respect to figure 2 of SmartSkin
19 and then figures 12 and 13 of the '607 patent,
20 the differences.

21 A. Certainly. So I will start then with
22 figure 2 of SmartSkin to explain how it works.
23 I will leave this up for a second, Your Honor,
24 and I am going to draw over here and then I
25 will flip that up, because I will have

1 everything I need.

2 Just so that we can see what's going
3 on with respect to this intersection point, I
4 am not going to actually draw the intersection
5 point. Instead, just to make the diagram a
6 little easier to see visually, I am going to
7 draw it like this (indicating). But, in fact
8 -- and I am going to show the capacitor here
9 (indicating).

10 But, in fact, that represents an
11 intersection point. They are just on different
12 layers. Okay.

13 So let's then -- that's the conceptual
14 idea we have over here. In SmartSkin, a
15 voltage is applied on the drive line and that
16 is called wave signal in SmartSkin. And this
17 is what happens when the voltage is applied.

18 There are losses within this system.
19 There are -- there is a copper line over here
20 (indicating). It has some capacitances to the
21 external world. There is always some parasitic
22 losses in the system. And there is parasitic
23 losses from the sense line as well.

24 And there is a voltage detecting
25 circuit placed on the other end. Now, how does

1 the system work?

2 I'm applying a time variant signal to
3 the drive line. That results in a propagation
4 of electrons through the drive line. Some
5 fraction of those electrons make it to the
6 sense line. Not all of them, but some are lost
7 through the parasitic elements.

8 And that net result is a potential is
9 set on the sense line, which is measured by the
10 amplifier in the bottom of the voltage
11 amplifier. So this is an important point.
12 Conceptually, in fact, fundamentally at a
13 physical level, what a voltage amplifier does
14 is it measures the energy of electrons.

15 It is not counting how many electrons
16 are there. It is measuring the energy of
17 electrons. That's what voltage is. Voltage is
18 a measure of potential energy.

19 So we have electrons over here and
20 this voltage amplifier is determining their
21 energy. Now, why is that important?

22 This (indicating) is a conductor of
23 some sort, but it is not a perfect conductor.
24 It doesn't have zero resistance. It has some
25 resistance associated with it.

1 And as I will show you in a minute,
2 that has a tremendous impact on how the system
3 actually works. But before I do that, I should
4 switch over then to the '607 patent.

5 Q. Why don't we write -- let's mark the
6 one on the right CDX-30, please, so we can
7 refer to them.

8 A. All right.

9 (Complainant Exhibit Number CDX-30 was
10 marked for identification.)

11 BY MR. FERGUSON:

12 Q. So this is -- and why don't we write
13 SmartSkin on the top.

14 A. (The witness complied.)

15 Q. Okay. And let's start with '607 over
16 here (indicating). Great. And can you explain
17 how it works in the '607 patent?

18 A. Certainly. Again, we have the same
19 general mutual capacitance setup. So we have a
20 drive line, we have a sense line. There is a
21 capacitance between them. There are losses in
22 the system. And there is an applied voltage
23 here.

24 But in the '607 patent, what we have
25 is we have a charge counting circuit. Now, why

1 is this important? This system has the same
2 situation with respect to a voltage being
3 applied, electrons getting through but we are
4 actually looking at something different.

5 Instead of looking at the energy of
6 electrons as we do in CDX-30, here we look at
7 the number of electrons. We don't care about
8 their energies. We're just counting their
9 numbers.

10 Now, why is that important? And why
11 does it relate to what you end up using for the
12 material? That's the important question.

13 Q. So let's write CDX-31 there so we
14 know, we have the two demonstratives as it
15 relates to SmartSkin and the '607. Let's go
16 back to SmartSkin.

17 And can you discuss the material that
18 is used for the drive and sense lines and how
19 that relates to the use of the voltage sensor?

20 A. Certainly. If we look at the
21 SmartSkin system, there is a conductor shown
22 here (indicating) for the row and for the
23 column, for the drive line and for the sense
24 line.

25 The conductor that's used in SmartSkin

1 is copper. Copper has a very high
2 conductivity. Its conductivity is on the order
3 of 10 to the 4th siemens per centimeter, so it
4 is very, very conductive, that's 10,000 siemens
5 per centimeter. It is a very conductive
6 material. It is actually one of the most
7 conductive materials we have available to us.

8 Q. Can you write copper right across the
9 top?

10 A. Certainly, copper. And this is also
11 copper (indicating). Now, why is that
12 important? It turns out that the voltage that
13 is present here (indicating) depends on the
14 resistance of the conductor.

15 Conceptually here is the reason.
16 Electrons don't flow through this like being on
17 a freeway. In fact, they are bouncing around
18 constantly.

19 JUDGE ESSEX: It is like a freeway in
20 Washington.

21 THE WITNESS: Maybe like a freeway in
22 Washington, Your Honor. So they are bouncing
23 around constantly.

24 The more bouncing -- that is called
25 scattering. The more scattering they do, the

1 more energy they lose. So what that means is
2 if I have a very good conductor, I don't lose
3 too much energy in here, and the strength of
4 the signal I am trying to measure over here is
5 moderate. And, in fact, SmartSkin calls this
6 out. SmartSkin actually says the signal is
7 weak, so it is already saying it is weak with
8 copper.

9 Now, if I were to replace this with a
10 material that had higher resistance, so lower
11 conductivity, there is much more bouncing and
12 the energy of the electrons that come out gets
13 even lower.

14 And so it is not possible to detect.
15 And this is the reason that you wouldn't want
16 to use -- in fact, you couldn't use ITO in
17 these systems, because ITO is 100 times -- in
18 its best case, is 100 times lower conductivity
19 than copper.

20 JUDGE ESSEX: Let me ask you this.
21 Charge counter, that's been known to the
22 science before the '607 patent?

23 THE WITNESS: Yes, Your Honor, but not
24 in --

25 JUDGE ESSEX: And it is not claimed

1 anywhere in the '607 patent as inventing that.

2 THE WITNESS: That's correct, Your
3 Honor. And I don't think the point of the
4 claims -- and my point here is not to say that
5 you need to have a charge counter. My point is
6 to meet the requirements of the preamble,
7 namely, being able to detect multiple touches
8 at the same time in a transparent system, the
9 way you can get there in the '607 is with the
10 charge counter. You couldn't do that with
11 SmartSkin.

12 So let's contrast, then, if Your Honor
13 is ready, I can move on to contrast to the
14 '607.

15 JUDGE ESSEX: All right.

16 BY MR. FERGUSON:

17 Q. This is CDX-31?

18 A. This is CDX-31.

19 Q. Why don't you write ITO, so we know.

20 A. So in CDX-31, we have ITO. That is a
21 lower conductivity material. 100 times lower
22 than copper but remember in the charge counter
23 we're not checking energy. We're not checking
24 the energy of electrons. We are counting the
25 number of electrons.

1 So even if these electrons are
2 bouncing around a lot and they lose a lot of
3 their energy, we're still able to count them.
4 They may be low energy when they get here, but
5 we are able to count them.

6 So the key result out of this is not
7 the fact that I am using a charge counter
8 versus a voltage counter. It is the charge
9 counter allows me to have a system that uses
10 ITO and still allows me to meet the
11 requirements of the claim.

12 Q. Okay.

13 JUDGE ESSEX: All right.

14 THE WITNESS: Thank you, Your Honor.

15 JUDGE ESSEX: Thank you.

16 MR. FERGUSON: Your Honor, we will
17 have pictures of these made for submission as
18 demonstrative exhibits.

19 JUDGE ESSEX: All right.

20 BY MR. FERGUSON:

21 Q. Okay, you have hinted at, in response
22 to His Honor's question, how does this impact
23 your opinions about whether the SmartSkin
24 reference anticipates the claims of the '607
25 patent and, Chris, let's put up claim 1 to use

1 as an example.

2 A. All the claims of the '607 patent
3 require the use of these transparent layers.
4 There are no transparent layers, and there
5 certainly were none at that time, that had
6 conductivity such that you could make use of a
7 voltage-based sensing scheme.

8 Let's step back and let's look at
9 SmartSkin. SmartSkin discloses a system that
10 uses copper. That is the system in the videos.
11 That is the system in figure 2. That is the
12 two embodiments that they actually discuss
13 within the SmartSkin reference.

14 Those are all opaque. They all use
15 copper. In future work, SmartSkin says one of
16 the directions that would be worth looking into
17 is the use of transparent electrodes. There is
18 no disclosure of how that would actually
19 happen. There is insufficient disclosure and,
20 in fact, for the very reasons I have mentioned,
21 it would not work.

22 Q. So as I understand it, SmartSkin
23 discloses an enabling embodiment of a multiple
24 touch sensor, but it is copper; is that right?

25 A. It is copper and it is not

1 transparent.

2 Q. So it is not transparent. So it won't
3 meet that portion of the preamble?

4 A. It won't meet that portion of the
5 preamble and, in fact, in general, for all the
6 limitations requiring transparency, it does not
7 deliver those.

8 Q. And with respect to an embodiment in
9 SmartSkin that uses ITO, what is your opinion?

10 A. Well, my opinion is there is no
11 embodiment that uses ITO. There is a
12 description of it as potential future work.
13 There is no disclosure of a transparent
14 capacitive sensing medium and all the other
15 requirements related to transparency associated
16 with any of the claims of the '607 patent.

17 Q. Could a person of ordinary skill in
18 the art have built an ITO-based charge -- an
19 ITO-based sensing system using the disclosure
20 in SmartSkin?

21 A. No, they couldn't, for the very
22 reasons I have indicated related to the
23 strength of the signal and the problems with
24 voltage sensing.

25 Q. You were also asked some questions

1 about the disclosure of SmartSkin to the Patent
2 Office and I would want to just touch on that
3 briefly. Chris, can we go up to JX-005.077.
4 This is the file history.

5 And you recall that this was the
6 information disclosure statement that was first
7 submitted by the inventors to the Patent
8 Office?

9 A. Yes, I believe so.

10 Q. Let's go to page 79 and 80. Now, this
11 information disclosure statement, you can check
12 this, but there are 40 references that the
13 inventors disclosed to the Patent Office in the
14 first IDS. Does that comport with your
15 understanding?

16 A. Yes, I believe so. And we can see
17 that because the last number is A40 on the
18 list.

19 Q. And SmartSkin, the prior art reference
20 that Motorola is relying upon here, JX-367,
21 that is listed here as A26. Is that true?

22 A. That is the 26th on the list, A26.

23 Q. Let's jump up to JX-1099 through 110.
24 I know you are not an expert in patent law, but
25 you have looked at file histories in the past,

1 have you not?

2 A. I have.

3 Q. At the bottom of this page, this is
4 the examiner's name. Do you agree with that?

5 A. Yes, it says his name is Kimnhung
6 Nguyen.

7 Q. What does it say with respect to the
8 date considered?

9 A. The date was listed as May 11th, 2008.

10 Q. If we go back to 1100 here, let's pull
11 up the top. Is there any question that the
12 Patent Office considered the SmartSkin
13 reference in allowing the claims?

14 A. There is no question the examiner
15 clearly did. We see the indication of a KN,
16 which would be the initials of Kim Nguyen, the
17 examiner right next to the A26 Rekimoto
18 SmartSkin reference.

19 Q. Okay. All right.

20 You were also asked some questions
21 about the Perski '455 patent. Do you recall
22 that?

23 A. I do.

24 Q. Just for reference, Chris, let's pull
25 up RX-708. Is this the Perski '455 patent that

1 you offered opinions on?

2 A. Yes, I believe so.

3 Q. What does Perski '455 disclose with
4 respect to how it senses touches?

5 A. The Perski '455 system discloses the
6 use of two methods, two broad methods of
7 determining the location of touches. The first
8 method involves scanning node by node across
9 each intersection point, and it specifically
10 says that is slow.

11 And it goes on to --

12 Q. I'm sorry. Go ahead.

13 A. And it goes on to disclose a faster
14 version.

15 Q. Let's look at those individually.
16 Let's go to column 14, lines 20 through 43 of
17 Perski, RX-708.

18 Now, what is disclosed here with
19 respect to the number of procedures for
20 detection that are used in Perski?

21 A. This is related to the node by node
22 detection method. If you have a mesh that has
23 N rows and M columns, for example -- actually,
24 I said that wrong, we have N columns and M
25 rows, for example, you would end up having at

1 least N times M individual querying procedures.

2 Q. And let me stop you and ask you to
3 read that into the record at line 31 of column
4 14 of Perski.

5 A. Certainly. The statement in Perski
6 that calls out the problem with this technique
7 is specifically at line, starting at line 31
8 where it says, "The disadvantage of such a
9 direct detection method is that it requires an
10 order of N times M steps, where N stands for
11 the number of vertical lines and M stands for
12 the number of horizontal lines. In fact,
13 because it is typically necessary to repeat the
14 procedure for the second axis, so the number of
15 steps is more typically 2 times N times M
16 steps."

17 Q. How does that relate if at all to
18 whether this embodiment of Perski can meet the
19 multi-touch limitation in the preamble of claim
20 1 of the '607 patent?

21 A. In my cross-examination, it was
22 pointed -- I was actually pointed to the
23 sentence immediately after which said that this
24 method enables the detection of multiple finger
25 touches. However, because of the slowness of

1 the method, it does not enable it at the same
2 time.

3 Q. And then you said there was a second
4 embodiment disclosed in Perski?

5 A. There is a second embodiment related
6 to a faster method disclosed after this method.

7 Q. And let's go -- let's stay in column
8 14 and go to lines 44 through 56. And this
9 says at the top of line 44, column 14 of
10 Perski, RX-708, "a faster approach is to apply
11 the signal to a group of conductors on one
12 axis."

13 Can you describe what is disclosed
14 with respect to this faster approach?

15 A. Certainly. With regard to this faster
16 approach, the idea within this section of
17 Perski is that you can group sets of conductors
18 and use those as a group in the scanning
19 methodology.

20 However, this particular method has a
21 problem that is called out specifically and, in
22 fact, it turns out it is the same problem of
23 the prior art in the '607 references and I
24 quote, reading from line 52, "however, this
25 method may lead to ambiguity on those rare

1 occasions when multiple touches occur
2 simultaneously at specific combinations of
3 locations, and the larger the groups, the
4 greater is the scope for ambiguity."

5 So this shows that in this system, if
6 you use the faster method, you are not able to
7 get multi-touch. It does propose a third
8 version that is worth talking about as well.

9 Q. Okay. Why don't we just move down and
10 talk a little bit about the optimal approach
11 that is disclosed beginning at line 57 of
12 column 14 of Perski. And what does it disclose
13 there?

14 A. So this is the three sentences or the
15 three lines, the one sentence that appears as
16 the optimal approach is to combine the above
17 methods, starting with the faster method and
18 switching to the direct approach upon detection
19 of a possible ambiguity.

20 What does this mean? In this case,
21 that means that if the system detects an
22 ambiguity, and it is not clear how it actually
23 does that, there is no explanation on how you
24 would detect an ambiguity using the faster
25 method. If the faster method results in an

1 ambiguity, then, it says, switch to the direct
2 approach and do that, which means overall in
3 the case where you have the ambiguity, you end
4 up spending even more time.

5 This is an important point. Perski is
6 really targeted at a single touch system that
7 can deal with both stylus-based detection and
8 finger-based detection. It doesn't intend to
9 deal with multiple touches except on rare
10 occasions.

11 So in all three cases, if you have
12 multiple touches, either you are not able to
13 resolve them, that's the fast method, or it is
14 too slow, that's the slow method, or in the
15 optimal case, you are fast if you have a single
16 touch but the moment you have multiple touches,
17 you become slow.

18 Q. Okay. What type of sensing circuitry
19 is disclosed in Perski '455?

20 A. Perski '455, as I discussed in
21 cross-examination, also uses voltage sensing.
22 The only -- the discussion in relation to this
23 embodiment only talks about the signals in
24 terms of the drive and sense signals and it
25 uses the same language to describe them, which

1 would mean their voltage signals, and the only
2 description of specific circuits is in relation
3 to another embodiment, and that is
4 unequivocally voltage sensing circuitry.

5 Q. Let's just put up figure 5 of Perski
6 '455, RX-708. What is shown in figure 5 of the
7 Perski '455 reference?

8 A. The figure 5 of Perski '455 is the
9 sensing circuitry for another embodiment. This
10 is not the mutual capacitance embodiment
11 involving rows and columns. This is a
12 different embodiment. And I believe this is
13 not what Dr. Wolfe has been referring to.

14 But this is the shown sensing circuit
15 for that embodiment and it is very clearly a
16 voltage sensing circuit.

17 Q. Is it like the sensing circuit that we
18 have in CDX-31, the '607, or CDX-30, like the
19 SmartSkin one?

20 A. It is not like the sensing circuit of
21 CDX-31, the '607 patent. You will notice there
22 is no capacitor connected across, which is the
23 key to implementing it as a charge counting
24 circuit.

25 Rather, it is a straight voltage

1 amplifier, similar to that of CDX-30,
2 SmartSkin.

3 Q. So to summarize, what limitations in
4 claim 1 of the '607 patent do you believe are
5 missing from the Perski reference, '455?

6 A. The Perski reference misses the
7 multi-touch limitations associated with the
8 preamble of the '607 patent. It is either
9 unable to detect multiple touches in the fast
10 version or it is unable to do them at the same
11 time in the slow version.

12 Q. You were asked some questions about
13 the Perski provisional '808 application.
14 That's RX-303. Chris, can we put that up?

15 Do you recall this on your
16 cross-examination?

17 A. Yes, I do.

18 Q. We can do this quickly. What type of
19 sensing circuitry does the Perski '808
20 provisional application disclose?

21 A. The description is similar to that of
22 the main Perski. There is, in fact, less
23 language provided than in the main Perski, but
24 there is no additional disclosure.

25 Q. Is there any disclosure in the Perski

1 '808 provisional application of any type of
2 sensing circuitry that's different from the
3 voltage sensing circuitry in the Perski '455?

4 A. No, there isn't. In fact, there is
5 even less.

6 Q. And you were also asked some questions
7 about the Morag provisional application, the
8 '662 application. That's RX-703. Let's put
9 that up.

10 Do you recall being asked questions
11 about this reference?

12 A. I do.

13 Q. Same question. What type of sensing
14 circuitry does the Morag '662 provisional
15 application disclose?

16 A. The Morag '662 provisional
17 application, within it and its figures and in
18 the text also only uses the same voltage
19 sensing techniques. There is no additional
20 disclosure.

21 Q. That's the voltage sensor similar to
22 the one in SmartSkin?

23 A. Yes, it is.

24 Q. Okay. Is there any disclosure in the
25 Morag provisional '662 application of any other

1 type of sensing circuitry, besides the voltage
2 sensor?

3 A. No, there isn't.

4 MR. FERGUSON: Thank you, Your Honor.
5 I have nothing further.

6 JUDGE ESSEX: All right.

7 RE-CROSS-EXAMINATION

8 BY MR. DeFRANCO:

9 Q. Good afternoon, Doctor.

10 A. Good afternoon.

11 Q. Just to start, you were asked about
12 the IDS in the '607 patent prosecution history,
13 you were asked to point out the SmartSkin
14 reference. You were shown the initial IDS
15 where it wasn't checked off, the references
16 weren't checked off and a later IDS where it
17 had been checked off. You quickly went and
18 said those are the examiner's initials. Do you
19 recall that?

20 A. I recall that set of questions.

21 Q. I believe we covered that exact
22 subject matter on direct examination. I didn't
23 see anything on -- I'm sorry, on
24 cross-examination. I didn't see you add any
25 information to that on redirect examination

1 compared to what we talked about on
2 cross-examination. Did I miss something there,
3 sir?

4 A. Well, there was one thing. It pointed
5 out that there is only 40 references in that
6 initial one.

7 Q. I actually thought we went over that,
8 but that was the point you wanted to bring out?

9 A. Actually, I didn't ask the questions,
10 so I don't really know what the point was. I
11 just answered the question.

12 Q. Okay. You spent some time, and I want
13 to turn to this in a moment, drawing the
14 distinction between two different measuring
15 techniques, I think you put it in general
16 terms, the voltage and a charge technique,
17 right?

18 A. Correct.

19 Q. Now, looking back at your expert
20 reports and your expert witness statement in
21 this case, your testimony you presented before
22 you came here to testify, I didn't see any
23 detail on the distinction between these two
24 methods.

25 Do you recall any, sir?

1 A. You mean discussing the specifics of
2 it?

3 Q. Yes.

4 A. No, I don't believe so. I pointed out
5 in my deposition specifically and in my expert
6 reports why ITO was not a drop-in replacement.
7 It was related to this.

8 Q. Right. But there was no discussion of
9 the difference between these two techniques and
10 the detail about how they work and how in that
11 -- in your view or opinion, that impacts the
12 relevance of the prior art that we talked about
13 this morning?

14 A. If you are asking me, did I do a
15 detailed circuit schematic like this, no, I
16 didn't.

17 Q. You didn't discuss these, I don't
18 recall you discussing these topics at all, did
19 you, sir, in your direct witness statement?

20 A. No, that's not true. I did not
21 specifically talk about the schematics, but I
22 made clear that the big problem with SmartSkin
23 is it could not work because ITO would not be a
24 drop-in replacement.

25 Q. Okay. That's as far as you went in

1 your direct witness statement, isn't it, sir?

2 A. Well, there was some discussion of it,
3 but that was the general gist of it.

4 Q. That's as far as you went, isn't it,
5 sir? Should we -- do you want to point us out
6 something more specific than that general
7 discussion?

8 A. No, that was the gist of it, but it
9 was not just the one sentence.

10 Q. Okay. In terms of -- let's put up
11 claim 1, please. Now, on cross-examination,
12 sir, you went through different pieces of the
13 preamble which you view as a limitation to
14 claim 1; is that correct?

15 A. That's correct.

16 Q. You took those a piece at a time; is
17 that right?

18 A. In my answer -- in the redirect?

19 Q. Yes, sir.

20 A. Yes, that's correct.

21 Q. And I believe, correct me if I am
22 wrong, I believe you said that in your opinion
23 this concept of the charge method for detecting
24 or sensing capacitance was set forth in the
25 preamble somehow or captured by the preamble

1 somehow?

2 A. No, that's absolutely not what I said.

3 Q. Okay. So that then you will agree
4 that that charge method is not a limitation in
5 claim 1; is that fair?

6 A. I agree it is not my point to say that
7 you need the charge method. My point is to say
8 that the prior art could not meet the preamble.
9 What it enabled it to be met in '607 is the use
10 of the charge method.

11 Q. Okay. Fair enough.

12 So the claim does -- it is not limited
13 to one method or the other. You agree with
14 that, right?

15 A. You mean with respect to the sensor?

16 Q. Yes.

17 A. Yes, I agree.

18 Q. All it says is it has to have
19 capacitive monitoring circuitry. Is that
20 correct, sir?

21 A. That's correct. You are referring to
22 the operatively coupled limitation?

23 Q. Yes.

24 A. I agree.

25 Q. And in general terms, the voltage

1 technique that you discussed in the prior art
2 is certainly capacitive monitoring circuitry,
3 isn't it, sir?

4 A. With respect to the construction that
5 I have provided, yes, I believe it would meet
6 that, but it would not meet the requirements
7 then -- a system using that would not be able
8 to meet the requirements of the preamble, et
9 cetera.

10 Q. Yes. And that relates to your
11 interpretation of the ability of how quickly
12 that system could operate, that sort of thing;
13 is that correct?

14 A. Well, not just the speed. Also the
15 sensitivity.

16 Q. Yes. Those concepts, speed and
17 sensitivity of the patented system versus your
18 discussion of the prior art, there is no
19 discussion of that in the '607 patent. Isn't
20 that correct?

21 A. Actually, there is specific discussion
22 of sensitivity with relation to the importance
23 of resistance.

24 Q. Right. But that's with respect to the
25 charge method that's disclosed in the '607

1 patent. Isn't that fair, sir?

2 A. That's correct. And that's why it
3 works with the charge method.

4 Q. Let's turn to column 17 and 18 of the
5 '607 patent. And if you could blow up the
6 bottom paragraph of the left-hand side, please,
7 and then put that next to -- make that a little
8 smaller, Ryan. Just take a minute.

9 And then put next to that the first
10 three paragraphs on the other column. Now, put
11 that to the left. And why don't we -- it
12 refers there -- we're talking about figure 14.
13 Maybe you can put -- add figure 14 to that,
14 Ryan, and see how you can do with this.

15 Are you there at that portion of the
16 patent, sir?

17 A. I am.

18 Q. Let's talk about it a little bit while
19 that is coming up on your screen. I think at
20 your deposition, you were asked to identify
21 portions of the specification that talked about
22 the circuitry that we're looking at here that
23 would implement the claimed invention. Do you
24 recall that and you pointed to this part of the
25 specification?

1 A. I think I pointed to this and also the
2 previous sections, but I believe this was the
3 section I pointed to.

4 Q. Okay. And this is where the figure 14
5 that describes the basic elements of the
6 circuitry in the '607 patent are set forth; is
7 that correct? They are shown in figure 14?

8 A. Part of them. I mean, figure 14 also
9 refers back to the previous figures and
10 specifically that's figures 12 and 13. It says
11 so explicitly.

12 Q. Right. Figures 12 and 13, the simple
13 amplifier circuit we looked at before, the
14 inverted amplifier, for example, sir?

15 A. Yes, that's correct.

16 Q. Okay. Now, that's the detail of those
17 portions of the circuitry. It is shown at that
18 piece of the specification; is that right? Do
19 you see that?

20 A. And there is the corresponding text
21 associated with it, yes, I agree.

22 Q. There is no discussion there of any
23 particular algorithms that could be used to
24 implement the invention to avoid the shadowing
25 or the ability to sense two different touches

1 at the same time, is there, sir?

2 A. No, I disagree. There is other
3 sections, and I did talk about those in my
4 deposition. There is flow charts, there is
5 actual figures showing the results in terms of
6 detecting the algorithms, and I specifically
7 discussed those.

8 Q. Okay. The flow chart, pretty general
9 flow chart. What I am looking for, sir, there
10 is no mathematical algorithms or other
11 calculations or no specifics about the exact
12 techniques, the rates, the parameters, that the
13 inventors used in any device that they had
14 tested at this time, is there?

15 A. I think I understand. If you are
16 asking me, are they exact numbers or code, no.
17 What is provided are flow charts, and actual
18 results in terms of the analysis of data, then
19 that appears in figure 17.

20 Q. You also mentioned ITO. You went back
21 to ITO. Do you recall that?

22 A. We have been talking about ITO a lot
23 today.

24 Q. You went back to one of the -- it is a
25 shame I will never need it again -- but you

1 also went back to one of the portions of the
2 specification we talked about on
3 cross-examination. Do you recall that?

4 A. I do.

5 Q. Not to belabor the point, but some of
6 that section talked about some specific
7 measurements of the width; is that correct, of
8 the ITO?

9 A. Yes, there were some numbers there.

10 Q. There wasn't any more detail that
11 related to some of the other considerations we
12 talked about this morning like transparency or
13 resistivity; is that correct?

14 A. That section did not. The resistivity
15 of ITO is discussed, not in terms of numbers,
16 we're talking about the tradeoffs.

17 Q. Numbers are important, aren't they,
18 sir? If you were going to replicate an exact
19 device that somebody would make that proved
20 that it worked conceptually, numbers would be
21 important, wouldn't it?

22 A. Actually, it turns out in the charge
23 sensing scheme, they are not that important.
24 That's why you can use ITO.

25 Q. Somebody knowing ITO could be used

1 could do some experimentation, not undue
2 experimentation and make a working product,
3 correct?

4 A. With respect to '607, that's correct,
5 because being the charge-based sensing, it is
6 not that sensitive to the resistance.

7 Q. So the charge-based sensing is related
8 now to the transparency -- or the selection,
9 excuse me, of the ITO, the ITO that would be
10 suitable in this invention?

11 A. That's what we have been saying, yes.
12 That's what I talked about, yeah.

13 Q. And did you make that statement
14 specifically in your expert report or expert
15 witness statement? What you just said, is that
16 set forth clearly in any of those materials?

17 A. The statement that charge-based
18 sensing is specifically related to the
19 transparency was not explicitly called out.
20 However, I explicitly said that you couldn't,
21 in relation to prior art, that you could not
22 use ITO because it would not be a drop in
23 replacement because resistivity is extremely
24 important.

25 Q. By the way, whether you are using the

1 voltage or charge method, you are still
2 measuring capacity; is that right, capacitance?

3 A. You are being responsive to
4 capacitance. If you are asking me, are you
5 actually directly measuring the capacitance,
6 no. But certainly you are responding to
7 changes in capacitance.

8 Q. Certainly one of skill in the art at
9 the time knew that ITO was more resistive than
10 copper for sure, right, obviously?

11 A. Yes, I agree with that.

12 Q. And I think you said it might have
13 been in response to His Honor's question that
14 one would have known about the amplifier
15 circuit that's shown in figure 13 that was in
16 the prior art as well?

17 A. Yes, I agree.

18 Q. Okay. Also one skilled in the art
19 would know generally about these different
20 techniques that you gave us a bit of
21 information on before, the charge versus
22 voltage techniques in general terms for
23 measuring changes in capacitance?

24 A. One would know that those equations
25 exist for relating capacitance to voltage and

1 charge.

2 Q. Okay. Let's turn to, for a moment now
3 to the Perski reference, okay? Now, your
4 opinion as to why Perski is not invalidating
5 prior art is because the system did not operate
6 quickly enough to be able to distinguish
7 between two touch points on the transparent
8 mutually conductive touchscreen disclosed in
9 Perski. Is that fair?

10 A. Either not fast enough or not without
11 ambiguity.

12 Q. Okay.

13 A. There is two possibilities, depending
14 on which version we're talking about.

15 Q. Now let's go to the portion of Perski
16 that you testified about for a bit. It is
17 column 14. And then we will finish up.

18 Okay. So this portion of column 14,
19 and I think if we start at line -- I don't want
20 to cut it off -- I think if we start at line 15
21 and go down to line 59, that that's the portion
22 of Perski, sir, that you relied upon to
23 distinguish it from the claimed invention.
24 That is the ability of the claimed invention to
25 be able to distinguish between two touch points

1 at one time; is that correct?

2 A. This is the section we were
3 discussing. I discussed various sections, but
4 this is the key section that we were discussing
5 earlier.

6 Q. All right. Now, you had some general
7 testimony about the failings of Perski to be
8 able to distinguish between two touch points.
9 Do you recall that?

10 A. Yes.

11 Q. And that's never explicitly stated in
12 Perski that it can't be done. I just want to
13 make sure that's not your testimony. There is
14 no sentence in here that says it can't be done;
15 is that true?

16 A. Actually, I disagree. It specifically
17 says at line 52 of the paragraph, of the
18 section you have up, "however, this method may
19 lead to ambiguity on those rare occasions when
20 multiple touches occur simultaneously at
21 specific combinations of locations. And the
22 larger the groups, the greater the scope for
23 ambiguity."

24 Q. Now, that says -- would you point to
25 anything else, sir?

1 A. With respect to this section, that's
2 the only section.

3 Q. Okay. And it goes on to say that an
4 optimal approach is to combine the two previous
5 approaches. Isn't that correct, sir?

6 A. That's correct. And I discussed that
7 as well in my redirect.

8 Q. Now, Perski disclosed -- the method in
9 Perski, the equation, I think, is two times N
10 times M, meaning two times the number of rows
11 and columns. That's the number of data
12 detection points that could be processed using
13 the Perski method; is that correct?

14 A. That's the number of steps to get all
15 the data.

16 Q. Okay. Now, in your opinion, I take
17 it, it has got something to do with the voltage
18 method that would not be quick enough, you
19 couldn't do it quickly enough to make
20 measurements on a grid of that -- of a given
21 dimension to detect two different points of
22 touch?

23 A. No, there is two levels to it. First,
24 Perski itself says that the basic row, column,
25 scanning method, the N by M scanning method is

1 slow, and it says you should use the faster
2 approach.

3 But I do agree, in fact, that the only
4 method disclosed in Perski is voltage and,
5 indeed, with ITO, that is slow.

6 Q. And in terms of the processing power,
7 you're not saying that there weren't chips,
8 DSPs, for example, that had processing power at
9 this point in time sufficient to process that
10 data in order to detect multiple touches? Do
11 you understand my question?

12 A. I do. You are asking me the speed of
13 sensing out of the panel versus the processing
14 power.

15 Q. Yes.

16 A. I am not focused on the processing
17 power. The slowness is the sensing of the
18 panel.

19 Q. Okay. There is no question at that
20 time that the circuitry, DSP or any other
21 circuitry that can be used to do the sensing
22 and the calculation to show that there were
23 multiple touches existed at that point in time?

24 A. The DSP would not be the limiting
25 factor on the speed. That's not what I am

1 claiming. And there were DSPs available at
2 that time that would have had sufficient speed,
3 were the data available.

4 But the problem is this method doesn't
5 make the data available fast enough.

6 Q. Okay. This method being the voltage
7 sensing portion of the method?

8 A. No, this method being the N by M
9 method of Perski. You are right, voltage makes
10 things even slower but Perski itself says the N
11 by M method, which is the only method they have
12 in there that claims to be able to detect
13 multiple touches without ambiguity, that is the
14 only method in there that does that and it is
15 slow. And it says so.

16 Q. Okay. If you didn't use the N by M
17 method, wouldn't you agree that if you just
18 used N, you measured the sense lines going
19 across using a sufficiently fast processor,
20 would that be able to detect multiple touches?

21 A. No, it would not. It still calls out
22 this method as being slow. It is saying the
23 only way to get the -- the only fast method
24 that's disclosed with relation to this
25 embodiment is the grouping method.

1 Q. Okay. And in your opinion, the
2 grouping method is not sufficient to detect
3 multiple touches?

4 A. That's correct. Because it
5 specifically calls out that this method will
6 suffer from the ambiguity problems.

7 Q. Okay. Now, you haven't done any
8 calculations to see whether if you went away
9 from the two times N times M method, the
10 processing could still be fast enough, in your
11 opinion, to detect multiple touches, have you?

12 A. I have done some calculations, but if
13 you are asking me, have I calculated what
14 specific times would be, and given some exact
15 numbers, no, I just calculated for typical
16 display sizes what the numbers would work out
17 to be.

18 MR. DeFRANCO: One moment, Your Honor.
19 Thank you, Your Honor, that's all I have.

20 JUDGE ESSEX: All right. Staff, do
21 you have anything?

22 MS. KATTAN: No, Your Honor.

23 JUDGE ESSEX: All right.

24 MR. FERGUSON: Nothing further, Your
25 Honor. Thank you.

1 JUDGE ESSEX: All right. Very well.

2 Doctor, I think we're done with you
3 for this hearing anyway. And thank you very
4 much for your testimony. You are dismissed.

5 THE WITNESS: Thank you, Your Honor.

6 JUDGE ESSEX: Mr. Davis?

7 MR. DAVIS: Your Honor.

8 JUDGE ESSEX: Good afternoon.

9 MR. DAVIS: Apple calls as its final
10 witness in its rebuttal case, Dr. Ravin
11 Balakrishnan.

12 JUDGE ESSEX: Doctor, you may be
13 seated. I would remind you, you have been
14 sworn earlier in this case and you are still
15 under oath.

16 Whereupon--

17 RAVIN BALAKRISHNAN
18 a witness, called for examination, having previously
19 been duly sworn, was examined and testified further as
20 follows:

21 THE WITNESS: Yes, I understand.

22 DIRECT EXAMINATION

23 BY MR. DAVIS:

24 Q. Dr. Balakrishnan, could you turn to
25 CX-568C in the volume 1 of your notebooks.

1 A. Yes, I have it.

2 Q. Is this your rebuttal witness
3 statement?

4 A. Yes, it is.

5 Q. And could you turn to page 156 of this
6 exhibit. Is that your signature there, sir?

7 A. Yes, it is.

8 Q. Okay. And does this witness statement
9 contain your answers to the questions contained
10 therein?

11 A. Yes, it does.

12 Q. Okay.

13 MR. DAVIS: Thank you, Your Honor. I
14 pass the witness.

15 JUDGE ESSEX: Thank you.

16 MR. VERHOEVEN: Good afternoon, Your
17 Honor.

18 JUDGE ESSEX: Good afternoon.

19 MR. VERHOEVEN: May I approach?

20 CROSS-EXAMINATION

21 BY MR. VERHOEVEN:

22 Q. Good afternoon, Dr. Balakrishnan.

23 A. Good afternoon.

24 Q. I'm going to ask you some questions
25 about your opinions with respect to validity,

1 invalidity, with respect to the '430 patent and
2 then my partner is going to ask you about the
3 '828 patent, just so you have some framework.

4 A. Okay.

5 Q. And, in particular, on the '430
6 issues, I am going to address two references
7 today. So the first reference I am going to
8 address is the Malone '870 patent.

9 You have reviewed that patent?

10 A. Yes, I have.

11 Q. And could we put up RX-289 for the
12 record. There we go. So this is the Malone
13 patent, correct?

14 A. Yes, it is.

15 Q. And that's how I am going to refer to
16 it today, if that's okay, I am going to call it
17 the Malone patent.

18 A. That's fine.

19 Q. You understand the Malone patent
20 claims priority to an application dated June
21 30th, 1989?

22 A. I believe so, yes.

23 Q. And there is no issue here that
24 Malone, in fact, would be considered prior art
25 to the '430 patent; is that correct?

1 A. I don't believe we made such an
2 assertion.

3 Q. So you agree that's not an issue?

4 A. True.

5 Q. Okay. And you understand that
6 Respondent, Motorola, has alleged that the
7 Malone patent is an anticipatory reference to
8 the '430 asserted claims?

9 A. Yes, I do.

10 Q. And Staff also believes that Malone is
11 an anticipatory reference?

12 A. I believe that's true.

13 Q. Okay. And, finally, you also
14 understand, it is no dispute, that the Malone
15 patent was not considered by the examiner
16 during prosecution of the '430 patent?

17 A. Yes, that's true.

18 Q. Okay. All right. So let's briefly
19 just look at the Malone patent and go to the
20 issues with respect to it. Can we go to slide
21 RDX-26.2. And you have the patent in your
22 binder, correct, sir?

23 A. Yes, I do.

24 Q. So you can feel free to look at
25 context if you would like to.

1 A. Sure.

2 Q. On Malone '870, it has a background
3 section which is typical for patents, right?

4 A. Of course.

5 Q. And I have just displayed that on the
6 screen. This is column 2, 54 through 61.
7 Background art, it says, "with the increasing
8 power of microprocessors, and of computers
9 generally of any given physical size, there has
10 been a widely recognized need for systems that
11 would permit users who lack sophisticated
12 programming skills to utilize this newly
13 available computational power for a wide range
14 of tasks." And it talks about different
15 approaches in order to satisfy this need.

16 Do you remember seeing that?

17 A. Yes.

18 Q. And then it goes on to talk about a
19 summary of the invention or the invention here.
20 And I have just pulled up an RDX-26.3, a
21 portion from column 5, lines 35 through 45.

22 And here you see it talks about the
23 object lens system. Do you see that?

24 A. That's right.

25 Q. And that's basically the system that's

1 disclosed in this patent, right, to deal with
2 this problem with the prior art, the object
3 lens system?

4 A. That's what's disclosed in Malone,
5 that's right.

6 Q. That's right. And it says, "users of
7 the object lens system can create, modify,
8 retrieve, and display objects that represent
9 many physically or conceptually familiar things
10 such as messages, people, meetings, tasks,
11 manufactured parts, and software bugs. The
12 system provides an interface to an
13 object-oriented database in the sense that,
14 one, each object includes a collection of
15 fields and field values, two, each object type
16 has a set of actions that can be performed upon
17 it, and, three, the objects are arranged in a
18 hierarchy of increasingly specialized types
19 with each object type inheriting fields,
20 actions, and other properties from its
21 parents."

22 Do you see that?

23 A. Yes.

24 Q. And then it continues, and I am just
25 trying to summarize so we have some perspective

1 here with the general technology, it continues
2 in the patent at column 7, lines 1 through 6,
3 and I have displayed this on slide 26.4, "if an
4 object satisfies the criteria specified in a
5 rule, the rule performs some specified actions.
6 These actions can be general actions such as
7 retrieving, classifying, mailing, and deleting
8 objects or object-specific actions such as
9 loading files or adding events to a calendar."

10 Do you see that?

11 A. Yes, I do.

12 Q. So what the Malone system is talking
13 about is an object-oriented system, right?

14 A. That's right.

15 Q. You have objects that are based on
16 rules that are specified, right?

17 A. Sure.

18 Q. And these objects can do things like
19 retrieve, they can classify, they can mail,
20 they can delete, all kinds of different things,
21 right?

22 A. They can do those things that are
23 stated there, yes.

24 Q. And then, for example, if a user uses
25 an object to retrieve something, such as a

1 component, using the object lens system, then
2 there is also a range of actions that can be
3 performed on that object under the Malone
4 patent, right?

5 A. If a user retrieves an object, it
6 could -- they could then use the system to
7 perform some actions on those objects.

8 Q. Okay. Now, if we can go to the next
9 slide, this is RDX-26.5. What I have done, I
10 think Mr. DeFranco referred to this as a slide
11 within a slide. This is one, too. I have just
12 depicted your slide from your witness
13 statement, CDX-8.017.

14 Do you remember this?

15 A. Yes, I do.

16 Q. And this is a chart you created to
17 summarize your opinions with respect to this
18 reference, correct, sir?

19 A. I believe so, yes.

20 Q. And what we have on the left column,
21 you have just recreated verbatim the language
22 from claim 1 of the '430 patent, correct?

23 A. That's right. That's the claim
24 language, yes.

25 Q. And you have put -- you have

1 highlighted in red the claim language that you
2 believe is not anticipated by Malone; is that
3 correct?

4 A. The stuff in red, that's correct, yes.

5 Q. And just in case there is any doubt,
6 you put a big red X on top of it, too?

7 A. Sure.

8 Q. Okay. So I take it from this that the
9 things that are not in red, you did not contest
10 that those things are disclosed in the Malone
11 reference, right?

12 A. That's right. Elements A, B, and C,
13 in particular, yes.

14 Q. So you don't contest that Malone
15 discloses a computer implemented method with
16 one or more properties to an operating system
17 active on a computer with a memory, correct?

18 A. I contest the portion about
19 dynamically adding support for hardware or
20 software components to an operating system.

21 Q. That's why I didn't read that part.
22 So I understand the stuff in red you contest.
23 My question is the stuff that's in black in the
24 preamble, and I will read it into the record
25 one more time, that you don't contest, let me

1 read it, "a computer-implemented method with
2 one or more properties to an operating system
3 active on a computer with a memory." Those
4 elements that are not in red from the preamble,
5 it is correct you do not contest that those can
6 be found in the Malone reference, correct?

7 A. The "to an operating system" portion
8 is in element D, which I have indicated we are
9 contesting.

10 Q. Sir, I want to establish for the
11 record whether or not you contest the language
12 in the preamble I just read is disclosed in
13 Malone?

14 A. I'm contesting the to an operating
15 system portion is not disclosed in Malone, as I
16 have indicated, in element D which mirrors the
17 same language.

18 Q. I am asking you what you don't
19 contest. Let me just try one more time.

20 A. Okay.

21 Q. I am reading the black language that
22 you have not X'd out in the preamble. Do you
23 understand what I am doing?

24 A. Yes, I do.

25 Q. Let me just say it this way. The

1 black letters in the preamble that are not in
2 red on your slide, with respect to those
3 elements, you do not contest they are found in
4 Malone, right?

5 A. That's correct. Except I am saying
6 that the to an operating system portion is
7 actually handled in element D, which we are
8 contesting, so that's the clarification I am
9 trying to make here.

10 Q. Then if we go to 1A, it says,
11 specifying the target hardware or software
12 component search criteria, including one or
13 more properties.

14 You do not contest that that element
15 is found and disclosed in the Malone '870
16 patent, correct?

17 A. Element A, no, I do not contest that.

18 Q. And for element B, querying the
19 operating system to identify one or more
20 hardware or software components that meet the
21 target hardware or software component search
22 criteria, you do not contest that element B of
23 claim 1 of the Malone '870 -- let me withdraw
24 that question.

25 You do not contest that element B of

1 claim 1 of the '430 patent is found in the
2 Malone '870 patent?

3 A. That is correct, yes. I will just
4 note that I think that's a typo.

5 Q. There is a typo. Can you point it out
6 for His Honor?

7 A. Just on the heading of the slide, it
8 says, claim 1: Malone '870. It should be the
9 '430 patent's claim 1, with respect to the
10 Malone patent.

11 Q. Lucky for me that's your slide and not
12 mine?

13 A. It is a typo.

14 Q. To be clear, the left-hand column is
15 claim 1 of the '430?

16 A. That's correct.

17 Q. And you are applying Malone to claim 1
18 of the '430 in CDX-8.17?

19 A. That's correct.

20 Q. You do not contest that element B of
21 '430 is disclosed in Malone '870?

22 A. Element B, that's right.

23 Q. And if we go to element C, "returning
24 hardware or software components meeting the
25 target hardware or software component search

1 criteria," element C of claim 1 of the '430,
2 you also do not contest is present and
3 disclosed in Malone '870, correct?

4 A. That is correct, yes.

5 Q. And then in element D, you only
6 dispute the red -- the elements -- withdraw the
7 question and let me try one more time.

8 With respect to element D of the '430,
9 you are only contesting the limitations within
10 element D that you have indicated in red on
11 this slide, correct?

12 A. Sure.

13 Q. Okay. So basically, if you look at
14 the preamble in element D, what you are
15 contesting is the adding support element; is
16 that right?

17 A. Adding support for hardware, software
18 components to the operating system, right.

19 Q. Now, during your first session when
20 you appeared here, we discussed the claim
21 construction as well as the non-infringement
22 issues. Do you remember that?

23 A. Yes, I do.

24 Q. And I am not going to go into that
25 again and repeat it, but one of the subjects

1 that we discussed relatively extensively was
2 the appropriate meaning of the phrase adding
3 support. Do you remember that?

4 A. Yes, I do.

5 Q. And your opinion is that the
6 appropriate construction of adding support for
7 hardware or software components to the
8 operating system is facilitating access to
9 hardware or software components; is that right?

10 A. That is correct.

11 Q. And your understanding of facilitating
12 access is that it means to -- enabling other
13 software applications or software elements in
14 the system to be able to access those hardware
15 and software components, right?

16 A. Via the operating system, that's
17 right, that's the context I am using here.

18 Q. Okay. So when we're looking at Malone
19 '870 to see if it meets this element, you would
20 agree the appropriate test is to ask that
21 question, does Malone disclose functionality
22 that facilitates access or enables other
23 applications or software in the system to be
24 able to access hardware or software components,
25 fair?

1 A. Through the operating system, in that
2 the adding support, as the claim language
3 clearly says, is adding the support to the
4 operating system. So not to something else,
5 for example.

6 Q. But when we're thinking about this
7 word adding support to the operating system,
8 your construction is just to look to see if it
9 facilitates access to hardware or software
10 components, right?

11 A. The adding support portion, yes, but
12 obviously the whole element of claim D is
13 adding support to the operating system. So the
14 to the operating system is an important part of
15 this.

16 Q. You don't think adding support to the
17 operating system requires any software to the
18 operating system, right?

19 A. It doesn't have to be software per se,
20 no.

21 Q. You think it could just be a link?

22 A. It could be a link in a structure that
23 is handled and accessed by the operating
24 system, yes.

25 Q. Do you think it could be a change in a

1 variable in the operating system, right?

2 A. It could be some data in an
3 appropriate data structure in the operating
4 system that's changed to enable that access,
5 yes.

6 Q. So this element will be met if some
7 change in data structure in the operating
8 system happens as a result of these steps?

9 A. Change in a data structure in the
10 operating system in a structure that is
11 enabling that kind of access to hardware and
12 software within the operating system, yes.

13 Q. One second, Your Honor. I am going to
14 skip over some things. Can we go to RDX-26.14.
15 So let's go look at what Malone discusses
16 focusing in on this adding support element. It
17 seems to be the one that is the sole element
18 being disputed.

19 So I have put on the screen from
20 RX-289, the Malone patent, column 23, lines 29
21 through 35. Do you see that up there on the
22 top right?

23 A. Yes, I do.

24 Q. And it says, folders are containers
25 and are one of the most powerful features of

1 object lens. Like thing, users can create
2 instances of folder. The most important
3 attribute of folders is that they contain a
4 field which contains a list of links to other
5 objects. Folders also have a type of object
6 that they prefer to contain. The user is asked
7 to identify this type when a new folder is
8 created. Finally, folders can also have a
9 selection rule which can be used as a kind of
10 agent on special assignment to collect objects
11 to put into the folder.

12 Do you see that?

13 A. Yes, I do.

14 Q. Then the second box, and this is
15 column 6, lines 57 through column 7, line 9,
16 and I am only going to read the highlighted
17 part of this box says, "users of the object
18 lens system can create rule-based agents that
19 provide specifications for processing
20 information automatically on behalf of their
21 users.

22 "When an agent is triggered, it
23 applies a set of rules to a specified
24 collection of objects. If an object satisfies
25 the criteria specified in a rule, the rule

1 performs some specified action.

2 "These actions can be general actions,
3 such as retrieving, classifying, mailing, and
4 deleting objects or object-specific actions
5 such as loading files or adding events to a
6 calendar.

7 "The agents in object lens are
8 autonomous in the sense that once they have
9 been created, they can take actions without the
10 explicit attention of a human user."

11 Do you see that?

12 A. Yes, I do.

13 Q. So in the object lens system described
14 here in the Malone patent, once an object is
15 identified by an agent, there is a large
16 variety of actions that can be performed on the
17 object, correct?

18 A. Well, a large variety that are within
19 this object lens system, yes.

20 Q. The object could be retrieved,
21 correct?

22 A. Within this object lens system, yes.

23 Q. It could be retrieved and then put
24 into a folder, correct?

25 A. Within the system, yes.

1 Q. And that would enable access to
2 whatever object is put into that folder,
3 correct? In other words, other components
4 would then -- who had access to that folder
5 would then have access to that new object that
6 got put into that folder?

7 A. Other components within this
8 rule-based object-oriented object lens system,
9 yes, nothing to do with the operating system.

10 Q. Nothing to do with the operating
11 system. Okay, we will come back to that in a
12 second.

13 Glad you mentioned that. We will come
14 back to that.

15 Similarly, this description indicates
16 an object could be loaded. You could use one
17 of these rules to automatically load an object,
18 right?

19 A. Sure.

20 Q. And loading an object, if you had a
21 rule that says if X happens, I want you to load
22 this object, because I want to have access to
23 it if it happens, that would enable access to
24 that object, wouldn't it?

25 A. It simply says load the object. It

1 doesn't say whether there is access to it after
2 that.

3 Q. Yeah, but if I set up one of these
4 folders and used some rules and used an
5 automatic agent, and said, I want you to look
6 for new e-mails and if there is a new e-mail, I
7 want you to move a link to it into a folder I
8 have especially created for myself, that
9 functionality is enabled and disclosed by
10 Malone, right?

11 A. With the kind of rule that you
12 explained? Yes. And within this object lens
13 system, absolutely.

14 Q. And that would be done in part through
15 a link, wouldn't it?

16 A. In the example you said, the link is
17 to an e-mail, I believe, you said, in another
18 folder, yes. But the link is in the folder at
19 the object lens system, yes.

20 Q. And you admit that if we were to
21 perform -- if we were to take an e-mail
22 example, that that would involve the operating
23 system, wouldn't it?

24 A. No, it doesn't involve the operating
25 system. There is no support added for that

1 e-mail within the operating system.

2 Q. Well, wouldn't you agree that
3 retrieving e-mail involves a system-level call
4 to the operating system?

5 A. Retrieving e-mail?

6 Q. Yeah.

7 A. No, I don't think so, necessarily. It
8 depends on how you define a system level call.

9 Q. So it is your testimony that
10 retrieving from a mail system -- let me
11 withdraw the question.

12 Let's take a mail system using this
13 object lens, part of it has a mail system,
14 okay? And it goes ahead and retrieves mail
15 from a server. Wouldn't that involve the
16 operating system, sir?

17 A. It might involve the operating system
18 in that the server may be, you know, managed by
19 an operating system, yes, but the act of the
20 mail supporting that e-mail is not within the
21 operating system per se.

22 Q. It would require the use of a mailer
23 daemon, right?

24 A. Depending on the e-mail system, it
25 could require a daemon.

1 Q. And that's a system level call, right?

2 A. A daemon is typically a system level,
3 yes.

4 Q. I'm sorry?

5 A. A daemon would typically be at the
6 system level.

7 Q. Operating system level?

8 A. Sure.

9 Q. Okay. Let's go to another portion of
10 Malone. This is slide RDX-26.15. And I am
11 displaying column 8, lines 13 through 31.

12 And here there is a little heading at
13 the top of this paragraph, "automatic agents
14 for searching and manipulating networks." Do
15 you see that?

16 A. Yes.

17 Q. This is another section you reviewed
18 for Malone to form your opinion, right?

19 A. Sure. Reviewed all of Malone, yes.

20 Q. And it says, "in addition to
21 summarizing the contents of semi-structured
22 objects, the system can use their structure to
23 perform even more powerful automatic options
24 such as searching and restructuring."

25 Do you see that? Then it says, "The

1 object lens system uses rule-based agents to
2 perform these automatic actions. For example,
3 figure 20 shows an agent that maintains a
4 folder of overdue tasks. Every night at
5 midnight, this agent is automatically triggered
6 and searches the all tasks folder," what does
7 that say, "a system-maintained folder that
8 contains all task objects to the local
9 workstation. When the agent finds tasks whose
10 due date has passed, it moves them into the
11 overdue tasks folder."

12 Do you see that?

13 A. Yes, I do.

14 Q. So this is an example where there is a
15 system maintained folder, correct?

16 A. That's right, an object lens system
17 maintained folder, yes.

18 Q. System, meaning the operating system?

19 A. No, I don't believe so. It is
20 referring here to the object lens system as far
21 as I can tell.

22 Q. Well, it says the system, doesn't it,
23 sir?

24 A. It does say system within the context
25 of a paragraph describing the object lens

1 system.

2 Q. It doesn't say application, it says
3 system?

4 A. It says system within that context,
5 yes.

6 Q. And this is describing a system
7 maintained folder that is automatically
8 searched every night, right?

9 A. It searches the all task folder within
10 this object lens system, yes.

11 Q. Automatically every night, right?

12 A. That's what the agent is doing, yes.

13 Q. And it determines whether some tasks
14 are overdue, right?

15 A. That's right.

16 Q. And if the tasks are overdue, it
17 automatically moves them from this folder to
18 another folder, right?

19 A. If the task's due date has passed and
20 you call it overdue, which is probably okay, it
21 moves it from the all task folder to the
22 overdue task folder within this system, yes.

23 Q. And a person of ordinary skill in the
24 art would know one way to do that is to use a
25 link, right?

1 A. One way to do that would be to copy
2 it, which says here it moves them, so I am
3 assuming here that it actually moved the file
4 as opposed to creating a symbolic link, for
5 example.

6 Q. A person of ordinary skill in the art
7 when you say copy, oftentimes they are just
8 referring to a pointer, right?

9 A. If you are copying as opposed to
10 creating a symbolic link, it would be actually
11 copying, moving the data over.

12 Q. Well, another way to do it is to have
13 a pointer, right?

14 A. That would not be copying. You would
15 be creating a link to it, yes.

16 Q. And one way to do this would be to
17 create a link, right?

18 A. Then it would not be moving it. It
19 would be creating a link.

20 Q. Okay. Moving it is actually more
21 substantial functionality than just having a
22 pointer, right?

23 A. Not necessarily. Moving really just
24 means I am copying the bytes over and having a
25 pointer is a different construct. It is one

1 where you have a link, a piece of data that
2 indicates where the data -- the other data is.
3 It is pointing to that data. I don't think one
4 is necessarily more complex or difficult
5 construct, the word you used, than the other.

6 Q. Now, you would agree that by virtue of
7 this functionality disclosed here on column 18,
8 lines 19 through 31, that what's going on here
9 is that overdue tasks are being collected and
10 tracked by the system, aren't they?

11 A. What is going on here is the agent is
12 automatically at midnight at every night, it is
13 automatically triggering this rule that goes
14 out and looks in this all tasks folder, this
15 particular folder, which is an object lens
16 system maintained folder, and then when it
17 finds tasks in that folder where the due date
18 has passed, it moves them to the overdue task
19 folder. That's exactly what it says.

20 Q. And it is an ongoing operation, it is
21 not just a one time deal, it happens every
22 night?

23 A. It happens once a night, it looks
24 like, yes.

25 Q. Okay. So fair to say that using this

1 functionality, overdue tasks are being tracked
2 by the system automatically?

3 A. I think that's an interpretation you
4 are putting on top of it. I think this is a
5 very simple thing. It is every night. It
6 basically runs this rule within this object
7 lens system that looks for files, it does a
8 very simple comparison. If the due date has
9 passed, i.e., it is now past that date, it
10 moves it to the overdue task folder. Is that
11 tracking? I think tracking may involve more
12 complex things.

13 Q. A task could be a component?

14 A. It is a task object. It doesn't say
15 what it is.

16 Q. Task object is a software component
17 under the '430 patent, right?

18 A. It could be a software component.

19 Q. And this is describing tracking and
20 providing access to task objects, correct?

21 A. It is not talking about tracking
22 per se. I don't see that. It is talking about
23 moving those objects from one folder to the
24 other, if it meets a particular rule, and that
25 rule is that the due date has passed, and it

1 does this every midnight and it is doing it in
2 this object lens system.

3 So I think it is a very simple thing
4 that it is doing.

5 Q. It is facilitating access to overdue
6 tasks, correct?

7 A. It is -- it is doing what it is doing.
8 It is moving tasks that are overdue from one
9 folder to another folder within this object
10 lens system.

11 Q. It is automatic technology that helps
12 a user and facilitates the ability for a user
13 to have access to tasks that the user is
14 supposed to perform that are overdue? That's
15 what it is describing, isn't it?

16 A. No, it is describing moving things
17 from one folder to another folder based on the
18 rule. It doesn't say I am facilitating
19 anything to the user. It is just a simple move
20 from one folder to another.

21 Q. Well, but if I am a user and I am
22 using this object lens system, and say I read
23 this and I say, whoa, that's a great idea, I am
24 always delinquent on my tasks, I am going to
25 set this up because I want to know when these

1 particular software components, i.e., task
2 objects that are overdue, I want to know when
3 they occur, this system is facilitating and
4 giving me the ability to access better than
5 before those overdue software components, those
6 overdue task objects, right?

7 A. I'm sorry for interrupting you there.

8 Q. No problem.

9 A. So I don't see this as doing any
10 better. It has just moved a bunch of folders
11 over -- sorry, a bunch of tasks over from one
12 folder to another.

13 So how is it enabling better access?
14 I think is something like what you said. I am
15 not sure it is better access. It is just
16 putting it in another folder that I can then
17 look at and I could have looked at it in the
18 old task folder as well.

19 Q. So you don't think that's helping a
20 user who has expressed an interest in being
21 reminded of overdue tasks, you don't think that
22 is facilitating access to the software
23 components there?

24 A. I think it is helping the user. I
25 don't know that it is facilitating access to an

1 operating system or adding support to an
2 operating system, if that's what you are
3 getting at. This is a completely different
4 thing. It is within this object lens system.

5 Q. Let's move on to RDX-26.16. This is
6 another excerpt from Malone '870 patent, in
7 particular, RX-289 at column 11, lines 6
8 through 17.

9 It says, "in some cases, agents can
10 take actions automatically on behalf of their
11 users. For instance, figure 4 shows an example
12 of a simple agent designed to help a user
13 process incoming mail. When an agent is
14 triggered, it applies a set of rules to the
15 collection of objects in a folder. The agent
16 in figure 4 is applied to objects in the new
17 mail folder and is triggered by the arrival of
18 new mail. That is, when mail is retrieved to
19 the workstation, the mail program automatically
20 inserts links to the new messages into the
21 user's new mail folder and these new links
22 trigger the agent. In the current version of
23 object lens, two other kinds of automatic
24 triggers are available: Daily to midnight and
25 on the hour."

1 Do you see that?

2 A. Yes, I do.

3 Q. In this example, whenever a new mail
4 is received from the server, a link is created
5 between the new mail objects and the new mail
6 folder, correct?

7 A. Just give me one moment to reread this
8 paragraph if you don't mind. Yes, it puts
9 links in the user's new mail folder to those
10 messages, yes.

11 Q. And new mail objects, those are
12 software components under the '430 patent,
13 right?

14 A. New mail objects, yeah, they could be
15 software components, sure, except they are not
16 in the operating system.

17 Q. So under this system, the system looks
18 for new software components that are received
19 at the system level, at the operating system
20 level by the server, and if it finds them, it
21 creates a link, correct?

22 A. It is not objects that are received at
23 the operating system level. This is received
24 in the mail, in the mail folder, and then it
25 makes the links. This has nothing to do with

1 the operating system per se. The stuff arrives
2 in the mail folder, but the mail program
3 handles that.

4 Q. The new mail that comes in through the
5 server goes through the operating system,
6 doesn't it, sir?

7 A. It doesn't necessarily go through the
8 operating system. The mailer takes care of
9 putting it in the new mail folder.

10 Q. You mean the mailer daemon?

11 A. The mailer daemon, that's right.

12 Q. Which is part of the operating system?

13 A. The mailer daemon is running within
14 the operating system, as I said earlier.

15 Q. And this link facilitates access to
16 this new mail, doesn't it, to these new
17 software components?

18 A. These links facilitate access to those
19 messages, those new messages that have been put
20 into the new mail folder.

21 Q. All right. Let's go to -- back to the
22 '430 patent. I am displaying RDX-26.17. This
23 is an excerpt from the '430 patent. I am
24 displaying, for the record, JX-1 at column 12,
25 66 through column 13, line 7.

1 I am also displaying figure 9 and a
2 description of figure 9 at column 2, lines 26
3 through 27. And I will just walk through this
4 for the record.

5 The bottom box says, figure 9 is an
6 illustration of a smart folder in accordance
7 with a preferred embodiment. Do you see that?

8 A. That's right.

9 Q. Now, you contend that the smart folder
10 that's being illustrated here is an embodiment
11 of claim 1 of the '430 patent, right?

12 A. That's right. It is an embodiment of
13 claim 1. Especially claim 1, elements A, B,
14 and C, and because you have this structure
15 called the object-oriented system locator
16 system, that the '430 patent is all about, that
17 enables this sort of smart foldering.

18 Q. So the answer is yes, you think figure
19 9 is an embodiment of claim 1 of the '430
20 patent?

21 A. It is an embodiment in particular of
22 claim 1, elements A, B, and C, in particular.

23 Q. So you don't believe it is an
24 embodiment of element D?

25 A. I believe the '430 patent as a whole

1 enables this smart folder embodiment and, you
2 know, given that, and if you had such a system
3 that adds support to the operating system, you
4 could build a smart foldering system like this
5 that may include adding support to the
6 operating system, but this particular one may
7 or may not directly embody claim D necessarily.

8 Q. Is it --

9 A. I'm sorry, element D.

10 Q. I put text on the screen that I read
11 into the record. Do you see the text?

12 A. Yes, a preferred embodiment.

13 Q. You read it, right?

14 A. That's right.

15 Q. And you have seen this figure, figure
16 9?

17 A. Yes, I have.

18 Q. All right. I am asking you just about
19 what's on the screen for purposes of this next
20 question. Are you with me?

21 A. Okay.

22 Q. Does what we have got exhibited on the
23 screen constitute an embodiment of claim 1 of
24 the '430 patent, sir?

25 A. It is one embodiment.

1 Q. Thank you. So that means in your
2 opinion that this discloses the elements of
3 claim 1 of the '430 patent, right?

4 A. I think it discloses explicitly
5 elements A, B, and C of the '430 patent. It
6 doesn't explicitly disclose element D, which is
7 adding support for the hardware and software
8 component to the operating system.

9 Now, the overall structure of the '430
10 patent, the locator system, that, the system
11 itself has the ability to add support to the
12 operating system. So within that context, the
13 smart folder would work within that context.

14 MR. VERHOEVEN: One second, Your
15 Honor, if I may.

16 BY MR. VERHOEVEN:

17 Q. Let's go through the highlighted text
18 in the text box. It says, "the smart folder
19 then invokes the locator and requests
20 particular documents containing the desired
21 attributes to be collected in the folder."

22 Actually, let me back up because
23 that's in the middle of the discussion. For
24 the record, I will start at the top. "Figure 9
25 is an illustration of a smart folder which uses

1 a locator to organize documents, graphic
2 objects, folders, et cetera, which a user is
3 interested in collecting together."

4 So can you explain to His Honor what
5 is that first sentence describing?

6 A. What that is describing, Your Honor,
7 is that it is a folder much like any folder
8 that you would see on your desktop system like
9 your MacIntosh or Windows system. And within
10 that there is a locator, a mechanism that's
11 described in the '430 patent to retrieve, to
12 search by properties, to find documents,
13 graphic objects, folders, et cetera, which the
14 user may be interested in collecting together.

15 And what that locator does is goes out
16 and does that search and pulls these objects
17 and puts it in this folder which it is calling
18 a smart folder because it kind of does this on
19 an ongoing, automatic basis.

20 Q. Okay. Now, isn't this functionality
21 of monitoring and then going out and moving
22 things into a smart folder the same thing we
23 just looked at in Malone, sir?

24 A. Not exactly, because this
25 functionality, smart folder functionality in

1 the '430 embodiment is working within the
2 object-oriented system locator framework
3 described in the '430 patent that is all about
4 searching by properties, going out and querying
5 and looking for objects, i.e., components,
6 hardware or software components that match
7 those properties, returning them, and then
8 crucially adding support for those hardware and
9 software components to the operating system,
10 not just putting it in the folder. That
11 doesn't add support to the operating system.

12 It is just putting it in the folder in
13 this case. But the context here is working
14 within this broader framework. In the Malone
15 reference, it is a separate system that doesn't
16 involve the operating system directly. It is
17 what they call, if I recall the language
18 specifically, it says the object lens system
19 which is a separate system that is specifically
20 designed for this sort of foldering, but does
21 not add support to the operating system once it
22 finds a particular object or document or a
23 folder.

24 It simply puts those things in a
25 folder and then doesn't add support. And the

1 crucial difference there is adding support for
2 those components, once it has been found. And
3 that's the difference between the overall
4 framework here --

5 JUDGE ESSEX: Can you give me an
6 example what support is added when it puts
7 something like this -- is it software that is
8 now part of the operating system?

9 THE WITNESS: In this case, the
10 software is not necessarily part of the
11 operating system. So say, for example, it
12 found one of the things it is looking for is a
13 piece of software.

14 It finds it through a search for
15 properties, for example, and it brings it back
16 up, because it returns it as a component, a
17 software component, and puts it in the folder.

18 And that act of putting in the folder
19 itself doesn't necessarily mean I am adding it
20 to the operating system or adding support for
21 it to the operating system, by just putting it
22 in the folder.

23 But now within the context of the '430
24 patent, the '430 patent has the capability to
25 add support for that component, should it

1 desire to, to the operating system. But the
2 Malone patent, Malone reference doesn't talk
3 about adding that support to the operating
4 system.

5 JUDGE ESSEX: Go ahead.

6 BY MR. VERHOEVEN:

7 Q. Can you show me -- you are saying this
8 doesn't disclose adding support to the
9 operating system, figure 9?

10 A. It doesn't directly do that, no.

11 Q. What about any of the embodiments in
12 the patent, can you show me a particular
13 embodiment in this patent, in the '430 patent
14 in the specification that expressly discloses
15 adding support as you claim to the "operating
16 system"?

17 A. There is no specific embodiment. The
18 embodiments, as I understand it, don't have to
19 explain every single element in the claim
20 necessarily. They are just examples.

21 Q. So you can't point me to a single
22 embodiment that does what you just said?

23 A. As an embodiment? No, not in the --
24 not in the patent.

25 Q. And if you look at the actual examples

1 that are contained in the specification of the
2 '430 patent that talk about the phrase
3 "preferred embodiment" like figure 9, they
4 don't expressly disclose what you are saying,
5 some specific connection to a specific
6 operating system, do they?

7 A. It doesn't specifically disclose in
8 the embodiment the notion of adding support to
9 the operating system for that component, but
10 you have got to remember that this system, the
11 entire object-oriented system locator system is
12 designed to add that support.

13 So it is not just about the embodiment
14 expressly disclosing it. Whereas the Malone
15 reference doesn't talk about adding support to
16 the operating system at all.

17 Q. Even though you can't point to a
18 single example of the many examples in this
19 patent that describe the preferred embodiment
20 in which there is any discussion of this
21 functionality you are talking about,
22 specifically pointing to adding support to the
23 operating system, is that your testimony?

24 A. It doesn't directly expressly say
25 that. Like it doesn't say, you know, support

1 is now added to the operating system if that's
2 the words you are looking for.

3 Q. Now, if we focus on this ostensibly
4 preferred embodiment, figure 9, the
5 functionality described in the text here in
6 figure 9 is all disclosed in Malone, isn't it,
7 sir?

8 A. You are talking about the text above?

9 Q. That's right. In other words, Malone
10 talks about folders that have similar
11 functionality, doesn't it?

12 A. One key difference is that this smart
13 foldering in the figure 9 example of the '430
14 patent is being done with a locator that is
15 within the structure of the '430 patent's
16 invention. It is a locator within the system
17 locator system that is designed to then add
18 support to the operating system, whereas in
19 Malone, from what you have shown me so far and
20 what I have read, it is a rule. It has nothing
21 to do with -- it is a rule-based system. It is
22 making a new rule that is doing those searches
23 and putting it in a folder without adding
24 support to the operating system.

25 Q. You keep saying supports the operating

1 system. Where is that disclosed in figure 9?

2 A. It is disclosed in that the locator is
3 within this object-oriented system locator
4 system. That's the structure I am talking
5 about. That's one difference in that the
6 locator here is a different -- is not exactly
7 the same thing as the rules that are being used
8 in the Malone patent per se.

9 You asked me if the language matched
10 exactly and I am just pointing out at least one
11 key difference.

12 Q. Ryan, can we go to RDX-289. You said
13 Malone doesn't talk about operating system. I
14 guess you are suggesting Malone is only talking
15 about operating programs, is that what your
16 contention is?

17 A. I said Malone doesn't talk about
18 adding support to an operating system, which is
19 the requirement in element D of claim 1 of the
20 '430 patent.

21 Q. Can we go to column 18, please, of
22 RX-289. Ryan, do you see where I am pointing
23 there, where it says 4? Can you go from there
24 all the way down to the bottom and pull it out?
25 Do you see item 4 says, system architecture?

1 Do you see that?

2 A. Yes.

3 Q. It is not talking about an application
4 program, it is talking about the whole system,
5 isn't it?

6 A. No, this is talking about the system
7 architecture of the object lens system, which
8 is the focus of the Malone patent.

9 Q. Right.

10 A. Of that particular system, the object
11 lens system.

12 Q. The object lens system isn't
13 characterized in this patent as some sort of
14 application framework, it is talking about
15 entire system within the system architecture,
16 isn't it, sir?

17 A. No, it is talking about an object lens
18 system, the system, the word system there
19 refers to that particular system. Not some
20 general system or an operating system. This is
21 the object lens system. It is talking about
22 the system architecture of that particular
23 object lens system.

24 Q. Now, Ryan, do you see where it starts
25 object manager around line 64? Can you pull

1 that out and then I am going to pull out the
2 carryover paragraph to the next page.

3 So you have read about the object
4 manager before as part of Malone?

5 A. Yes, I am glad you brought this up
6 because this helps clarify things.

7 Q. It says, "the heart of the object lens
8 is the object manager." Do you see that?

9 A. That's right.

10 Q. It says, "the object manager is
11 responsible for keeping track of all classes
12 and class-instances and their links to each
13 other. It also keeps track of the current
14 state of each object and helps the objects
15 handle messages which they receive by providing
16 support functions with their methods."

17 Then it continues, "the object manager
18 provides the forms manager with the information
19 it needs to present a form. The object manager
20 also handles saving and loading objects from
21 permanent storage in the database. In the
22 future, the object manager will work with
23 shared database to do object locking and
24 version control."

25 Do you see that?

1 A. Yes, I do.

2 Q. Now --

3 A. All of this is in the context of this
4 object lens system as it clearly says there.
5 Overall architecture of the object lens system.

6 Q. Now, do you remember in your -- can we
7 save this and go back to the slides, please?
8 Could we go to RDX-26.26, please.

9 Now, you remember when we were going
10 over your opinions with respect to infringement
11 or non-infringement, you used this slide in
12 your witness statement, CDX-1.042?

13 A. Sure.

14 Q. And this is your illustration of what
15 you allege the Android operating system is?

16 A. That's right. It is a high level
17 overview, yes.

18 Q. You contend that this, everything in
19 this dotted line is "the operating system,"
20 right?

21 A. In this -- in this particular system,
22 yes.

23 Q. Okay. So you drew this line, right?
24 This didn't come from some document?

25 A. Sure.

1 Q. Okay. What it actually says is
2 application framework, doesn't it?

3 A. That's the application framework, yes.

4 Q. Now, you remember you accused the
5 activity manager as being a component that is
6 involved in what you call adding support to the
7 operating system?

8 A. That's part of it, yes, because it
9 goes -- it is part of it and then it goes and
10 adds support to the operating system itself,
11 yes.

12 Q. Right. So the functionality of the
13 activity manager, according to you, in the
14 Android system is operating system
15 functionality, right?

16 A. The activity manager in conjunction
17 with the package manager and other things along
18 with that. We have already gone through that.

19 Q. And the activity manager, similar to
20 the object manager, is something that provides
21 support to all these different objects that are
22 sending messages back and forth; isn't that
23 true, sir?

24 A. No. I don't see that as being the
25 same thing because the object lens framework

1 system, the object lens system that the Malone
2 patent talks about is not dealing with the
3 operating system per se. It is not about
4 adding things so other applications or other
5 software components can facilitate access to it
6 necessarily.

7 It is a system within itself. So it
8 is facilitating access to things within itself,
9 not to the operating system.

10 Q. The activity manager, similar to the
11 operating system, keeps track of the current
12 state of objects, right?

13 A. The activity manager happens to keep
14 track of a particular set of data in Android,
15 yes.

16 Q. And the activity manager, similar to
17 the object manager in Malone, provides support
18 functions for object-oriented messages that it
19 receives, right?

20 A. The activity manager provides a
21 connection, it basically manages the active
22 applications that are -- and services that are
23 available out there in Android, yes.

24 Q. But on the one hand, you call the
25 activity manager part of the operating system,

1 but if you go back to the Malone slide, Ryan,
2 you call the object manager which always
3 manages objects, just like the activity
4 manager, you say you can't -- you haven't
5 proven that that's part of the operating
6 system, that's your distinction?

7 A. No, the distinction is the object
8 manager in Malone, which I believe you have a
9 slide here, is within the object lens system.
10 And it is very clear even in this paragraph
11 that you brought up, which is a good place to
12 start, the object manager, it is within the
13 context, it says right there, line 61, the
14 object lens system and goes on forward,
15 illustrated in figure 16, and then it talks
16 about the object manager.

17 So the object manager is within the
18 object lens system. It is not within the
19 operating system.

20 Q. Where in this patent is there a
21 distinction drawn between operating system and
22 application programs?

23 A. It doesn't talk about --

24 Q. Show me.

25 A. It doesn't talk about the operating

1 system. This entire thing is set up for an
2 object lens system. It is a system on its own
3 that handles all these things, which are within
4 this architecture of the object lens system,
5 not the operating system.

6 Q. I think you said all I need to hear.
7 It is a system on its own, right?

8 A. That's right, that sits on top. It
9 has to run on any operating system. But it has
10 nothing to do with the operating system per se.

11 Q. It is a system on its own, isn't it?

12 A. It does not have to do with the
13 operating system per se. That is my testimony.

14 Q. What do you mean when you say
15 operating system?

16 A. The operating system is, for example,
17 in the Android chart that you showed me
18 earlier, that would be the kernel and the
19 structure around that, that deals with things
20 that come in and out of the operating system.

21 Q. Would it include the functionality of
22 a manager that manages all of the objects and
23 keeps track of them on the system? Would that
24 be part of the operating system, sir?

25 A. It would manage -- it potentially

1 could have a manager that manages objects in
2 the operating system, yes.

3 Q. And here this system, this object lens
4 system, which is its own system, has an object
5 manager that keeps track of the current state
6 of each object. That means each object on the
7 system, right?

8 A. Within the object lens system. There
9 is no disclosure in Malone that the object lens
10 system is an operating system or a replacement
11 for an operating system. This is a separate
12 system that runs the way that it is with an
13 object manager and does all these things, which
14 we have talked about some of them today.

15 Q. It is a complete system?

16 A. It is a system, but it is not one that
17 is an operating system.

18 Q. How many computer systems do you know
19 that don't have operating systems as part of
20 them?

21 A. You mean that don't run an operating
22 system?

23 Q. That don't have a system, not what you
24 would consider an operating system, don't have
25 a kernel, don't have a manager that manages

1 objects?

2 A. Well, there are some embedded systems
3 on small devices that don't necessarily have an
4 operating system per se, but most have an
5 operating system, yes.

6 Q. Would you agree that if His Honor
7 concludes that this is describing an operating
8 system and operating system functionality as
9 part of this system, that Malone, assuming that
10 conclusion, that Malone does show adding
11 support?

12 A. If His Honor concludes that the object
13 lens system is in itself an operating system,
14 which I don't see how His Honor could come to
15 that conclusion by looking at the evidence and
16 reading Malone, it is possible that that would
17 be considered adding support to an operating
18 system, but that's a big if, because the object
19 lens system would have to be an operating
20 system on its own.

21 Q. Let's move on, on to the second
22 reference related to the '430 patent that I
23 would like to ask you some questions about
24 today. It is UNIX Find. Before I go on, I
25 just wanted to do one more thing. I'm sorry, I

1 forgot it. I apologize.

2 Can we go to RDX-26.22. Now, you have
3 seen this before because you have read through
4 this. Do you remember this step 4 of this
5 example?

6 A. In Malone? Yes.

7 Q. So there is three other steps that
8 aren't particularly relevant to what I want to
9 ask you questions about, if you would like to
10 look at context, that's fine. I just don't
11 want to take the time to go through them all.

12 A. Sure, let me quickly skim that if you
13 don't mind.

14 Q. Sure, take your time.

15 A. You are saying that's at column 17?
16 That's right. It is the fourth step of a
17 series of steps.

18 Q. Have you refamiliarized yourself with
19 this?

20 A. I haven't read them again right now,
21 but I see the context.

22 Q. If you need to, go ahead.

23 A. Sure.

24 Q. So step 4 in the example is titled
25 automatically selecting and manipulating

1 objects. And for the record, this is a slide
2 RDX-26.22 and I am displaying column 17, lines
3 47 through 61 of the Malone patent.

4 And it says, "the last step in our
5 example is to add intelligent agents to help
6 search and modify the network nodes. For
7 instance, figure 16 shows an agent like one you
8 might use to notify you whenever people add
9 arguments that support positions you have
10 entered."

11 Do you see that?

12 A. Yes.

13 Q. Now, there is -- the word argument
14 here is used. That doesn't mean the same thing
15 as when a lawyer uses the word argument, right?
16 Can you explain to His Honor what that means?

17 A. Just give me a second to read this
18 just to make sure I get the context correct. I
19 want to make sure of what network of nodes you
20 are talking about here. Just one second. In
21 some sense, it is adding arguments of the
22 nature that the lawyer does, but --

23 Q. Let's take a step back.

24 A. Sure.

25 Q. We're talking about object-oriented

1 programming, right?

2 A. In the overall -- not just
3 programming, an object-oriented system.

4 Q. System. And argument is a term of art
5 in object-oriented systems, correct?

6 A. It could be, yes.

7 Q. Just like methods are?

8 A. Sure.

9 Q. So could you just for the record
10 explain to His Honor what does argument mean in
11 the context of an object-oriented system?

12 A. In an object-oriented system, it would
13 be a parameter that would be one part of a
14 method, for example. So you could have a
15 method that says find files and the file would
16 be a parameter which would be the argument.
17 And it is another way of saying parameter. But
18 I believe here it doing something slightly
19 different. It is searching for hypertext
20 information.

21 Q. It says, "for instance, figure 16
22 shows an agent like one you might use to notify
23 you when people add arguments that support
24 positions you have entered. This agent is
25 triggered automatically when new objects are

1 added to the folder containing the discussion
2 of interest. Figure 17 shows the rule this
3 agent uses to select the arguments that support
4 a specific person's positions."

5 Do you see that?

6 A. Right. Here in figure 16, this looks
7 like an argument in a series of conversations
8 in a hypertext system. And when it sees that
9 argument, for example, the node types, if you
10 look at step 2 there on column 16, and step 2,
11 lines 60 onwards, it says to define the new
12 node types which have an issue of position and
13 argument.

14 So the word argument here is used as
15 one type of parameter, not all parameters. You
16 specialize existing object types and so forth.
17 So what this is doing is giving me -- what they
18 are calling an argumentation application. And
19 the application here is an application that has
20 people adding new discussions in a discussion
21 system, discussion/argumentation system.

22 Q. This application shows that you can
23 set the system up to notify you and receive a
24 notification in response to a query every time
25 an object meeting a certain criterion is added

1 to the folder selected by the user, correct?

2 A. Whenever people add a particular
3 argument, yeah, a particular new instance that
4 supports positions you have entered, yes.

5 Q. Now, if we go back to the smart folder
6 example from '430, it says, "additionally, the
7 smart folder can instruct the locator to notify
8 it when new documents containing the desired
9 attributes are added or removed from the
10 system." Do you see that, sir?

11 A. That's right.

12 Q. And if we go back, isn't that the same
13 thing as what is described in step 4, automatic
14 notification when new objects are added to the
15 folder containing the discussion of interest?
16 It is the same sort of automatic notification
17 that you point to as part of the preferred
18 embodiment in figure 9 of the patent as adding
19 support, isn't it true, sir?

20 A. No. The notification here is within
21 this object lens system. The notification here
22 is mapped to exactly what you showed me in the
23 previous slide in Malone and I believe the
24 abstract or the slide you had up there just
25 before. It is mapping to exactly that, yes.

1 Q. This is similar to figure 9 and the
2 associated text from the '430 patent, step 4 in
3 Malone in this example is talking about
4 automatic notification when new objects are
5 added to a folder, correct?

6 A. Notification is the same sort of
7 notification. But it is not adding support of
8 the operating system.

9 Q. Okay. Setting aside the dispute about
10 what adding support means, in figure 9 which
11 you claim is an embodiment of the invention,
12 the notification functionality described in the
13 text associated with that figure is the same
14 sort of notification that's described in step
15 4, isn't it, sir?

16 A. One difference would be that that
17 notification in the patent in the embodiment of
18 the patent is that it is within this locator
19 framework that's running in this operating
20 system the patent talks about, whereas here it
21 is within a very different system called the
22 object lens system which we have already gone
23 over.

24 Q. They both do searches, right?

25 A. That's right.

1 Q. They both look for properties?

2 A. That's right, search is based on
3 properties, yes.

4 Q. Yes?

5 A. Yes, we have agreed on that,
6 absolutely.

7 Q. You don't dispute they are looking for
8 properties?

9 A. No, I don't.

10 Q. Search is based on properties, right?

11 A. Absolutely.

12 Q. And you don't dispute it returns
13 objects that match, right?

14 A. That's right.

15 Q. And here it is saying that it also
16 automatically notifies you, you can set it up
17 and it will be an ongoing service that will
18 facilitate to a user access to these new
19 objects that are added, the user is saying I
20 want to be informed if new objects related to
21 my discussion are added, right? That's what it
22 is saying?

23 A. That's right, within the object lens
24 system. There is no dispute there, yes.

25 Q. And the object is a software

1 component?

2 A. In this case, you could say an object
3 is a software component, sure.

4 Q. And this system is automatically
5 facilitating the user's access to these new
6 objects that are added and putting it into a
7 folder for ease of access, isn't that what this
8 is doing?

9 A. In the object lens system, absolutely.

10 Q. Okay. Let's move on and briefly cover
11 the second reference, which is UNIX Find. I
12 will put on the screen the first page of UNIX
13 Find.

14 Now we're not going to have a dispute
15 about whether UNIX is an operating system, are
16 we?

17 A. I hope not. If you want, we will have
18 one. We could.

19 Q. You agree UNIX is an operating system,
20 right?

21 A. Yes, I do.

22 Q. Okay. And one feature in the UNIX
23 operating system is this Find feature, right?

24 A. Yes, it is one command in the UNIX
25 system, absolutely.

1 Q. And I have just put the front page of
2 this, which is a depiction of RDX-26 -- I'm
3 sorry, which is a depiction of RX-735. Is that
4 what it looks like to you?

5 A. Sure.

6 Q. And this is the Wait Group's UNIX
7 Primer or Primer Plus, right?

8 A. I would say Primer, yes.

9 Q. Primer, okay. And you have reviewed
10 the document, right?

11 A. Yes.

12 Q. And you see the reference date or the
13 copyright date is 1990?

14 A. Yes.

15 Q. That's before the '430 patent was
16 filed, right?

17 A. I believe so, yes.

18 Q. And this reference, similarly, there
19 is no dispute about whether this constitutes
20 prior art, correct?

21 A. UNIX is well-known, absolutely.

22 Q. So you agree it is prior art?

23 A. Yes.

24 Q. Okay. And for the record, you
25 understand that Motorola asserts that this

1 reference, the UNIX Find, is anticipatory of
2 the asserted claims?

3 A. Yes, I believe so.

4 Q. And that Staff also is of the position
5 that this reference is anticipatory of the
6 disputed claims as well?

7 A. I believe that's true, although there
8 was some discussion about the Staff's position
9 changing there, so I am not 100 percent sure
10 what is the latest one. To my understanding,
11 yes.

12 Q. Okay. Let's quickly go through this
13 reference. I have put up RX-26.30, which is an
14 excerpt from RX-735 at control number 731
15 through 32. It says, finding files: Find.
16 "The Find command searches for files that meet
17 some criterion. You can search for files that
18 have a certain name or are a certain size or
19 files not accessed for a certain number of days
20 or files having a certain number of links, and
21 this is just a partial list. Once the files
22 are found, you can have the path names printed,
23 and you can have the files themselves printed
24 or removed or otherwise acted upon."

25 Do you see that?

1 A. Yes.

2 Q. So this talks about find means
3 searching for things, finding things?

4 A. That's right.

5 Q. So you can search for files and you
6 can search by name, right?

7 A. Yes.

8 Q. Or by file size?

9 A. That's right.

10 Q. Or you can search by the last date by
11 which a file is accessed?

12 A. Yes.

13 Q. And you can search for files that have
14 -- by the number of links they have?

15 A. That's right.

16 Q. And it says this is just a partial
17 list of the ways you can search for files,
18 right?

19 A. That's right.

20 Q. And it clearly says that once you
21 retrieve those files, once the files are found,
22 you can do actions on those files, right?

23 A. You can do actions on the path names
24 that are returned, yes.

25 Q. So, for example, you can print, right?

1 A. You can print the names, yes.

2 Q. You can remove the files, right?

3 A. You could, but you have to do some
4 other actions after that to do that.

5 Q. And it says, or otherwise -- just
6 generally, it says, or otherwise act upon the
7 files, right?

8 A. Yes.

9 Q. Okay. Then if you go into the body,
10 further into the body of this section, and this
11 is slide RDX-26.31 at Control -- depicting
12 RX-735 at Control No. 732 through 33, we see a
13 delineation of search criteria that are used in
14 connection with the Find command. Fair?

15 A. Of course.

16 Q. And here we have a disclosure of
17 searching using the attribute file name?

18 A. Yes.

19 Q. And I am deliberately using the word
20 attribute, because there is a dispute about
21 properties on this, right?

22 A. Sure.

23 Q. Let me set the stage on that. Your
24 primary issue with this reference is that you
25 contend it doesn't disclose doing searches

1 using properties as that word is used in the
2 claims, correct?

3 A. It does not disclose searching
4 properties as properly construed. It also
5 doesn't add anything to the operating system.

6 Q. And this gets back, without rehashing
7 the claim construction cross-examination we
8 did, which I don't intend to repeat, this gets
9 back to whether a property is intrinsic or
10 inherent versus non-inherent or non-intrinsic,
11 right, according to your opinion?

12 A. It gets back to whether the properties
13 are as the properties added by the object
14 locator system of the '430 patent, which are
15 these non-intrinsic characteristics, yes.

16 Q. Just so we have -- we refresh
17 ourselves on the parties' positions, is it fair
18 that Motorola -- or withdraw the question.

19 Your opinion is that properties as
20 that word is used in claim 1 is limited to only
21 properties that are non-intrinsic properties,
22 correct?

23 A. That's right. The desired attributes
24 that are non-intrinsic to those files or
25 components, yes.

1 Q. And you contend that a property --

2 A. If I could just finish.

3 Q. Certainly, sir.

4 A. That have been added by -- by the
5 system or the user through this overall object
6 locator system that the '430 patent is
7 describing.

8 Q. You concede --

9 A. That's the context.

10 Q. You concede, outside the context of
11 the '430 patent, when computer scientists are
12 talking about properties of a file, that things
13 like names and file size would be considered
14 properties, right?

15 A. Outside the '430 patent, the word
16 property is very broad and it can be used in
17 different ways.

18 Q. So, for example, the name of a file
19 would be a property of a file outside the
20 context of the '430 patent?

21 A. I think we're talking about the
22 context of the '430 patent here, so I am not
23 sure why we're going outside that, but outside
24 that --

25 Q. I want to set the stage. Outside of

1 it, you agree properties can include intrinsic
2 as well as -- what you call intrinsic as well
3 as what you call non-intrinsic properties,
4 fair?

5 A. I think we used the term intrinsic
6 characteristics, but outside the '430 patent,
7 if properties are defined that way, that's
8 fine.

9 Q. But you contend that somehow the
10 patent is limited by the intrinsic evidence so
11 that the word properties in the claim doesn't
12 include intrinsic properties but only includes
13 what you call non-intrinsic characteristics of
14 a component?

15 A. In the '430 patent, properties are
16 those that are added by the locator system and
17 that would not be the intrinsic properties.

18 Q. You see here this expressly discloses
19 searching by file name, right?

20 A. That's right.

21 Q. And your contention is that a file
22 name is not a property?

23 A. As used in the '430 patent, it is not,
24 it is an intrinsic characteristic. Every file
25 has a file name in operating systems, so it is

1 not something that's added through this object
2 locator system, for example.

3 Q. But if you had a system where it
4 didn't have file names per se, maybe just
5 numbers or something, and somebody said, you
6 know what, I want to add a name to a file, and
7 they added a name, that would make it a
8 property under the '430 patent, right?

9 A. If you had an overall system like
10 described in the '430 patent, there was an
11 object locator system designed to add
12 information, i.e., properties to components, so
13 that they can later be searched and retrieved
14 and support for that are added in the operating
15 system, then, sure, you could add something
16 called name, for example. But outside that, I
17 don't see how you would do that.

18 Q. Now, if His Honor considers the issue
19 of claim construction on properties and says,
20 you know what, I think Motorola is right and
21 Apple is wrong, properties can include file
22 names, this discloses properties in connection
23 with the search element of the '430 patent,
24 correct?

25 A. If His Honor constructs -- construes

1 the term properties to be Motorola's
2 construction, then, you know, that would
3 obviously include names, yes.

4 Q. And so UNIX Find would disclose
5 properties?

6 A. If His Honor takes that construction,
7 which I don't believe is the correct
8 construction -- the correct one is that I have
9 discussed at length -- then it would, yes.

10 Q. Thank you. Let's go to another page
11 on UNIX Find. This is RDX-26.32. And I am
12 displaying RX-735 at control number 733 -- or
13 ending in 733.

14 This is talking about a different way
15 to find using a different parameter, let's say.
16 Correct?

17 A. Let's say inherent characteristic to
18 keep the same technology -- terminology.

19 Q. I am trying to stay away from
20 inherent. I mean, we can argue about that, but
21 let's step aside from that and just say what
22 does this disclose? It discloses doing a
23 search and finding a file by a different
24 parameter. Can you tell His Honor what is that
25 parameter?

1 A. This is a characteristic, inherent
2 characteristic of a file that would just have
3 the last time and date the file was accessed by
4 the system.

5 Q. And when you say inherent, what you
6 are saying -- do you intend to mean the same
7 thing when you use the word intrinsic?
8 Sometimes I think you have used the word
9 intrinsic. Sometimes inherent.

10 A. I mean something not added by this
11 object locator system, yes.

12 Q. So inherent or intrinsic, what you
13 mean by that is that it must exist as part of
14 the component?

15 A. The component would have those
16 characteristics as part of it, that it is not
17 something that's added to distinguish from the
18 kind of properties that we're talking about
19 that are non-intrinsic characteristics, it is
20 not something that's added by this locator
21 system that the '430 patent is talking about,
22 that is added to facilitate searching and
23 instantiation subsequently.

24 Q. It is necessary to the component, it
25 must exist if the component exists, is that

1 what it means?

2 A. If that component has those
3 characteristics as part of its structure, yes.

4 Q. Well --

5 A. So, for example, a file in the UNIX
6 system would have name, would have the last
7 access time and so forth. That is part of
8 that, the definition of a file in a UNIX
9 system.

10 Q. Well, I need to understand this
11 because I am confused. Are you saying that you
12 have a component, let's take any example, let's
13 say it is a file, okay?

14 A. Okay.

15 Q. A file is an example of a software
16 component, right?

17 A. True.

18 Q. Okay. You have got a file. What is
19 going to be inherent to that file?

20 A. It would be anything that's not added
21 by the object locator system that the '430
22 patent is talking about. So, for example, the
23 file name or the date or time -- or date and
24 time of access, which that file would typically
25 have anyway. If it existed as a component,

1 without the use of this object locator system
2 that the '430 patent is talking about.

3 Q. So the way you are defining -- I just
4 need to understand. I am confused.

5 Are you saying that a component of a
6 file is something that's got to exist
7 regardless of the system that the file is on or
8 are you saying --

9 A. Component of the file?

10 Q. Let me finish. Or are you saying that
11 we measure whether it is inherent or not based
12 on the system it is operating in? In other
13 words, is inherency system dependent or system
14 independent?

15 A. I am not sure I totally understand
16 your question, sir.

17 Q. Okay. Let me play from your
18 deposition, you were asked what intrinsic
19 means.

20 A. Okay.

21 Q. And maybe we can start from that and
22 then I will follow up with that.

23 A. Sure.

24 Q. This is your deposition taken on
25 August 5th, 2011, page 156, 15 through 157, 11.

1 MR. DAVIS: Your Honor, objection.
2 Improper impeachment. He hasn't identified
3 anything being impeached here. If he wants to
4 ask him a question about what's inherent or
5 intrinsic and then if it differs, then he can
6 impeach.

7 JUDGE ESSEX: I assume he is asking
8 whether it was dependent on the last -- I won't
9 go through everything here -- but he is asking
10 whether it is dependent on the system and those
11 matters, and we will see if it is proper
12 impeachment when it comes up. But I think he
13 has laid enough information that he can play it
14 and we can look at it. So you are overruled.
15 Go ahead.

16 (Videotape played and transcribed as
17 follows:)

18 "Question: What is the distinction
19 again between, you know, the Find command
20 that's running in the background shell program"
21 --

22 (End of video clip played.)

23 MR. VERHOEVEN: Take that down,
24 please, Ryan. That's the wrong clip. Page 156
25 -- Your Honor, may I take one second?

1 JUDGE ESSEX: Yes, you may.

2 (Videotape played and transcribed as
3 follows:)

4 "Question: Why is it intrinsic if
5 someone is inputting the data, doesn't
6 intrinsic mean it already exists?

7 "Answer: I am not sure intrinsic
8 means it already exists. I think intrinsic
9 would mean at least in the context of what
10 we're talking about here it must exist. So a
11 file, you know, would have to have a file name.
12 It cannot exist without a file name at least in
13 most operating systems that I'm familiar with."

14 (End of video clip played.)

15 BY MR. VERHOEVEN:

16 Q. In that excerpt I interpreted what you
17 said it must exist regardless of what system it
18 is, it is an attribute inherent to the
19 component, is that not what you meant?

20 A. For that example I said, I believe I
21 said for a file it won't exist without a file
22 name, but I didn't mean in any component
23 necessarily. A file in an operating system
24 would have a file name, yes.

25 Q. We will go to RDX-26.32 again. These

1 parameters used in UNIX Find, file last
2 accessed exactly seven days ago, that's not an
3 inherent component or inherent attribute of a
4 software component that must exist?

5 A. For a file it would exist.

6 Q. It doesn't have to exist.

7 A. We're talking about files here.

8 Q. Let me finish my question. It doesn't
9 have to exist. You could design, any good
10 software could design a system that doesn't
11 track the last date of access, those components
12 could exist on a system regardless of this
13 attribute, this is completely optional, isn't
14 it, sir?

15 A. No, I mean, you are talking here about
16 UNIX Find and UNIX Find system looks for files
17 and files by these different inherent
18 characteristics, file name, type, time or date
19 of last access. So this is not some random
20 component we're talking about. This is within
21 UNIX Find. And, you know, it is your example.

22 Q. Well, sir, if you are defining
23 inherency or intrinsicness as system dependent,
24 in other words, if the system I have written
25 requires it, then, therefore, it is inherent,

1 isn't that a complete tautology as to whether
2 something is inherent or not?

3 A. No, because within that system it
4 would be required and within the UNIX system
5 and the files within the UNIX system, which is
6 what we're talking about here, a file would
7 have these inherent characteristics.

8 Q. Let's assume there is a software
9 system that was designed and it works fine but
10 it doesn't track last access. Do you follow
11 me?

12 A. Hypothetical, is that what you are
13 saying?

14 Q. That's right.

15 A. Okay. So a hypothetical system --

16 Q. It works fine, it just doesn't have
17 this parameter. They didn't program it in the
18 last time that a document file, for example,
19 was accessed. You couldn't -- the system
20 didn't automatically do that.

21 A. It doesn't have it is what you are
22 saying.

23 Q. Right. But the system can just like
24 UNIX, the system, you could run scrips on it, a
25 scrip is a short program, right?

1 A. Sure.

2 Q. And you could create a scrip that
3 would attach the last access parameter to all
4 the files that you in particular that you as a
5 person using this system were using so that you
6 could then track it, do you follow me so far?

7 A. You would have to build such a system.

8 Q. You would add the parameter to the
9 existing system through a scrip, do you follow
10 me?

11 A. The scrip would have to be built such
12 that it would have data structures to be able
13 to add those parameters, track it, select the
14 locator system described in '430 as an example.
15 You would have to build that structure.

16 Q. So in that system the parameter last
17 access is a property under your definition of
18 property in the '430 patent, correct?

19 A. If it was built within a system like
20 the locator system in the '430, and you used a
21 scripting system and added all the necessary
22 pieces that made up the equivalent of the '430
23 patent as object locator system, then maybe
24 that's true, but just a script on its own
25 cannot just attach properties to, as is used in

1 the '430 patent. That is existing in this
2 locator framework.

3 Q. Now let's assume that that worked so
4 well that you told your friends about the
5 script you created and lots of people started
6 using it and the publisher of the program
7 realized this is a desirable attribute and when
8 2.0 version of the program came out, they made
9 it a required attribute.

10 Now, under your logic all of a sudden
11 this parameter is no longer a property; isn't
12 that true under your logic?

13 A. So you were talking about scripts and
14 then you changed to programs and so I am not
15 following. Are we talking about the same
16 thing? What exactly are we talking about here?

17 Q. I am talking about in version 1.0 of
18 the system --

19 A. Of which system --

20 Q. The system itself did not require any
21 tracking of this parameter and it did not track
22 the parameter automatically. However, users
23 could add this parameter. Do you follow me so
24 far?

25 A. And you are talking about a

1 hypothetical system that you have just built;
2 is that true?

3 Q. Correct, sir.

4 A. Okay.

5 Q. And then for version 2.0 -- and so in
6 version 1.0, you agree that these parameters,
7 you know, last accessed, those are properties
8 because they are not intrinsic to system 1.0.
9 Do you agree?

10 A. No, I do not agree with that. What I
11 said earlier was if you built a system, this
12 hypothetical system that had the same kind of
13 structure as the object locator system of the
14 '430 patent, which had the capabilities to
15 attach those kinds of properties with
16 subsequent searching, then that might be true,
17 but the way you have described the system that
18 you're hypothetically building, it is unclear
19 what you are building. You can't just simply
20 add things to files without an appropriate
21 system.

22 Q. Same is true for the '430 disclosure,
23 right?

24 A. The '430 is talking about an
25 object-oriented locator system.

1 Q. You say the only thing that are
2 properties that are claimed here are things
3 that users add, all of a sudden they can add
4 them easily on '430 but they can't add them
5 easily in my hypothetical? What's the
6 difference?

7 A. The difference is the '430 is talking
8 about an overall architecture in a system that
9 does this. In your hypothetical you talked
10 about --

11 Q. My hypothetical is --

12 A. You didn't let me finish.

13 JUDGE ESSEX: Come on.

14 MR. VERHOEVEN: Sorry.

15 THE WITNESS: I have lost my train of
16 thought here now.

17 BY MR. VERHOEVEN:

18 Q. Let me try it one more time and I will
19 move on.

20 A. Sure.

21 Q. This is a hypothetical. The
22 hypothetical is that an entity has published an
23 entire system, an entire software system. That
24 system can do various things such as process
25 documents, but it does not, the system does not

1 require any ability to track the parameter of
2 last accessed date.

3 Do you follow me so far?

4 A. So you are building a hypothetical
5 system that doesn't have the ability to track
6 last accessed date? Is that your hypothetical?

7 Q. It doesn't require it.

8 A. You said --

9 Q. The system itself doesn't track it.
10 Got it?

11 A. Okay, the hypothetical system does not
12 track last access, got it, okay.

13 Q. But the system allows users to add
14 properties to their components. Do you follow
15 me?

16 A. So the system has the capability to
17 support the adding of properties.

18 Q. Just like the '430 specification.

19 A. The '430 is more than that but --

20 Q. And let's say that at least one user
21 wants to be able to track their document files
22 by the last date accessed and so they add a
23 property to those software components that
24 tracks the last date of access. Do you follow
25 me?

1 A. If your system is able to add those
2 properties, like in the '430, then, yes.

3 Q. And under your logic for properties,
4 that would be a property and non-intrinsic,
5 correct?

6 A. Under the --

7 Q. Parameter of last access?

8 A. Sorry. Under the '430 patent's
9 description of properties, if you had a system
10 of that structure within that locator system
11 and you are representing to me you are building
12 a similar system, if you build a similar system
13 that is able to add those properties, then,
14 sure, you can add those properties. But it has
15 got to have the same functionality as the '430
16 patent system, which is what I believe you are
17 representing to me is your hypothetical.

18 Q. So under the hypothetical those would
19 be non-intrinsic properties of the component,
20 right?

21 A. Under the hypothetical as I just
22 clarified, yes.

23 Q. Now, let's assume that, go forward in
24 time and the developer of this software system
25 says I want -- people -- this is a popular

1 added parameter that people are using, I want
2 to make it a system requirement for version
3 2.0.

4 And they issue version 2.0 of the
5 system that automatically, every time a
6 component, software component is accessed, it
7 adds a parameter of the date and time when it
8 was last accessed.

9 Do you follow me?

10 A. So you are still within this
11 hypothetical system?

12 Q. Correct.

13 A. That's right.

14 Q. Version 2.0 though.

15 A. All right, sure. New version, okay.

16 Q. Under your logic, all of a sudden this
17 parameter becomes a non-property as you
18 construe the '430 patent?

19 A. Because the -- I'm sorry.

20 Q. Correct?

21 A. Because those properties in the '430
22 are tagged on to the inherent things, yes.

23 Q. So isn't it true that when you are
24 parsing what is a property or not a property,
25 it is all system dependent?

1 A. Well, I think we already went over
2 this. The properties as we discussed in the
3 context of the '430 patent's locator system is
4 not the random use of the word property, so I
5 think we already went over this in great
6 length, that it is part of the '430 patent's
7 system.

8 Q. Is this concept of inherency system
9 dependent or not, sir?

10 A. Different systems would have different
11 things that are inherent, yes, as long as they
12 are not attached, things that are not attached
13 in a dynamic way like in the '430 patent would
14 be inherent.

15 Q. So we can take any given property,
16 whether it is accessed seven days ago, whether
17 it is an alphabetic name, whether it is
18 virtually anything you can think of, you can
19 design a system that required it but you could
20 also design a system that didn't require it,
21 and under your logic, whether it becomes a
22 property or not is merely a desire constraint
23 of the system? Isn't that true?

24 A. Well, I think you can design all kinds
25 of systems. And you can do all kinds of

1 system, sure, you could do that.

2 Q. So sometimes names are properties?

3 A. A name could be a property if I added
4 -- so say, for example, in the '430 patent, I
5 may say printer names and I may add that as a
6 property. That doesn't make it not a property.

7 Q. And the same logic applies to the
8 parameter of the last accessed date, correct?

9 A. If the system follows all the things
10 that the '430 patent does, and makes that a
11 property, as opposed to it being inherent to
12 the components of that system, then sure.

13 Q. And then, again, if properties is not
14 limited to non-intrinsic properties, but
15 includes both intrinsic and non-intrinsic
16 properties, there is no dispute that UNIX Find
17 discloses it?

18 A. If you use the construction that
19 properties includes everything, then UNIX Find
20 would be finding by properties, yes, in that
21 construct of properties. That's not the
22 correct construction of properties as used in
23 the '430 patent as I see it.

24 Q. Thank you, Doctor.

25 MR. VERHOEVEN: Your Honor, I pass the

1 witness. I forgot, we have the '828, Mr.
2 Nelson is going to go do that. I don't think
3 it will be very long, though.

4 MR. NELSON: Not too long.

5 JUDGE ESSEX: I think we will take a
6 break before we see Mr. Nelson. We have run
7 pretty long and I think it is time for our
8 afternoon recess. We will be back at quarter
9 till. We're in recess.

10 (A recess was taken at 3:28 p.m.,
11 after which the trial resumed at 3:45 p.m.)

12 JUDGE ESSEX: Are we ready?

13 MR. NELSON: I am, Your Honor.

14 JUDGE ESSEX: Proceed, Mr. Nelson.

15 MR. NELSON: All right.

16 BY MR. NELSON:

17 Q. Ryan, can we put up RX-1339, please.
18 I just have a few questions for you about the
19 '828.

20 A. Okay.

21 Q. So RX-1339 here, the Bisset patent,
22 5,825,352, you are familiar with this patent,
23 correct?

24 A. Yes, I am.

25 Q. And, in fact, the Bisset patent,

1 RX-1339, was used by the examiner to reject the
2 majority of the pending claims, including all
3 the independent claims during the prosecution
4 of the '828 patent, correct?

5 A. Initially, yes.

6 Q. In fact, if we go to JX-6, page 1407,
7 Ryan, do you see here if we highlight the part
8 in the middle there, a little bit farther under
9 claim rejections, 35 U.S.C Section 102, yes,
10 exactly.

11 So you know what a rejection under 35
12 USC Section 102 is, don't you?

13 A. As being anticipated by?

14 Q. The reference anticipates. In other
15 words, shows all the elements of the pending
16 claim, correct?

17 A. Of those claims that are being
18 rejected, yes.

19 Q. Right. And so the claims that were
20 being rejected at that time were 1 through 3, 6
21 to 8, 23 to 29, 31, and 32, correct?

22 A. That's correct.

23 Q. Okay. So that includes the claims
24 that are asserted here in this action, correct?

25 A. I believe so, yes.

1 Q. Okay. So then in response, if we go
2 to JX-6, 1456, and let's just blow up claim 1
3 there.

4 So you understand that, in response to
5 the rejection that the examiner made under
6 Bisset, the applicant came back and amended the
7 pending claims, correct?

8 A. That is correct.

9 Q. And the only amendment that was made
10 was to add the term mathematically to the last
11 element, correct?

12 A. That was the only addition that was
13 made, although I believe the applicant
14 disagreed with the reasoning given by the
15 patent examiner as to why they needed to make
16 it, but they made it anyway to get it in.

17 Q. Understood. But prior to that, the
18 claims said fitting an ellipse to at least one
19 of the pixel groups, correct?

20 A. That is correct.

21 Q. And afterwards, it was amended to say
22 mathematically fitting an ellipse to at least
23 one of the pixel groups, correct?

24 A. That's correct.

25 Q. And, similarly, if we look at claim

1 10, claim 10 was amended in exactly the same
2 way, correct?

3 A. In that they added the terminology
4 mathematical, yes.

5 Q. Right. And you understand that claim
6 24, the other asserted independent claim, is a
7 means-plus-function claim, correct?

8 A. That is correct, yes.

9 Q. And for that the applicant
10 specifically pointed back to the specification,
11 you understand that?

12 A. For the means, yes.

13 Q. Yes. So now if we look at JX-6, 1468
14 and 69, we see the applicant's response. I am
15 not going to read all this. We have looked at
16 this a few times.

17 But let me see if this is a fair
18 characterization. Is it your understanding,
19 Doctor, that when the applicants came back and
20 amended the claims to add the term
21 mathematically, that the applicant's sole basis
22 for distinguishing the Bisset patent was that
23 Bisset did not show the element of
24 mathematically fitting an ellipse to one or
25 more pixel groups?

1 A. So my understanding of this is that
2 the applicant is basically saying that their
3 understanding of what the office action -- the
4 Patent Office's interpretation, is merely
5 obtaining measured data is the same as fitting
6 an ellipse to the data. They disagree with
7 that, and, therefore, added the word
8 mathematically fitting.

9 Q. Right. And the applicant said that
10 Bisset does not show mathematically fitting an
11 ellipse to one or more pixel groups, correct?

12 A. Yeah, Bisset doesn't do any kind of
13 fitting at all of ellipses.

14 Q. Okay. The applicant didn't say Bisset
15 doesn't show segmenting, correct?

16 A. That was not in this section of the --
17 of the rejection, or the response, I mean,
18 sorry.

19 Q. Right. It didn't say that in the
20 response at all, in response to the rejection
21 to the Bisset, correct?

22 A. In the pieces I have read, I have not
23 encountered that. It may be there somewhere
24 but from what I have seen, I have not asserted
25 that.

1 Q. You haven't seen that? You haven't
2 seen that anywhere if we peruse the file
3 history, I mean, the record will show it and I
4 am not going to go through the file history in
5 detail, but if I represent to you that there
6 were no other bases that the applicant used to
7 distinguish the Bisset patent, you wouldn't
8 have any quibble with that, correct?

9 A. That's fair.

10 Q. Okay. Now, let's look --

11 A. I'm sorry, in context of the file
12 history.

13 Q. Yes, in the file history. I am just
14 talking about what the applicant did. Now,
15 let's look at RX-351.

16 Now, RX-351 is a thesis, and I will
17 just say the last name, you can help me with
18 the others if you want, but Desai, Mr. Desai,
19 correct?

20 A. Close enough.

21 Q. How should I say it?

22 A. We will go with that.

23 Q. No, go ahead.

24 A. It is Desai. Let's go with Desai as
25 you said. That's fine.

1 Q. I appreciate that. The title of this
2 is: Interpretation of tactile data from an FSR
3 pressure pad transducer using image processing
4 techniques, correct?

5 A. Of course.

6 Q. And this is dated November 1994,
7 correct?

8 A. That is correct, yes.

9 Q. And you have reviewed the Desai
10 reference in connection with your opinions in
11 this case, correct?

12 A. Yes.

13 Q. Okay. And the Desai reference, at
14 least generally, talks about processing
15 techniques for pixel image data obtained from a
16 touch sensor, correct?

17 A. I am not sure I would call it a touch
18 sensor. It is a pressure pad sensor. It is a
19 pressure sensor.

20 Q. Right. A pressure sensor meaning
21 things can come into contact with it and it can
22 sense that pressure, correct?

23 A. Things could come into contact with
24 it, right, like disks and things like that that
25 they describe in the thesis, yes.

1 Q. They describe objects, but the same
2 thing would work for fingers, correct?

3 A. If you want to call a finger an
4 object, and you are not interested in tracking
5 it over time and doing anything more
6 sophisticated than just seeing it touching this
7 transducer, sure.

8 Q. But at least in general then a portion
9 of the Desai thesis talks about taking that
10 image data that you collect from the sensor and
11 then processing it in some means to get
12 information from it, correct?

13 A. It takes that pressure data that comes
14 out of the sensor and processing it, yes.

15 Q. And if we look at page 71 of the Desai
16 thesis, and just for the record that's RX-351,
17 you will agree with me that one of the things
18 that the Desai thesis shows is fitting an
19 ellipse to the image data, correct?

20 A. That is correct. What page are we
21 talking about here?

22 Q. I am talking about 71 first.

23 A. You have got 79 up there.

24 Q. No, no, 71 of the thesis. You are
25 looking at --

1 A. Oh, I'm sorry, okay. That's the
2 confusion. Okay. Yep, okay, I have got it.
3 Sorry.

4 Q. And if we look at page 72, in
5 particular 4.22, and if we just blow that up,
6 Ryan, this is at least a pictorial example that
7 shows fitting a rectangle and also fitting an
8 ellipse to some image data, correct?

9 A. Sure.

10 Q. And, in fact, if we look at page 76
11 and 77, and let's just take 4.3.4, where it
12 starts there and blow that up and then go to
13 the next page, and just juxtapose that with
14 what's on 77, the whole thing on 77, just put
15 it on top of 77, and if we need to scroll
16 through, we can.

17 And one of the ways that the Desai
18 thesis here on page 76 and 77 talks about
19 fitting an ellipse to the image data is to use
20 a group covariance matrix, correct?

21 A. Just give me one second to
22 refamiliarize myself with this. Here they call
23 it the scatter matrix, which becomes the
24 covariance matrix, yes.

25 Q. So it is that same thing? In fact, if

1 we look at 4.4, right below 4.4, that sentence,
2 blow it up, it says "the matrix S can also be
3 referred to as the covariance matrix."

4 Correct?

5 A. That's right. That's what it says,
6 yes.

7 Q. That's the scatter matrix that you
8 were talking about?

9 A. That's right.

10 Q. Okay. So we're in agreement there.

11 And from this covariance matrix I do a
12 transform in order to determine the Eigenvalues
13 and the Eigenvectors, correct?

14 A. Sure.

15 Q. So what's shown here in the Desai
16 thesis on page 76 and 77 is essentially
17 identical to the ellipse fitting procedure that
18 we saw in column 26 of the '828 patent,
19 correct?

20 A. It is a similar process. I'm not sure
21 I would use the word identical. I would say
22 similar process.

23 Q. Very similar process, correct?

24 A. I think that's fair.

25 MR. NELSON: Thank you. I have no

1 further questions, Your Honor.

2 MS. KATTAN: I have no questions, Your
3 Honor.

4 REDIRECT EXAMINATION

5 BY MR. DAVIS:

6 Q. Your Honor, I would like to start with
7 the '430 patent.

8 So before we get into specific
9 differences between the prior art and the
10 claims of the '430 patent, could you generally
11 describe the framework approach to computer
12 programming discussed in the '430 patent so we
13 have a context for what the patent is talking
14 about?

15 A. Sure. Maybe it may be useful to bring
16 up the '430 patent on the screen, and
17 specifically the column 4 of the '430 patent
18 just as a reference.

19 So what -- you asked about framework
20 programming. And basically prior to the
21 framework programming, the old days, programs
22 running software running on computer systems
23 were linear. They basically went from the
24 start of the program and they executed line by
25 line until they reached the end of the program

1 with particular logic in that program.

2 And what that meant was the programmer
3 who built that had to know exactly all the
4 variables, all the things that it wanted to do,
5 and the kinds of things that that program was
6 going to process, okay, including appropriate
7 names and so forth.

8 The framework, this is quite a bit
9 different. The flow of control, remember I
10 said in the old way it is step by step linear
11 flow of control. And in a framework system or
12 object-oriented system, instead of writing the
13 flow of control in a sequential manner, you
14 basically describe these objects, the kinds of
15 things you wanted to deal with, the types of
16 data, and you built methods that would act on
17 that data.

18 And this is called object-oriented
19 programming. You had these objects, you had
20 the methods, but the actual flow of control,
21 i.e., the way it processed that code need not
22 have been completely linear.

23 And it was up to the framework, the
24 object-oriented framework within which these
25 objects and methods existed that would decide

1 what gets called when. And, in fact, the
2 programmer who wrote the objects in the first
3 place may not know what subsequent object or
4 what subsequent code or system may be accessing
5 that.

6 So that was left up to the framework
7 to deal with. And maybe just to highlight
8 this, I will ask to bring column 4 up. If you
9 want to highlight lines, let's say, 33 onwards
10 to the bottom of the column, please.

11 And here it talks about programming
12 with frameworks, actually starting at line 44.
13 It talks about a new way of programming. In
14 fact, it is not like programming at all in the
15 traditional sense. In old-style operating
16 systems, such as DOS or UNIX, the developer's
17 own program provides all of the structure. The
18 operating system provides services through
19 system calls. The developer's program makes
20 the calls when it needs the service and
21 control, i.e., the logic returns when the
22 service has been provided.

23 So this is that flow of control I was
24 talking about in the traditional way of doing
25 things. And if you go further on lines 55

1 onwards, it specifically discusses what happens
2 when frameworks are used where the flow of
3 control changes. The developer, i.e., the
4 programmer who wrote the code in the first
5 place is not responsible for determining the
6 sequence of the execution. It is really up to
7 the object to say, okay, I am being accessed,
8 what do I do with this right now, and it is up
9 to this framework to make that flow of control
10 happen.

11 Q. Okay. Do you see where it says
12 further down on column 4, approximately line
13 61, routines written by the developer are
14 activated by code the developer did not write
15 and the developer never even sees?

16 A. That's right.

17 Q. What does that refer to?

18 A. So that ties back to what I was saying
19 earlier. The programmer only writes these
20 objects and the methods for it. What other
21 code executes or calls those objects, the
22 developer may have no idea who does that.
23 That's really up to the framework to take care
24 of that.

25 Q. Okay. How does searching for

1 components based on properties fit into this,
2 if at all?

3 A. So the '430 patent talks about
4 searching for components. And it is within
5 this sort of object-oriented framework where
6 you have this framework that has these
7 component objects and methods that work on them
8 and so forth. And the logic is the same thing,
9 when a -- let me use an example, maybe.

10 Say, for example, in the old system,
11 if I wanted to connect a printer to my
12 computer, what I would have to do is know that
13 I have to load a particular printer driver. I
14 would typically load that by knowing the
15 driver's name, by asking for it, or loading it
16 from disk, and install that printer driver and
17 then I will have that printer working on my
18 system, if everything goes well. A lot of
19 times it doesn't.

20 If the printer happens to be on the
21 network, I have to ask my systems administrator
22 what is the name of that printer and how do I
23 access that. And you will get some cryptic,
24 you know, computer-like name that you would
25 type in and hopefully you will get your

1 printer.

2 In the object-oriented kind of system
3 that's described in the '430 patent, what you
4 would say is I am interested in printers -- I
5 want to print something and I want to print, a
6 color printer that handles PDF files and sends
7 that query out, and the system is able, because
8 of these properties that are attached at
9 different printers and so forth, is able to do
10 that matching. It may be a slightly imprecise
11 matching. It may find five different color
12 printers but only one or two that does PDF and
13 pulls out the one that is most appropriate or
14 the best match and makes that available to the
15 user who requested a color printer that prints
16 PDF files.

17 So the difference here is clearly the
18 user who is using this, asking to add a printer
19 in this example, doesn't have to know about the
20 printer's name or load a particular driver
21 manually in any fashion. It kind of all
22 happens automatically at a higher level of
23 abstraction from a user's perspective, in
24 particular.

25 Q. And how does the concept of adding

1 support for the hardware or software components
2 to the operating system play into this system?

3 A. So that plays in because the way this
4 '430 patent is talking about it is it has got
5 some data structures there that maintain what
6 components, whether it is hardware or software,
7 that it can allow access to by other elements,
8 like another user, another piece of software.

9 And basically maintains some data
10 structures that say, okay, these are the active
11 printers, these are the active folders that may
12 be there, and I am going to provide some data
13 to enable me to allow other applications, other
14 users, other software to access those software
15 or hardware components that have previously
16 been searched for and support added for in this
17 data structure.

18 And much like in the Android system
19 where, you know, it uses the activity stack and
20 the package manager to instantiate those, those
21 components.

22 Q. Can we turn actually now to column 3,
23 lines, say, 36 through 52 or so, if you can
24 bring those up on the screen.

25 Could you explain for us in a little

1 bit more detail what the framework approach is?

2 A. So here is an example of what a
3 particular framework approach might be. So,
4 for example, you might have these objects that
5 enable -- so let's use the example in line 50,
6 for example, user interface framework. So it
7 may provide framework for a programmer to say I
8 want to create a user interface, what the user
9 would see that has windows and scroll bars and
10 menus, but doesn't have to necessarily define
11 those things. It may say I want to use a
12 particular scroll bar and the system will be
13 able to come back with an appropriate object
14 and instantiate that scroll bar, and it could
15 choose from more than one, if more than one
16 exists.

17 Q. Okay. And do you see where it states,
18 "thus, a framework is a set of object classes
19 that collaborate to execute defined sets of
20 computing responsibilities?"

21 A. Yes.

22 Q. Can you explain what that means?

23 A. So this goes back to the overall
24 framework has these multiple objects and these
25 object classes, and the classes are basically

1 the definition of the objects instantiation of
2 a class. And the framework basically has a
3 bunch of these running and will enable that to
4 execute or basically decide what computation
5 will be done by which object, which is what is
6 meant by computing responsibilities. Rather
7 than the user saying I want this program to run
8 it, the framework takes care of figuring out
9 which program is going to -- which object is
10 going to run it.

11 Q. Okay. Are there any advantages to
12 this approach over the more traditional way of
13 programming?

14 A. Well, absolutely. The advantage here
15 is, first of all, the user or the requester
16 doesn't have to know what particular pieces of
17 code need to be loaded or run. That is left up
18 to the framework to figure that out.

19 It also allows the kinds of things you
20 see on modern phones, the iPhones and Android
21 devices where the user is suddenly given access
22 to all these different applications without
23 necessarily knowing about it a priori.

24 For example, I think in our opening
25 slides or in my tutorial maybe I used the

1 example of on a phone if I clicked on an e-mail
2 link and the system would come back and say you
3 have three different possible e-mail programs
4 that can run this, and you just have to choose
5 one of them. And the system was able to do
6 that on its own. The user did not have to load
7 those e-mail clients up front, did not have to
8 even know that they existed before making the
9 request or before clicking that e-mail link.

10 Q. Are there any particular challenges
11 using this approach to locating target hardware
12 or software?

13 A. The challenges, first of all, in the
14 early days was users had a complete different
15 mindset. They were used to procedural
16 programming. They had to do that flip to
17 understand how to do this, but more importantly
18 the overall framework, as talked about in the
19 '430 patent, which is a particular framework in
20 an operating system to provide access to these
21 different components to a user level system, to
22 a user level usage, the challenges would be to
23 make sure they all kind of worked properly
24 together and that every one of those elements
25 could be searched and searched with

1 appropriately descriptive criteria, that it
2 doesn't require obtuse language that the old
3 systems would require.

4 Say, for example, in the printer
5 example, I could search by saying I want a
6 color printer, rather than requiring, you know,
7 the HP 2225 printer, for example.

8 So it was those kinds of advantages
9 that it gave. And the challenges were to build
10 a system that actually enabled all of that to
11 happen.

12 Q. Okay. Let's turn now to the Malone
13 reference. And I would like to start off, if
14 we could pull up the background art on column 2
15 starting around line 53 or so, if I could pull
16 that to the bottom. And then the rest of that
17 section on the top of column 3 down to summary
18 of the invention. So if we could just blow up
19 those two parts.

20 So do you see in the background art it
21 states that, with increasing power of
22 microprocessors and of computers generally of
23 any given physical size, there has been a
24 widely recognized need for systems that would
25 permit users who lack sophisticated programming

1 skills to utilize this newly-available
2 computational power for a wide range of tasks.
3 Many different approaches have been taken in
4 order to try to satisfy this need.

5 What is the first approach that the
6 background of the Malone patent identifies?

7 A. The old style that I was talking
8 about, which is basically -- are you talking
9 about the first new approach, you mean?

10 Q. So they are talking about many
11 different approaches to satisfy the need. So
12 can you describe what is meant by one line of
13 approach has tried to obtain the ordinary and
14 often complicated user interface of a computer
15 system's operating system by providing an
16 operating environment within which a user
17 relates to the operating system without
18 directly using the operating system's commands?

19 A. Sure. This is, this is talking about
20 an application basically that would sit, like
21 the MacIntosh Finder, which is the example, it
22 is an application level software that would be
23 able to relate to the operating system without
24 necessarily programming at that low level of an
25 operating system. Unlike like a UNIX Find

1 where you had to sit there at the terminal and
2 do the defining, this MacIntosh Finder provided
3 a one-level higher abstraction to be able to
4 find files, for example.

5 Q. Do you see where it states on the top
6 of column 3, another approach is described in a
7 recent paper by Malone, and that paper there
8 introduced a concept of semi-structural
9 messages and rules for processing these
10 messages and a system called information lens?

11 A. That's correct.

12 Q. Can you explain what that talks about?

13 A. Yeah, this talks about this notion of
14 adding, say if you have like a MacIntosh
15 Finder, which simply just finds appropriate
16 files, if you give it a particular name or you
17 put files into a folder, what this is adding to
18 that is this notion of rules.

19 And the rules would be, for example,
20 find all files that, you know, have the date of
21 March 2nd, 2011. It would put that in and
22 these rules could run on their own.

23 And they call this an information lens
24 because the analogy to the physical world would
25 be like a lens, a piece of glass or something

1 that only showed particular things and not
2 others, as a bit of a filter, so to speak.

3 Q. Okay. And what does it state about --
4 can you explain the statement, "the approach of
5 operating environments is limited in that they
6 are dependent on specific applications programs
7 to provide access to databases having wide
8 ranges of applicability to users, and the
9 specific applications are not necessarily
10 integrated with the operating environment"?
11 What is that talking about?

12 A. So this is basically saying that these
13 kinds of operating environments don't have good
14 integration with other applications. So they
15 are basically talking about it gets data but it
16 doesn't necessarily talk with other
17 applications very well.

18 Q. Okay. And what does it identify --
19 what does it say about information lens?

20 A. It basically says although information
21 lens provides some valuable concepts, i.e.,
22 this notion of rules, it is limited to
23 facilitating e-mail communications and not
24 applicable to general databases.

25 Q. Okay. Can you -- first of all, let's

1 turn now to column 18. And do you remember
2 being asked questions about column 18, and the
3 system architecture there?

4 A. That's right.

5 Q. Okay. Let's pull up from, say, line
6 20 down to the end of the column, column 18.
7 First of all, what is object lens?

8 A. Object lens is defined in Malone as
9 simply a program. It is an object-oriented
10 event-driven program, as it states here.

11 Q. Is it an operating system?

12 A. Oh, absolutely not.

13 Q. Can you explain the difference between
14 object lens and a computer operating system?

15 A. Well, operating system is, one way of
16 describing it is the lowest level piece of
17 software that handles all the programs,
18 execution of programs, storage of data, and
19 networking and so forth that is typically on
20 most computer systems.

21 What object lens is, is simply an
22 event-driven application. It is just sitting
23 on top and it is running to provide the
24 functionality it provides, but it is not an
25 operating system.

1 Q. Okay. And do you see the -- I think
2 you were asked about what system referred to up
3 in line 22 or so, in addition to summarizing
4 the contents of semi-structured objects, the
5 system can use their structure to perform even
6 more powerful, automatic actions such as
7 searching and restructuring.

8 And in that sentence, what does the
9 word system refer to?

10 A. It is referring to the object lens
11 system.

12 Q. Why do you think that?

13 A. Because this whole portion, if you can
14 actually pull back, show me the other part, the
15 stuff before it, if you don't mind. Actually,
16 what page are we on?

17 Q. It is column 18. Why don't we just
18 throw up all of column 18.

19 A. Yes, it is talking about the system,
20 right? And all through here it is -- and if
21 you look at the previous column as well, it is
22 talking about the different steps of the object
23 lens system.

24 So this whole page, in fact, is
25 describing the object lens system. And, in

1 fact, the very next line to the one you
2 suggested, you pointed out, says the object
3 lens system. So that's the context that this
4 paragraph is within.

5 Q. Okay. And do you see, let's -- and is
6 the object lens system part of the computer
7 operating system?

8 A. No, I think we already went over that.
9 It is an event-driven program. It is not part
10 of the operating system, absolutely.

11 Q. Okay. And do you recall also being
12 asked about column 11, let's pull that up, the
13 first half of column 11.

14 Do you remember being asked about this
15 part of the specification, specifically let's
16 talk about the paragraph starting, in some
17 cases agents can take actions automatically on
18 behalf of their users.

19 First of all, what is meant by users?

20 A. Users would be, for example, human
21 user or it could be another folder or an
22 application.

23 Q. Okay. So would a user be an active
24 computer operating system?

25 A. No, that's not what it says here.

1 Q. So would actions being taken
2 automatically on behalf of users facilitate,
3 access of hardware or software components for a
4 computer operating system?

5 A. Not through the operating system, no.
6 Certainly not adding support for it.

7 Q. Okay. Generally speaking, what does
8 Malone, the '870 patent relate to?

9 A. The Malone patent is basically talking
10 about a particular system, an application-level
11 system, that is giving this rule-based
12 mechanism to do -- it provide users and other
13 applications with the ability to move things
14 between folders, for example.

15 So it basically gives a different view
16 of the data that it has access to. It is not
17 in any way adding support to an operating
18 system as contemplated in the '430 patent.

19 Q. Okay. Do you remember being asked by
20 Mr. Verhoeven whether the terms argument being
21 used in some of the figures related to the term
22 as it is used in specific computer programming
23 context?

24 A. Yes.

25 Q. Could you turn to figure 12 of the

1 patent?

2 A. Could you tell me which CX that is?

3 Q. Sure, sure, I'm sorry. So Malone is
4 RX-289. And let's go ahead and blow up both of
5 those figures.

6 Do you see in figure 12, in figure 12
7 where it states, there is a name, let's use C,
8 text, we should use C for implementation
9 because it provides a nice interface with the X
10 window system. Although your arguments in --
11 there is a box for text, let's use USP, are
12 valid in general, for us the interface is a
13 standard window -- with a standard window
14 system is crucial.

15 Looking through this and figure 13,
16 does this -- how does this relate, if at all,
17 to what's being described in figure 17? And if
18 we could bring up figure 17 side-by-side with
19 figures 12 and 13.

20 MR. VERHOEVEN: Your Honor, I just
21 object and note that none of these discussions
22 of these figures are anywhere in the witness
23 statement. There has been a very long redirect
24 about operating system that is also not in the
25 witness statement that I haven't objected to,

1 but I think at some point I have to draw the
2 line.

3 MR. DAVIS: Your Honor, if I might
4 respond?

5 JUDGE ESSEX: I don't think so. I
6 think you covered these in your
7 cross-examination. I think the matters were
8 raised in cross-examination. I think you
9 fairly did raise whether these went to an
10 operating system, were part of an operating
11 system, or involved in an operating system, I
12 recall very lengthy cross-examination on that,
13 and I think this is appropriate redirect for
14 those questions on cross.

15 Anything else you would like to add,
16 Mr. Davis?

17 MR. DAVIS: No, Your Honor.

18 JUDGE ESSEX: All right. Then
19 continue.

20 BY MR. DAVIS:

21 Q. So does what is being described in
22 figures 12 and 13 relate at all to figure 17?

23 A. Yes, it does.

24 Q. Can you describe how it does?

25 A. So basically figure 17, the way I am

1 seeing it, is basically talking about a type of
2 rule. And the rule is if a particular
3 argument, and the argument here is a descriptor
4 of the type of content that have positions and
5 so forth, then copy folder to new argument.

6 So this argument here in some ways is
7 similar to the lawyers' argument or a
8 discussion going on. If you go back to figure
9 12, you see here some example text where it
10 says, although your arguments in let's use
11 LISP, and essentially what happens here is if
12 you look at figure 13, you have got a
13 particular argument and the argument has filled
14 in with the description of good interface with
15 X and it fills in a bunch of other data.

16 And based on the different values in
17 this data, things get moved into a folder, I
18 guess, the new arguments folder in figure, that
19 is shown in figure 17.

20 Q. Okay. So could you quickly summarize
21 for us your opinion with regard to what
22 elements, for example, of claim 1 of the '430
23 patent are not disclosed by Malone and why you
24 think that?

25 A. So Malone, you know, my opinion it

1 discloses claims, sorry, claim 1, elements A to
2 C, but not element D, which is the adding
3 support to an operating system portion, because
4 this, as we have just gone over, this is a
5 programming event for a program.

6 It does not add support for the
7 hardware and software components that are
8 retrieved through the searching in elements A
9 to C to the operating system without rebooting
10 this operating system. So element D is not
11 met.

12 Q. Okay. And is there anything in Malone
13 that -- I'm sorry.

14 I withdraw the question. Let's turn
15 now to the UNIX reference. First of all, what
16 is UNIX?

17 A. UNIX is an operating system. It is an
18 old operating system. It has been around since
19 at least the early 1970s. It has been around
20 for a long time.

21 Q. How common was its use in the early
22 '90s?

23 A. It was very common. It was arguably
24 one of the predominant operating systems at
25 that time, before it was superseded by Windows

1 and Apple's MacIntosh.

2 Q. Could you describe the find command
3 for us?

4 A. The find command is one of the simple
5 commands in UNIX. UNIX, Your Honor, is a
6 command-based system. It traditionally at that
7 time did not have a graphical interface. That
8 was added subsequently.

9 So the way you interacted with UNIX is
10 you had a command with a command window so you
11 looked at a window and it had basically a
12 little arrow thing and you typed in commands.
13 And one command could be list all the files in
14 a directory and another command could be find
15 all files that match a particular criteria,
16 like file name equals, you know, has a
17 particular name or a file date equals 21st,
18 January, 1970, for example.

19 So it did that kind of matching. It
20 was a command-based thing. So you had to type
21 this in or run it in a script. It was not
22 something that was particularly user friendly.
23 You had to be in the know, so to speak. You
24 had to be a computer person generally to use
25 UNIX and use things like UNIX Find.

1 So that's really an old school way of
2 doing things and very, very direct. I knew I
3 needed to find a particular thing with a
4 particular piece of information on it, and it
5 would find that it didn't have the kind of
6 general ability to search for things, like in
7 the printer example I gave in the '430 example
8 where you may say I want printers that can
9 support color and PDF. It would not be able to
10 do anything of that nature.

11 Q. Would one of ordinary skill in the art
12 at the time of the filing of the application
13 that led to the '430 patent be familiar with
14 UNIX?

15 A. Oh, absolutely.

16 Q. Would somebody who is familiar with
17 UNIX be familiar with the find command?

18 A. Oh, absolutely. It is one of the few
19 basic commands in UNIX.

20 Q. Okay. And was UNIX disclosed in the
21 specification of the '430 patent?

22 A. Yes, it was.

23 Q. Okay. Do you know whether the
24 examiner is considered to be one of ordinary
25 skill in the art?

1 A. I'm sure he is, absolutely.

2 Q. And now did the examiner ever reject
3 the claims of the '430 patent during
4 prosecution?

5 A. He did, yes.

6 Q. Did he, did he object -- did he reject
7 them based on, based on the prior art?

8 A. No, he did not reject it based on the
9 prior art. He asked for better descriptions of
10 the claims, so that it would better match the
11 specification.

12 Q. Okay. And how many times did the
13 patentee have to amend the claims in order to
14 overcome the examiner's indefinite rejections?

15 A. He had to do it at least twice.

16 Q. Okay. And going back to the
17 underlying purpose that you described for
18 searching for components that met, based on
19 properties, could you use UNIX to serve that
20 purpose in a framework-based operating system?

21 A. UNIX in its --

22 Q. The find command.

23 A. The find command? Absolutely not.

24 Q. Why not?

25 A. Because it doesn't search by

1 properties. Like I have already discussed at
2 length, the search criteria in find is simply
3 these inherent characteristics of the
4 components that are already there. It doesn't
5 search for the properties that could be added
6 by the kind of locator system that the '430
7 patent talks about.

8 And, secondly, they just cannot -- it
9 does not enable adding support to the operating
10 system after it finds those files that it
11 looked for.

12 Q. Okay. Let's turn quickly to the '828
13 patent. So, first, I would like to turn to
14 Desai. Desai is RX-351.

15 A. Yes, I have got it.

16 Q. So could you please -- could you turn
17 to page, let me give you the page. It is page
18 117 of the --

19 A. Of the thesis?

20 Q. Of the thesis.

21 A. Yes, I am there.

22 Q. Now, was Desai designed to detect
23 multiple objects?

24 MR. NELSON: Objection, Your Honor.
25 This is beyond the scope of my

1 cross-examination. My cross-examination was
2 intentionally very limited in scope.

3 I did not address his opinions
4 concerning what was absent from Desai. That
5 was in his witness statement. It is not
6 counsel's opportunity to supplement his record.
7 That's what it is.

8 I addressed his agreement that there
9 was elliptical fitting in Desai, nothing about
10 his opinions concerning what was absent in
11 Desai. So this is beyond the scope of
12 cross-examination, Your Honor.

13 JUDGE ESSEX: I believe Mr. Nelson is
14 quite accurate on that. This is beyond the
15 scope of cross. Let's strike it.

16 MR. DAVIS: I will move on, Your
17 Honor. Just one moment, Your Honor.

18 JUDGE ESSEX: Absolutely.

19 BY MR. DAVIS:

20 Q. Do you recall being asked about the
21 Bisset reference?

22 A. Yes.

23 Q. Okay. And the response to the
24 examiner's rejection of the '828 -- of some of
25 the '828 claims based on the Bisset reference?

1 A. Yes.

2 Q. In responding to the examiner's
3 rejection, did the patentee rely on any
4 particular way of fitting an ellipse to
5 overcome the Bisset reference?

6 A. No.

7 Q. Did the patentee ever indicate that
8 the method disclosed in column 27 of the '828
9 patent was -- I'm sorry.

10 Did the patentee ever address whether
11 or not one could fit an ellipse using the
12 embodiment described in column 27 in response
13 to the office action by the examiner?

14 MR. NELSON: I am going to make the
15 same objection, Your Honor. I think we're
16 getting back into claim construction, which I
17 did not do as well.

18 MR. DAVIS: Your Honor, he asked the
19 grounds for the patentee's response to the
20 rejection. And I am just attempting to
21 establish the nature of that response.

22 JUDGE ESSEX: I am not really sure
23 what we're going for here.

24 MR. DAVIS: You know what, Your Honor,
25 I think I have it from the earlier question and

1 answer.

2 JUDGE ESSEX: All right.

3 MR. DAVIS: I will go ahead --

4 JUDGE ESSEX: Then I will strike it.

5 MR. DAVIS: I will go ahead and pass
6 the witness.

7 MS. KATTAN: I have no questions, Your
8 Honor.

9 MR. VERHOEVEN: Your Honor, I have
10 just three to five minutes.

11 RE-CROSS-EXAMINATION

12 BY MR. VERHOEVEN:

13 Q. Put up the '430 patent, column 4.

14 And, Ryan, approximately line 44 through the
15 end on column 4.

16 You were asked on redirect about this
17 paragraph. Do you remember that?

18 A. Yes.

19 Q. And you were directed to the top of
20 the paragraph, or maybe you weren't directed,
21 but somebody mentioned the top of the
22 paragraph, "programming with frameworks
23 requires a new way of thinking for developers
24 accustomed to other types of systems." Do you
25 see that?

1 A. Yes.

2 Q. And you pointed to that as, in your
3 redirect, as the frameworks is somehow the
4 invention here. Do you remember that?

5 MR. DAVIS: Object, mischaracterizes
6 his testimony.

7 MR. VERHOEVEN: I will withdraw it.

8 BY MR. VERHOEVEN:

9 Q. You remember talking about that,
10 right?

11 A. I talked about frameworks, yes.

12 Q. The next sentence says: "In fact, it
13 is not like programming at all in the
14 traditional sense." If we could highlight as
15 we're going along here. "In old-style
16 operating systems such as DOS or UNIX," and
17 then it goes on. Do you see that?

18 A. Yes.

19 Q. Now, DOS and UNIX are what are called
20 procedural software systems, right?

21 A. Old style. They were not
22 object-oriented, yes.

23 Q. They were not object-oriented. They
24 were procedural as opposed to object-oriented?

25 A. Back in the day, yes.

1 Q. And what this paragraph is really
2 talking about, sir, isn't it, is the difference
3 between the old-style procedural software
4 systems and object-oriented software systems?

5 A. With frameworks, yes.

6 Q. This discussion of frameworks is in
7 the context of object-oriented frameworks,
8 right?

9 A. That's correct.

10 Q. So if you see down here at line 59 --
11 I will grab my pointer, if we could highlight
12 that sentence, Ryan -- rather, the thinking
13 must be in terms of the responsibilities of the
14 objects, which must rely on the framework to
15 determine when the tasks should execute.

16 So this paragraph is saying in the old
17 style you didn't use object-oriented
18 programming. Now with this framework
19 technology, we're using object-oriented
20 programming, right?

21 A. Within frameworks, yes.

22 Q. And then it continues down here,
23 "routines written by the developer are
24 activated by code the developer did not write
25 and that the developer never even sees." Do

1 you see that?

2 A. Yes.

3 Q. That's a discussion of how
4 object-oriented programming works, right?

5 A. That's correct. Absolutely.

6 Q. Okay. Now, Malone is object-oriented,
7 right?

8 A. It is an object-oriented system, yes.

9 Q. Right.

10 A. Application.

11 Q. It is the same thing as what this is
12 talking about, object-oriented programming,
13 correct?

14 A. It is created in the same type of
15 object-oriented setup, yes.

16 Q. Now, you were asked about this
17 framework, locator framework. Can we go to
18 claim 1, please.

19 Where in claim 1 is there a limitation
20 of a locator framework?

21 A. Claim 1 is talking about what the
22 patent is all about, so the whole patent has
23 this locator framework.

24 Q. Where is there a limitation here that
25 uses the phrase locator framework?

1 A. It doesn't use that phrase in the
2 claim.

3 Q. It doesn't. It uses different words
4 to describe the scope of the invention, right?

5 A. Well, the scope of the invention is
6 within the context of this overall locator
7 framework that the '430 patent is talking
8 about.

9 Q. Now, in redirect I thought that you
10 were asked about adding support and what that
11 functionality is here. And I took some notes,
12 correct me if I am wrong, I thought you said
13 adding support was allowing other applications
14 access to the software components.

15 A. That's right, once the operating
16 system has that support in, yes.

17 Q. And the Malone system allows other
18 applications access to software components,
19 doesn't it, sir?

20 A. But not through the operating system.

21 Q. Setting aside your dispute with me
22 about whether there is an operating system
23 included in the object lens system, set that
24 aside for me, will you?

25 A. Sure.

1 Q. Will you admit for me that setting
2 that aside, at least, that the Malone system
3 allows other applications to access software
4 components?

5 A. The Malone system, if in your
6 hypothetical, that it is running -- it is not
7 even in the operating system, as I am
8 contending, then, yes, it allows other
9 applications to access files in the file
10 folder, sure.

11 Q. Now, can we go to the Malone patent,
12 please, Ryan, '870. This is RX-289. And if we
13 can go to column 3. Actually, can we go to
14 column 2 first and can you pull out on column 2
15 the bottom paragraph, just the bottom one.
16 That's fine. You can do it for background art.
17 That's good, too.

18 Then underneath that put column 3, the
19 two initial -- or go to column 3 and I will
20 tell you what to do. Can you pull all the way
21 down to the paragraph after summary of the
22 invention, and can we put that all on the same
23 screen? Or maybe not. That's fine, Ryan.

24 So you were shown this on redirect,
25 this paragraph, one line of approach has tried

1 to tame the ordinary and often complicated user
2 interface of a computer system's operating
3 system by providing an operating environment
4 within which the user relates to the operating
5 system without directly using the operating
6 system's commands? Do you remember that?

7 A. Yes, I do.

8 Q. And then it says, "the MacIntosh
9 Finder is an example of this approach." Do you
10 remember that?

11 A. Yes.

12 Q. And you said this is an
13 application-based approach?

14 A. That's right.

15 Q. Okay. And then if you go down here,
16 though, it talks about another approach and it
17 says, "the approach of operating environments
18 is limited in that they are dependent on
19 specific applications programs to provide
20 access to databases having wide ranges of
21 applicability to users" -- and this is the
22 clause I would like to focus on -- "and the
23 specific applications are not necessarily
24 integrated with the operating environment." Do
25 you see that?

1 A. That's right.

2 Q. Operating environment is the operating
3 system?

4 A. No.

5 Q. It says operating environment, sir?

6 A. That's right. If you look back at the
7 previous paragraph that you have highlighted on
8 the left-hand side, it says, user interface of
9 a computer system's operating system by
10 providing an operating environment. So that
11 clearly distinguishes between the operating
12 system and the operating environment.

13 Q. Sir, this is one line of approach.
14 And this is discussing another approach. Do
15 you see that?

16 A. I'm sorry, I am talking over you.

17 Q. I'm sorry.

18 A. That's right, but it is talking about
19 the same kind of operating environment. It
20 says the approach of operating environments, in
21 your yellow highlighted section, it relates
22 back, I believe, to the same language used just
23 a paragraph before. And that's what it is
24 saying. It is not the same as the operating
25 system. And, in fact, it very clearly

1 distinguishes from the operating system in the
2 previous paragraph.

3 Q. Isn't it true this paragraph is saying
4 that the prior art approach had a problem in
5 that it wasn't integrated with the operating
6 environment and, sir, isn't it true that the
7 whole purpose of this invention is achieving
8 that integration with the operating
9 environment?

10 A. With the operating environment, but
11 that's distinct from the operating system as
12 shown in the paragraph on the left-hand side,
13 which comes from column 2 at the bottom.

14 Q. Now, you say that the Malone reference
15 is limited to application level systems. Where
16 does it say that in this patent? Can you show
17 His Honor?

18 A. Because it says right here, the
19 operating environment, for example, and it
20 talks about applications integrated with the
21 operating environment, and it clearly, as an
22 example, distinguish that, as I just said
23 before, the operating environment, which a user
24 then uses to relate to the operating system, is
25 clearly different from the operating system.

1 Q. So it is disclosed in the problems of
2 the prior art section?

3 A. Basically that's the language that it
4 talks about. And nowhere in the patent does it
5 say this is an operating system or replacement
6 or an integration to the operating system.

7 Q. Where in the patent, sir, does -- in
8 the description of the invention, where in the
9 preferred embodiment of this patent does it say
10 that this solution is limited to application
11 level systems?

12 A. It doesn't say that in those words but
13 it does not say it is an operating system
14 solution on it.

15 Q. It says it is a system.

16 A. It says it is a system, yes.

17 Q. It is a stand-alone system?

18 A. It is a stand-alone system, that it
19 would run on top of an operating system.

20 Q. It doesn't say it runs on top of an
21 operating system, does it, sir?

22 A. It doesn't use those words per se but
23 my reading of this patent and one skilled in
24 the art reading this patent would make that
25 understanding, yes.

1 Q. It just says it is a system?

2 A. That's what it says, yes.

3 Q. Thank you.

4 MR. VERHOEVEN: Your Honor, at this
5 point I don't have any further questions.

6 JUDGE ESSEX: Mr. Nelson, did you have
7 any further questions?

8 MR. NELSON: No, nothing from me, Your
9 Honor.

10 JUDGE ESSEX: Staff?

11 MS. KATTAN: No, Your Honor.

12 MR. DAVIS: Nothing, Your Honor.

13 JUDGE ESSEX: All right. And I assume
14 that you are resting your rebuttal case?

15 MR. DAVIS: Yes, Your Honor, with the
16 exception that we need to deal with the
17 exhibits.

18 JUDGE ESSEX: There is always
19 paperwork to finish. All right. Before I
20 close usually, and in this case I am
21 particularly happy to first thank the court
22 reporter and support staff.

23 Oh, pardon me. You are dismissed and
24 thank you very much.

25 THE WITNESS: Thank you, Your Honor.

1 JUDGE ESSEX: Or you can sit there if
2 you want to while I thank the attorneys. But I
3 am always impressed with the bar that's in
4 front of me and particularly the cooperation.
5 And the attorneys in this case have been no
6 exception to that.

7 You have been outstanding and it is a
8 great pleasure to preside over people such as
9 yourselves, and you have my thanks in this case
10 and we are adjourned.

11 (Whereupon, the below list of exhibits
12 were provided to the court reporter for receipt
13 into evidence:)

14 (Joint Exhibit Numbers JX-463C,
15 JX-479C, JX-533C were received into evidence.)

16 (Joint Exhibit Numbers JX-700C,
17 JX-437, JX-489, JX-525C, JX-527C, JX-532C,
18 JX-542C, JX-543C were received into evidence.)

19 (Respondent Exhibit Number RX-165C was
20 received into evidence.)

21 (Joint Exhibit Numbers JX-701C,
22 JX-525C, JX-540C, JX-543C, JX-544C were was
23 received into evidence.)

24 (Respondent Exhibit Number RX-111C was
25 received into evidence.)

1 (Joint Exhibit Number JX-705C was
2 received into evidence.)

3 (Respondent Exhibit Numbers RX-151C,
4 RX-934, RX-935 were received into evidence.)

5 (Joint Exhibit Numbers JX-702C, JX-001
6 were received into evidence.)

7 (Respondent Exhibit Numbers RX-185C,
8 RX-867 were received into evidence.)

9 (Joint Exhibit Numbers JX-706C,
10 JX-002, JX-005, JX-480C, JX-689C were received
11 into evidence.)

12 (Respondent Exhibit Numbers RX-26C,
13 RX-181C, RX-184C were received into evidence.)

14 (Joint Exhibit Numbers JX-466C,
15 JX-005, JX-006 were received into evidence.)

16 (Respondent Exhibit Numbers RX-1360
17 through RX-1364, RX-1365C, RX-1366, RX-1367C,
18 RX-1368C, RX-1374C were received into
19 evidence.)

20 (Joint Exhibit Numbers JX-467C,
21 JX-001, JX-002, JX-003, JX-005 were received
22 into evidence.)

23 (Respondent Exhibit Number RX-329 was
24 received into evidence.)

25 //

1 (Joint Exhibit Number JX-468C was
2 received into evidence.)

3 (Respondent Exhibit Numbers RX-9C,
4 RX-10C, RX-11C, RX-34C, RX-36C were received
5 into evidence.)

6 (Joint Exhibit Numbers JX-469C,
7 JX-001, JX-004 were received into evidence.)

8 (Respondent Exhibit Numbers RX-156,
9 RX-299, RX-850, RX-922 were received into
10 evidence.)

11 (Joint Exhibit Numbers JX-707C,
12 JX-002, JX-003, JX-367 were received into
13 evidence.)

14 (Respondent Exhibit Numbers RX-158C,
15 RPX-31 were received into evidence.)

16 (Joint Exhibit Numbers JX-471C,
17 JX-001, JX-002, JX-003, JX-007, JX-437, JX-489,
18 JX-524C through JX-527C, JX-532C, JX-540C
19 through JX-543C, JX-545C, JX-546C were received
20 into evidence.)

21 (Respondent Exhibit Numbers RX-142C,
22 RX-861 were received into evidence.)

23 (Joint Exhibit Numbers JX-472C, JX-196
24 were received into evidence.)

25 //

1 (Respondent Exhibit Numbers RX-13C,
2 RX-53, RX-68, RX-144C, RX-154C, RX-1860C,
3 RX-1861C, RX-1862C were received into
4 evidence.)

5 (Joint Exhibit Numbers JX-612C,
6 JX-644C, JX-675C were received into evidence.)

7 (Respondent Exhibit Number RX-1869C
8 was received into evidence.)

9 (Joint Exhibit Numbers JX-001, JX-004
10 were received into evidence.)

11 (Respondent Exhibit Numbers RX-1874C,
12 RDX-08, RX-0289, RX-0601, RX-0735, RX-0882,
13 RX-0884, RX-0922, RX-0994C, RX-1212C, RX-1217C,
14 RX-1796, RX-1874C were received into evidence.)

15 (Joint Exhibit Numbers JX-001,
16 JX-458C, JX-459C, JX-487 were received into
17 evidence.)

18 (Respondent Exhibit Numbers RX-1894C,
19 RDX-13.1-RDX-13.6, RX-882, RX-884, RX-1159,
20 RX-1165, RX-1166, RX-1170, RX-1208, RX-1240,
21 RX-1257, RX-1258, RX-1261, RX-1263 through
22 RX-1282, RX-1284, RX-1285, RX-1893, RX-1894C
23 were received into evidence.)

24 (Complainant Exhibit Number CX-227C,
25 CX-473 were received into evidence.)

1 (Respondent Exhibit Numbers RX-1876C,
2 RX-0904, RX-0906, RX-0914 through RX-0916,
3 RX-1073, RX-1081, RX-1093, RX-1102 through
4 RX-1104, RX-1106, RX-1109, RX-1114C, RX-1117C,
5 RX-1203, RX-1206, RX-1290C, RX-1876C, RX-1897C,
6 were received into evidence.)

7 (Joint Exhibit Numbers JX-458C,
8 JX-655C, JX-656C, JX-659C through JX-663C,
9 JX-681C through JX-685C were received into
10 evidence.)

11 (Respondent Exhibit Number RX-1877C,
12 RX-0826C, RX-1376C, RX-1424C, RX-1877C were
13 received into evidence.)

14 (Complainant Exhibit Number CX-113 was
15 received into evidence.)

16 (Respondent Exhibit Numbers RX-1878C,
17 RX-1879C, RX-1424C, RX-1879C were received into
18 evidence.)

19 (Joint Exhibit Numbers JX-655C,
20 JX-656C, JX-659C through JX-662C, JX-681C
21 through JX-685C were received into evidence.)

22 (Respondent Exhibit Numbers RX-1424C,
23 RX-1879C were received into evidence.)

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1 (Joint Exhibit Numbers JX-002, JX-003,
2 JX-005, JX-006, JX-055, JX-196, JX-367, JX-458C,
3 JX-460C, JX-486C, JX-488C, JX-534C, JX-535C, JX-603C,
4 JX-606C, JX-610C, JX-612C, JX-614C, JX-616C, JX-618C,
5 JX-620C, JX-622C, JX-624C, JX-626C, JX-630C, JX-632C,
6 JX-634C, JX-636C, JX-638C, JX-640C, JX-642C, JX-644C,
7 JX-652C, JX-655C, JX-659C, JX-660C, JX-661C, JX-671C,
8 JX-673C, JX-675C, JX-680C, JX-681C, JX-684C, JX-685C
9 were received into evidence.)

10 (Respondent Exhibit Numbers RX-1895C,
11 RDX-11.1-11.36C, RX-28C, RX-329, RX-334,
12 RX-557, RX-704C, RX-708, RX-709, RX-710,
13 RX-717, RX-880, RX-927, RX-1049, RX-1895C were
14 received into evidence.)

15 (Joint Exhibit Numbers JX-002, JX-003,
16 JX-005, JX-006, JX-124, JX-132, JX-142, JX-143,
17 JX-147, JX-196, JX-220, JX-245, JX-289, JX-291,
18 JX-347, JX-353, JX-367, JX-401, JX-404 through
19 JX-406, JX-410, JX-419, JX-482C, JX-483C,
20 JX-686, JX-687, JX-690C were received into
21 evidence.)

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1 (Respondent Exhibit Numbers RX-1885C,
2 RDX-9, RX-8, RX-73, RX-279, RX-303, RX-305,
3 RX-329, RX-334, RX-342, RX-350, RX-351, RX-512,
4 RX-558, RX-565, RX-567, RX-625, RX-696, RX-703,
5 RX-705, RX-706, RX-708, RX-709, RX-713, RX-715,
6 RX-717 through RX-721, RX-817 through RX-821,
7 RX-829, RX-830, RX-845, RX-876, RX-877C,
8 RX-878, RX-918, RX-1236, RX-1339, RX-1834,
9 RX-1837, RX-1885C, RX-1888, RX-1887C, RX-0812C,
10 RX-0815C, RX-0994C, RX-1237C, RX-1887C,
11 RX-1796, RDX-15.01-RDX-15.03,
12 RDX-15.05-RDX-15.08, RDX-15.10-RDX-15.18,
13 RDX-15.20, RDX-15.22, RDX-15.25-RDX-15.29,
14 RDX-15.31-RDX-15.61, RDX-15.68-RDX-15.74,
15 RDX-15.81-RDX-15.82, RDX-16.01-RDX-16.03,
16 RDX-16.09-RDX-16.11, RDX-16.22-RDX-16.23,
17 RDX-16.25, RDX-16.29-RDX-16.31, RDX-16.34,
18 RDX-16.37 were received into evidence.)

19 (Joint Exhibit Numbers JX-448C,
20 JX-651C, JX-657C were received into evidence.)

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1 (Respondent Exhibit Numbers
2 RDX-20.02-RDX-20.11, RDX-20.15-RDX-20.20,
3 RDX-20.30-RDX-20.43, RDX-20.43A,
4 RDX-20.46-RDX-20.47, RDX-20.49-RDX-20.53,
5 RDX-20.56-RDX-20.61, RDX-20.63-RDX-20.71,
6 RDX-20.79-RDX-20.80, RDX-20.82-RDX-20.84,
7 RDX-20.86, RDX-20.88-RDX-20.90,
8 RDX-20.96-RDX-20.97, RDX-20.99-RDX-20.100,
9 RDX-20.103-RDX-20.104, RDX-30, RX-1836 were
10 received into evidence.)

11 (Joint Exhibit Number JX-6, JX-367
12 was received into evidence.)

13 (Respondent Exhibit Number RX-26C,
14 RX-140C, RX-158C, RDX-17.003, RDX-17.004,
15 RDX-17.007, RDX-17.023, RDX-17.025, RDX-18.002,
16 RDX-18.003, RDX-18.004, RDX-18.010, RDX-18.011,
17 RDX-3.016, RDX-20, RDX-26, RDX-28 were received
18 into evidence.)

19 (Complainant Exhibit Numbers
20 CDX-3.001, CX-032C.001, CX-032C.038-.040,
21 CX-032C.075, CX-203C, CX-357, CX-366C, CX-368C,
22 CX-399, CX-403, CX-404, CX-408, CX-415, CX-416,
23 CX-419, CX-420, CX-425, CX-473C, CX-474C,
24 CX-574C, CX-575C were received into evidence.)

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1 (Joint Exhibit Numbers JX-8, JX-437C,
2 JX-478C, JX-479C, JX-491, JX-532C were received
3 into evidence.)

4 (Complainant Exhibit Numbers
5 CDX-008.001-017, CDX-008.025, CDX-008.026,
6 CDX-008.054-058, CDX-008.500-507,
7 CDX-008.509-510, CDX-008.513-516, CX-210,
8 CX-211, CX-212C, CX-213, CX-215, CX-216,
9 CX-384C, CX-391C, CX-550C, CX-568C were
10 received into evidence.)

11 (Joint Exhibit Numbers JX-001, JX-003,
12 JX-004, JX-006, JX-143, JX-196, JX-245, JX-291,
13 JX-464C, JX-469C, JX-472C, JX-491, JX-496C,
14 JX-686, JX-696, JX-702C, JX-705C, JX-15C,
15 JX-668C, JX-557C, JX-692C, JX-645C, JX-646C
16 were received into evidence.)

17 (Complainant Exhibit Numbers CX-576,
18 CX-577, CX-578, CX-579 were received into
19 evidence.)

20 (Joint Exhibit Numbers JX-17C,
21 JX-644C, JX-642C, JX-700C, JX-18C, JX-573C,
22 JX-626C, JX-652C, JX-644C, JX-642C, JX-658C,
23 JX-628C were received into evidence.)

24 (Complainant Exhibit Numbers CX-195,
25 CX-113 were received into evidence.)

1 (Joint Exhibit Numbers JX-701C,
2 JX-704C, JX-19C were received into evidence.)

3 (Complainant Exhibit Numbers CX-224C,
4 CX-226C, CX-227C, CX-228C, CX-229C, CX-230C,
5 CX-240C, CX-241C, CX-242C, CX-244, CX-247C were
6 received into evidence.)

7 (Joint Exhibit Numbers JX-20C,
8 JX-644C, JX-658C, JX-642C, JX-573C, JX-705C,
9 JX-464C, JX-692C were received into evidence.)

10 (Complainant Exhibit Number CDX-11.103
11 was received into evidence.)

12 (Respondent Exhibit Number RX-1869C
13 was received into evidence.)

14 (Joint Exhibit Number JX-702C,
15 JX-706C, JX-466C, JX-001, JX-004 were received
16 into evidence.)

17 (Complainant Exhibit Number CDX-1.032
18 was received into evidence.)

19 (Joint Exhibit Numbers JX-467C,
20 JX-22C, JX-468C, JX-469C, JX-23C, JX-573C,
21 JX-578C, JX-579C, JX-551C, JX-655C, JX-659C,
22 JX-660C, JX-661C, JX-460C, JX-656C, JX-659C
23 were received into evidence.)

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25 //

1 (Complainant Exhibit Numbers CX-051C,
2 CX-052C, CX-054C, CX-055C, CX-056C, CX-057C,
3 CX-061C, CX-067C, CX-073C were received into
4 evidence.)

5 (Joint Exhibit Numbers JX-024C,
6 JX-548C, JX-559C, JX-562C, JX-571C, JX-572C,
7 JX-582C, JX-707C were received into evidence.)

8 (Complainant Exhibit Numbers
9 CDX-9.001-024, CDX-9.026-054, CDX-9.075-083,
10 CDX-9.088-094, CDX-9.096-097, CDX-9.117-118,
11 CDX-30, CDX-31, CX-183C through CX-193C,
12 CX-202C, CX-205C, CX-213, CX-218, CX-240C,
13 CX-214C, CX-295C, CX-297C through CX-299C,
14 CX-306C, CX-512C through CX-517C, CX-522C,
15 CX-536C through CX-543C, CX-553, CX-554,
16 CX-560, CX-561, CX-569C, CX-086C, CX-404,
17 CX-415, CDX-11.023, CDX-11.029, CX-181, CX-600
18 were received into evidence.)

19 (Joint Exhibit Numbers JX-2, JX-5,
20 JX-17C, JX-18C, JX-20C, JX-347, JX-367, JX-401,
21 JX-419, JX-480C, JX-482C, JX-483C, JX-491,
22 JX-528C, JX-530C, JX-690C, JX-461C, JX-462,
23 JX-539C were received into evidence.)

24 //

25 //

1 (Complainant Exhibit Numbers
2 CDX-17.001, CDX-18, CDX-20, CDX-22, CDX-23,
3 CDX-25, CDX-73C, CDX-553, CDX-554, CDX-601
4 through CDX-603 were received into evidence.)

5 (Joint Exhibit Numbers JX-002, JX-003,
6 JX-367, JX-406, JX-458C, JX-663C were received
7 into evidence.)

8 (Whereupon, at 4:45 p.m., the trial
9 concluded.)

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C O N T E N T S

WITNESS	DIRECT	CROSS	REDIRECT	RECROSS
VIVEK SUBRAMANIAN	1437	1438	1570	1608
RAVIN BALAKRISHNAN	1626	1627	1721	1749

AFTERNOON SESSION: 1570

E X H I B I T S

EXHIBIT NO:	MARKED	RECEIVED
COMPLAINANT		
CDX-30.....	1590	
CX-227C.....		1763
CX-473.....		1763
CX-113.....		1764
CDX-3.001.....		1767
CX-032C.001.....		1767
CX-032C.038-.040.....		1767
CX-032C.075.....		1767
CX-203C.....		1767
CX-357.....		1767
CX-366C.....		1767
CX-368C.....		1767
CX-399.....		1767
CX-403.....		1767
CX-404.....		1767

1	EXHIBIT NO:	MARKED	RECEIVED
2	COMPLAINANT		
3	CX-408.....		1767
4	CX-415.....		1767
5	CX-416.....		1767
6	CX-419.....		1767
7	CX-420.....		1767
8	CX-425.....		1767
9	CX-473C.....		1767
10	CX-474C.....		1767
11	CX-574C.....		1767
12	CX-575C.....		1767
13	CDX-008.001-017.....		1768
14	CDX-008.025.....		1768
15	CDX-008.026.....		1768
16	CDX-008.054-058.....		1768
17	CDX-008.500-507.....		1768
18	CDX-008.509-510.....		1768
19	CDX-008.513-516.....		1768
20	CX-210.....		1768
21	CX-211.....		1768
22	CX-212C.....		1768
23	CX-213.....		1768
24	CX-215.....		1768
25	CX-216.....		1768

1	EXHIBIT NO:	MARKED	RECEIVED
2	COMPLAINANT		
3	CX-384C.....		1768
4	CX-391C.....		1768
5	CX-550C.....		1768
6	CX-568C.....		1768
7	CX-576.....		1768
8	CX-577.....		1768
9	CX-578.....		1768
10	CX-579.....		1768
11	CX-195.....		1768
12	CX-113.....		1768
13	CX-224C.....		1769
14	CX-226C.....		1769
15	CX-227C.....		1769
16	CX-228C.....		1769
17	CX-229C.....		1769
18	CX-230C.....		1769
19	CX-240C.....		1769
20	CX-241C.....		1769
21	CX-242C.....		1769
22	CX-244.....		1769
23	CX-247C.....		1769
24	CDX-11.103.....		1769
25	CDX-1.032.....		1769

1	EXHIBIT NO:	MARKED	RECEIVED
2	COMPLAINANT		
3	CX-051C.....		1770
4	CX-052C.....		1770
5	CX-054C.....		1770
6	CX-055C.....		1770
7	CX-056C.....		1770
8	CX-057C.....		1770
9	CX-061C.....		1770
10	CX-067C.....		1770
11	CX-073C.....		1770
12	CDX-9.001-024.....		1770
13	CDX-9.026-054.....		1770
14	CDX-9.075-083.....		1770
15	CDX-9.088-094.....		1770
16	CDX-9.096-097.....		1770
17	CDX-9.117-118.....		1770
18	CDX-30.....		1770
19	CDX-31.....		1770
20	CX-183C through CX-193C.....		1770
21	CX-202C.....		1770
22	CX-205C.....		1770
23	CX-213.....		1770
24	CX-218.....		1770
25	CX-240C.....		1770

1	EXHIBIT NO:	MARKED	RECEIVED
2	COMPLAINANT		
3	CX-214C.....		1770
4	CX-295C.....		1770
5	CX-297C through CX-299C.....		1770
6	CX-306C.....		1770
7	CX-512C through CX-517C.....		1770
8	CX-522C.....		1770
9	CX-536C through CX-543C.....		1770
10	CX-553.....		1770
11	CX-554.....		1770
12	CX-560.....		1770
13	CX-561.....		1770
14	CX-569C.....		1770
15	CX-086C.....		1770
16	CX-404.....		1770
17	CX-415.....		1770
18	CDX-11.023.....		1770
19	CDX-11.029.....		1770
20	CX-181.....		1770
21	CX-600.....		1770
22	CDX-17.001.....		1771
23	CDX-18.....		1771
24	CDX-20.....		1771
25	CDX-22.....		1771

1	EXHIBIT NO:	MARKED	RECEIVED
2	COMPLAINANT		
3	CDX-23.....		1771
4	CDX-25.....		1771
5	CDX-73C.....		1771
6	CDX-553.....		1771
7	CDX-554.....		1771
8	CDX-601 through CDX-603.....		1771
9			
10	RESPONDENT		
11	RX-165C.....		1760
12	RX-111C.....		1760
13	RX-151C.....		1761
14	RX-934.....		1761
15	RX-935.....		1761
16	RX-185C.....		1761
17	RX-867.....		1761
18	RX-26C.....		1761
19	RX-181C.....		1761
20	RX-184C.....		1761
21	RX-1360 through RX-1364.....		1761
22	RX-1365C.....		1761
23	RX-1366.....		1761
24	RX-1367C.....		1761
25	RX-1368C.....		1761

1	EXHIBIT NO:	MARKED	RECEIVED
2	RESPONDENT		
3	RX-1374C.....		1761
4	RX-329.....		1761
5	RX-9C.....		1762
6	RX-10C.....		1762
7	RX-11C.....		1762
8	RX-34C.....		1762
9	RX-36C.....		1762
10	RX-156.....		1762
11	RX-299.....		1762
12	RX-850.....		1762
13	RX-922.....		1762
14	RX-158C.....		1762
15	RPX-31.....		1762
16	RX-142C.....		1762
17	RX-861.....		1762
18	RX-13C.....		1763
19	RX-53.....		1763
20	RX-68.....		1763
21	RX-144C.....		1763
22	RX-154C.....		1763
23	RX-1860C.....		1763
24	RX-1861C.....		1763
25	RX-1862C.....		1763

1	EXHIBIT NO:	MARKED	RECEIVED
2	RESPONDENT		
3	RX-1869C.....		1763
4	RX-1874C.....		1763
5	RDX-08.....		1763
6	RX-0289.....		1763
7	RX-0601.....		1763
8	RX-0735.....		1763
9	RX-0882.....		1763
10	RX-0884.....		1763
11	RX-0922.....		1763
12	RX-0994C.....		1763
13	RX-1212C.....		1763
14	RX-1217C.....		1763
15	RX-1796.....		1763
16	RX-1874C.....		1763
17	RX-1894C.....		1763
18	RDX-13.1-RDX-13.6.....		1763
19	RX-882.....		1763
20	RX-884.....		1763
21	RX-1159.....		1763
22	RX-1165.....		1763
23	RX-1166.....		1763
24	RX-1170.....		1763
25	RX-1208.....		1763

1	EXHIBIT NO:	MARKED	RECEIVED
2	RESPONDENT		
3	RX-1240.....		1763
4	RX-1257.....		1763
5	RX-1258.....		1763
6	RX-1261.....		1763
7	RX-1263 through RX-1282.....		1763
8	RX-1284.....		1763
9	RX-1285.....		1763
10	RX-1893.....		1763
11	RX-1894C.....		1763
12	RX-1876C.....		1764
13	RX-0904.....		1764
14	RX-0906.....		1764
15	RX-0914 through RX-0916.....		1764
16	RX-1073.....		1764
17	RX-1081.....		1764
18	RX-1093.....		1764
19	RX-1102 through RX-1104.....		1764
20	RX-1106.....		1764
21	RX-1109.....		1764
22	RX-1114C.....		1764
23	RX-1117C.....		1764
24	RX-1203.....		1764
25	RX-1206.....		1764

1	EXHIBIT NO:	MARKED	RECEIVED
2	RESPONDENT		
3	RX-1290C.....		1764
4	RX-1876C.....		1764
5	RX-1897C.....		1764
6	RX-1877C.....		1764
7	RX-0826C.....		1764
8	RX-1376C.....		1764
9	RX-1424C.....		1764
10	RX-1877C.....		1764
11	RX-1878C.....		1764
12	RX-1879C.....		1764
13	RX-1424C.....		1764
14	RX-1879C.....		1764
15	RX-1895C.....		1765
16	RDX-11.1-11.36C.....		1765
17	RX-28C.....		1765
18	RX-329.....		1765
19	RX-334.....		1765
20	RX-557.....		1765
21	RX-704C.....		1765
22	RX-708.....		1765
23	RX-709.....		1765
24	RX-710.....		1765
25	RX-717.....		1765

1	EXHIBIT NO:	MARKED	RECEIVED
2	RESPONDENT		
3	RX-880.....		1765
4	RX-927.....		1765
5	RX-1049.....		1765
6	RX-1895C.....		1765
7	RX-1885C.....		1766
8	RDX-9.....		1766
9	RX-8.....		1766
10	RX-73.....		1766
11	RX-279.....		1766
12	RX-303.....		1766
13	RX-305.....		1766
14	RX-329.....		1766
15	RX-334.....		1766
16	RX-342.....		1766
17	RX-350.....		1766
18	RX-351.....		1766
19	RX-512.....		1766
20	RX-558.....		1766
21	RX-565.....		1766
22	RX-567.....		1766
23	RX-625.....		1766
24	RX-696.....		1766
25	RX-703.....		1766

1	EXHIBIT NO:	MARKED	RECEIVED
2	RESPONDENT		
3	RX-705.....		1766
4	RX-706.....		1766
5	RX-708.....		1766
6	RX-709.....		1766
7	RX-713.....		1766
8	RX-715.....		1766
9	RX-717 through RX-721.....		1766
10	RX-817 through RX-821.....		1766
11	RX-829.....		1766
12	RX-830.....		1766
13	RX-845.....		1766
14	RX-876.....		1766
15	RX-877C.....		1766
16	RX-878.....		1766
17	RX-918.....		1766
18	RX-1236.....		1766
19	RX-1339.....		1766
20	RX-1834.....		1766
21	RX-1837.....		1766
22	RX-1885C.....		1766
23	RX-1888.....		1766
24	RX-1887C.....		1766
25	RX-0812C.....		1766

1	EXHIBIT NO:	MARKED	RECEIVED
2	RESPONDENT		
3	RX-0815C.....		1766
4	RX-0994C.....		1766
5	RX-1237C.....		1766
6	RX-1887C.....		1766
7	RX-1796.....		1766
8	RDX-15.01-RDX-15.03.....		1766
9	RDX-15.05-RDX-15.08.....		1766
10	RDX-15.10-RDX-15.18.....		1766
11	RDX-15.20.....		1766
12	RDX-15.22.....		1766
13	RDX-15.25-RDX-15.29.....		1766
14	RDX-15.31-RDX-15.61.....		1766
15	RDX-15.68-RDX-15.74.....		1766
16	RDX-15.81-RDX-15.82.....		1766
17	RDX-16.01-RDX-16.03.....		1766
18	RDX-16.09-RDX-16.11.....		1766
19	RDX-16.22-RDX-16.23.....		1766
20	RDX-16.25.....		1766
21	RDX-16.29-RDX-16.31.....		1766
22	RDX-16.34.....		1766
23	RDX-16.37.....		1766
24	RDX-20.02-RDX-20.11.....		1767
25	RDX-20.15-RDX-20.20.....		1767

1	EXHIBIT NO:	MARKED	RECEIVED
2	RESPONDENT		
3	RDX-20.30-RDX-20.43.....		1767
4	RDX-20.43A.....		1767
5	RDX-20.46-RDX-20.47.....		1767
6	RDX-20.49-RDX-20.53.....		1767
7	RDX-20.56-RDX-20.61.....		1767
8	RDX-20.63-RDX-20.71.....		1767
9	RDX-20.79-RDX-20.80.....		1767
10	RDX-20.82-RDX-20.84.....		1767
11	RDX-20.86.....		1767
12	RDX-20.88-RDX-20.90.....		1767
13	RDX-20.96-RDX-20.97.....		1767
14	RDX-20.99-RDX-20.100.....		1767
15	RDX-20.103-RDX-20.104.....		1767
16	RDX-30.....		1767
17	RX-1836.....		1767
18	RX-26C.....		1767
19	RX-140C.....		1767
20	RX-158C.....		1767
21	RDX-17.003.....		1767
22	RDX-17.004.....		1767
23	RDX-17.007.....		1767
24	RDX-17.023.....		1767
25	RDX-17.025.....		1767

	EXHIBIT NO:	MARKED	RECEIVED
1	EXHIBIT NO:	MARKED	RECEIVED
2	RESPONDENT		
3	RDX-18.002.....		1767
4	RDX-18.003.....		1767
5	RDX-18.004.....		1767
6	RDX-18.010.....		1767
7	RDX-18.011.....		1767
8	RDX-3.016.....		1767
9	RDX-20.....		1767
10	RDX-26.....		1767
11	RDX-28.....		1767
12	RX-1869C.....		1769
13	JOINT		
14	JX-463C.....		1760
15	JX-479C.....		1760
16	JX-533C.....		1760
17	JX-700C.....		1760
18	JX-437.....		1760
19	JX-489.....		1760
20	JX-525C.....		1760
21	JX-527C.....		1760
22	JX-532C.....		1760
23	JX-542C.....		1760
24	JX-543C.....		1760
25	JX-701C.....		1760

1	EXHIBIT NO:	MARKED	RECEIVED
2	JOINT		
3	JX-525C.....		1760
4	JX-540C.....		1760
5	JX-543C.....		1760
6	JX-544C.....		1760
7	JX-705C.....		1761
8	JX-702C.....		1761
9	JX-001.....		1761
10	JX-706C.....		1761
11	JX-002.....		1761
12	JX-005.....		1761
13	JX-480C.....		1761
14	JX-689C.....		1761
15	JX-466C.....		1761
16	JX-005.....		1761
17	JX-006.....		1761
18	JX-467C.....		1761
19	JX-001.....		1761
20	JX-002.....		1761
21	JX-003.....		1761
22	JX-005.....		1761
23	JX-468C.....		1762
24	JX-469C.....		1762
25	JX-001.....		1762

1	EXHIBIT NO:	MARKED	RECEIVED
2	JOINT		
3	JX-004.....		1762
4	JX-707C.....		1762
5	JX-002.....		1762
6	JX-003.....		1762
7	JX-367.....		1762
8	JX-471C.....		1762
9	JX-001.....		1762
10	JX-002.....		1762
11	JX-003.....		1762
12	JX-007.....		1762
13	JX-437.....		1762
14	JX-489.....		1762
15	JX-524C through JX-527C.....		1762
16	JX-532C.....		1762
17	JX-540C through JX-543C.....		1762
18	JX-545C.....		1762
19	JX-546C.....		1762
20	JX-472C.....		1762
21	JX-196.....		1762
22	JX-612C.....		1763
23	JX-644C.....		1763
24	JX-675C.....		1763
25	JX-001.....		1763

1	EXHIBIT NO:	MARKED	RECEIVED
2	JOINT		
3	JX-004.....		1763
4	JX-001.....		1763
5	JX-458C.....		1763
6	JX-459C.....		1763
7	JX-487.....		1763
8	JX-458C.....		1764
9	JX-655C.....		1764
10	JX-656C.....		1764
11	JX-659C through JX-663C.....		1764
12	JX-681C through JX-685C.....		1764
13	JX-002.....		1765
14	JX-003.....		1765
15	JX-005.....		1765
16	JX-006.....		1765
17	JX-055.....		1765
18	JX-196.....		1765
19	JX-367.....		1765
20	JX-458C.....		1765
21	JX-460C.....		1765
22	JX-486C.....		1765
23	JX-488C.....		1765
24	JX-534C.....		1765
25	JX-535C.....		1765

1	EXHIBIT NO:	MARKED	RECEIVED
2	JOINT		
3	JX-603C.....		1765
4	JX-606C.....		1765
5	JX-610C.....		1765
6	JX-612C.....		1765
7	JX-614C.....		1765
8	JX-616C.....		1765
9	JX-618C.....		1765
10	JX-620C.....		1765
11	JX-622C.....		1765
12	JX-624C.....		1765
13	JX-626C.....		1765
14	JX-630C.....		1765
15	JX-632C.....		1765
16	JX-634C.....		1765
17	JX-636C.....		1765
18	JX-638C.....		1765
19	JX-640C.....		1765
20	JX-642C.....		1765
21	JX-644C.....		1765
22	JX-652C.....		1765
23	JX-655C.....		1765
24	JX-659C.....		1765
25	JX-660C.....		1765

1	EXHIBIT NO:	MARKED	RECEIVED
2	JOINT		
3	JX-661C.....		1765
4	JX-671C.....		1765
5	JX-673C.....		1765
6	JX-675C.....		1765
7	JX-680C.....		1765
8	JX-681C.....		1765
9	JX-684C.....		1765
10	JX-685C.....		1765
11	JX-002.....		1765
12	JX-003.....		1765
13	JX-005.....		1765
14	JX-006.....		1765
15	JX-124.....		1765
16	JX-132.....		1765
17	JX-142.....		1765
18	JX-143.....		1765
19	JX-147.....		1765
20	JX-196.....		1765
21	JX-220.....		1765
22	JX-245.....		1765
23	JX-289.....		1765
24	JX-291.....		1765
25	JX-347.....		1765

1	EXHIBIT NO:	MARKED	RECEIVED
2	JOINT		
3	JX-353.....		1765
4	JX-367.....		1765
5	JX-401.....		1765
6	JX-404 through JX-406.....		1765
7	JX-410.....		1765
8	JX-419.....		1765
9	JX-482C.....		1765
10	JX-483C.....		1765
11	JX-686.....		1765
12	JX-687.....		1765
13	JX-690C.....		1765
14	JX-448C.....		1766
15	JX-651C.....		1766
16	JX-657C.....		1766
17	JX-6.....		1767
18	JX-367.....		1767
19	JX-8.....		1768
20	JX-437C.....		1768
21	JX-478C.....		1768
22	JX-479C.....		1768
23	JX-491.....		1768
24	JX-532C.....		1768
25	JX-001.....		1768

1	EXHIBIT NO:	MARKED	RECEIVED
2	JOINT		
3	JX-003.....		1768
4	JX-004.....		1768
5	JX-006.....		1768
6	JX-143.....		1768
7	JX-196.....		1768
8	JX-245.....		1768
9	JX-291.....		1768
10	JX-464C.....		1768
11	JX-469C.....		1768
12	JX-472C.....		1768
13	JX-491.....		1768
14	JX-496C.....		1768
15	JX-686.....		1768
16	JX-696.....		1768
17	JX-702C.....		1768
18	JX-705C.....		1768
19	JX-15C.....		1768
20	JX-668C.....		1768
21	JX-557C.....		1768
22	JX-692C.....		1768
23	JX-645C.....		1768
24	JX-646C.....		1768
25	JX-17C.....		1768

1	EXHIBIT NO:	MARKED	RECEIVED
2	JOINT		
3	JX-644C.....		1768
4	JX-642C.....		1768
5	JX-700C.....		1768
6	JX-18C.....		1768
7	JX-573C.....		1768
8	JX-626C.....		1768
9	JX-652C.....		1768
10	JX-644C.....		1768
11	JX-642C.....		1768
12	JX-658C.....		1768
13	JX-628C.....		1768
14	JX-701C.....		1769
15	JX-704C.....		1769
16	JX-19C.....		1769
17	JX-20C.....		1769
18	JX-644C.....		1769
19	JX-658C.....		1769
20	JX-642C.....		1769
21	JX-573C.....		1769
22	JX-705C.....		1769
23	JX-464C.....		1769
24	JX-692C.....		1769
25	JX-702C.....		1769

1	EXHIBIT NO:	MARKED	RECEIVED
2	JOINT		
3	JX-706C.....		1769
4	JX-466C.....		1769
5	JX-001.....		1769
6	JX-004.....		1769
7	JX-467C.....		1769
8	JX-22C.....		1769
9	JX-468C.....		1769
10	JX-469C.....		1769
11	JX-23C.....		1769
12	JX-573C.....		1769
13	JX-578C.....		1769
14	JX-579C.....		1769
15	JX-551C.....		1769
16	JX-655C.....		1769
17	JX-659C.....		1769
18	JX-660C.....		1769
19	JX-661C.....		1769
20	JX-460C.....		1769
21	JX-656C.....		1769
22	JX-659C.....		1769
23	JX-024C.....		1770
24	JX-548C.....		1770
25	JX-559C.....		1770

1	EXHIBIT NO:	MARKED	RECEIVED
2	JOINT		
3	JX-562C.....		1770
4	JX-571C.....		1770
5	JX-572C.....		1770
6	JX-582C.....		1770
7	JX-707C.....		1770
8	JX-2.....		1770
9	JX-5.....		1770
10	JX-17C.....		1770
11	JX-18C.....		1770
12	JX-20C.....		1770
13	JX-347.....		1770
14	JX-367.....		1770
15	JX-401.....		1770
16	JX-419.....		1770
17	JX-480C.....		1770
18	JX-482C.....		1770
19	JX-483C.....		1770
20	JX-491.....		1770
21	JX-528C.....		1770
22	JX-530C.....		1770
23	JX-690C.....		1770
24	JX-461C.....		1770
25	JX-462.....		1770

1 EXHIBIT NO: MARKED RECEIVED
2 JOINT
3 JX-539C..... 1770
4 JX-002..... 1771
5 JX-003..... 1771
6 JX-367..... 1771
7 JX-406..... 1771
8 JX-458C..... 1771
9 JX-663C..... 1771

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CERTIFICATE OF REPORTER

TITLE: Certain mobile Devices
INVESTIGATION NO: 337-TA-750
HEARING DATE: Sept 30, 2011
LOCATION: Wash DC
NATURE OF HEARING: Volumes

I hereby certify that the foregoing/attached transcript is a true, correct and complete record of the above-referenced proceedings of the U.S. International Trade Commission.

Date: 9/30/11

SIGNED: KAREN BRYNTESON *Karen Brynteson*

Signature of the Contractor of the Authorized Contractor's Representative
1220 L Street, N.W, Suite 600
Washington, D.C. 20005

I hereby certify that I am not the Court Reporter and that I have proofread the above-referenced transcript of the proceedings of the U.S. International Trade Commission, against the aforementioned Court Reporter's notes and recordings, for accuracy in transcription in the spelling, hyphenation, punctuation and speaker identification and did not make any changes of a substantive nature. The foregoing/attached transcript is a true, correct and complete transcription of the proceedings.

SIGNED: JOHN D. LASHER *John D. Lasher*
Signature of Proofreader

I hereby certify that I reported the above-referenced proceedings of the U.S. International Trade Commission and caused to be prepared from my tapes and notes of the proceedings a true, correct and complete verbatim recording of the proceedings.

SIGNED: KAREN BRYNTESON *Karen Brynteson*
Signature of the Court Reporter