EXHIBIT 27
FILED UNDER SEAL

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.

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Q. Would you read it back?
THE REPORTER: "Question: Figure 2 and the associated text in SmartSkin, would you say that that discloses a mutual capacitance touch system that is configured to recognize the relative positioning of two different objects?"
THE WITNESS: I have no disagreement with that statement with respect to figure 2.
BY MR. DeFRANCO:
Q. Just for the record, I don't want to belabor it. I want to move through some of the figures in the SmartSkin reference that depict that visually.
Let's turn to the next slide. Figure 7, for example, shows a person using two hands to move objects, to move around the SmartSkin surface and move two images.
Do you see that?
A. Figure 7, if we look at the left, it shows two halves of this image apart from each other. And then the right-hand side of figure 7 shows that they have been pushed together. So that's what it calls concatenating two objects.

The object is actually, as you can see from figure 7, projected from a camera above. And that's why you actually see the projection on the person's fingers.
Q. Okay. And then if we move on to figure 10, figure 10 shows a hand on the screen and then it shows a two-fingered gesture. Do you see that, sir?
A. On the top row of figure 10, yes, I agree.
Q. And that two finger gesture is reminiscent, wouldn't you say, of the pinch to zoom sort of gesture, just generally?
A. No. I mean, there is certainly a starting point for two fingers you could use to proceed into a pinch to zoom. This is a static image. It doesn't actually show the pinching.
Q. Okay. And then the figure 13, do you see that it states there two-finger gestures can be used to pick up objects? Do you see that, sir?
A. Yes, I see that.
Q. And would you say that these figures that are shown here are generalized examples of multi-touch gestures in the SmartSkin

reference?
A. These are certainly some of the gestures that are discussed within the SmartSkin reference and, indeed, I do agree that these do involve multiple touches.
Q. Let's talk a bit about transparency and your opinion about what is or what is not disclosed in the SmartSkin reference with respect to transparency. Okay?
A. I understand.
Q. Let's go to slide RX-28.006. Again, sir, in the discussion in this hearing about SmartSkin, and this particular paragraph about transparency, and obviously you think there is some shortcomings as to the scope of the disclosure of this particular paragraph; is that fair enough?
A. It is my opinion that there are significant deficiencies with respect to this paragraph. This paragraph is a discussion -- it falls within the section on future work.
Q. I'm sorry, I didn't mean to cut you off. We're going to go through your issues. I just wanted to set that premise, okay?
A. I understand.

Q. But my point is that hopefully there are some things we can agree on. And I just want to establish that first, okay?
A. I don't know if we will or not.
Q. Okay. Well, let's give it a shot, okay? So in this paragraph, can we at least agree that it is disclosing the use of a transparent sensor such as can be manufactured or etched using ITO?
A. In fact, this section discloses the possibility in future work of using transparent electrodes in a SmartSkin sensor that could be obtained by using ITO.
Q. Okay. You are referring to, I believe, the beginning of the section. And I didn't mean to not point that out to you, but you said that before at the hearing, that the future, I believe the future -- let's put that up.
If you put the entire -- go back to the entire page, Ryan. I want to point out what the Doctor is referring to. Conclusion and directions for future work.
I think that's what you are referring to, sir, that the section that talks about

transparent electrodes, electrodes that could be made out of transparent materials such as ITO, that falls in a section of the SmartSkin reference that's entitled conclusions and directions for future work. Do you see that?
A. It does. It is not in a section that's related to what they have done. In fact, specifically it will not work with figure 2.
Q. Now, sir, you don't dispute, though, again, figure 2 discloses a mutual capacitance device?
A. That's correct.
Q. Okay. So I just want to make sure, though, when you are referring to future work, what that says in that paragraph about ITO, you don't dispute that that's an accurate statement as to what the article reference had said at the time?
A. I mean, if you are asking me, do the words indium tin oxide appear in that section, the answer is yes. However, it is my opinion for detailed technical reasons that that will not -- that firstly, that is in a future work section and that will not work with respect to

the mutual capacitance system of figure 2.
Q. Okay. But let's go back. Can you blow up that particular paragraph?
Now, by the way, sir, you're aware that a person can apply for a patent without actually having made a prototype that's covered by each and every claim of a particular patent; is that true?
A. With respect to prototyping, absolutely.
Q. Right. For example, as we have seen during this hearing by way of example, patents often have many dependent claims, right?
A. Yes.
Q. For example, dependent claims can branch off an independent claim and lay out individually different materials that can be used for a particular aspect of an invention. Is that fair?
A. Yes, that's certainly possible.
Q. And one of the reasons for that is the inventors want to make sure that they don't have a claim that's so broad that it is going to be invalidated by the prior art, so if it comes time for an assertion, they can point to

one that's a bit more specific and would hopefully avoid the prior art, while at the same time capturing the accused device. Fair enough?
A. I can't comment on the inventor's intent for doing what they do, but that would certainly be an outcome of having narrower claims being dependent on broader independent claims.
Q. And this patent, in particular, the '607 patent, before we get back to SmartSkin, it discusses ITO, doesn't it?
A. Yes, there are claims that mention ITO. And within the spec, it talks about ITO.
Q. Well, I don't think there are claims that specifically -- well, let me go back.
It discusses ITO in the specification in a number of places, correct?
A. Yes.
Q. But it doesn't specifically reference any other type of transparent material, does it?
A. I'd have to check. Give me one second. And by transparent, you mean transparent conductor, not glass or plastic or

glass member?
Q. Yes, yes.
A. I believe that's right. I believe that says with a transparent conducting medium such as indium tin oxide, but it doesn't offer other alternatives that do exist, but the only one it specifically calls out as an example is ITO.
Q. Right. Were there other alternatives at that time that existed to use as a transparent conductive material?
A. Yes.
Q. In the devices we're talking about?
A. Yes.
Q. None of those are disclosed?
A. Explicitly disclosed?
Q. Yes.
A. Beyond the statement -- beyond the statement saying such as, yes, I agree. The only specific disclosure of a particular material is ITO.
Q. And in your deposition, if I have it right, you talked about characteristics of ITO specifically that are -- that one needs to consider in determining exactly how to

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

Do you recall that, sir?

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

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

A. Generically, yes.

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

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

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

A. If you are asking me, is there a

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

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

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

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

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

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

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

Q. Yes.

A. There is not a single capacitance.

Q. I apologize for speaking over you.

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

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

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

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

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

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

A. Yes, I agree with that.

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

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

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

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

MR. DeFRANCO: Would you read it back?

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

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

BY MR. DeFRANCO:

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

characteristics that needs to be taken into account in designing a mutual capacitance multi-touch device that is transparent. Fair enough?
A. Yes, I agree with that.
Q. Those three characteristics relate or are all factors in the implementation of ITO -- using ITO; is that fair enough?
A. In such a device?
Q. Yes.
A. With respect to such a device, you do consider the characteristics we talked about. Dispersion is actually more related to the dielectric, not to the ITO itself.
Q. But it is a factor?
A. In terms of doing the design of a mutual capacitance system, you would consider dispersion.
Q. Yes. And the characteristics that we discussed, to the extent they relate or are impacted by ITO, the same would be true of other materials that could be used as a conductor in a given device?
A. If you are asking me, do the properties of the conductor affect the ability

to implement a system, the answer is absolutely, yes.
Q. Well, you said that -- we agreed, at least, that ITO is discussed or disclosed in the '607 patent, right?
A. Yes.
Q. And you agreed that there were no other examples of a transparent conductive material specifically disclosed. Is that correct?
A. The only specific example was ITO, yes.
Q. And I think you said there are other examples in the field.
A. You mean, am I aware of other materials?
Q. Yes.
A. Yes. In fact, I work on them. That's how I know about them.
Q. And as of your deposition -- by the way, you have never yourself designed or made a mutual capacitance multi-touch device using ITO; is that correct?
A. I have never made one.
Q. You have never done that yourself?

A. I have never made one myself. That's absolutely true.
Q. My question, going back, simply is the characteristics that you identified for us, resistance, capacitance, dispersion, relating to the material in a multi-touch sensor, those would vary based on the material, wouldn't they, sir? They would be different for ITO versus some other conductive material that you might consider?
A. Resistance will certainly vary. Capacitance in the structure, if you use the same area, will not vary very much. In fact, it probably won't vary at all. And dispersion is primarily dependent on the dielectric, not on the conductor itself.
Q. Okay. Now, but it is your opinion, sir, that prior to the '607 patent, one of skill in the art would not know how to properly, correctly or effectively deposit ITO for use as an electrode in a mutual capacitance, multi-touch device that could detect more than one touch. Is that correct?
A. To realize said device, yes, I agree.
Q. And, again, part of your criticism of

SmartSkin is that it doesn't teach one of skill in the art how to do the -- how to do that, excuse me, in the section where it talks about using transparent ITO as the sensor in a multi-touch device; is that fair?
A. That is certainly one of my criticisms.
Q. Okay. Let's be fair. Let's talk about the '607 patent, okay? Let's put it on the same playing field.
Ryan, let's bring up -- I have made some slides of this last night just to move forward through this a little more quickly. We're going to put up different sections of the patent, rather than having to refer you to it.
Ryan, let's turn first to RDX-006. And I will tell you, sir, what I would like to do is look through for every reference of ITO in the patent. If there is something I am missing, something that comes to mind, feel free to look at the spec itself, but I tried to capture the relevant sentences that discussed ITO and a bit around it to put it in context.
A. I understand.
Q. Fair enough? But you are certainly

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

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

A. Yes.

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

Do you see that, sir?

A. I do.

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

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

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

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

Do you see that?

A. I see those paragraphs.

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

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

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

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

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

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

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

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

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

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

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

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

A. This section is discussing ITO.

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

A. The explicitly called out material is indeed ITO.

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

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Do you see that, sir?
A. I do.
Q. Now, that's -- when it says any suitable patterning technique, is that referring to the fact that those patterning techniques were known in the field at the time?
A. With respect to these, yes.
Q. With respect to the way to deposit ITO on a substrate. Is that fair?
A. With respect to how to deposit -- actually, here it is specifically pattern -- how to pattern ITO on a substrate, it is making clear that there are multiple ways to do that and they were known at the time.
Q. Okay. You could do it by deposition, etching, and printing and the like, but it doesn't discuss any specific processes for doing that deposition, the etching, or the printing. Is that fair?
A. If by that you mean, does it give the details on how to do the deposition, how to do the etching, how to do the printing? Yes, I agree, there is no further detail provided.
Q. And would you agree that how the deposition is done, how the etching is done,

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how the printing is done may affect the physical characteristics of the ITO?
A. You mean such as resistivity, et cetera?
Q. Yes.
A. Yeah, they do.
Q. Now, do you recall being asked at your deposition, sir, to explain where in the '607 patent the inventors teach or disclose how to create ITO electrodes as claimed in the patent?
A. I recall some discussion of that.
Q. And do you recall saying that there is a fairly substantive discussion in column 10, sir?
A. Yes.
Q. And do you recall --
A. Well, I don't recall saying specifically that, but it certainly would be a section I would refer to.
Q. Well, we can put it up. The answer that I have, sir, and this is at your transcript 220, line 12 to 211, line 16, you were asked: Well, I guess let me ask you, where in the '607 patent do they teach or even disclose how to create ITO electrodes as

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claimed in the asserted claims of the patent?
And I don't mean to test you, sir. You are welcome to look at your transcript of course. It says: Well, there is one fairly substantive discussion in column 10.
Do you see that, sir?
A. I don't, but I have no reason to doubt I said that.
Q. Why don't we put that up on the screen, Ryan. Why don't you get the next question and answer. Go down to line 16, please.
So we have put, this is continuous, it is just two different pages. That's why there is two different boxes.
A. I understand.
Q. The top question, sir, is what I just asked you.
"Question: Well, I guess, let me ask you, where in the '607 patent do they teach or even disclose how to create ITO electrodes as claimed in the asserted claims of the patent."
Do you see that, sir?
A. I see that question.
Q. It is a general question, you were

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asked to identify the ITO disclosure in the '607 patent. Do you remember that?
A. That appears to be the case.
Q. And it appears to be the case, doesn't it, that you pointed specifically to the discussion in column 10 that we just took a look at. Isn't that correct, sir?
A. That's true.
Q. And not that you doubted this, but just so it is clear, you called that at the time a fairly substantive discussion. Is that correct, sir?
A. That is what I said.
Q. And, in fact, you went down in response to the next question, you specifically read that portion of column 10 as part of your answer to set forth what you viewed at the time as a fairly substantive discussion. Is that correct?
A. That's true.
Q. Okay. Let's turn to the next disclosure of ITO in the '607 patent. And this should be on slide 009. It is the '607 patent, column 12, lines 35 to 45.
Do you see in this paragraph again it

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

Do you see that, sir?

A. I see that language.

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

Do you see that?

A. Yes, I do.

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

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

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

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A. That's correct.

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

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

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

A. I see that.

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

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

A. I do recall figure 9.

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

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that correct, sir?

A. Yes, I agree with that.

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

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

Q. Yes, sir. Thank you.

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

Okay, you have seen this portion before?

A. Yes.

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

A. Certainly. I have read it.

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

Do you see that?

A. Yes.

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

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

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

A. Yes, that's a reasonable description.

Q. And the characteristics of the

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

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

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

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

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

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

A. Yes.

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

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

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

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

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

Q. Yes, sir.

A. Yes. That's true.

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

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

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

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

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

JUDGE ESSEX: Right.

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

JUDGE ESSEX: Right.

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

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

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

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

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

up with filling those areas up, and --
THE WITNESS: Yes, Your Honor. I think the reason they called it -- they hadn't explained what dead areas were before, but in the previous paragraph they discussed etching away the ITO. So that etching process creates the dead areas.
JUDGE ESSEX: Okay. I'm sorry for the interruption. Go ahead.
BY MR. DeFRANCO:
Q. So going back and following up on His Honor's comment, it says in the second paragraph, "in order to prevent the aforementioned problem, the dead areas between the ITO may be filled with index matching materials." Do you see that, sir?
A. With indexing matching materials, yes, I see that.
Q. Yes. I am having a little trouble reading this morning.
It doesn't disclose any specific index matching materials, does it, sir?
A. You mean a specific example of an indexing matching material?
Q. Yes.

A. That's true, it does not.
Q. And ITO, again, as you said earlier, I believe you said was the transparency is going to be a function of resistivity; is that correct?
A. The parameters that affect transparency also have resistivity.
Q. Okay. So you could, based on the way your system is designed and the way the ITO is deposited, the way the ITO is etched away, if etching is used, all of that may ultimately affect the transparency of the ITO when it is in the completed device, is that fair?
A. The way the ITO is deposited --
Q. Let me ask a better question. I'm sorry.
A. That's fine.
Q. There are characteristics of the ITO itself that impact the transparency; is that right?
A. Yes, that's true.
Q. There are certainly different brands, types, versions of ITO on the market. There was back in the 2003 time frame, wasn't there?
A. There are certainly different

manufacturers who brand their ITO with their respective brand names.
Q. Right.
A. And they have different properties.
Q. Different properties, different types, different costs, different characteristics. Is that true?
A. If by -- I don't know what exactly you mean by types, but they certainly have different properties and they are targeted at different costs and they are available in different substrates.
Q. And they have different transparencies?
A. Yes.
Q. And they have different properties?
A. That's true as well.
Q. And all of that is going to impact the transparency when the ITO is ultimately used in any device, such as a pad or a phone. Isn't that true?
A. Yes, that's true.
Q. And this is talking about somehow you have got to come up with an index matching material that is going to appear to the user

that the transparency is uniform. Is that correct?
A. That is the goal of this section, yes.
Q. Okay. And, in other words, you don't want somebody to look at their pad or their phone and see some sort of hint or trace of the ITO lines, that would be unappealing to a user of the device. Is that fair?
A. Certainly that's the general problem that they are trying to address, yes.
Q. Okay. So after all the work that's done to design a device, to pick the ITO, to figure out the characteristics you need to choose the brand with a certain transparency, to deposit it, to etch it away, you have got to figure out, if you choose to do so, what indexing material to use to put in between the lines to make sure that that unpleasant effect doesn't occur. Is that fair, sir?
A. Yes, I generally agree with that.
Q. Okay. And you will agree it is going to take a little bit of experimentation for somebody skilled in the art to figure out exactly what indexing material to use to achieve that result in a particular device. Is

that correct?
A. If you are given an unknown system, you would have to measure its properties and do some experimentation. It is not a significant amount with respect to that.
Q. Okay. But you will agree that in this particular implementation, the inventors didn't disclose what indexing material they used, did they?
A. That's true.
Q. They didn't disclose how they were able to choose a proper or appropriate indexing material; isn't that correct?
A. Beyond saying that you could use an index, a matched index material?
Q. Yes.
A. I agree. I mean, that does give the guideline. It says you would use a matched index material but, yes, I agree, beyond that, they haven't said what material to use, for example.
Q. Okay. And somebody skilled in the art would take that guideline and determine what indexing material to use in their own configuration?

A. Yes.
Q. So going back, we started to talk about the disclosure of ITO in this particular section and just to finish up on that, it says, "as mentioned above, the lines in order to form semi-transparent conductors on glass, film, or plastic, may be patterned with an ITO material."
Do you see that?
A. You are reading the first line again?
Q. Yes.
A. Yes.
Q. Then it goes on, "this is generally accomplished by depositing an ITO layer over the substrate surface, and then by etching away portions of the ITO layer in order to form the lines."
Do you see that, sir?
A. I do.
Q. And it says, "as should be appreciated, the areas with ITO tend to have lower transparency than the areas without ITO." Do you see that, sir?
A. I do.
Q. We have discussed that at length. And

that phrase, doesn't it imply it should be appreciated by somebody in the art who has used ITO before; is that correct?
A. Oh, yes. You mean someone of skill in the art who read it would know what that means? Yes.
Q. Yes. Okay. So we have walked through now, sir, I believe, if I have it right, all the portions of the '607 specification that specifically reference ITO. Is that fair?
A. With respect to the referencing of ITO itself, that's true. We haven't looked at the circuit, for example.
Q. We haven't looked at the circuit, but at least in discussing ITO, its properties, what particular brand or type should be used, dispersion characteristics, resistivity characteristics, its impact on the capacitance, all of those issues with respect to ITO itself, we have covered the portions of the '607 patent that in any way discuss ITO; is that correct, sir?
A. With respect to the discussion of ITO itself, that is true. We haven't discussed how that's impacted by the circuit choices that you

make.
Q. Okay. There are other design choices that may impact the type of ITO and the characteristics that it has that are used in a particular device; is that fair?
A. There are certainly design choices. There is also a sort of fundamental circuit topology choices, which are not simple design choices.
Q. Correct. And those are -- all of those are going to impact a particular ITO that's used in the device and how it is deposited and the ultimate configuration?
A. They will. And more generally, they may determine whether you can use ITO or not.
Q. And how would one skilled in the art determine whether they can use ITO or not in a particular configuration, by experimenting?
A. Certainly one thing you could do if you were given a particular circuit topology would be do a significant amount of experimentation. And in some cases, it wouldn't work, and then you would essentially be driven to do invention, come up with a new topology that does work.

Q. Now, let's talk a little bit about another feature that you say is lacking in the SmartSkin reference. I believe another one is you don't believe that SmartSkin discloses a concept of layering and how that's covered in the elements of the asserted claims of the '607 patent?
A. With respect to specific layers, that's true.
Q. And in your opinion, generally, sir -- why don't we put up question number 118 and the answer. And here, sir, you say the layer limitations are those limitations that require the use of two different layers of conductive lines in the touch sensor. All of the asserted claims require these limitations.
Do you see that?
A. These layer limitations, yes, I see that.
Q. And you go on to say those are lacking in SmartSkin; is that right?
A. I say that the limitations that are missing are identified in this particular CDX.
Q. Now, is it also your opinion, sir, that SmartSkin doesn't disclose layers because

it uses a copper mesh?
A. You are talking about in relation to figure 2? That's true.
Q. Yes. Well, figure 2 of SmartSkin, you are referring to?
A. Correct.
Q. Let's put up figure 2 and let's put up a paragraph that we haven't looked at yet, which should all be in slide 28.012.
Let's go through the same drill, sir. Let's see what you and I can agree upon with respect to figure 2, its disclosure as set forth in the figure itself and the related text of the SmartSkin article. Okay?
You will agree with me, won't you, that SmartSkin discloses a grid of transmitter and receiver electrodes. Isn't that fair?
A. Yes, those are called out in the second sentence of the paragraph on RDX-28.012.
Q. And that is shown in figure 2 as well, isn't it? Can you point that out for us?
A. Certainly. If you are referring to the grid of transmitter and receiver electrodes using the language on RDX-28.002, the grid it is specifically referring to, it is

specifically referring to with respect to figure 2 is this grid of vertical and horizontal copper wires.
Q. And is it your opinion that the sensor grid of electrodes in SmartSkin as shown in figure 2 could not be implemented as having one layer for the drive electrodes and having a different layer for the sense electrodes?
A. I understand the question. Could I have the CDX that you referred to or that I referred to earlier in reference to the question and answer you put up, please?
Q. You mean your -- where I said this is what you said was lacking?
A. Yes.
Q. Sure, sure.
A. Thank you.
Q. It is a small fee. Let me find it. It should be slide 003. Is that the one you wanted to see, sir?
A. Yes. Thank you. No, it was the one in answer to the -- was this the one I referenced in the question you put up? I can find it. If you put the question up again, I can find it. I have the binder in front of me.

Q. Was it from your witness statement? I'm sorry.
A. I believe so.
Q. Okay. So let's find -- let's see if we can get that back. Hold on.
A. I have them in front of me now if you want.
Q. You have the paragraph?
A. Yes. The question is up there and I found the --
Q. Got it. Great. Is that what you wanted to refer to, sir?
A. Yes, thank you.
Q. Okay. Now, my question was, sir, is it your testimony that the sensor grid that is the drive lines and the sense lines that are shown in figure 2 of the SmartSkin reference could not be implemented in a device that had different layers for each?
A. With respect to layers as used in claims 1 and 10, for example? Yes, that's correct.
Q. Yes. And your opinion for that is because it is a copper mesh to create the capacitance nodes; is that correct?

A. These are copper, and that is one of the reasons for my opinion, yes.
Q. But you will agree, won't you, that based on the disclosure of figure 2 in the SmartSkin reference, the use of copper wires in a mutual capacitance device could take on a variety of configurations, couldn't it?
A. You mean if you are using copper wires, could you do them in different ways?
Q. Yes.
A. Generally, yes, I agree, you could use copper in different ways.
Q. Okay.
A. In this system.
Q. Well, specifically, for example, you could use copper wires in a mutual capacitance configuration where the layers for the drive and sense lines are spatially separated, couldn't you?
A. You could use copper wires such that the wires are separated. Those would not meet the layer requirement of the claims.
Q. But you could -- you could use them in separate layers? In other words, outside of a mesh configuration, couldn't you, sir?

A. If you are using layers outside of what it means in the claims, where there are specific characteristics tied to the layers, yes, I agree you could have them spatially separated. That's possible.
Q. We're just talking generally. Apart from the claims right now, one skilled in the art -- it is your testimony, isn't it, that one skilled in the art at the time was aware that copper wires could be used in mutual capacitance, not only in a mesh configuration but on spatially separated layers as well; isn't that true?
A. Independent of the claim language, without attributing the additional characteristics imposed on layers by the claims, yes, I agree they could be spatially separated and if you want to call those layers independent of the claim language, I agree with that statement.
Q. Okay. Let's turn to another document, the related patent application to the SmartSkin reference. You're aware of that reference, sir, right?
A. Yes.

Q. And this is what's been referred to in the case as a Rekimoto Japanese patent application. You're aware of that, sir?
A. I am. I believe he is the lead author.
Q. Let's put on the screen, please, RDX-28.013.
Sir, this Rekimoto reference, this is from one of the Sony engineers who also authored or coauthored the SmartSkin article that we talked about earlier. Do you recall that, sir?
A. Yes, I believe so.
Q. And this is one of the references that Motorola relies on as prior art for its position that the asserted claims of the '607 patent are invalid in this investigation. You're aware of that, sir?
A. Yes, I'm aware that this is one of the pieces of art that Motorola relies on.
Q. By the way, the prosecution history in this case is pretty voluminous, just in terms of number of pages. Is that correct?
A. It does have a large number of pages.
Q. It has got -- for example, it has got

a copy of at least many if not most, possibly all -- I didn't check -- but many of the articles that are cited on the front of the -- or towards the beginning of the '607 patent as prior art; is that correct?
A. There are certainly some of them. I also have not checked if all of them are there.
Q. Okay. I counted, and we have been through this, it is over 300 references cited in the front of the '607 patent.
A. I believe that's correct.
Q. And the examiner read many of those references in considering this application. Is that fair?
A. Certainly I would assume the examiner did.
Q. And the vast majority -- you will see, we can put something up, and I will represent to you that at the end of the several pages of references -- why don't we put it up, so I get this right, Ryan.
It is page 5 of the '607 patent at the end of the reference list. One more page. Blow that up.
Do you see there, sir, it says cited

that page.
Q. Yeah. At least on the front page of the document, it says February 9th, 2003. Do you see that, sir?
A. I do.
Q. Okay. And there is also a third reference in this group or family. It is the Morag '662, which we will talk a little bit about later, but you have reviewed that as well, haven't you?
A. Yes.
Q. Now, it is your testimony with respect to this Perski reference, your opinion is that it fails to disclose, enable, or render obvious the multi-touch limitations required by the asserted claims under either of the parties' proposed constructions. Is that correct, sir?
A. That's correct.
Q. So if we turn to the next slide, RDX-28.020, the limitations not disclosed, that's the fifth bullet point down if I'm counting that correctly, do you see that, it is multi-touch?
A. Yes, that's referring to the preamble limitations.

Q. So by way of comparison, you had a longer list as to what was not disclosed in the SmartSkin references, we're talking about one feature, multi-touch, that you believe is not disclosed in the Perski reference. Is that fair?
A. We are talking about the preamble based limitations related to multi-touch.
Q. Yes, sir.
A. Okay.
Q. Now, let's show briefly paragraph 74 in your rebuttal witness statement. Okay. So briefly this is where you characterize multi-touch in the two set of asserted claims here. For example, with respect to claims 1 to 7, you say that the detection of multiple touches or near touches that occur at the same time and at distinct locations where the production of distinct signals representative of the location as required by claim 1 and dependent claims 2 to 7. Do you see that, sir?
A. I do.
Q. And then with respect to claim 10, you have the characterization that's below that, the recognition of multiple touch events that

occur at different locations on the touch panel at the same time at distinct points across the touch panel.
Do you see that?
A. Yes.
Q. And you go on to provide a bit of additional information, sir; is that correct?
A. Yes.
Q. Okay. Now, in your opinion, Perski suffers from the same problems as the prior art to the '607; is that correct?
A. Some of them, yes.
Q. Okay. Some of them. And more specifically, in your view, Perski is directed to a single touch device; is that correct?
A. Yes, that's primarily true.
Q. You don't think -- in your opinion, it doesn't disclose multi-touch or the processing required for multi-touch; is that fair?
A. In my opinion, it does not disclose the multi-touch limitations as required therewith by the relevant claims of the '607 patent.
Q. Okay. Let's turn to the next slide. We're going to go through a bit in the

remaining time of some slides that show different portions of the disclosure of the Perski references. Okay? Are you with me?
A. I am.
Q. All right. Slide 021, do you see there that it is an excerpt from the Perski specification that says, "the goal of the finger detection algorithm in this method is to recognize all of the sensor matrix junctions that transfer signals due to external finger touch."
Do you see that, sir?
A. I do.
Q. "It should be noted that this algorithm is preferably able to detect more than one finger touch at the same time."
Do you see that, sir?
A. I do see that language.
Q. No dispute that it explicitly says that the algorithm is preferably able in Perski to detect more than one finger touch at the same time?
A. That language does exist in Perski.
Q. Okay. Let's go to the next slide, please, slide 22. A little bit more detail, a

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

Okay? You have seen this document before?

A. I have.

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

A. I do.

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

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

A. That's what this particular language

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

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

A. Yes, I do.

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

A. Yes.

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

A. Yes.

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

Do you see that, sir?

A. I do.

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

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

Q. Yes, sir.

A. Yes, I agree with that.

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

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

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

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

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

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

out.

Q. Okay, fair enough.

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

Do you see that, sir?

A. Yes.

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

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

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

You have seen this before, haven't you?

A. Yes.
Q. It says, "the most simple and direct approach is to provide a signal to each one of the matrix lines in one of the matrix axes, one line at a time, and to read the signal in turn at each one of the matrix lines on the orthogonal axis." Do you see that?
A. I do.
Q. That is describing generally how the sense operation is implemented in this embodiment of Perski; is that correct?
A. Yes, and in this particular embodiment, it discusses scanning all the way across node by node.
Q. And this is a transparent configuration that's intended or can be displaced over a display device. Isn't that true?
A. It is transparent as described here. This section doesn't specifically talk about putting it over a display, but it certainly is transparent.
Q. You don't dispute that this Perski device is transparent, do you?
A. No, I do not.

Q. And in terms of these procedures, the specification goes on in Perski and it says this method enables the detection of multiple finger touches. Do you see that, sir?
A. I do and you will note it doesn't say at the same time there. And further in the next paragraph, it goes on to say this is too slow.
Q. Okay. But at least you agree with me in this particular paragraph, it does talk about a transparent device and it talks about how that is implemented in a particular configuration and goes on to say specifically that this method enables the detection of multiple finger touches. Is that correct?
A. It does, but not at the same time.
Q. Now, let's turn to slide RDX-026, skipping ahead a little bit, Ryan. Now, we're back again, sir, to the provisional application of Perski. And there is an excerpt at the top of the provisional application on page 4 along with figure 2 from the provisional application. Do you see that there?
A. Yes, I do.
Q. Now, just briefly, you don't dispute

that figure 2 shows a matrix of transparent conductive lines and as we said before there are drive and sense lines shown there?
A. This is indeed a matrix. I believe there is description of the use of transparency. And there are indeed drive and sense lines.
Q. Okay. And if we -- and that's discussed in that portion of the Perski provisional disclosure. Do you see that in that paragraph?
A. That portion doesn't mention transparency, but I believe it is mentioned somewhere else.
Q. Okay.
A. But that is generally related to figure 2.
Q. Well, let's look at transparency with respect to figure 2. If we go to the next slide, slide 27, you will see the excerpt at the top, doesn't that disclose transparency? It says, "the present invention utilizes a patterned transparent conductive foil system, used for detecting the location of an electromagnetic stylus on top of a display

surface in order to enable multiple and simultaneous finger inputs directly on the display."
Do you see that, sir?
A. I do.
Q. So there it is saying for sure with that question, it is transparent, obviously, you don't disagree with that?
A. I don't.
Q. It also discloses that the purpose for that is to enable multiple and simultaneous finger inputs directly on display. Do you see that, sir?
A. It does say that. In fact, in the main body, it goes on to say it is too slow.
Q. Okay. Let's turn to slide 28. Again, a little bit more about this figure 2. It says, "the most simple and direct approach is to provide a signal to each of the matrix lines, in one of the matrix axes, one line at a time, and to read the signal at each one of the matrix lines on the orthogonal axis."
Do you see that, sir?
A. I do.
Q. Okay. It says, "it is possible to

sample a group of reception lines at the same time, and even to sample all reception lines simultaneously, thus reducing the number of lines to N." Do you see that, sir?
A. Thus reducing the number of steps to N?
Q. Yes, sir.
A. Yes, I see that.
Q. Now, I would like to turn for a moment to the Morag provisional, which is, I believe, incorporated by reference in the Perski '455 patent. Is that your understanding, sir?
A. I understand that's what's being claimed, yes.
Q. Okay. So if we go to the next slide, slide 29, please, Ryan, you have seen this figure 1 from the Morag provisional; is that right, sir?
A. I believe so. Let me just turn to it, please. Yes, I see it.
Q. And you have also looked at that text, and there is some highlighted text there in the middle. I won't read that, but you have seen that before, sir, haven't you?
A. Yes, I have.

Q. Now, if you look at that language in that paragraph, sir, wouldn't you say that generally discusses that there is reception from the sensing lines, there is filtering and amplification of the signal, there is sampling into a digital representation, and then sending that digital representation out to a DSP or digital signal processor; is that right, sir?
A. DSP is digital signal processor, but, I'm sorry, I am looking for the language.
Q. Okay.
A. So it does say it amplifies the signal. It says it filters out irrelevant frequencies. It says it samples it into a digital representation. And it says it forwards it for further digital processing.
Q. And would you agree that the digital representation is processed to determine the position of one or more objects and then that's sent to some other circuitry?
A. Well, that's not described here, but certainly if that were the desired operation, you would -- that would be something you would probably do in the digital domain.
Q. So where it states the digital unit 3

is responsible for running the digital processing algorithms, the outcome of the digital process is the position of one or more physical objects, typical stylus, which is forward to the host via interface 7."
Do you see that, sir?
A. It is typically but, yes, I see that language.
Q. And it is using the information that's received from the mutual capacitance grid to send the data to the digital processing algorithm so that it can detect the position of more than one physical device. Isn't that true, sir?
A. Yes, I agree with that.
Q. Okay. Now, let's take a look at -- at least in terms of that language you don't dispute Perski is talking about how to use an algorithm and associated circuitry to detect multiple touches in a transparent device?
A. You mean Perski by incorporating Morag?
Q. Yes, sir.
A. I understand. So with respect to the incorporation, in Morag, it certainly says what

you do with what comes out of the grid. And if I didn't answer your question fully --
Q. No, you did, thank you.
A. Okay.
Q. Just want to turn briefly to another version of the Perski figures on which we have added some items. It is RDX-28030. I know you have spent significant amount of time with this. Just for the record and make sure we're on the same page, this is figure 2 from the Perski with some colorization of the drive and sense lines. Do you see that, sir? Sense lines are in red. Drive lines are in blue, one each, in each of these two depictions?
A. I see that.
Q. And in the original Perski, what was the circle that's yellow on top, what did that reflect that was a circle in the drawing as it originally existed?
A. That is generally pointing to a particular node on the figure.
Q. And we have added a node. Do you see that, a node below each one of those?
A. I see that.
Q. The Perski references we have been

talking about, they disclose the ability to sense two different touches at two different locations on a mutual capacitance transparent device. Isn't that, sir?
A. Not at the same time. Yes, I agree. If you are talking about timing, yes, it does.
Q. So your opinion is that it can detect more than one, just not simultaneously?
A. So there is two possibilities. If it uses the technique disclosed, it is too slow to do it simultaneously. If it uses the so-called faster technique, it is not able to actually detect multiple touches accurately.
Q. Okay. And that is one of the bases on which you, in your opinion, distinguish the Perski references; is that correct?
A. That is something I have considered, yes.
Q. Now, do you remember that any specific disclosure in the '607 patent that teaches the detection of multiple fingers at the exact same time? In other words, is that explicitly discussed anywhere in the '607 patent?
A. If by exact same time, you mean at the same picosecond, no. In fact, that's not a

requirement. But what is a requirement is that it appears at the same time to the user. And that's my opinion with respect to claim construction.
Q. I don't want to quibble about times. In terms of what it says in the '607 specification, there is no discussion about how the invention gives the ability to detect two touches or multiple touches at the exact same time; is that correct?
A. And by exact, you mean not as perceived by the user but realtime?
Q. Yes, in realtime?
A. I agree with that.
Q. And there is some -- as you said, if there is fingers that are spread apart, not this configuration, if my fingers are spread apart on a device that's implemented using the '607 patented technology, there is going to be some time lag there as you were suggesting, isn't there, sir?
A. Not as perceived by the user, but in terms of picosecond differences, for example, yes, absolutely.
Q. Certainly, but that's because of the

way that the sense lines are scanned, right, from one side to the other, they are not scanned at exactly the same time. Isn't that correct, sir?
A. If you mean do you read all the nodes simultaneously to the exact fraction, no, you do not.
Q. And I don't remember, you haven't done any tests in this case as to whether a very short, precise touch by two fingers at exactly the same time could be detected by devices that implemented the '607 invention?
A. You mean have I taken a phone and tried that?
Q. Yes. Have you done any -- well, have you done any tests to see whether those two touches could be recognized at an instantaneous point in time?
A. As perceived by me, yes, they clearly are. Are you asking me, have I used some sort of ultra high speed camera to figure out if they are actually perceived within picoseconds of each other, no.
Q. You haven't done any tests in that regard, that's all I am asking?

A. In that regard, no.
Q. So then if we go back to this figure that we're looking at, RDX-28030, there is no discussion, if you look at -- consider those two yellow points or two points of touch in the Perski configuration, there is no discussion in Perski that if there were a single large touch, for an example, it could be recognized as two different touches, if we talk about that hypothetical.
A. I disagree. The Perski reference says I believe you detect node by node and each node corresponds to a touch. So if by large you are allowing it to overlap, that wouldn't necessarily follow.
Q. Let's take a look at column 14, lines 15 to 19 of the -- I think the easiest way to do this, Ryan, is to go back to slide RDX-021. Just where we were before, sir, at least there is a specific disclosure in Perski that the algorithm is able to detect more than one finger touch at the same time, do you see that, sir, that's the goal of the Perski reference?
A. That is what it says with regard to the goal in RX-708 at column 14, lines 15

through 19.
Q. I thought you had said in a portion of your rebuttal witness statement that a single large touch could cause an output signal to detect more than one conductor line and the Perski detection method would register this as two touches instead of one. Is that right, sir?
A. Perhaps you could point me to it, but that does sound like something I said.
Q. We can look at it, but you don't disagree with that?
A. I don't disagree with that.
Q. Okay. So going back to Perski again where we started, Perski never discusses that as being a problem; isn't that true, sir?
A. You mean does he say this is a shortcoming of his method?
Q. Yes.
A. With respect to that, no, I don't believe so. He didn't recognize it, but it is.
Q. You have taken a look at the witness statements of the fact witnesses in this case that relate to the '607 patent, specifically you have read Mr. Hotelling's witness

statement, haven't you, sir?
A. Yes, I have.
Q. Okay. And you actually considered that, I think you may have referenced that in some of your own testimony in the case, but be that as it may, you have read that testimony, haven't you?
A. His witness statement? Yes, I have.
Q. And in his witness statement, he identifies three classes of touch detection. Do you recall that, sir?
A. Not specifically, but I'm not -- I don't have it in front of me right now.
Q. Okay. Well, let's put up -- I don't know if you have this, Ryan, but the Hotelling witness statement, question and answer 21.
MR. FERGUSON: Excuse me, Your Honor, I think this is confidential.
JUDGE ESSEX: Well, I don't -- is this Apple confidential?
MR. FERGUSON: This would be Apple confidential.
JUDGE ESSEX: All right.
MR. DeFRANCO: Let me try to do it without putting that on the screen.

JUDGE ESSEX: All right. You are going to try to avoid going into confidential?
MR. DeFRANCO: I would like to.
JUDGE ESSEX: You want to stay on the public record?
MR. DeFRANCO: Yes, sir.
JUDGE ESSEX: All right. Go ahead.
BY MR. DeFRANCO:
Q. If we talk about a class of touch detections, a touch detection system that takes two touch points and averages them, which I believe is shown as a problem with the prior art in figure 1A. Do you recall that, where there is a little plus sign between the two?
A. By figure 1A, you are referring to figure 1A of the '607 patent?
Q. Yes.
A. Yes.
Q. Perski is not one -- doesn't suffer from that problem, does it, the ability to not have to average two touch points, right? Clearly Perski could separate, was an advance over that class of touch devices, wasn't it, sir?
A. You are asking me with reference to

the node by node scanning method?
Q. Yes.
A. In the node by node scanning method, Perski does not talk about averaging, so he doesn't suffer from that problem.
Q. And you didn't see anything in there that said that Perski needed to average two touches as the prior art did because of limitations in terms of the configuration of the electrodes and processing technology, that sort of thing, correct?
A. I don't believe I saw any discussion of averaging with respect to being a problem in that regard.
Q. Okay. And if we talk about a second category or class of detection devices, those that suffer from shadowing, you would agree, wouldn't you, that Perski doesn't suffer from the shadowing problem of that second category or class of touchscreen devices, does it?
A. You are talking about the scanning, the node by node scanning version, not the version that actually groups nodes?
Q. Yes, right.
A. Because the grouping one does suffer

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

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

JUDGE ESSEX: I understand.

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

JUDGE ESSEX: All right.

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

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

JUDGE ESSEX: All right. That makes some sense.

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

All right. We're in recess. We will

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

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

AFTERNOON SESSION

(12:50 p.m.)

JUDGE ESSEX: All right. Are we ready?

MR. FERGUSON: We are, Your Honor.

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

REDIRECT EXAMINATION

BY MR. FERGUSON:

Q. Good afternoon, Dr. Subramanian.

A. Good afternoon.

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

A. Yes, I do.

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

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

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

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

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

Q. Okay. And now, Chris, let's go and highlight in a different color "detect multiple touches or near touches that occur at a same time and at distinct locations in a plane of the touch panel."

And, again, can you explain your opinion with respect to what that claim language means?

A. Certainly. This claim language says, firstly, that we have to be able to detect multiple, which means more than one touches or near touches. And those touches would occur at the same time and be in distinct locations on the plane of the touch panel.

Now, what does that mean by distinct locations in a plane of the touch panel? That means we are able to detect when the touches are made in different locations on the plane of the touch panel.