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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BOE TECHNOLOGY GROUP CO., LTD.,
Petitioner,

v.

OPTRONIC SCIENCES, LLC,
Patent Owner

IPR2024-01133
Patent 9,263,509 B2

Record of Oral Hearing
Held: October 27, 2025

Before THU A. DANG, BENJAMIN D. M. WOOD, and KEVIN W. CHERRY, *Administrative Patent Judges*.

APPEARANCES:

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P R O C E E D I N G S

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JUDGE WOOD: Good afternoon. We are here for oral hearing in IPR 2024-01133, BOE Technology Group Company, Limited, versus Optronic Sciences LLC concerning Patent Number 9,263,509. Once again, I'm Judge Wood. With me are Judges Dang and Cherry. Can we get a roll call for Petitioner?

MR. LIMBACH: Alan Limbach for the Petitioner. With me is Brian Erickson and Mike Saulnier.

JUDGE WOOD: Thank you, Mr. Limbach.

MR. LIMBACH: Limbach.

JUDGE WOOD: Limbach. Thank you. And for Patent Owner, please.

MR. TONG: This is, again, Peter Tong from Russ August & Kabat here on behalf of Patent Owner. And with me is my associate, Jake Cummings.

JUDGE WOOD: All right. Thank you, Mr. Tong. And as we are --

THE VIDEOGRAPHER: Hello, Judge. This is Charlie from the VT, I'm sorry to (INDISCERNIBLE - TECHNICAL DIFFICULTY) --

JUDGE WOOD: -- their arguments. Petitioner goes first and presents its case in chief and may reserve rebuttal time. The Patent Owner goes next, responds to Petitioner's case in chief and may present its arguments regarding -- I believe there is another motion to exclude the declarant -- Petitioner's declarant's testimony and also may reserve rebuttal

time. And the rebuttals will follow that. We have demonstratives electronically, no need for paper copies. And we have the full records in front of us as well. So with that, Mr. Limbach, you may begin when you're ready.

MR. LIMBACH: If Your Honors are ready, I can do begin.

JUDGE WOOD: Yes.

MR. LIMBACH: Okay. And I will reserve my unused time for rebuttal if that's okay.

JUDGE WOOD: All right.

MR. LIMBACH: So I'd like to begin with claim construction because that is the sole issue in Ground 1, is what is the claim construction for auxiliary electrode. And it is dispositive because it is the only claim term that the Patent Owner argues is not in the prior art.

So Petitioner's proposed construction, an auxiliary electrode is a supplemental electrode. And that's because the claims don't recite what the auxiliary electrode is auxiliary to. There's no function or characteristics recited in the claims. It's consistent with the plain and ordinary meaning of auxiliary and supplemental -- or I'm sorry, it's consistent with plain and ordinary meaning of auxiliary as supplemental.

Sorry, I'm not advancing the slides. A good example of that would be the Wiley Electrical and Electronic Engineering Dictionary, which defines nine different electrical terms, all auxiliary, plus the electrical term. And all of those definitions have either supplementary or supplemental in those definitions. So it's a good indicator of what auxiliary really means.

Amazingly, the Patent Owner conceded in District Court in its briefing that the Petitioner's construction is correct. It said, quote, "There is

no dispute that the plain meaning of auxiliary is supplemental," unquote. And then finally, the District Court had at the time of the briefing preliminary constructions, and now they've been made final. That's also consistent with Petitioner's construction, where the Court found that auxiliary electrode is an electrode that works in unison with another electrode.

And it should be noted that the same construction for the Patent Owner in this case was also argued before the District Court. And the District Court rejected Patent Owner's construction. So going to Patent Owner's construction, which is --

JUDGE CHERRY: Excuse me, Mr. Limbach.

MR. LIMBACH: Yes.

JUDGE CHERRY: Is this the -- was the construction that was ultimately adopted, was that the construction that the Petitioner put forward, the Defendant and the litigation put forward, or was this the Court's own construction?

MR. LIMBACH: Court's own construction.

JUDGE CHERRY: Okay. Thank you.

MR. LIMBACH: We consistently provided the same construction to the Court. So there is no support for Patent Owner's negative limitation, which is quote, "Which does not include primary and essential." The words primary and essential are not found in the '509 Patent. And what they're trying to do is read in functionality into the claim term through claim construction. And the functionality is the reduction of total resistance to enhance the first electrode layer. And you do that with a parallel connection. But the specification, when it talks about that function twice, disclaims it,

says the invention is not limited thereto.

Patent Owner's own expert admitted that there's nothing in Claim 1 that requires (INDISCERNIBLE - TECHNICAL DIFFICULTY) the electrode to reduce resistance (INDISCERNIBLE - TECHNICAL DIFFICULTY) or if there -- or a parallel connection. And the Patent Owner's construction doesn't even mention it's tried to read into the claim term. It is Patent Owner's construction is indefinite. There's nothing in the (INDISCERNIBLE - TECHNICAL DIFFICULTY) what functionalities and characteristics rise to the level of being primary and essential? Because those words are not in the spec and they are not used or disclosed.

And finally, the Patent Owner argues that auxiliary electrode is not simply just an additional electrode. But they provided a dictionary definition that defines auxiliary as additional or supplementary. And then supplementary in that same dictionary is defined as additional. So auxiliary, additional, and supplementary are all synonyms.

Now, in the petition, we did offer an alternate construction. It was a narrow construction because we could see the handwriting on the wall. The litigation strategy would be to try and read in functionality in the claim term to save the patent over Weaver. And so we have an alternate construction that is to reduce the total resistance of the pixel structure that's out of the specification. If that's adopted, then we have the backup rounds which are 6 and -- Grounds 6 through 10. So even if the Board were inclined to narrow the construction of the auxiliary electrode, it's still invalid under Ground 6 through 10.

Any questions on auxiliary before I move on to electrode?

JUDGE DANG: Actually, I have a question. Okay. So first you

say, can -- it doesn't define first electrode. But if you have something that is supplemental, you have to have a first to be supplement to it, right?

MR. LIMBACH: So the reason why that there's the first is because in a dependent claim, they have a second one. So the first is just acknowledging the fact that when you get down to Dependent Claim 10, they have to differentiate that. And that's why they call it first. The first is really there to differentiate what's in one of the dependent claim.

JUDGE DANG: Okay. How about the word primary? I mean, if it's supplemental, it can't be primary, right? It has to be something in addition to the primary.

MR. LIMBACH: And we would disagree. If it is supplementary, it's just -- it's supplemental to another one. And that's consistent with what the District Court said, it's just an electrode works in unison with another electrode. The District Court did not say that one takes primary emphasis over the other. And we would agree with that.

JUDGE DANG: Okay. Thank you.

MR. LIMBACH: So moving on to electrode, the plain and ordinary meaning of electrode is a conductor. And the Patent Owner wants to limit that to an end structure of a conductor for making electrical contact. The problem with that is that's not how the '509 uses the term ever. Every single use of electrode in specification refers to the entire conductor, not just to the end portion of it making electrical contact.

So on Slide 10, what you'll see is an example of this where the green layer is the second electrode layer and the entirety of that entire layer is a single electrode layer. Not electrode layers, not electrodes layer, a single electrode layer. There's no reference to the end structures that make

electrical contact. You'll see that that layer does make electrical contact with the drain D2 at the bottom or the light emitting layer, which is blue. Under their construction, that should be two electrodes.

But that's not what the patent talks about. It talks about a single electrode layer. So their construction is inconsistent with a specification. And the same would be true for the first electrode layer 132.

JUDGE DANG: Okay.

MR. LIMBACH: Patent Owner also offered a dictionary definition. And that dictionary definition is consistent with our construction. It's an electrode is a conductor, which serves to deliver, receive, collect, emit, deflect, or control electronic charges. But it's a conductor.

Now, Patent Owner argues, well, it's used as an endpoint, but not the road to get there. But the problem is that doesn't read on the preferred embodiments. And more importantly, the specification does not identify any conductor other than the electrodes. If there's this -- if they're just an end structure of another conductor that would have to be disclosed. It's not disclosed. Because that's not how the patent treats that claim term.

Then the Patent Owner's expert has really no credibility on this issue. When I showed him Figure 2, I pointed him to that green electrode layer. I asked him, how many electrodes are there? He had no opinion. If you read through his deposition transcript, every time he had a hard question, he would just say, I have no opinion, wouldn't answer.

He even had no opinion when I asked him, were there any of the electrode terms in Claims 1 and 10 met his definition? He had no opinion. And as a matter of fact, he even said, he didn't even consider it. Here is an expert that's construing a claim term, yet wouldn't answer my question on

whether his construction is met by those claim terms.

Under Ground 1, they have a validity argument that directly contradicts their own construction. So on the left -- and this is on Slide 13, on the left is their figure in their brief, where they have put in -- they've highlighted the bus line, the entire thing, 430. And then they put brackets around the section of it that's beyond the vias and says, those are not endpoints, it extends onward. Therefore, this is not an electrode.

Well, if you apply that exact argument to Figure 2 -- and what we have done is we put their argument into Figure 2. You can argue that the first electrode layer is not an electrode layer because it's got portions that are not endpoints and extends beyond. They're contradicting their own arguments. And it's not surprising that while this was originally proposed in the District Court case, they dropped it before briefing. And this was not even presented to the Court.

So I'd like to move on to Ground 1, but were there any questions on claim construction?

JUDGE CHERRY: No, thank you.

MR. LIMBACH: Great. So for Ground 1, Claims 1 through 5, 9, and 12 through 13 is undisputed that every claim element and all of those claims is taught by Weaver except auxiliary electrode and only based upon the constructions that Patent Owner has provided. The Patent Owner and its experts did not argue under our constructions for validity. So if the Board rejects the constructions proposed by Patent Owner is undisputed, Weaver anticipates.

So I'm going to jump just to the auxiliary electrodes, since that's really the only claim term in dispute. And that starts on Slide 19. So Slide

19 first -- for a first auxiliary electrode electrically insulated from the active device. The auxiliary electrode is bus line 430 and it is electrically insulated from the active device, which is in purple by the lighter purple, 428, that's an insulating -- it's a passivation layer.

Now, on Slide 20, we address both of our construction. So our construction, the broad construction, the bus line 430 is an electrode supplemental to other electrodes in the structure. It's another electrode under the -- our narrower construction, it's also an electrode that reduces resistance. And how it does that is you can see the vias, the multiple vias there, 428, those are all electrical vias that connect to the anode. Under the first half of that line, there is a parallel connection that reduces resistance. Therefore, the bus line is a supplemental electrode that reduces total resistance of the pixel.

The bus line also meets the Court's construction. It's an electrode that works in unison with another electrode. Basically, the bus line 430 is electrically connected to and works in unison with the anode electrode 406. And we address that in our reply brief. And that's on page 16 if you wanted to see that treatment. So given that and given all the other claim terms in Claim 1 and the rest of the dependent claims under Ground 1 are undisputed, we believe that the Court -- that the Board should find Claim 1 -- Claims 1 through 5, 9, and 12 through 13 anticipated by Weaver.

Any questions on Ground 1 before I move on? Very good. Then I'm going to go to Ground 2 and that starts on line -- I'm sorry, on page -- Slide Number 28. So Ground 2 is obviousness of Claim 6 through 8, Weaver and Lee053.

Now, on Slide 29 you're going to see the upper left hand, Figure 4,

that is Weaver and the right hand, upper right hand is Lee053. The Claim 6 says wherein the auxiliary electrode has a bottom electrode layer and a top electrode layer. And basically, this is one of the tools, the many tools that a circuit designer has in reducing resistance.

It's called line strapping. Line strapping is where -- instead of having a wide electrode, you can have two narrow electrodes stacked on top of each other. So you use two of the metal layers of many metal layers and then you strap them together, meaning you electrically connect them together with periodic vias. So that's called line strapping.

And Lee just happens to be a good example of this very well-known technique in the context of light emitting devices. And so what they've done here is in the orange, there's your bottom, they call that a -- I think it's called a dummy line. And then the top is the red and they're strapped together. And Lee says you specifically do that to lower resistance. Not only does it tell you -- show you line strapping, it explains to you why they're line strapping or the purpose of line strapping.

And so it would have been obvious to do that in Weaver. And what you can do is there are two metal layers in making the transistor over on the left-hand side. You've got the gate in orange, and you have the source and the drain in red. So you need two metal layers to do that.

Now, if you look at the -- at Figure 4 unannotated, the one on the top, they're clearly using either one of those two layers as bus line 430. And what happens is when you form the source drain, if you're not -- if that's not how you formed it, you just etch that away. So the combination would simply be don't etch away the second metal layer that you use to create the transistor. And you've got your strapped auxiliary electrode in two layers,

one on top of the other, connected with a via that goes all the way up to the anode. It's a very simple technique, very well known. It's a basic tool in the toolbox of a circuit designer.

JUDGE DANG: I'm sorry, can you, I guess, repeat why would you do that? Why would -- what motivation --

MR. LIMBACH: Oh, I'm sorry, the motivation combined is by strapping two lines, you're creating an alternate current path, and you've got a second current path parallel to the first that reduces resistance. The whole idea is lower resistance is better. You're going to see every single one of these references, they all talk about get that resistance as low as possible.

And you got many tools to do that. You can select a really conductive metal; you can figure out what your dimensions would be to the extent that it's compatible with the rest of the chip. But this other technique is use another one of the metal layers, keep it where you previously removed it, strap them together. And now you got these --

JUDGE DANG: And does Lee say that, to do that?

MR. LIMBACH: Lee actually says that this strapping technique allows for reduced -- I'm sorry, it reduces wiring resistance and allows for reduced wiring widths. That's right out of the specification.

JUDGA DANG: Okay. Thank you.

MR. LIMBACH: Yeah. Claim 7 simply says the bottom electrode layer is the same as the gate. Well, that's -- not only does Lee teach you that the gate and the lower electrode are formed on the same insulating layer. Now, typically when you -- what you do is you put down a metal and then you etch away the areas you don't want, and you leave the sections left and use this for the gate and use this for your lower electrode. And so that's a

very common technique, you know. When you build semiconductor devices, you only have a certain number of metal layers to play around with.

So circuit designers have to make do with how many metal layers are in the design. So if you've got five metal layers, you're going to use the M1 layer for the gate over here, but the electrode over here. And so this is a very common technique to do that.

And so in the Weaver alteration, you would just simply use the additional electrode layer -- and this is on Slide 30, use the additional electrode layer in yellow on the bottom, and you see the gate over on the transistor. You lay down that metal layer. You etch it away, leaving those two lines. And then you start building up your next layers.

For Claim 8, it says for the top layer, you use the top layer, same layer as your source and drain. Well, again, that's shown on Slide 31. And you can see the color coding. And so you lay down your first layer and note that's your gate and your additional electrode layer. You build up. And then when it comes time to do your source and drain, that's your bus line. And that's also something that is taught by Lee. Lee discloses the upper of the electrode is also the source and drain on the other sides, very common technique.

That is it for Ground 2. Are there any questions? Ground 3, it's just like Ground 2, just a different secondary reference, just showing that it's common to use this technique to strap lines together. So what Song does is -- actually, Song has three or four different metal layers that place -- build on top of each other. And so you can see it's got the orange underneath -- and this is on Slide 33 -- and you've got the red that's on top. Those correspond with the source and drain over on the left. The modifications would be the

same.

The teachings of Song and Lee are line strapping. You'd end up with the same result. It gives you the, oh, I could just line strap it and decrease resistance. You can end up with the same structure. So they do it slightly different ways in the way that they strap. The strapping concept would result in the same modification to Weaver.

And then with Claim 7 and 8, again, reusing the same lower level -- lower layer for the gate and the upper layer for the source drain, it's a very consistent, well-known technique. So that is Ground 3. Any questions on Ground 3?

All right. Now, I will move to Ground 4. I apologize, I'm not good about advancing slides. So Ground 4 is another tool in the toolkit of a designer. Contact windows. So what you do is you can create a contact window. So when you lay down your layer, your metal layer, some of the metal layer will fall through the contact window and make another electrode. It's electrically isolated from the layer that you just put down.

And so Lee149 is an example of this contact window. So what you do is -- it's kind of hard to see, but you create a window between these two -- between this layer that comes up and there's a gap. And so when you lay down this green layer on the top, that metal will fall through and form what's colored in red as your auxiliary electrode. And the auxiliary electrode that's formed there is to the side of the LED, just as it required by the claim.

So the obvious use of a contact window is simply just take Lee's contact window and place it to the side of the Weaver LED. And now you've got a second - a auxiliary electrode, lowers the resistance of the anode. And Lee teaches that you do this to lower the resistance. And it also

teaches that you place it to the side of the LED, exactly what the claim requires.

Claim 11 says that the auxiliary electrode that you made has to be the same layer as the cathode. Well, when you lay down the cathode, that layer falls through the window and creates your auxiliary electrode, same layer. So it's exactly what's called for in Claim 11.

I know I'm going fast. Any questions?

JUDGE CHERRY: No, thank you.

MR. LIMBACH: Forty-five minutes is not long. Okay.

JUDGE CHERRY: You can reserve time for rebuttal.

MR. LIMBACH: Yeah. So Ground 5 is just like Ground 4. It's just another example of using contact window. In other words, it's well-known. Lee told you how to do it, now, Bae tells you how to do it. Again, same concept, there's a contact window. You let the metal fall through the contact window. You formed your auxiliary electrode to the side of the LED. And all of these that say contact window tell you, you do this to reduce resistance. There's your motivation. You always wanted you do lowest resistance as much as possible until you meet your specification.

Now, for a particular application, maybe you don't need super low resistance, but a lot of applications you do. It would have been obvious. It's one of the tools in the toolkit. A designer has many tools, these are just a few of them.

So any question on Ground 5? All right. I'm going to jump ahead to Ground 6 through 10. So Ground 6 through 10 is if we offered a known construction just because we knew once we filed the petition, there might be an argument to narrow the claim to require a reduction in resistance. The

obviousness to do that would simply just take the anode and extend it in parallel with the bus line of Weaver all the way to the power source, the VDD line to lower resistance. Parallel connection, another tool in the toolkit for a designer. If you want to lower resistance, instead of stacking them on top of each other, you can connect them side by side or underneath.

But you run a second line in parallel with the first line that always reduces resistance. There's an electrical formula that I'm blanking on right now, but there's a name for it. But anyway, a parallel conductor is a lower resistance than the single conductors by themselves.

Gupta teaches you to do that, to do a -- they call it a resistor, but it says it's just a conductive mesh. And I have not advanced my slides. And I'm on Slide 44. It's formed of a conductive mesh or a strip that's an electrode. And it's a supplemental electrode because it reduces the resistance of the pixel because it serves in an alternate path.

One thing that I should say is this also meets the construction for Patent Owner. If you do this in pure parallel form, it meets their construction as well. So even if you were to adopt their construction delivery, this would be the grounds that meet that definition.

Han also teaches in the same field of art parallel connection, lower resistance. So on Slide 46, it would have been obvious to add or extend the anode 46 and the busline 430 schematically here, where you run those lines physically from the light emitting device all the way to the VDD line, that lowers resistance and that is a goal of pixel design.

Now, Patent Owner has got arguments against these two secondary references. They say, well, Han's not analogous prior art because it's too big. Pixels are too big. The problem of high resistance and the solution of

adding an electrode in parallel to lower resistance exists at any size. It doesn't matter how small it is or how big it is. And Hans specifically identified that problem and that solution.

For Gupta, what they argued for is that the claim Element 238, well, it's called the resistor, that can't be an electrode. All Gupta is recognizing is that any electrode, any metal, has got an inherent resistance to it. Everything is a resistor. And Gupta says that it's a conductive strip, it's an electrode. And even Patent Owner's expert admitted that Gupta's conductive strip is a conductor so that there really is no merit to that argument.

Lastly, on Grounds 6 through 10, Patent Owner argues that there's no reason to modify Weaver than simply make the lines bigger. That is in the toolbox. But that's not something a designer would just not look at any other tools in the toolbox. Maybe you can't make the lines wider. Maybe you've maximized the width or the height of the metal lines and you need other tools to make -- to get the resistance lower.

And if a patent -- if a POSITA would never consider anything other than size, well, then why does Lee and Bae both have contact windows? If they could just make the lines bigger, they would have done that. Well, they obviously recognize that making lines bigger is not always optional, and so they got the contact windows. Same could be true about the '509. Why do we have an auxiliary electrode? If we can just make any line bigger, then there'll be no reason for the '509 Patent at all. They're arguing against their own patent.

Now, we come to PHOSITA. So we've got competing POSITA definitions. We believe our POSITA definition is more appropriate. This

patent is about circuit design and circuit layout. It doesn't care about what the load is. The invention is where this auxiliary electrode is, wire, where it's physically located, what it's connected to, and it lowers the resistance to a load. Yes, the load is a light emitting layer, but the invention is electrical. So you should have a degree in electrical engineering. And you should have one or more years of professional experience with electronic and optoelectronic system on them. That is an appropriate scope of a POSITA.

Now, Patent Owner says, no, you should have a degree in a field of engineering or physics. That's not appropriate. A POSITA, a biomedical, civil, chemical, environmental engineers, they're not going to know about circuit design and all the things that go into what is going on with this patent. So the degree that they've identified is not appropriate.

JUDGE DANG: Excuse me, Counsel, let me have -- a question here. You're talking about POSITA, I guess the question is, really, would a person of ordinary skill in art do the modification and that -- so that is important to define a POSITA. And so in your Ground 3 for example, you're proposing to etch into the bus line. And I -- Patent Owner is saying, would one of ordinary skill in art do that? Because wouldn't you be changing the process in that? And so we do need to know, I guess, somebody of ordinary skill in art that would be doing these kind of methods to be able to say, hey, it would be obvious to etch. So could you address that?

MR. LIMBACH: Yeah. So the electrical engineer does the layout and the circuit design and so forth. Keeping in mind that everything that they design has to be able to be made by the process. So they are familiar with the process in terms of how their wiring is made. They know about

etching. They have to make sure that they don't place something where it can't be properly etched.

So if you talk to a POSITA with this experience with electric -- electronic and electro-optic circuit design, they know that they do not design in a vacuum. It's not this -- the process is one thing, and design or layout is another. They work together. Because if you work in a vacuum, the design will never work. So it's not that black and white that there's this process and there's circuit and layout design.

The guys that are sitting down, the guys -- or men or women who are sitting down and making these devices -- and I've spoken with them -- they've got this very -- these elaborate software tools. And it's taken into effect when they move things around and design things, the process is loaded, and they have to make sure that they can make them.

JUDGE DANG: Right. So in these processes, we are, I guess, you know, creating this LED, right? And so don't we need somebody that's an expert in LEDs, diodes, in order to change the process to etch certain bus lines and all that. Do we need somebody in that field in order to be able to say it would have been obvious to one of ordinary skill in the art to do that?

MR. LIMBACH: Right. So the whole design is -- it's -- the '509 Patent teach the -- treats the light emitting layer as a load, electrical load. It doesn't care how the mechanism for how the light is generated. It's a light emitting layer. It can be anything as long as it's emitting, you know. An electroluminescent device is something that transforms electrical current into light. And the lighting emitting layer is just that, it's electrical load that generates light.

The real secret, the -- all the concern about this is how to get that

electrical current to the load with the lowest resistance possible. And their invention is a wire. It's simply just an auxiliary electrode positioned here and connected to there. So you don't have to have this immense experience about what the light emitting layer is or how it's made. Because to the '509 Patent, it's just a load that generates light. Notice that the claims don't recite what the -- what that layer is. It's just an electrical load.

JUDGE DANG: Thank you.

JUDGE CHERRY: Does the '509 Patent have much disclosure about the manufacturing process?

MR. LIMBACH: No, it's not claimed. It's not talked about. Maybe briefly if you're talking about maybe contact windows. But no, there's no process flow in it. And there's no processes claimed.

So my last slide, because there's lots of arguments over who's a POSITA and who's not a POSITA. So Dr. Bretschneider, Patent Owner's expert, has a degree in chemical engineering, not electrical engineering. It's not the right -- there's nothing chemical about these claims. There's no process, there's no steps. I think only one - I don't think there's any specific materials. This is really just an electrical circuits issue and how to make them, how to connect them where your insulation layers are.

A telltale sign of this was I asked their expert, okay, you got expertise in designing these things, what software do you use? I even gave them the name of Synopsys. Synopsys and Cadence are the two big tool makers, software tool makers. He went with SolidWorks. SolidWorks is something you use for design of mechanical devices. He didn't even know the software that you use to design circuits. So he really doesn't have a lot -- a whole lot of credibility. He's got the wrong background. He's a chem

guy, he's not an electrical circuits guy.

JUDGE WOOD: Petitioner, you want to exclude his testimony; is that correct?

MR. LIMBACH: No. Just give it no weight. I think that if you read his deposition transcript, every time he got to a tough question, I have no opinion. I think that his evasiveness is enough that -- just don't give it much of any weight. And that's fine. We don't need to move to exclude, that's -- we didn't think it was appropriate.

JUDGE WOOD: Thank you.

MR. LIMBACH: Dr. Baker, on the other hand, he has a degree in electrical engineering, the right background to design circuits. He's got extensive experience in flat panel display design, including at the pixel level. He even has a patent on the pixel structure of field emission displays. All of those type of displays, again, they take electrical current, they generate light, same problems.

You got to get the circuit to get the electrical connection to it. And he's worked in this field for 20 years. And if you look at his answers, he's a credible witness, despite the accusations from the other side.

I believe that's all I have. I'll reserve the rest for above unless you have any questions.

JUDGE WOOD: No questions. Thank you, Mr. Limbach.

MR. LIMBACH: Thank you.

JUDGE WOOD: Eight minutes left for rebuttal.

MR. TONG: Thank you, Your Honors. Peter Tong here on behalf of Patent Owner. I'm here to present the Patent Owner's demonstratives. And you heard from Petitioner that they think the invention is really just a

wire. And I am here to show you that that is not the case. We've heard many of their theories. They stretch claim construction. They provide you with combinations that their expert proposed.

In hindsight, we are going to expose all of that. Their combinations either do not work or directly violate the rules that Dr. Baker himself laid out and said you cannot do.

And these types of contradictions are the key indicators of hindsight. It is what would a PHOSITA have actually done, not, you know, can you forcibly combine something that has existed to meet the claims? That is the wrong question.

So turning to Slide 1, I'm going to, again, start with the technology background. And that is important here. The Board is, again, presented with the difficult question of discerning what is obvious versus what was nearly possible that was realized by the inventor of the '509 Patent. And in order to do that, we need to really understand what the technology is and what the benefit was.

So let's turn here to Slide 2. This is the '509 Patent. It's titled the pixel structure having light emitting device above auxiliary electrode. And the key here is auxiliary electrode. We're going to get into the claim construction of how electrode is different from the wire that leads up to the electrode.

If we turn here on Slide 3, we see different embodiments from this family. There are other claims -- other patents that claim the different configurations. But what is shown in red is the auxiliary electrode. And that is auxiliary to the first electrode that is shown in light green. They work together. They work in union -- unison as construed by the District Court.

And let's pay very close attention to what's shown here on Slide 4. This is from the specification. Therefore, the design of the invention that coordinates the first electrode layer of the light emitting device with the auxiliary electrode. So first of all, this answers what is this auxiliary to. The auxiliary electrode is auxiliary or supplemental to that first electrode layer, okay?

Decreases the resistance of the first electrode layer through parallel connection, yes, this is a non-limiting embodiment. But, you know, that's a primary way this happens so as to significantly reduce the total resistance of the pixel structure. Those are the keywords that they search for in the prior art. And you heard them, you know, they found prior art with those keywords, but they didn't really understand why. They are just trying to match prior art with the keywords.

But the key is that's not the benefit. So what? It's really there at the end. Thereby, improving the overall luminous uniformity of the display panel. And that is important. It is because when you have a screen, you want every single pixel -- if you want it to be white, you want it to be equally white. If you want it to be blue, you want it to be equally bright blue.

So turning to Slide 5, this is the demonstrative that I created to kind of explain it. The problem is that we have these wires running from your power source. And the wires have an intrinsic parasitic resistance that you cannot avoid. That means, on the left side, if you just have a traditional LED, that LED may see, for example, 135 milliohms of resistance, the power source. And it will be bright.

And a wire that is farther away because it has to -- you know, the

current has to travel through a little bit more wire. There's an extra 10 milliohms of resistance in the way. It's going to be ever so slightly less bright. And when you have a big grid of LEDs, well, the LED at the very end may be noticeably less bright than that at the beginning. So the patent is about improving the -- reducing the resistance of the connection of that pixel, the one individual pixel, not the whole wire, so that you can control and offset that last pixel that is the farthest away.

On the right-hand side, for example, we can adjust the resistance of each pixel, make it, for example, either 15 milliohms or 5 milliohms. But you notice that offset. It is 10 milliohms less. And that offsets or compensates for the additional wiring resistance. The goal is, is not to simply reduce wiring resistance, it is to get improved overall luminous uniformity.

Dr. Baker didn't get it. This was exposed in deposition. And we'll get to that in a bit. Before we do that, I have the claim here, along with an example embodiment, the auxiliary electrode, it's there in red. What is it auxiliary or supplemental to? It is the first electrode layer, and that is in light green. There are other elements here, but those are generally not where the dispute is.

So that takes us to claim construction on Slide 7. Again, this report recently construed the claims. We've got a couple of issues, one is with indefiniteness of Claim 1. And we addressed that this morning. I'm not going to rehash it again. But the same arguments apply here. And the other is the meaning of auxiliary electrode. And that is really the issue here.

Now, the District Court appears to have construed what does auxiliary mean? It means that this auxiliary electrode, it works in unison

with another electrode. As you can see in the claim, the most indented part, that first element, a first electrode layer electrically connected with the first auxiliary electrode. Those are the electrodes that are working in unison with each other.

We addressed the argument on Slide 9 earlier this morning, so I'm going to skip that. But the District Court did not address what is an electrode. Now, Petitioner is saying, okay, it's any conductor, any wire, any metal. That is not what an electrode is. It's common sense, if you go to a hospital, you know, they have these electrodes and the things that lead up to them, those are called wires or leads. The electrode is just the end portion for making contact.

What this invention is about is you have your primary electrode, let's say, you know, you get that round thing, you stick it on me. But then you've got a supplemental electrode, maybe you stick it on top, maybe stick it on the side. But what they found is prior art that is just that -- there is only one electrode. And they're saying that the wire is your auxiliary electrode because it's a conductor. And the round thing is your primary electrode.

That's the analogy that we're faced with here. This invention is not about a wire. It is about making a pixel that has two of those end structures. They work in unison to improve overall luminous uniformity by way of reducing resistance, or at least they have to work in unison. That's what the District Court said.

And I want to jump for a moment to Slide 37. This is something that they ignore. This is a citation to the '509 Patent itself. Again, we see in the bottom right, Figure 2, we all agree that the auxiliary electrode is there. We saw it in red earlier. But what is the power line shown from Figure 1?

That is not the auxiliary electrode, okay? That power line is equivalent to the bus line in meter.

And that is omitted from Figure 2. It is not the electrode. It is something else. It is like the wire that leads up to the electrode. It is not itself the electrode. And that is the difference, the commonsense difference that -- you know, that's why this prior art does not anticipate. There is a difference between a mere conductor and an electrode.

So I'm going to go back to --

JUDGE CHERRY: So what is the difference?

MR. TONG: The difference is an electrode is the end structure for delivering, like, current to a load or the end structure for making contact. If you think about -- if I ask you on a battery, Your Honor, or think about your car battery, where are the electrodes? You would probably think, oh, it's those little two terminals on your car battery, right? And, you know, maybe if you need to jump your car, you would connect jumper cables.

Have you ever referred to your jumper cables as an electrode? Probably not. And that's the difference. Your jumper cables are the wires that are coming off the electrodes, but your jumper cables are not the electrodes.

JUDGE DANG: Counselor, can we go back to maybe your page 6, Slide 6, Figure 2?

MR. TONG: Yes, Your Honor.

JUDGE DANG: What about Petitioner's argument that 136 is an electrode?

MR. TONG: Yes, Your Honor. That would be the second electrode layer that's not in dispute.

JUDGE DANG: But that is not an endpoint.

MR. TONG: This entire green structure, 136, is the end structure. I mean, I believe they colored it this way in the original position and -- or we colored it this way --

JUDGE DANG: Okay. I'm sorry, I just want to clarify because you're saying that a line cannot be an electrode. But what about this as an entire layer as an electrode?

MR. TONG: Yes, Your Honor. What you see in the dark green is the end structure. Again, the line that connects to this is not shown in this figure. We saw the '509 Patent explicitly say that. You've got a wire coming off of it. It is not in this cross section. It's coming off of it, maybe going into the page or away or something else, maybe it's another layer, but it is not shown here. The line is not here. The dark green is not aligned. The dark red is not aligned. The light green is not aligned. These are not the wires. These are the electrodes, the end structures.

JUDGE CHERRY: The end structure of what?

MR. TONG: It is an end structure of the electrical pathway. And its purpose is to deliver current into the blue light emitting layer.

JUDGE CHERRY: So in the -- in terms of the -- if we looked at this in three dimensions, how does the -- are you saying that the green layer and the red layer don't extend across the array of -- in the third dimension?

MR. TONG: They might extend a little bit in the third dimension to -- you know, underneath the light emitting layer. But they would not, for example, go all the way to the power source. That's what the wire is, you know. Again, if you think of that electrode, that's -- you slap that medical electrode that you put on your chest to read your heart signals. Yeah, you

know, it goes a little bit in some dimensions, but it stops. It's limited. It's that end structure right there. That's what we're talking about. We're not talking about the wire. And that's all the prior art has.

JUDGE DANG: I guess it comes down to what is an endpoint. I mean, what makes an extension not that much of an extension, I guess?

MR. TONG: Right, Your Honor. And you can consider the typical shape, maybe if they're just -- there's a distinguished material at the very end that is being used for an electrode, it's what the patents refer to as electrodes. That's a great key. What did the patents say -- what did the prior arts actually call an electrode? If something is called a bus line, that's not an electrode. That's more like the power bus or the power line.

We can see, you know, the non-litigants, how they use these words when they're not motivated to invalidate something using prior art, that's how they refer to it. If they call it an electrode, yeah, that's how -- that's what a PHOSITA would have said. Did they called it a bus line? No.

JUDGE DANG: Well, if a bus line has an end, would that end be an electrode?

MR. TONG: The end structure, if it was just --

JUDGE DANG: Any line would have an end and, you know, two ends, I guess, in a line.

MR. TONG: Yes, Your Honor. So for example, if you took a piece of copper wire and you wrapped it around like a battery terminal, that end portion that, you know, curls around the terminal of the battery, yeah, you could say that's the electrode part, but not the rest of it. It's just a wire.

JUDGE DANG: So therefore, a bus line comprises an endpoint, right? And now, therefore, it comprises an electrode.

MR. TONG: A bus line, if it is -- whatever structure on the end of it, that is the electrode. But you cannot point to the entire bus line and say the entire bus line is the electrode. Does that make sense? The electrode is just the end portion that makes -- for making contact. There's a certain structure at the end. That's what it is.

JUDGE CHERRY: I guess my problem is that -, I have a radio at home, and it's connected to a bus bar. And , under your construction, then only the ends of the bus bar would be an electrode. But I connect my grounds to all along the pipe. So, how do you distinguish that? I think the endpoint is where we're having a problem. It just seems to interject an ambiguity and an indefiniteness to their claims.

MR. TONG: Right, Your Honor. It would be those locations where it makes like some type of connection or contact. But you wouldn't say that the entire bus bar is an electrode. In fact, you refer to it as a bus bar.

So with that, I'm going to move to Slide 11, which is again for similar reasons, as we heard this morning, Dr. Baker is not a PHOSITA. Field emission displays are not LED devices. And he, again, does not have the relevant LED or OLED experience.

Before I move into this, I just want to address real fast, Dr. Bretschneider, he's a chemical engineer. He has actually worked and designed LED devices. That's his primary industry for decades. You can look at his CV. Chemists are involved in this process because they are involved in working on the semiconductor fabrication techniques for doing all of this, just like electrical engineers are. I mean, these are semiconductor materials, chemists get involved.

Why did he give no opinions on certain things? Well, it's because

they didn't matter or they weren't relevant. I mean, as you can tell now, what really matters is the bus line, an auxiliary electrode. That's the argument. There's really nothing else that is important in the primary reference.

So the question is here, as we see on Slide 12, does Dr. Baker have a relevant degree? Yes, he does. We admit that. Is there some -- does a PHOSITA need some experience in LED or OLED technology or flat panel displays? We say yes. Why do we say that? If you look at Slide 13, title, pixel structure having light emitting device above auxiliary electrode. The field of the invention says that the invention relates to a pixel structure and particularly relates to a pixel structure capable of improving the overall luminous uniformity of a display panel.

LEDs and displays face specific challenges. This is something that Dr. Bretschneider explained, okay? These have very specific requirements in terms of heat, power, current, color, density, and you have to combine all of those together.

If we look at the claims, they are about pixels, they're about LEDs, light emitting layers. The technology is clearly pixel and LED focused. It is not general optoelectronics. Experience, for example, using a CFL light bulb does not get you the experience needed to offer opinions about this.

On Slide 15, you know, we --

JUDGE CHERRY: Dr. Baker has experience with microelectronics, right?

MR. TONG: Yes, Your Honor.

JUDGE CHERRY: Okay. I look at the patent, it has, you know, circuit diagrams. It's talking about -- we're talking about resistance, about lowering resistance in a circuit. Are you saying that Dr. Baker's experience

is involved into that?

MR. TONG: He certainly has some experience in circuits but not for the specific problems related to the design and placement of LEDs in displays. That's why, for example, he failed to appreciate that the issue in this case is not just about lowering resistance. It is about improving the overall luminous uniformity. And that gets us into the -- some of the hindsight issues. Starting on Slide 17 --

JUDGE CHERRY: Yeah. I'm taking a little issue with the overall luminous uniformity because where is that in the -- or do you want us to interpret that into the claim?

MR. TONG: No, Your Honor. I just want you to understand that that is the ultimate purpose. It goes into seeing through some of the hindsight. It's important to understand that -- we're not asking Your Honor to read it into the claims. But it goes into why would a PHOSITA do certain things. It's important to have non-contradictory testimony.

Director Squires just terminated an IPR earlier -- I believe earlier this month -- because of contradictions. This is a keyway to determine whether or not a PHOSITA is -- or an expert in this case is using hindsight or is it something that an expert would have actually done. So let's take a look. We heard earlier, they said, well, you'd make this combination or that combination to lower the resistance, Lee053 and Weaver to lower the resistance; Song, in view of Weaver, to lower the resistance.

Slide 20. Lee149, in view of Weaver, to lower the resistance; Bae, in view of Weaver, to lower the resistance. Yeah, they found that keyword. But what Dr. Bretschneider came in and said, okay, well, let's say a PHOSITA really did want to just lower the resistance and they started with

Weaver, they wanted to lower the resistance of this bus line.

What would they have done? Well, here is a simple commonsense solution that the PHOSITA would have implemented without hindsight. They would just make that bus line a little wider or a little thicker. Why? Because the resistance for resistivity is, you know, each length of wire has some resistance, but that resistance goes down if you make it wider or thicker, okay? That is a simple no hindsight solution. And it does not involve any of the strange, complicated techniques that they are proposing.

So what happened in deposition? I asked Dr. Baker about this. Like, why wouldn't a PHOSITA just do this instead? Why would they go and jump through all these hoops and make all these complicated structures and -- well, he didn't have a good answer. He said, well, you can't. A PHOSITA wouldn't be able to modify the process, meaning you cannot change certain things in the fabrication process. He's saying you can't make this line wider. You can't add layers. You can't do this or do that.

Okay. So that is the restriction that he imposed on himself. And what did Petitioner argue? Well, you don't want to do that because if you make (INDISCERNIBLE - TECHNICAL DIFFICULTY) A, proposed modifying Figure 4 to be even wider. Why? It's because they're trying to come up with something that reads on the claims. They're not trying to follow their own motivations and their own common sense. This was not an isolated event.

Dr. Baker, again, he could not say why a PHOSITA would have not just done the simple solution. There are numerous parts on page 123, 139, 137, that says that would be the only option they have because they can't control the thickness because the process is set. He says a PHOSITA is

not a person that is changing the process or changing the thickness. And he takes issue with any assumption that a PHOSITA will be able to modify the process.

What does the Petitioner argue? Well, in the petition, right there, on -- highlighted on the bottom, they say, we're doing this to allow for reduced wiring widths. Well, can you change the width or not? Make up your mind. On one hand, Dr. Baker says, no, you can't change the process. On the other hand, they're arguing, yes, let's do this so we can change the width.

And not only that, but if you look at their proposed combinations, okay, that bus line 430 is a metal that acts as a stop etch. The fabrication process of making that via is to pour an etching solution into the layer that it's etching through and it will be naturally stopped by that bus. What we see and what Dr. Bretschneider explained is shown here on the next slide, which is in their proposed modified design, they etch through the metal. They have changed the process.

And that is something that Dr. Baker said he cannot do because -- a PHOSITA can't do that. Otherwise, you know, the thing to do is just make the bus line a little wider. They can't get around this contradiction. It's all hindsight.

In deposition, Dr. Baker had spent 115 hours preparing himself on all his theories. And I asked him, like, okay, well, the petition isn't really clear as to how you're combining this. Let's go -- show me how you're combining it. We submitted the videos. And I would ask the Board to take a look. I gave him very fair questions. I asked him to try and make this as clear as possible for me and the Board so that I could address it.

And he kept messing up. He himself did not know how to combine the references that he said could be combined. Why? That's because in the petition, they just said, look, here's some stuff in the primary reference, here's some stuff in the secondary reference, just combine it. And they gave no thought whatsoever as to how to combine it.

So when I asked him in deposition, he didn't know how. When he tried to do so, look on the right, he said, he made an attempt. And then he said, I made a mistake here because they're shorting out the LED. So I'm doing something wrong here. Hold on. Let me look at the claim language. He is looking to the claims to figure out how to fix his unworking proposed combination. That is not something - that is not a combination that is obvious.

As I mentioned earlier, Slide 30, he spent 115 hours. If an expert with a PhD in electrical engineering cannot figure out how to combine two references together after looking at them for 115 hours, respectfully, the answer of how to do that is not obvious. And then he just didn't understand the invention. Initially, when I asked him the question about, would uniformity improve if you were to lower the resistance to all of the pixels. He thought that's what was taught in the patent. But no, as we looked at earlier, it is about reducing the resistance to the pixels that see the farthest -- that are the farthest away to offset the additional wiring resistance.

And he eventually came around to that. I asked him a set of leading questions after this. And he fixed his answer here on page 94. So eventually, he realized it. But he didn't know that, he didn't get it.

So that takes us to Ground 1, Weaver. And this is the dispute about what is an auxiliary electrode. Okay. On the bottom, that's the bus

line 430. On the right, that is the bus line 430. And on the left, that is a circuit schematic. That bus line is what connects to your power supply. And the issue is that this is not an electrode, it is a bus line.

Again, this hinges on the construction of, is an electrode a different word from conductor? Why did the claims not just say conductor? Why did the claims and the patent, specifically, use the word electrode is because these are different words, they have different meanings. Yes, an electrode is conductive, but that's not all it is.

And again, I want to reiterate the point that the power line in the '509 Patent is not shown in Figure 2. It does not correspond to the electrode 120. So it would be very unfair to invalidate this patent by pointing to a power line when the '509 patent says that's not in here, that's not the electrodes that we're talking about.

Just as a point of fairness, a power line, a bus line, these are not the electrodes in the figures, and it is not anticipatory. And just, you know, common sense, the wire that leads up to the electrode is not the electrode. That's like saying, all right, well, there's the primary electrode that you slap onto someone, and the wire is your auxiliary electrode. No, it's not. It's not an electrode.

JUDGE WOOD: And to be fair, that's a different art.

MR. TONG: Yes. To be fair, it is a different art, but the definitions and concepts apply electrically, Your Honor. And that's just, you know, easier to relate to since we don't see pixels, at least pixel structures in our day-to-day lives.

Now, we get to the combinations. So Lee053, in the next ground, this is about using dummy wiring, repurposing dummy wiring to create a

parallel connection that reduces resistance. There is no dummy wiring to be repurposed. Dummy wiring is either like leftover wiring or maybe wiring that was used for testing and no longer has a purpose. It's dumb. It's not doing anything. It's not an active part of the circuit. That's what dummy wiring is. It's not here. There's no dummy wiring to repurpose.

And again, we are reminded that Dr. Baker repeatedly said that a PHOSITA would not modify the process when making a combination. And what does he do? He modifies the process to say, oh, well, let's change the whole thing up. Somehow, we're going to make this bus line -- make the via go through the bus line.

And in addition to just changing that fundamental part of the process, he's actually made the bus line narrower, which is incredibly difficult to do. In semiconductor fabrication, the difficulty is not making things wider. You can almost make anything wider by just making more of it. For example, if you have a 0.5 lead pencil, you can draw a line that is 0.5 millimeters in width, but you can't draw a line that's 0.3 millimeters. If you have a 0.5 millimeter pencil, you can, you know, make a few lines up and down and make something wider.

But what he's done here is he's cut the bus line 430 in half and made it very, very narrow. This fabrication process does not support making anything that narrow. He's fundamentally changed the process, despite what he said earlier. And this is the type of self-contradictory testimony that shows his testimony is driven by hindsight. It is intended to map to the claims, not to show the Board how a PHOSITA would have actually thought.

That takes us to Ground 3, Weaver and Song, you know, similar

issues. We have this complicated structure as they admitted earlier in their argument. There are multiple layers here that form the auxiliary electrode, SE1, SE2, SE3 and even another layer, I think it's ED, that's what forms your auxiliary electrode. You can see another version of it here.

Do you see those layers being added to this? No. They're saying that somehow you use a completely different reference with a completely different structure. And if you copy that over, apply it here, you get the same thing. And it's still -- you still have to change the fabrication process. If you can make bus line 430, if you can cut it or change your fabrication process, why not just make it a little bit wider, achieve the same thing? You can't.

Ground 4, Weaver, same thing. No, you know, I asked him about this in deposition, what did he propose? Well, the modified structures, they, first of all, are both extended out to the side. You've made your pixel wider. You could have accomplished the same thing by just widening the bus line. And again, he didn't really know how to do it. He was looking at the prior art; he tried to combine it.

And he admits, I made a mistake because they're shorting out the LEDs. I'm doing something wrong here. Hold on, let me look at the claim language. He's looking at the claims, our invention, for guidance. That's not what a PHOSITA is supposed to do.

Later on, I believe, in a supplemental report, they again come up with another theory as to how a PHOSITA would have actually done this and, oh, no, you know, the depositions to time pressure. I didn't have enough time after looking at this for 115 hours. Well, they come up with another design that is, again, still wider and results in their unwanted

reduction of pixel density that they say is a driving reason not to just make the bus line wider.

And not only that, but Dr. Bretschneider has pointed out, well, this thing doesn't even work. Why? Because on the very right, you have shorted out the anode and the cathode. So you know, that's a short circuit. Your LED is never going to turn on. You've again been driven by a motivation to combine things for the sole purpose of invalidating the claims, not to make a device that will actually work. This is not representative of what a PHOSITA would have found obvious. It won't work.

That takes us to the next set of combinations, Ground 5, Weaver and Bae. Again, they have issues with looking at the claims in order to figure out exactly how he wants to do this. He was caught looking at the claims and making the combination. And he still created something that is too wide. It reduces pixel density. Why not make the bus line a little wider? No idea. And again, you know, we have the same issue with this thing's not going to work. The anode and cathode are shorted at the very end.

It takes us to Ground 6, Weaver and Lee, in view of Gupta or Han. So this really is two separate grounds that they've kind of mushed into one, and I'm happy to address both. Dr. Baker has explained that Han is not really analogous art. The pixels are tiny. They are either on the scale of millimeters or submillimeters.

What is described in Han are large area OLEDs. They would be, for example, as large as any of these lights. You could replace one of these CFLs with a large area OLED. That is the scale of how big those things are. And yes, they are governed by the same fundamental scientific principles, but they have different effects at different scales.

For example, consider me and friction and gravity. I'm a human. If I were to go up that -- to that wall right there, I could not climb it with my bare hands. But if you were the size of an ant, you could climb up that wall. You're bound by the same force of gravity and the same forces of friction. But at that small scale, the force of friction is a dominant force and allows you to overcome gravity. So the forces at play have vastly different effects at these different scales.

The concern about current distribution in these types of large area OLEDs simply are not a concern for PHOSITAs or who are actually those of ordinary skill in the art when they are looking at pixel design. But perhaps more telling is if you look at Han's solution, which is to use parallel branched electrodes to make sure your current gets distributed to all of your OLED, your light emitting layer. That's how Han says to address the problem.

And if you were a PHOSITA who were not trying to invalidate the claims but actually combine the technology, what would you do? Well, Dr. Bretschneider said, look over there on the left. That's how you would have done it. You would have, you know, put a couple of parallel paths, make them all touch the light emitting layer, and that's what you would have done. You would not have come up with whatever proposed solution they came up with that's very convoluted and confusing.

Now, Gupta, again, this is the disclosure -- the structure that is disclosed in Gupta. It is about a mesh resistor. And I agree, it's a conductor. But that's not the dispositive point, okay? The dispositive point is put yourself in the shoes of a PHOSITA. Gupta has just taught you, hey, use this mesh, okay? Now, ask yourself, all right, where does it go?

How do I combine that with Weaver? Which part of the circuit does it go on? Does it go on the top, the bottom? Which layer is it? And if you don't know the answers to those questions, if the answer is not obvious in the minds of Your Honors right now, then they have failed their burden of proof.

On Slide 62, we see perhaps the closest thing that they've come up with that gets at the ability to improve overall luminous uniformity. But Dr. Baker repeatedly admitted in deposition that this -- there is nothing -- no physical structure, no layout, no side view that corresponds to this. He says, here at the bottom, it doesn't make sense that a specific structure has a physical relation to a schematic.

He's saying, I don't really know how exactly you do this in a layout. I don't know the physical layout. You do it somehow, but it's not there in the petition. He doesn't give you a figure showing how it would actually be combined. And we did not get to the part in deposition where he was asked to do this because just due to the difficulty of imposing a mesh on the cross-sectional area. But I'm happy to show the Board a couple of more points to drive this home.

This is the deposition transcript of Dr. Baker. If we go down to page 66, he said, and what is important here is that there is no physical correlation between the schematic and a layout or cross-sectional view. In other words, he has completely avoided saying that that circuit that he drew up has any physical embodiment that could be made.

Let's look at page 79. So again, a schematic has no direct bearing other than detailing how components are connected together on the physical implementation of the circuit. He was unable to give Your Honors a picture

of how to actually combine these in a layout. Because what would he have to show? That he is either modifying the process or making it bigger or he's probably going to contradict himself in some other way. We don't know it, but it's not before the Board.

So for all of these reasons, I want the Board to take away two key points, one is that all of these combinations were made. In hindsight, a PHOSITA would have -- if you wanted to reduce the resistance, just make that line a little bit wider. It's easy, it's simple, that reduces your resistance. There's absolutely no reason whatsoever to jump through all of these hoops and make all of these nonsensical combinations that make the device wider and that require changes to the process.

And number two, it would be unfair to invalidate a claim on a first electrode and a primary electrode using prior art that teaches an electrode and a wire. Those are my two main takeaways.

Are there any questions I can answer for the Board?

JUDGE WOOD: I mean, that -- your second point about fairness, it comes down to claim construction.

MR. TONG: That is right, Your Honor.

JUDGE WOOD: I mean, it's not unfair if we come up with -- if we construe the term to include, you know, what you're referring to as a wire. Then it's our job to apply that construction. So it really -- it's not an issue of fairness, it's an issue of claim construction.

MR. TONG: Right, Your Honor. And I would ask Your Honor to address the question of why the (INDISCERNIBLE - TECHNICAL DIFFICULTY) the power line is not called an electrode in the specification of the '509 Patent itself. It's called a penology that used to refer --

JUDGE WOOD: (INDISCERNIBLE - TECHNICAL DIFFICULTY) don't require verbatim teachings. But I get your point, you know. There is more than just, you know, a terminology difference, it's a functional difference and perhaps a structural difference. So we will definitely consider your arguments very carefully.

MR. TONG: Thank you, Your Honor. And I reserve the remaining five minutes for rebuttal.

JUDGE WOOD: Mr. Limbach, you can begin when you're ready.

MR. LIMBACH: Okay. Thank you. I will try and speak quickly, but not too quickly. First of all, there was a graphic that said that the voltage was applied through the primary anode in one of their drawings, not the one that's on the screen right now. The patent is silent as to what connects to the power line. Is it the auxiliary electrode, or is it the anode? The patent is silent; it doesn't tell you which one. So that was a graphic that is not accurate.

In terms of uniformity, how many pixels are in Claim 1? One, it's not about uniformity. And this issue about, oh, Dr. Baker was so wrong. If you reduce all the pixel resistances, that's not going to increase uniformity. Well, an electrical engineer knows the answer to that is yes. If you have pixel values that range between 100 and 200, for a window of 100 microohms.

And you add an auxiliary electrode to have the resistance to every pixel, instead of going from 100 to 200, you're going to go from 50 to 100. And your window is going to go from 100 to 50, increased uniformity. Basic electronics apparently lost on the chemistry expert over on the other side. Electrode and end structure, how does an end structure have a parallel

connection? Their construction cannot be right.

And the Board accurately reflected on the fact that they keep relying on hospital cables as their support. And that's a different art. They never addressed how layer 136, the entire -- they say, well, that's an electrode and somehow it goes into the paper. But the problem is 136 makes two electrical connections in two different locations. They never explain why that's not -- that there's two electrodes there.

Again, this goes back to their expert. I asked him that. And he said, I have no opinion. He has no opinion because there's no good answer. No good answer because their construction cannot be corrected directly, it contradicts the patent.

And then I think another point, where does an end structure end and the line begin? There's some ambiguity there. The patent doesn't even address that concept. This business about modifying the process, this came about because Dr. Baker was being asked, well, when you're designing circuits, why can't you just make the thickness thicker?

You don't have to go through a contact window or a second electrode layer, just make things bigger. The point that he was making is he was dealing in reality because he's actually done the designing. When you design a chip or a display, you have different groups of engineers working on different modules. And so everyone's got to be speaking the same language.

Okay. So we're going to have -- this device is going to have five metal layers. It's going to have these insulators and so forth. And you have to make your circuits work with those five metal layers. And these are going to be the thicknesses and these are going to be materials. You can do all the

calculations on resistance, make your circuits work. So you don't have the luxury when you're sitting there designing to just change the process. That was the point that he was making.

Now, if you get to a point where one of the circuit groups says you can't make it work. Well, yeah, then you change the process so that that group can then get over that.

JUDGE CHERRY: I think that what we're struggling with is he resisted -- he said you can't change the process. But then he proposes changing the process with these Lee -- the Lee and Song combinations. I kind of want a more compelling explanation if -, that could be an option, but this could be another option.

Just because-he's kind of put himself in this corner here where he said he's not going to change the process, but then he proposes making the lines different shapes and different thicknesses. And, I'm having a little trouble reconciling that testimony.

MR. LIMBACH: Right. And that he got in that mindset. He was talking -- he was thinking in his mind because he's done the work. He was thinking, when you're at this stage of designing, you already have the metal thicknesses set. And he wasn't thinking about the whole process.

But think about the absurdity of their position. Their position is that in semiconductor manufacturing, semiconductor patents, changing the process is per se, non-obvious. Have you ever heard a Court case say that? I've been practicing 30 years prosecuting --

JUDGE CHERRY: Well, I don't think they're quite saying that. I think they're saying that your -- that Dr. Baker said he wasn't going to change the process. But he put that -- he imposed that on himself. And so

now, we're going to have to deal with -- well, he says he can't change the process, but then he's changing the process. So I think that's the problem right there. It's not that -- there's constantly changes made in semiconductor processes.

But that's not what Dr. Baker testified. So that's where we're kind of at. We've got his testimony where he's refusing to change the part process and then he's changing the process. And that's going to be difficult for us to reconcile.

MR. LIMBACH: Yup. And it's all about context, and I understand it. And I was there at the deposition, and I knew what he meant. And Your Honors will just have to take that into account. But going back to -- if their argument is you never change the process, that means that method claims for semiconductor manufacturing would -- you could never have an obvious combination. And obviously, that can't be the case. So, yes, you can change the process.

And I think that if you look at his other proposals where he's actually saying, well, yeah, you change the process, that tells you the context of what he was talking about when you say, no, you don't change the process. And the point he was trying to make is for this particular combination, I'm reusing the metal layer over here for over here, so I don't have to change the process. But I get Your Honor, that is an issue that they latched onto, and you'll need to address when you go through all of the arguments.

JUDGE CHERRY: And the other thing I'd like you to address is, I mean, was he unable -- I mean, were the combinations he proposed inoperative; is that correct?

MR. LIMBACH: Well, right. So here's a great example, this -- there's Slide 53. And I'm going to walk over here, if I may, because I want to point. So this is the cathode. This is the anode, and they're saying, you're shorting the cathode -- the anode. Their chemistry person does not know how contact windows work. An electrical engineer looking at that say, well, a contact window breaks. There's no conduction across the window.

This area over here is not in contact with or electrically connected with this. Otherwise, the Bae and the Lee references wouldn't work. That's how contact works -- contact windows work. This section over here is -- so this whole argument is just fundamentally wrong. And an electrical engineer would know that.

JUDGE CHERRY: They seem to suggest that Dr. Baker said that it was shorted. Is that correct or is that incorrect?

MR. LIMBACH: So what happened is all of the drawings that were made for Grounds 4 and 5 during the deposition were not made by Dr. Baker and they were not focused on his opinions. In his opinions, in his declaration, he said in a very specific paragraph, this is how the modifications would be made.

He didn't include a drawing. He just said, because it's so simple, you take those contact windows from Bae and Lee and you just bring them over. It was so simple, he didn't include a drawing. What Counsel did was all these drawings in that deposition were made by Counsel in a different location. And he was drawing stuff.

He started with the wrong figure. He started adding stuff and talking through, okay, will this work? Would this work? And then Dr.

Baker is, well, I don't know, let me go back and look at the claims. But he -- they weren't following his opinion. There's a specific paragraph for both Grounds 4 and another one for Ground 5 where it's laid out, beautiful, simple, not a single question in his deposition.

If you do a search for that question number -- the paragraph number, it's not there. I asked their expert, who really laid into Dr. Baker in his testimony, said, okay, did you -- do you have any opinion on this paragraph where he actually says what it is. No. Their expert didn't touch that paragraph because he couldn't. He didn't have a good enough argument to say that you wouldn't use those contact windows. And so that's how this whole thing came about. So all of those drawings, those are drawn by Counsel.

JUDGE CHERRY: Did he agree to those drawings, or did he say that they weren't correct or --

MR. LIMBACH: So he objected the entire time. He's saying, I really object to doing this. He's very compliant. I mean, he's a really nice guy and he didn't want to ruffle any feathers. And he went along. But he says, I'm really uncomfortable doing this on the fly. And he kept saying, I object, you know. But he did it.

And then after a while, he's like, oh, yeah, the way you've drawn it -- talking to Counsel -- yeah, you shorted those two together. That's wrong. And then later on, he said, you know, you started with the wrong drawing, too, that structure at the bottom, that's not it. And at no point, did he, Counsel, actually draw the contact window at the location that Dr. Baker opined.

JUDGE WOOD: Mr. Limbach, you need to wrap up.

MR. LIMBACH: Oh, okay. Gupta says mesh or strip. They're all talking about mesh. It says mesh or strip, so take that away. The point on schematic, Dr. Baker combined schematic with a -- with word language on how the modifications would be made. He's not relying just on schematics. And I think I'm done. Thank you very much.

JUDGE WOOD: All right. Thank you, Mr. Limbach. Mr. Tong, you can have a couple of extra minutes.

MR. TONG: Thank you. Do you want to take your laptop back?

JUDGE CHERRY: Yup.

MR. TONG: All right. Thank you, Your Honors. Peter Tong for Patent Owner. I've got five points to make, the first is this whole line of questioning about element 136. As Your Honors have seen today, that's not the Element that's in dispute here, it's the auxiliary electrode. It makes sense that Dr. Bretschneider didn't have an opinion about the stuff that's not really in contest.

JUDGE WOOD: I have to push back on that.

MR. TONG: Yeah.

JUDGE WOOD: He's in a deposition. The question should be answered if the deponent knows the answer. So I think we are left to interpret "I have no opinion" as either he doesn't know or "I refuse to answer."

MR. TONG: Right.

JUDGE WOOD: And refusing to answer is inappropriate, unless it's a privilege question, which I seriously doubt it was.

MR. TONG: Yes. I --

JUDGE WOOD: So I think what we're left -- I think the best way

for us to interpret his, I have no opinion is he doesn't know.

MR. TONG: Correct, Your Honor. That's just because he didn't spend time forming opinions about the parts that are not in dispute. He doesn't have an opinion to offer there. And if Dr. Baker said something about 136, then yes, please, by all means, credit Dr. Baker about 136, that specific --

JUDGE WOOD: Right. It's certainly acceptable to ask a deponent about some aspect of the art that he has a mind about, I would imagine.

MR. TONG: Yes, that's right. And, you know, if he has no opinion, then take it for what it is. He offered no answer.

JUDGE CHERRY: It is a limitation of the claim.

MR. TONG: Right.

JUDGE CHERRY: It's not some part of the patent that isn't in the patent -- isn't in the claim. So I think that's what's troubling us with him not answering, it does seem evasive.

MR. TONG: Understood, Your Honor. And the way this has played out in this case is just, you know, the parties aren't fighting about it. We haven't focused on it. And you can take that for what it's worth.

The next point that I want to make is this whole thing about how I was supposedly drawing all the figures in deposition. I was in the PowerPoint under the direction of Dr. Baker. Again, I encourage the Board to look at the videos. I asked him, like, all right, which of these figures do you want to start with from the prior art? How would you modify it?

Tell me what to do so that I can create a drawing for the Board so that we know what the result of the combination is. That way, we can look at it and decide if it's obvious or not, is it contradictory or not. He was the

one in control throughout the entire time. I was very fair to him. He had every opportunity to correct, to fix, to change it up as he wanted. He made mistakes through the process because when you, you know, asked him to actually put it together, he had not thought it through.

There was a point made about uniformity. Uniformity is not recited in the claims. And we're not asking the board to read uniformity into the claims. But the point is if the PHOSITA didn't really understand uniformity and the benefit that this achieves, well, that's evidence of them just doing keyword searches to find prior art that matches the phrase reduce the resistance without really understanding the context. It's evidence of hindsight.

And then on Slide 53, I want to address the part about isolation and contact and whether or not there is a short. Dr. Baker -- and I don't think they explained that this really is isolated somehow. But this is what I came up with. And we have Dr. Bretschneider who says it's shorted. And if you take just this, okay, I mean, you understand that this is just a two-dimensional slice of a three-dimensional figure. And those green layers go around and make contact throughout the entire thing that Dr. Bretschneider says it's shorted.

So with that, you know, we're still left with the contradictions of Dr. Baker. And as Director Squires has recently opined, those types of contradictions, you know, you can't change the process, but then he changes the process. That is fatal. It should result in termination of the IPR proceeding. You also have grounds to just exclude Dr. Baker or discredit him. And again, for the reasons previously stated --

JUDGE CHERRY: I'm not sure Director Squires said that we have

to terminate. You can't seem to say that maybe we should give less weight to that testimony.

MR. TONG: Either way, Your Honor, we'd be happy. Any other questions from the Board?

JUDGE WOOD: I do not believe so. Thank you very much, Mr. Tong.

MR. TONG: All right. Thank you, Your Honors.

JUDGE WOOD: Mr. Limbach, Mr. Tong, thank you for your presentations today. We will take this case under advisement. And this hearing is adjourned.

(Whereupon, the above-entitled matter went off the record at 2:09 p.m.)

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