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Transcript of Eric Bretschneider, Ph.D.

Date: July 15, 2025

Case: BOE Technology Group Co., LTD -v- Optronic Sciences LLC

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

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<p>5</p> <p>1 PROCEEDINGS</p> <p>2 THE VIDEOGRAPHER: Here begins Media</p> <p>3 Number 1 in the videotaped deposition of</p> <p>4 Dr. Eric Bretschneider in the matter of</p> <p>5 BOE Technology Group Limited Company [sic] versus</p> <p>6 Optronix Sciences LLC in the United States Patent</p> <p>7 and Trademark Office, before the Patent Trial and</p> <p>8 Appeal Board, IPR Number 2024-01133.</p> <p>9 Today's date is July 15, 2025. The time</p> <p>10 on the video monitor is 9:00 a.m. Pacific.</p> <p>11 The remote videographer today is</p> <p>12 Lucas Shaker, representing Planet Depos.</p> <p>13 All parties of this video deposition are</p> <p>14 attending remotely.</p> <p>15 Would counsel please voice-identify</p> <p>16 themselves and state whom they represent, starting</p> <p>17 with the taking attorney.</p> <p>18 MR. LIMBACH: Alan Limbach with DLA Piper,</p> <p>19 representing BOE, Petitioner.</p> <p>20 MR. CUMMINGS: Jefferson Cummings with</p> <p>21 Russ, August & Kabat, representing Patent Owner.</p> <p>22 THE VIDEOGRAPHER: Thank you, Counsel.</p>	<p>7</p> <p>1 ground rules.</p> <p>2 A. Yes.</p> <p>3 Q. Just to briefly go through them, you</p> <p>4 understand you're under oath and have to tell the</p> <p>5 truth?</p> <p>6 A. Yes.</p> <p>7 Q. And you're required to give full and</p> <p>8 accurate testimony?</p> <p>9 A. Yes.</p> <p>10 Q. And you will respond orally?</p> <p>11 A. Yes.</p> <p>12 Q. I will do my best not to talk over you,</p> <p>13 and so hopefully you'll do your best to not talk</p> <p>14 over me so the court reporter won't chastise us</p> <p>15 both.</p> <p>16 A. Sounds like a good plan.</p> <p>17 Q. Okay. If you don't understand a question,</p> <p>18 please let me know. And if you answer my question,</p> <p>19 I'm going to assume you understood it. Is that</p> <p>20 fair?</p> <p>21 A. Yes.</p> <p>22 Q. Counsel may object to my questions, but</p>
<p>6</p> <p>1 The court reporter today is</p> <p>2 Crystal Hereford, representing Planet Depos.</p> <p>3 The witness will now be sworn.</p> <p>4 THE REPORTER: For the record, my CSR</p> <p>5 number is 14416.</p> <p>6 ERIC BRETSCHNEIDER, Ph.D.,</p> <p>7 a witness herein, having been first duly sworn by</p> <p>8 the certified reporter to speak the truth and</p> <p>9 nothing but the truth, was examined and testified as</p> <p>10 follows:</p> <p>11 EXAMINATION</p> <p>12 BY MR. LIMBACH:</p> <p>13 Q. Good morning, Dr. Bretschneider.</p> <p>14 A. Good morning.</p> <p>15 Q. Am I pronouncing your name correctly?</p> <p>16 A. Yes, you are.</p> <p>17 Q. Okay. Thank you.</p> <p>18 How many times have you been deposed</p> <p>19 before?</p> <p>20 A. A lot. I don't know the exact number. I</p> <p>21 stopped counting somewhere around 80.</p> <p>22 Q. Okay. So you're very familiar with the</p>	<p>8</p> <p>1 you still have to answer them. Do you understand</p> <p>2 that?</p> <p>3 A. Yes.</p> <p>4 Q. Let me know if you need a break. I</p> <p>5 typically go about an hour, but if you need a break</p> <p>6 at a different time, just let me know.</p> <p>7 A. I will.</p> <p>8 If you hear something that sounds like</p> <p>9 small dogs, it's probably a good time for a break</p> <p>10 coming up. I've got to – I literally have two</p> <p>11 under my feet.</p> <p>12 Q. Understood.</p> <p>13 They're there for moral support?</p> <p>14 A. They think it's comfortable.</p> <p>15 Q. Very good.</p> <p>16 Is there any reason you cannot give full</p> <p>17 and accurate testimony today?</p> <p>18 A. No.</p> <p>19 Q. Other than your dogs, is there anyone in</p> <p>20 the room with you?</p> <p>21 A. No.</p> <p>22 Q. Do you have any printed materials with you</p>

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<p>9</p> <p>1 today?</p> <p>2 A. I have a printed, clean copy of my</p> <p>3 declaration. Also, I have a PDF copy – clean PDF</p> <p>4 copy open on my desktop. Other than that, that's</p> <p>5 the only software besides Zoom.</p> <p>6 Q. So I'll be dropping exhibits into the chat</p> <p>7 for you to download and open, but if you want to</p> <p>8 also use that paper copy, you can do that as well.</p> <p>9 A. Okay.</p> <p>10 Q. Do you have any other applications open on</p> <p>11 your computer other than the Zoom?</p> <p>12 A. Background anti-viral software running,</p> <p>13 that's the only other one.</p> <p>14 Q. How did you prepare for today's</p> <p>15 deposition?</p> <p>16 A. I reviewed my declaration, portions of the</p> <p>17 patents, and prior art references that were cited in</p> <p>18 it.</p> <p>19 Q. Did you meet with counsel?</p> <p>20 A. Yes, I did.</p> <p>21 Q. Approximately how long did you meet with</p> <p>22 counsel?</p>	<p>11</p> <p>1 the '509 patent?</p> <p>2 A. Yes.</p> <p>3 Q. And I'll refer to IPR 2024-01133 as the</p> <p>4 '509 patent IPR. Is that all right?</p> <p>5 A. That works for me.</p> <p>6 Q. Did you prepare this declaration?</p> <p>7 A. Yes, with the exception there are some</p> <p>8 parts on legal aspects that counsel prepared for me</p> <p>9 and I reviewed.</p> <p>10 Q. Was this declaration written using your</p> <p>11 own words?</p> <p>12 A. Yes.</p> <p>13 Q. Who all were involved in the preparation</p> <p>14 of this declaration?</p> <p>15 A. Myself --</p> <p>16 MR. CUMMINGS: -- form.</p> <p>17 A. Myself. And Mr. Cummings was the one I</p> <p>18 was communicating with as I was drafting this.</p> <p>19 Q. As far as you know, is this declaration</p> <p>20 accurate?</p> <p>21 A. As far as I know, yes. I'll note there</p> <p>22 are a few typos, but we may or may not get to those.</p>
<p>10</p> <p>1 A. It was over a few days last week. I can't</p> <p>2 say the exact time, because there are four</p> <p>3 depositions scheduled this week, so we prepared for</p> <p>4 all four.</p> <p>5 Q. Did you review any documents that are not</p> <p>6 listed in your declaration in preparation for</p> <p>7 today's deposition?</p> <p>8 A. No, I did not.</p> <p>9 Q. I have just placed your declaration in the</p> <p>10 chat. Please download it, if you need to, and open</p> <p>11 it and let me know when you're ready to go.</p> <p>12 A. Okay.</p> <p>13 Q. So this is Exhibit IPR -- this is</p> <p>14 Exhibit 2026 in IPR 2024-01133. Do you see that?</p> <p>15 (Exhibit Number 2026 introduced.)</p> <p>16 A. Yes.</p> <p>17 Q. Can you quickly scroll through and confirm</p> <p>18 that this is a correct copy of the declaration that</p> <p>19 you submitted in this IPR for US Patent 9,263,509.</p> <p>20 A. It appears to be, without reading the</p> <p>21 entire thing.</p> <p>22 Q. Is it okay that I refer to the patent as</p>	<p>12</p> <p>1 Q. Are you aware, sitting here right now,</p> <p>2 what those typos are?</p> <p>3 A. I just recall seeing a few.</p> <p>4 Q. Okay. When were you retained by Optronics</p> <p>5 for this IPR?</p> <p>6 A. The specific IPR, I can't say. I believe</p> <p>7 for the matter in general, I want to say, it was the</p> <p>8 end of last year.</p> <p>9 Q. So towards the end of 2024?</p> <p>10 A. Yes.</p> <p>11 Q. If you will go to paragraph 5 of your</p> <p>12 declaration, please.</p> <p>13 Paragraph 5 says "I have reviewed the</p> <p>14 papers and exhibits filed in this proceeding as of</p> <p>15 the date my declaration is signed." Do you see</p> <p>16 that?</p> <p>17 A. Yes.</p> <p>18 Q. Can you describe the order of that review</p> <p>19 in terms of which documents you reviewed and what</p> <p>20 order they were reviewed in?</p> <p>21 MR. CUMMINGS: Objection; form.</p> <p>22 A. I can describe the general process I went</p>

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<p>13</p> <p>1 through, but I really don't recall the exact order.</p> <p>2 Q. And what was that general process?</p> <p>3 A. I reviewed the '509 patent. I reviewed --</p> <p>4 I believe it was, for this one, Dr. Baker's</p> <p>5 declaration and the prior art references he cited.</p> <p>6 Q. Do you remember the order that you</p> <p>7 reviewed those documents; the '509 patent,</p> <p>8 Dr. Baker's declaration, and then the prior art that</p> <p>9 was cited in that declaration?</p> <p>10 A. I can't be sure of the exact order other</p> <p>11 than I did start with the patent first.</p> <p>12 Q. If you could go to paragraph 11, please.</p> <p>13 Paragraph 11 says "Throughout the course</p> <p>14 of my career, I have designed and transferred into</p> <p>15 manufacturing over 150 different LED-based lighting</p> <p>16 products, including LED lighting products designed</p> <p>17 to be installed in fixtures and in different</p> <p>18 lighting environments and applications." Do you see</p> <p>19 that?</p> <p>20 A. Yes.</p> <p>21 Q. Can you please explain to me what you mean</p> <p>22 by "designed and transferred into manufacturing"?</p>	<p>15</p> <p>1 have to be met.</p> <p>2 Write up the initial manufacturing work</p> <p>3 instructions, train the manufacturing line as</p> <p>4 necessary, and start it up and get it sold to the --</p> <p>5 get it shipped to the customer.</p> <p>6 Q. Where does design stop and transfer to --</p> <p>7 into manufacturing begin?</p> <p>8 A. Design is basically a prototype. There's</p> <p>9 a difference between making one prototype or half a</p> <p>10 dozen prototypes and a manufacturing process that's</p> <p>11 suitable for producing thousands or tens of</p> <p>12 thousands of products a day. So one can be</p> <p>13 incredibly tedious, laborious, complicated, and</p> <p>14 expensive, and the other one needs to be high yield,</p> <p>15 simple, and inexpensive.</p> <p>16 Q. And the products that you were talking</p> <p>17 about, the LED-based lighting products, are these</p> <p>18 semiconductor devices?</p> <p>19 A. LEDs are semiconductor devices.</p> <p>20 Q. If you can go to paragraph 13, please.</p> <p>21 A. Okay.</p> <p>22 Q. So here, the second -- starting in the</p>
<p>14</p> <p>1 A. Designs, the -- literally the overall</p> <p>2 design. So if it's a lighting fixture, you usually</p> <p>3 start with the specifications, work back from that.</p> <p>4 You have to determine the LEDs you need, the</p> <p>5 spectral power distribution. There may be an energy</p> <p>6 efficiency goal that you have to consider as you're</p> <p>7 doing all of this.</p> <p>8 Optical design, what's the light-emission</p> <p>9 pattern, what's the drive topology, how are you</p> <p>10 going to drive them, is it going to simple DC, is it</p> <p>11 going to pulse with modulation, is it going to be</p> <p>12 divable (phonetic), is it going to be color-tunable.</p> <p>13 So work on the optics, the LEDs, thermal</p> <p>14 management, drive electronics, put it together. And</p> <p>15 you would design; prototype it; refine the</p> <p>16 prototype; prepare it for manufacturing; go through</p> <p>17 safety certification, UL, ETL, CSA, CE, depending on</p> <p>18 where it's going in the world; get all of that</p> <p>19 documentation done, appropriate testing to make sure</p> <p>20 that the performance requirements are met. There</p> <p>21 may be Energy Star or DesignLights Consortium</p> <p>22 concerns as well, test results requirements that</p>	<p>16</p> <p>1 middle of the second line, you say you were</p> <p>2 responsible for design of solid-state lighting</p> <p>3 technologies. But here you don't say "transfer to</p> <p>4 manufacturing," so how does this work differ from</p> <p>5 the work you referenced in paragraph 11?</p> <p>6 A. I'll say it's similar.</p> <p>7 The work in paragraph 11, to a large</p> <p>8 extent, was companies I was working for as a regular</p> <p>9 employee.</p> <p>10 As an external consultant, they consider</p> <p>11 my time more valuable, so there's a lot of different</p> <p>12 aspects. It could be developing a new technology,</p> <p>13 coming up with a new design architecture. It could</p> <p>14 be troubleshooting issues they're having in</p> <p>15 production, manufacturing.</p> <p>16 I'll say it's similar, but it tends to be</p> <p>17 a higher level. I'm not going to be following LED</p> <p>18 package manufacturers and arguing over their</p> <p>19 specifications. In general. I'm not going to say</p> <p>20 that that doesn't happen. In some cases very</p> <p>21 particular specifications need to be met by the</p> <p>22 products.</p>

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<p>17</p> <p>1 Q. Okay. If you could go to paragraph 19, 2 please.</p> <p>3 A. Okay.</p> <p>4 Q. In the second-to-last line, it says "I 5 designed and developed LEDs."</p> <p>6 Is there any difference between designed 7 and developed versus the work that you've been 8 describing in your previous paragraphs?</p> <p>9 A. In some cases it was similar. My position 10 with Elec-Tech International was equivalent to chief 11 technology officer. So in some cases it's doing all 12 the work, saying "This is how we're going to build 13 it" and tracking it through.</p> <p>14 In other cases it would depend on my 15 direct reports that I assign projects to and if they 16 have the necessary background or expertise to do it 17 themselves or if they needed to be trained, if their 18 skills needed to be developed so they could do it in 19 the future. It was a lot of acting like a 20 professor, I will say.</p> <p>21 Q. In paragraph 20, about five lines down, 22 there's a sentence that says "In these roles, I was</p>	<p>19</p> <p>1 LED or OLED pixels?</p> <p>2 MR. CUMMINGS: Objection; form.</p> <p>3 A. Are we talking just in display 4 applications? Or...</p> <p>5 Q. Sure.</p> <p>6 A. Since you mentioned pixels, there's some 7 different applications there. I've worked with, I 8 will say, large display companies. In some cases it 9 was smaller format. I did a significant amount of 10 work with Apple, Dell, Hewlett-Packard getting LEDs 11 into backlights for displays on their laptop 12 computers, portable electronics, the iPhone, if you 13 will.</p> <p>14 The iPad was a particularly interesting 15 one, just because my company wanted sole supplier 16 status for the LEDs, but we still didn't know what 17 the product was. We only knew the size of the 18 display.</p> <p>19 I've worked with a few OLED companies as 20 well designing and refining their products and 21 technology. They're -- some of them are 22 interesting. Some do OLEDs for general lighting.</p>
<p>18</p> <p>1 involved in the design and manufacture of numerous 2 LED-based lighting fixtures and products." Do you 3 see that?</p> <p>4 A. Yes.</p> <p>5 Q. What aspects of the LEDs did you design 6 and manufacture?</p> <p>7 A. Lighting Science Group's -- in terms of 8 the examples I give there, Lighting Science Group 9 was primarily a fixture manufacturer, so lightbulbs, 10 what would be called luminaires. They did have a 11 division that produced LED packages that I was also 12 in charge of. That was more, I'll say, maintaining 13 the technology, the production line. They acquired 14 a company in New Jersey called Lamina Ceramics. 15 That later became Lamina, and the majority of the 16 original staff was let go. And I was told "Take 17 over and keep it running."</p> <p>18 But that design is choosing the LEDs, the 19 drive architecture, optics, thermal management, 20 safety certifications, so on.</p> <p>21 Q. What is your specific experience in 22 designing the various lines that are connected to</p>	<p>20</p> <p>1 Some do for displays. So it's laying out. It's 2 using that background and expertise with LEDs, what 3 works, what doesn't, why are there reliability 4 problems, how do you make it better.</p> <p>5 Q. So you just mentioned layout. So do you 6 have design experience where you actually laid out 7 the locations of the lines and how they're routed?</p> <p>8 A. Yes. That even goes back to some LED 9 chips. You have to do that in displays. It's, I'll 10 say, more sophisticated. It's the number of lines 11 and -- if we can say number of emitters instead of 12 pixels, just because of the different way that some 13 packages operate or some chips operate. Some chips 14 are an array of different emitters that you can 15 power individually. Some packages use arrays of 16 chips that can be powered individually or, let's 17 say, at least differently.</p> <p>18 Q. Are there some general considerations that 19 you consider when you are laying out the various 20 lines going to and from the emitters?</p> <p>21 A. There's a lot of considerations.</p> <p>22 Q. Are there any that are foremost?</p>

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<p style="text-align: right;">21</p> <p>1 A. Usually the CEO or the product manager 2 just says, "Eric, make it work, whatever it takes." 3 Q. What about size? Is there a -- are there 4 considerations relative to how large you can make 5 the lines? 6 A. I will say in general yes. It depends on 7 the voltage being applied and the current. 8 Q. If you could please go to paragraph 31. 9 Paragraph 31 begins "The '509 patent 10 teaches a pixel structure that improves overall 11 luminous uniformity compared to prior art 12 electroluminescent devices." Do you see that? 13 A. Yes. 14 Q. And then down in 32, at the very bottom 15 last line, bleeding over on the next page, it says 16 "A POSITA would have understood that the benefit to 17 improved uniform luminosity does not result from 18 reducing the resistance of all pixel structures in a 19 pixel array. Rather, the luminous uniformity is 20 improved across the pixel array by individually 21 lowering the resistance of pixel structures to 22 compensate for and to offset IR drop unique to each</p>	<p style="text-align: right;">23</p> <p>1 A. It's fair to a person of ordinary skill in 2 the art. If you're reducing the resistance of each 3 pixel, there's still differences -- each pixel sees 4 a little bit different voltage. Again, it's one of 5 the issues. If you design displays, you know 6 there's going to be a voltage drop across some 7 lines. 8 Q. And in your work, when you are designing 9 displays, are you designing the pixels and the lines 10 to the pixels to vary the IR drop -- I'm sorry -- to 11 vary the resistance pixel-to-pixel? 12 MR. CUMMINGS: Objection; form. 13 A. In the past the focus was more on reducing 14 the IR drop in the lines, not adjusting the pixels. 15 Q. So is it your opinion that if you were 16 just to reduce all of the pixel resistances by the 17 same amount that would not improve uniformity? 18 MR. CUMMINGS: Objection; form. 19 A. There's still going to be inherent issues 20 with large area display with uniformity. 21 Q. But would uniformity be improved by 22 reducing the resistance uniformly for all pixels?</p>
<p style="text-align: right;">22</p> <p>1 pixel." Did I read that correctly? 2 A. Yes. 3 Q. Does the '509 patent teach reducing 4 resistance in only some pixels? 5 MR. CUMMINGS: Objection; form. 6 A. At the beginning of paragraph 32, I state 7 "The '509 patent improves luminous uniformity by 8 incorporating an auxiliary electrode structure that 9 is electrically insulated from the light-emitting 10 device and acts to significantly reduce the total 11 resistance of the pixel structure." 12 In the previous paragraph, I talk about 13 issues at the display level, the IR drop. 14 So the pixels will see a different applied 15 voltage depending on where they are, and it's 16 inherent in the description of trying to get the 17 uniform emission across the display that you need to 18 make some adjustments for each device. 19 Q. So if I understood you correctly, this 20 concept of changing the resistance by different 21 amounts pixel-by-pixel is inherent but not 22 expressed. Is that fair?</p>	<p style="text-align: right;">24</p> <p>1 MR. CUMMINGS: Objection; form. 2 A. I don't believe I formed an opinion on 3 that yet. 4 Q. Well, actually, you do render an opinion 5 that improved uniformity -- "Uniform luminosity does 6 not result from reducing the resistance of all pixel 7 structures in a pixel array." 8 So haven't you formed an opinion on this 9 issue? 10 MR. CUMMINGS: Objection; form. 11 A. Where the question is complicated is 12 achieving a uniform display versus more uniform or 13 improving the uniformity. There are different 14 aspects to that. And being able to reduce the 15 resistance of a pixel structure is one benefit 16 that -- if that is applied judiciously across the 17 panel, that's where the largest benefits in terms of 18 uniformity are gained. 19 Q. But your opinion is that improved uniform 20 luminosity does not result at all. Isn't that your 21 opinion at the top of page 12? 22 MR. CUMMINGS: Objection; form.</p>

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<p style="text-align: right;">25</p> <p>1 A. What I state is "A POSITA would have 2 understood that the benefit of improved uniform 3 luminosity does not result from reducing the 4 resistance of all pixels -- pixel structures in a 5 pixel array. Rather, the luminous uniformity is 6 improved across the pixel array by individually 7 lowering the resistance of pixel structures to 8 compensate for and to offset IR drop unique to each 9 pixel." 10 Q. Okay. Well, let me try it this way. If I 11 add auxiliary electrodes to all of the pixels and 12 reduce the resistance to each pixel by one-half, 13 would that result in a more uniform display? 14 MR. CUMMINGS: Objection; form. 15 A. Your question is very difficult to answer. 16 Because what you stated is you're adding the 17 auxiliary electrode. The auxiliary electrode 18 reduces the resistance to the -- of the pixel 19 structure. What you asked was the resistance to the 20 pixel. But you made a change to the pixel, but you 21 asked about resistance to the pixel, which means the 22 lines going to the pixel. So it's -- I'm not sure I</p>	<p style="text-align: right;">27</p> <p>1 A. Yes. 2 Q. And if I understand your report here, 3 different pixels have different resistances on those 4 lines, probably because some pixels are further away 5 from the power supply. Is that a fair assessment? 6 MR. CUMMINGS: Objection; form. 7 A. The resistance of the pixel is whatever it 8 is. 9 Q. I'm talking about the resistance of the 10 lines to the pixel. 11 A. Yes, but that's not what you stated 12 before. I'm trying to follow very carefully, so -- 13 Q. My apologies. 14 So the resistance in the lines to the 15 pixel. 16 A. Yes. 17 Q. Okay. And they vary. 18 A. I will say it's predictable. 19 Q. Okay. And so -- 20 A. The -- it would depend on the design. In 21 general, the resistance of the line is what it is. 22 But then it depends on -- the length would tell you</p>
<p style="text-align: right;">26</p> <p>1 can answer that question. 2 Q. Okay. Let me try it a different way. 3 Is it possible to add the auxiliary 4 electrode, per the '509 patent, to each of the 5 pixels in a way that reduces the resistance to each 6 pixel by one-half? 7 MR. CUMMINGS: Objection; form. 8 A. Again, your question can't be answered. 9 Because you're talking about changing the resistance 10 of pixel structure, but what you're asking is about 11 the resistance to the pixel. So it's like making a 12 change to an exit and asking about the highway. You 13 didn't change the highway. You made a change at the 14 exit. You're not on the highway anymore. 15 Q. Well, let's talk about, then, just the 16 exit. So -- or the highway. I'm not really 17 following your analogy. 18 Let's just talk about the resistance of 19 the line supplying power to the pixels. Following 20 so far? 21 A. Yes. 22 Q. It's got a resistance associated with it.</p>	<p style="text-align: right;">28</p> <p>1 the total resistance before you get to a pixel. 2 Q. And so let's say that now I implement the 3 '509 solution of adding an auxiliary electrode to 4 each pixel so that the line to the pixel has half 5 the resistance that it did before. 6 MR. CUMMINGS: Objection; form. 7 A. It just doesn't work that way. Because, 8 again, you're talking the auxiliary electrode is a 9 part of the pixel structure, and then you're saying 10 "I changed the pixel structure, so I changed the 11 resistance of the line going to the pixel." That's 12 the disconnect. You're asking a question about a 13 change to a structure that wasn't changed. 14 Q. So do you stand by your opinion that 15 improved uniform luminosity does not result, ever, 16 from reducing the resistance of all pixels -- all 17 pixel structures in a pixel array? 18 MR. CUMMINGS: Objection; form. 19 A. Again, that's not what I stated. What I 20 stated was that a POSITA would have understood that 21 the benefit to improve uniform luminosity does not 22 result from reducing the resistance of all pixels in</p>

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<p style="text-align: right;">29</p> <p>1 a pixel array. Rather, the luminous uniformity is</p> <p>2 improved across a pixel array by individually</p> <p>3 lowering the resistance of pixel structures to</p> <p>4 compensate for and to offset IR drop unique to each</p> <p>5 pixel.</p> <p>6 Q. You have to do it pixel-by-pixel. Is that</p> <p>7 your testimony?</p> <p>8 MR. CUMMINGS: Objection; form.</p> <p>9 A. If you want the max benefit, if you were</p> <p>10 trying for truly uniform luminosity across a</p> <p>11 display, there's going to be a pattern to the</p> <p>12 adjustments. I'm not going to say that they're all</p> <p>13 unique, but there will be a consistent trend.</p> <p>14 Q. But you don't say "maximum uniform</p> <p>15 luminosity." You say "any." So is there any</p> <p>16 improvement to uniform luminosity if you don't do it</p> <p>17 pixel-by-pixel?</p> <p>18 MR. CUMMINGS: Objection; form.</p> <p>19 A. That's where I get confused here. Because</p> <p>20 the sentences I've read, "any" is not one of the</p> <p>21 words in the sentences. So you're saying I don't</p> <p>22 say there's any benefit, but I don't see those</p>	<p style="text-align: right;">31</p> <p>1 clear. There are other parts where I talk about</p> <p>2 pixels, about emitter structures have a dynamic</p> <p>3 resistance. And that's what's not considered in</p> <p>4 this statement and what I did not consider. If I</p> <p>5 change the resistance of the pixel structure, that's</p> <p>6 also an effect to the dynamic resistance. And that</p> <p>7 has to be considered to answer the question about if</p> <p>8 you do it uniformly, does it have an effect on</p> <p>9 uniform luminosity.</p> <p>10 I didn't consider that. Dr. Baker didn't</p> <p>11 consider that. So that's not addressed in my</p> <p>12 declaration.</p> <p>13 Q. Back to my question.</p> <p>14 Is individually lowering the resistance of</p> <p>15 the pixel structures required to improve uniform</p> <p>16 luminosity?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. Again, the opinion that I expressed in my</p> <p>19 declaration was if you want the best benefit you're</p> <p>20 going to make an individual adjustment. The other</p> <p>21 part you're asking is not something I've considered</p> <p>22 and not something I've formed an opinion on.</p>
<p style="text-align: right;">30</p> <p>1 words.</p> <p>2 Q. What words in this sentence -- well, it</p> <p>3 says "A POSITA would have understood that the</p> <p>4 benefit to improve uniform luminosity does not</p> <p>5 result from reducing the resistance of all pixel</p> <p>6 structures in the pixel array."</p> <p>7 That's pretty blanket. You say it does</p> <p>8 not result, period.</p> <p>9 MR. CUMMINGS: Objection; form.</p> <p>10 A. And you have to read the following</p> <p>11 sentence.</p> <p>12 Q. Does that modify the first sentence?</p> <p>13 MR. CUMMINGS: Objection; form.</p> <p>14 A. I will say it clarifies. It states</p> <p>15 "Rather, the luminous uniformity is improved across</p> <p>16 a pixel array by individually lowering the</p> <p>17 resistance of pixel structures to compensate for and</p> <p>18 to offset IR drop unique to each pixel."</p> <p>19 Q. Does individually lowering -- is that</p> <p>20 required to improve uniform luminosity?</p> <p>21 MR. CUMMINGS: Objection; form.</p> <p>22 A. I think the statement I made is fairly</p>	<p style="text-align: right;">32</p> <p>1 Q. I have just downloaded to the chat room --</p> <p>2 or uploaded the '509 patent. Let me know when</p> <p>3 you've downloaded it and have opened it.</p> <p>4 (Exhibit Number 1001 introduced.)</p> <p>5 A. Okay.</p> <p>6 Q. So this is Exhibit 1001 of the '509 IPR,</p> <p>7 and it's US Patent 9,263,509.</p> <p>8 Do you recognize this document?</p> <p>9 A. Yes.</p> <p>10 Q. This is the document that is the subject</p> <p>11 of your declaration we've been talking about?</p> <p>12 A. One of the subjects.</p> <p>13 Q. What's the novelty of this invention?</p> <p>14 MR. CUMMINGS: Objection; form.</p> <p>15 A. I would say the ability to reduce pixel</p> <p>16 resistance.</p> <p>17 Q. And how is that done?</p> <p>18 A. With the use of auxiliary electrode</p> <p>19 structure.</p> <p>20 Q. And how does this differ from the prior</p> <p>21 art? Is it just the addition of the auxiliary</p> <p>22 electrode structure?</p>

<p>33</p> <p>1 MR. CUMMINGS: Objection; form.</p> <p>2 A. I will say in general the prior art -- the</p> <p>3 pixel structure was what the pixel structure was.</p> <p>4 If you want to take a step back, efforts</p> <p>5 to reduce resistance of a pixel or emitter structure</p> <p>6 focused more on the materials of the pixel, making</p> <p>7 changes to the emitter layer, to the hole injection</p> <p>8 or the electron injection layers. So you were</p> <p>9 looking at those core components, and whatever you</p> <p>10 got from those you got from those.</p> <p>11 So if I designed a new electron injection</p> <p>12 layer, that might reduce my resistance. But I've</p> <p>13 got to figure out how to make that layer, what are</p> <p>14 the materials, what's the process. The same for</p> <p>15 hole injection.</p> <p>16 Q. And all --</p> <p>17 A. Maybe it's a brand-new electrode material.</p> <p>18 Maybe it's new emitter layers. Whether it's</p> <p>19 organic, what's the new polymer I'm using. Or if</p> <p>20 it's inorganic, what's the structure of the active</p> <p>21 layer.</p> <p>22 Q. In that description, you described a lot</p>	<p>35</p> <p>1 A. Yes.</p> <p>2 Q. What about a data line and a scan line?</p> <p>3 Were those lines known in the prior art?</p> <p>4 MR. CUMMINGS: Objection; form.</p> <p>5 A. Yes.</p> <p>6 Q. What about the next clause? It says "At</p> <p>7 least one active device electrically connected with</p> <p>8 the data line and the scan line and each active</p> <p>9 device comprising a gate, a channel layer, a source,</p> <p>10 and a drain"? Was that known in the prior art to</p> <p>11 the '509 patent?</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 A. I'm a little -- because your questions</p> <p>14 don't match up with the opinions that I offered in</p> <p>15 my declaration, and that was my primary focus for</p> <p>16 preparation. So if you can show me where I offered</p> <p>17 an opinion on that in my declaration, we can move</p> <p>18 forward.</p> <p>19 Q. You can't tell me, sitting here today, as</p> <p>20 an expert in the field whether that portion of</p> <p>21 Claim 1 is in the prior art or not?</p> <p>22 MR. CUMMINGS: Objection; form.</p>
<p>34</p> <p>1 of things that the prior art dealt with. You didn't</p> <p>2 mention auxiliary electrodes. So that's the novelty</p> <p>3 of this invention?</p> <p>4 MR. CUMMINGS: Objection; form.</p> <p>5 A. What I stated before is the ability to</p> <p>6 reduce the resistance of the pixel structure. But</p> <p>7 you're not -- I'm trying to back up and be precise</p> <p>8 here.</p> <p>9 The pixel, the emitter part, is what it</p> <p>10 is. And that's largely what dictated your</p> <p>11 resistance previous to this, so to be able to reduce</p> <p>12 the resistance of an existing pixel structure</p> <p>13 without changing those core layers.</p> <p>14 Q. Let's go to Column 8, in particular</p> <p>15 Claim 1.</p> <p>16 A. Okay.</p> <p>17 Q. So the Claim 1 says "A pixel structure."</p> <p>18 Do you see that?</p> <p>19 A. Yes.</p> <p>20 Q. That was not in the prior art -- right? --</p> <p>21 before the '509 patent?</p> <p>22 MR. CUMMINGS: Objection; form.</p>	<p>36</p> <p>1 A. I'm saying that I thought this deposition</p> <p>2 was about the opinions in my declaration, and you're</p> <p>3 asking something that was -- that's outside of my</p> <p>4 declaration, the scope of my declaration.</p> <p>5 Q. This is related to your opinions. You've</p> <p>6 rendered opinions on the validity of Claim 1 and</p> <p>7 that certain aspects of it are not in the prior art.</p> <p>8 Isn't that correct?</p> <p>9 MR. CUMMINGS: Objection; form.</p> <p>10 A. And I will -- if you can show me in my</p> <p>11 declaration where we talked about data line, scan</p> <p>12 line, each active device comprising a gate, a</p> <p>13 channel layer, a source, and a drain, then we might</p> <p>14 make more progress. Right?</p> <p>15 Q. Have you designed products that have those</p> <p>16 two clauses in there, that have a data line and a</p> <p>17 scan line? Have you ever connected those to an</p> <p>18 active device as specified in Claim 1?</p> <p>19 MR. CUMMINGS: Objection; form.</p> <p>20 A. What I can state is I've designed several</p> <p>21 displays, active matrix displays. And that's as far</p> <p>22 as I'm comfortable answering right now.</p>

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<p>37</p> <p>1 Q. So for the record, you are not willing to 2 answer whether or not the second element, the "at 3 least one active device" clause of Claim 1 was known 4 in the prior art, sitting here today. Is that 5 right?</p> <p>6 MR. CUMMINGS: Objection; form.</p> <p>7 A. For the record, I don't believe I stated 8 an opinion on that in my declaration. Again, I 9 prepared by reviewing my declaration.</p> <p>10 Q. I can ask you questions about topics you 11 have personal knowledge of that are outside your 12 declaration. You understand that, right?</p> <p>13 A. Yes.</p> <p>14 Q. And you cannot answer that question with 15 respect to the second clause of Claim 1. Is that 16 correct?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. I'm saying in terms of those elements I 19 did not form an opinion in my declaration. And as 20 an expert, it's not my job to form on-the-spot, 21 off-the-cuff opinions.</p> <p>22 Q. Well, a light-emitting device disposed</p>	<p>39</p> <p>1 they're incapable of emitting light.</p> <p>2 And that's a high-level statement. But, 3 again, that's not in my declaration. If we're not 4 here to talk about the declaration, then I'm not 5 sure what we're doing.</p> <p>6 Q. Well, we're talking about the '509 patent, 7 which you've opined on. Okay?</p> <p>8 You talked about the anode -- has to have 9 an anode, has to have a cathode. Does it have to 10 have a light-emitting layer between those two?</p> <p>11 MR. CUMMINGS: Objection; form.</p> <p>12 A. Would you repeat the question, please?</p> <p>13 Q. Sure.</p> <p>14 So the OLEDs and the LEDs that you said 15 were in the prior art, they have an anode, and they 16 have a cathode. Did they have a light-emitting 17 layer between the two layers?</p> <p>18 MR. CUMMINGS: Objection; form.</p> <p>19 A. There is an inherent assumption in your 20 question that the anode and cathode structures are 21 layers.</p> <p>22 Q. Are they layers?</p>
<p>38</p> <p>1 above the first auxiliary electrode, wherein the 2 light-emitting device comprises -- if you take out 3 just the first auxiliary electrode portion, are you 4 willing to admit that a light-emitting device was 5 known in the prior art?</p> <p>6 MR. CUMMINGS: Objection; form.</p> <p>7 A. Again, I'm trying to stay within the 8 bounds of my declaration. If we want to throw out 9 my declaration and talk about other things, then I'm 10 going to have to consider everything carefully.</p> <p>11 I will say in general light-emitting 12 devices, LEDs and OLEDs, were known. But that's 13 about as far as I'm willing to go. Because, again, 14 my understanding is we're here to talk about my 15 declaration and the opinions expressed therein.</p> <p>16 Q. The LEDs and the OLEDs that you just 17 admitted were known, did they include a first 18 electrode layer?</p> <p>19 MR. CUMMINGS: Objection; form.</p> <p>20 A. By definition, LEDs and OLEDs are bipolar 21 devices, which means that they have to have two 22 electrodes, an anode and a cathode. Otherwise,</p>	<p>40</p> <p>1 MR. CUMMINGS: Objection; form.</p> <p>2 A. I'll say they don't have to be, which is 3 why I'm -- you're asking on one hand a general 4 question, and then you're building in assumptions 5 that don't go with your general question.</p> <p>6 Does the light-emitting layer have to be 7 between the anode and cathode? Physically, no.</p> <p>8 Q. Was it known to put the light-emitting 9 layer between an anode and a cathode?</p> <p>10 MR. CUMMINGS: Objection; form.</p> <p>11 A. I'll say it's one possibility.</p> <p>12 Again, this is going way outside the scope 13 of the opinions I offered, and my answers are going 14 to become increasingly delayed because I have to 15 consider a lot of things. So if you can show me 16 where the opinions are in my declaration, it will go 17 faster.</p> <p>18 Q. Does Claim 1 require a reduction in the 19 resistance to the pixel -- or of the pixel?</p> <p>20 MR. CUMMINGS: Objection; form.</p> <p>21 A. I don't think I offered that opinion in my 22 declaration.</p>

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<p>41</p> <p>1 Q. I'm not asking --</p> <p>2 A. -- an opinion on that.</p> <p>3 Well, you're asking me for an expert</p> <p>4 opinion on something I haven't considered. And,</p> <p>5 again, it's not the job of an expert to answer</p> <p>6 technical questions off cuff.</p> <p>7 Q. Well, you've opined that the advantage of</p> <p>8 the '509 patent is to reduce pixel resistance,</p> <p>9 correct?</p> <p>10 A. Could you repeat the question, please?</p> <p>11 Q. Sure.</p> <p>12 You've opined that the advantage of the</p> <p>13 '509 patent is to reduce pixel resistance, correct?</p> <p>14 A. I believe, actually, I opined that that's</p> <p>15 one benefit.</p> <p>16 Q. Is that benefit required by Claim 1?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. Again, I don't believe I've formed an</p> <p>19 opinion on that. And I haven't been able to find it</p> <p>20 in my declaration. If you could point me to where I</p> <p>21 offered an opinion on that in my declaration, then I</p> <p>22 can answer better.</p>	<p>43</p> <p>1 A. On the -- as the first matter, when you</p> <p>2 say "the benefit," to me it implies that there's</p> <p>3 only a singular benefit, and I don't believe I've</p> <p>4 stated that.</p> <p>5 But, again, you're asking questions about</p> <p>6 opinions I haven't formed yet, and I'm not going to</p> <p>7 off cuff come up with an opinion. That's not the</p> <p>8 job of a technical expert. Things have to be</p> <p>9 carefully considered, and then an opinion can be</p> <p>10 formed, and then that can be shared.</p> <p>11 Q. I'm about to move on to another subject.</p> <p>12 We've been going about an hour. Is now a good time</p> <p>13 to stop? Or do you want to go a little longer?</p> <p>14 A. We can go a little longer. The dogs are</p> <p>15 sleeping.</p> <p>16 Q. You've got to utilize that time when you</p> <p>17 have it.</p> <p>18 If you could please go to paragraph 54 of</p> <p>19 your declaration, please.</p> <p>20 Let me know when you're there.</p> <p>21 A. Okay.</p> <p>22 Q. Okay. So in paragraphs 54 and 62, you</p>
<p>42</p> <p>1 Q. So sitting here today, you can't tell me</p> <p>2 whether Claim 1 requires a reduction in pixel</p> <p>3 resistance. Is that right?</p> <p>4 MR. CUMMINGS: Objection; form.</p> <p>5 A. No. What's correct is that, sitting here</p> <p>6 today, I haven't formed an opinion on that.</p> <p>7 Q. Does Claim 1 require a parallel connection</p> <p>8 between the first auxiliary electrode and the first</p> <p>9 electrode layer?</p> <p>10 MR. CUMMINGS: Objection; form.</p> <p>11 A. Again, I don't think I formed an opinion</p> <p>12 on that yet.</p> <p>13 Q. So sitting here today, you can't tell me</p> <p>14 that?</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. Again, sitting here today, I'm stating I</p> <p>17 haven't formed an opinion on that.</p> <p>18 Q. So sitting here today, you cannot tell me</p> <p>19 whether the benefit that you've identified for pixel</p> <p>20 resistance reduction is required by Claim 1. Is</p> <p>21 that right?</p> <p>22 MR. CUMMINGS: Objection; form.</p>	<p>44</p> <p>1 address the two competing definitions of POSITA.</p> <p>2 54 is Dr. Baker's, and 62 is yours. Is that fair?</p> <p>3 A. Yes.</p> <p>4 Q. If the board adopts Dr. Baker's definition</p> <p>5 of POSITA, how would that affect the opinions in</p> <p>6 your declaration?</p> <p>7 MR. CUMMINGS: Objection; form.</p> <p>8 A. Could you repeat the question, please?</p> <p>9 Q. Sure.</p> <p>10 If the board adopts Dr. Baker's definition</p> <p>11 of POSITA, how would that affect the opinions in</p> <p>12 your declaration?</p> <p>13 MR. CUMMINGS: Objection; form.</p> <p>14 A. It wouldn't affect my opinions.</p> <p>15 Q. So your conclusions in your declaration</p> <p>16 would be the same whether the board adopts</p> <p>17 Dr. Baker's definition of POSITA or your definition</p> <p>18 of POSITA. Is that right?</p> <p>19 MR. CUMMINGS: Objection; form.</p> <p>20 A. Again, I can only state it wouldn't change</p> <p>21 my opinions.</p> <p>22 Q. Go to paragraph 62, please.</p>

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<p>45</p> <p>1 And starting in the third line, you give</p> <p>2 your definition of POSITA. "A person of ordinary</p> <p>3 skill in the art would have at least a bachelor's</p> <p>4 degree in a field of engineering or physics and at</p> <p>5 least two years of professional experience related</p> <p>6 to the design and manufacture of LED or OLED pixels</p> <p>7 for flat panel displays." Did I read that</p> <p>8 correctly?</p> <p>9 A. Yes.</p> <p>10 Q. Did you come up with this definition by</p> <p>11 yourself?</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 A. Yes.</p> <p>14 Q. So it wasn't provided to you by counsel.</p> <p>15 You independently came up with this all by yourself?</p> <p>16 MR. CUMMINGS: Objection; form.</p> <p>17 A. There may have been some editing, but it</p> <p>18 is what it is. Based on my experience in the</p> <p>19 industry, that's an adequate, suitable definition of</p> <p>20 a person who -- for a person of ordinary skill in</p> <p>21 the art.</p> <p>22 Q. So the education aspect of your</p>	<p>47</p> <p>1 that degree, but I still don't have an issue with</p> <p>2 that.</p> <p>3 Q. And then on the professional experience,</p> <p>4 you say "related to the design and manufacture of</p> <p>5 LED or OLED pixels for flat panel displays."</p> <p>6 Can you tell me what you mean by "design"?</p> <p>7 Is this the same design we were talking about</p> <p>8 earlier?</p> <p>9 MR. CUMMINGS: Objection; form.</p> <p>10 A. It's -- I mean, design of LED and OLED</p> <p>11 pixels for flat panel displays is what it is.</p> <p>12 Someone has to sketch it out, specify it, do the</p> <p>13 calculations to make sure everything, I'll say,</p> <p>14 passes all the tests.</p> <p>15 And any engineering design, any technical</p> <p>16 design, there's a number of tollgates you go</p> <p>17 through. So there is repeated designs. It can</p> <p>18 literally start on the back of a napkin. I will say</p> <p>19 I have actually seen that.</p> <p>20 But there's basic concepts. You do your</p> <p>21 checks to make sure everything is reasonable. You</p> <p>22 don't want to jump to the final design -- that's a</p>
<p>46</p> <p>1 definition, it says "a bachelor's degree in a field</p> <p>2 of engineering."</p> <p>3 Does any engineering degree fall within</p> <p>4 your definition?</p> <p>5 MR. CUMMINGS: Objection; form.</p> <p>6 A. Could you be more specific? I'm not --</p> <p>7 I'm struggling here to understand. What do you mean</p> <p>8 by "any field of engineering"? The fields of</p> <p>9 engineering are what they are.</p> <p>10 Q. Okay. What about biomedical engineering?</p> <p>11 Is that a POSITA?</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 A. If they have the relevant amount of</p> <p>14 professional experience, I would say yes. I've</p> <p>15 worked with people in the field who had degrees in</p> <p>16 biomedical engineering and biochemical engineering</p> <p>17 too for that.</p> <p>18 Q. What about civil engineering?</p> <p>19 A. I've worked with a few of those as well.</p> <p>20 Q. How about environmental engineering?</p> <p>21 MR. CUMMINGS: Objection; form.</p> <p>22 A. I can't recall working with someone with</p>	<p>48</p> <p>1 lot of time, effort, and money -- if a review at an</p> <p>2 early time would say, no, this isn't going to work.</p> <p>3 That's a standard process in manufacturing</p> <p>4 environments and design environments.</p> <p>5 Q. When you say "sketch it out," does that</p> <p>6 involve using software to actually create the layout</p> <p>7 of the chip?</p> <p>8 MR. CUMMINGS: Objection; form.</p> <p>9 A. It could.</p> <p>10 Q. Is that something you've done?</p> <p>11 A. Yes.</p> <p>12 Q. I've heard of, like -- let's see. Is it</p> <p>13 Synopsys, the tools that do that? Do you recall the</p> <p>14 tools that you use for that?</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. SolidWorks is what I use for a lot of my</p> <p>17 design. And I'm an engineer that -- sometimes I</p> <p>18 still do things with paper and spreadsheets.</p> <p>19 Q. Old school.</p> <p>20 A. You could say that.</p> <p>21 Q. You said this is like a repeated process.</p> <p>22 Is iterative process a fair description of the</p>

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<p style="text-align: right;">49</p> <p>1 design process you're talking about?</p> <p>2 MR. CUMMINGS: Objection; form.</p> <p>3 A. "Tollgate process" is the term that's</p> <p>4 normally used. It's formalized in Six Sigma. There</p> <p>5 are different variations of it in ISO 9000, QS 9000,</p> <p>6 quality system requirements. And it could be</p> <p>7 refining the design, but it's refining your</p> <p>8 estimates. The amount of effort to come up with</p> <p>9 something that's finished and ready for production</p> <p>10 is significant.</p> <p>11 So, again, what you're looking for is</p> <p>12 literally a tollgate, can you justify paying the</p> <p>13 toll to go forward. If a company wants to design a</p> <p>14 flat panel display, they're going to spend a few</p> <p>15 million dollars before it gets into production. If</p> <p>16 a \$50,000 analysis -- quick analysis can say there's</p> <p>17 no way possible this is going to work, you're going</p> <p>18 to stop and only spend that money. If you spend</p> <p>19 millions of dollars and produce parts and they don't</p> <p>20 work and it can't be fixed, engineers lose their</p> <p>21 jobs for that.</p> <p>22 Q. You talked about review. Is it fair to</p>	<p style="text-align: right;">51</p> <p>1 thing every time. You can come up with what you</p> <p>2 think is a great design, great manufacturing</p> <p>3 process -- most of the people who develop those</p> <p>4 processes -- I don't want to say throw them over the</p> <p>5 wall in manufacturing, but that's kind of what's</p> <p>6 done. "Not my responsibility anymore."</p> <p>7 But the ultimate manufacture, that's where</p> <p>8 you really learn. In the design process for any</p> <p>9 type of electronic device, you might make a few</p> <p>10 dozen to a few hundred components. Manufacturing,</p> <p>11 you're looking to make millions. So are you going</p> <p>12 to find the failure modes? Are you going to find</p> <p>13 deficiencies that weren't evident in the reviews?</p> <p>14 What's the actual, I'll say, problems? And the</p> <p>15 design could be fine, and maybe the manufacturing</p> <p>16 capabilities aren't up to it. Maybe the</p> <p>17 manufacturing capabilities can't reproduce the</p> <p>18 design. So there's a different level of expertise.</p> <p>19 I could say -- jokes I've heard in the</p> <p>20 past, you typically don't ask a Ph.D. if something</p> <p>21 is possible, because if they say yes, it means</p> <p>22 they've done it once. If you ask them if it's</p>
<p style="text-align: right;">50</p> <p>1 say that at each tollgate there's a review that says</p> <p>2 "Okay. This is good enough. We can go to the next</p> <p>3 step and further refine the design"?</p> <p>4 MR. CUMMINGS: Objection; form.</p> <p>5 A. That's a description of a tollgate</p> <p>6 process. You have to justify going forward,</p> <p>7 spending more money and resources.</p> <p>8 Q. Who is involved in that review?</p> <p>9 MR. CUMMINGS: Objection; form.</p> <p>10 Q. Typically.</p> <p>11 A. This is, I will say, outside the scope of</p> <p>12 my declaration.</p> <p>13 But program manager, project manager,</p> <p>14 engineers. It's possible sales and marketing could</p> <p>15 be involved as well.</p> <p>16 Q. And then you also mentioned "and</p> <p>17 manufacture." How does "and manufacture" differ</p> <p>18 from the design that we just discussed?</p> <p>19 MR. CUMMINGS: Objection; form.</p> <p>20 A. The design process is what it is. You go</p> <p>21 through a design.</p> <p>22 Manufacturing is trying to do the same</p>	<p style="text-align: right;">52</p> <p>1 reproducible and they say yes, it means they've done</p> <p>2 it at least twice. It doesn't matter if it took</p> <p>3 them a hundred times to get the first one and it</p> <p>4 took a thousand to get the second. The answer is</p> <p>5 what it is.</p> <p>6 It's kind of a joking thing, but that's</p> <p>7 more what it is. I did this a few times versus I</p> <p>8 have to do this every time.</p> <p>9 Q. So is it the same person that does the</p> <p>10 design -- also has the experience in the manufacture</p> <p>11 if they go through this iterative process and prove</p> <p>12 that their design could be made in volume?</p> <p>13 MR. CUMMINGS: Objection; form.</p> <p>14 A. Typically you go from manufacturing to</p> <p>15 design. Until you understand the issues in</p> <p>16 manufacturing, it's dangerous to have someone do</p> <p>17 design.</p> <p>18 Q. When you say "manufacture," you're not</p> <p>19 talking about in the fab, the guys that are -- the</p> <p>20 people that are coming up with the recipes, the</p> <p>21 partial gas flows and the temperatures of the ovens.</p> <p>22 You're not referring to those people, that you have</p>

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<p>53</p> <p>1 to have that experience in your definition of</p> <p>2 POSITA. Is that fair?</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. What you've asked is a very awkward</p> <p>5 question, and I'm not sure it can be answered.</p> <p>6 Because there's maintaining a process, running a</p> <p>7 process, versus what you described as developing a</p> <p>8 process. So you're asking about developing a</p> <p>9 process, but your question was directed towards</p> <p>10 manufacturing, so there's a disconnect.</p> <p>11 Q. Well, I'm focusing on the word</p> <p>12 "manufacture."</p> <p>13 And so I'm trying to figure out if your</p> <p>14 POSITA needs to be someone who is in the fab, coming</p> <p>15 up with the recipes, to operate the machinery to get</p> <p>16 the various components made.</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. Coming up with the recipes isn't</p> <p>19 manufacturing. That's development. That's why you</p> <p>20 asked a question that doesn't make a lot of sense.</p> <p>21 Any of these products are going to be made</p> <p>22 in a quality system environment, which means</p>	<p>55</p> <p>1 manufacturing environments.</p> <p>2 Q. Is the word "manufacture" in your</p> <p>3 definition of POSITA different from transferring to</p> <p>4 manufacture?</p> <p>5 MR. CUMMINGS: Objection; form.</p> <p>6 A. I'm not sure what you're asking. Because</p> <p>7 the processes I have in mind specifically when I say</p> <p>8 "transfer to manufacturing," you set it up, and you</p> <p>9 run it yourself, and then you train the people to do</p> <p>10 the task. So you've already done the job. I just</p> <p>11 don't have to do it for the next five years.</p> <p>12 Q. But, again, I'm trying to figure out if</p> <p>13 there's a difference in words. You've described</p> <p>14 transfer to manufacturing, but you have a definition</p> <p>15 here of manufacturing in your POSITA -- and I'm</p> <p>16 trying to figure out, are they the same? Are they</p> <p>17 different?</p> <p>18 MR. CUMMINGS: Objection; form.</p> <p>19 A. I've tried to explain how I use</p> <p>20 transferring to manufacturing. If we -- I'm trying</p> <p>21 to think of an example.</p> <p>22 One of my first projects after graduate</p>
<p>54</p> <p>1 arbitrarily changing things isn't allowed. And</p> <p>2 that's kind of what you're describing. You're</p> <p>3 describing a rogue engineer, "Oh, I'm just going to</p> <p>4 change whatever I want as long as it works." That</p> <p>5 doesn't work. That simply isn't allowed and is not</p> <p>6 a part of manufacturing.</p> <p>7 Q. How does manufacturing in your definition</p> <p>8 of a POSITA differ at all from your earlier</p> <p>9 description of your experience "transferred into</p> <p>10 manufacturing"?</p> <p>11 MR. CUMMINGS: Objection; form.</p> <p>12 A. When I do the transfer into</p> <p>13 manufacturing -- and it's part of my background.</p> <p>14 I've done most of that work in manufacturing. I've</p> <p>15 trained the engineers for manufacturing. It's hard</p> <p>16 to train them if you don't know how to do the job</p> <p>17 yourself. And it's part of improving your technical</p> <p>18 capabilities.</p> <p>19 Most people start in manufacturing and go</p> <p>20 into development. Not many people start from</p> <p>21 development and go into manufacturing. My career</p> <p>22 has been largely based on manufacturing, at least</p>	<p>56</p> <p>1 school, my title was process engineer. What that</p> <p>2 meant is I would take processes -- and these were</p> <p>3 semiconductor processes, semiconductor structures.</p> <p>4 I would take those that were developed by the</p> <p>5 research division, the R&D division. I would</p> <p>6 transfer them into manufacture, which meant that I</p> <p>7 set up the equipment, the recipes, developed all the</p> <p>8 quality system documentation, requirements for</p> <p>9 statistical process control, and then I ran the</p> <p>10 process. I trained engineers and technicians to run</p> <p>11 the process, maintain the process, do all the</p> <p>12 quality control, maintenance requirements.</p> <p>13 So I did the manufacturing. That's why</p> <p>14 I'm -- you seem to -- I guess that's probably the</p> <p>15 thing. If you transfer to manufacturing, you've</p> <p>16 done the manufacturing. You're setting it up for</p> <p>17 someone else to maintain.</p> <p>18 Q. Is it fair to say, given your response,</p> <p>19 that transfer to manufacture is a subset of</p> <p>20 manufacture in your POSITA definition?</p> <p>21 MR. CUMMINGS: Objection; form.</p> <p>22 A. It's within the scope, I would say.</p>

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<p>57</p> <p>1 Q. Why did you limit the design and</p> <p>2 manufacture experience in your POSITA to LED or OLED</p> <p>3 pixels?</p> <p>4 MR. CUMMINGS: Objection; form.</p> <p>5 A. More specifically, for flat panel</p> <p>6 displays, if you're doing LEDs or OLEDs, I believe I</p> <p>7 talk about the difference between signal and</p> <p>8 display.</p> <p>9 A signal, I just have to see the light,</p> <p>10 which is a type of display.</p> <p>11 Lighting, there's a difference. But it's</p> <p>12 more than turning on one device. There are</p> <p>13 requirements and terms and technology and issues</p> <p>14 that are associated with displays. You would need</p> <p>15 to know about color uniformity, contrast,</p> <p>16 amit (phonetic), frequency or speed, if you will.</p> <p>17 There's a general thing.</p> <p>18 If you don't know the general issues with</p> <p>19 displays, how can you develop components? How can</p> <p>20 you develop pixel structures for a display if you</p> <p>21 don't know the requirements for a display?</p> <p>22 Q. On the basic concept of addressing IR drop</p>	<p>59</p> <p>1 have a very large vacuum tube. The front of it</p> <p>2 might be flat, but it's not a panel.</p> <p>3 MR. LIMBACH: We've been going about an</p> <p>4 hour and 15 minutes. Why don't we take our first</p> <p>5 break, if that's okay with everybody.</p> <p>6 THE WITNESS: That's okay. Someone else</p> <p>7 wants a break too.</p> <p>8 THE VIDEOGRAPHER: All right. Stand by.</p> <p>9 We are going off the record. The time is</p> <p>10 10:23 a.m.</p> <p>11 (Off the record.)</p> <p>12 THE VIDEOGRAPHER: We are back on the</p> <p>13 record. The time is 10:35 a.m.</p> <p>14 Q. Welcome back, Dr. Bretschneider.</p> <p>15 A. Thank you.</p> <p>16 Q. Did you speak or communicate with anyone</p> <p>17 during the break?</p> <p>18 A. Just my two dogs.</p> <p>19 Q. And if you could please go to paragraph 63</p> <p>20 of your declaration.</p> <p>21 A. Okay.</p> <p>22 Q. And this is a section where you render an</p>
<p>58</p> <p>1 to pixels, do you need specific experience with LEDs</p> <p>2 and OLEDs to address that problem?</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. Could you repeat the question?</p> <p>5 Q. Sure.</p> <p>6 So with respect to the basic concept of</p> <p>7 addressing IR drop to pixels, do you need experience</p> <p>8 with LEDs or OLEDs to do that?</p> <p>9 MR. CUMMINGS: Objection; form.</p> <p>10 A. You started off by saying "IR drop to</p> <p>11 pixels," which says it's a display level issue. And</p> <p>12 I'm using -- saying flat panel, just because it's</p> <p>13 been so long that we have had something that wasn't</p> <p>14 flat panel.</p> <p>15 Again, if you're not familiar with flat</p> <p>16 panel displays, you won't know the context. You</p> <p>17 won't know the general balance of the problems.</p> <p>18 Q. Are there pixilated displays that are not</p> <p>19 flat panel?</p> <p>20 MR. CUMMINGS: Objection; form.</p> <p>21 A. CRT displays, depending on the type, could</p> <p>22 have pixels. They are not a flat panel. On CRT you</p>	<p>60</p> <p>1 opinion that Dr. Baker is not a POSITA. Is that</p> <p>2 right?</p> <p>3 A. Yes.</p> <p>4 Q. And if you could go to paragraph 66,</p> <p>5 please.</p> <p>6 A. Okay.</p> <p>7 Q. And down in the fifth line, it says "I</p> <p>8 also considered Dr. Baker's work at Micron around</p> <p>9 1994 where he evaluated technologies at the time,</p> <p>10 but this did not give Dr. Baker experience with</p> <p>11 designing LEDs for displays at the time of the</p> <p>12 invention in 2013." Do you see that?</p> <p>13 A. Yes.</p> <p>14 Q. Why did that not give him relevant</p> <p>15 experience?</p> <p>16 MR. CUMMINGS: Objection; form.</p> <p>17 A. I can review his CV to give better</p> <p>18 answers. But looking at LED technologies in the</p> <p>19 early '90s -- they weren't adequate for being used</p> <p>20 for displays. And there's a difference between</p> <p>21 evaluating technology, which could be as simple as</p> <p>22 here's the color range, here's the wavelength,</p>

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<p style="text-align: right;">61</p> <p>1 here's the efficiency, here's the cost. Honestly,</p> <p>2 around 1994, if you look at LEDs, the short summary</p> <p>3 is they're expensive and they're not very efficient.</p> <p>4 That would be the thing, that there's a difference</p> <p>5 between evaluating technologies and trying to</p> <p>6 develop technologies.</p> <p>7 Q. Wasn't his work at Micron actually dealing</p> <p>8 with field emitting displays?</p> <p>9 MR. CUMMINGS: Objection; form.</p> <p>10 A. Field-emission displays are related to</p> <p>11 cathode ray tubes. The difference is -- with a</p> <p>12 cathode ray tube, you will have a single electron</p> <p>13 gun for each color. Let's phrase it that way. And</p> <p>14 then you have a multitude of pixels. One gun and it</p> <p>15 sequentially scans the pixels.</p> <p>16 Field-emission displays shrink a cathode</p> <p>17 ray tube down to tens of microns dimensions -- or</p> <p>18 I'll say millimeter dimensions, maybe smaller, and</p> <p>19 you have one emitting tip. And it's the same</p> <p>20 principle. The electrons come from the tip. They</p> <p>21 travel through a vacuum. They're accelerated at a</p> <p>22 high voltage. They hit a phosphor.</p>	<p style="text-align: right;">63</p> <p>1 A. The way you power or operate an electron</p> <p>2 gun is completely different from an LED or OLED.</p> <p>3 Q. Is it your understanding that Dr. Baker's</p> <p>4 work involved field-emitting displays that used an</p> <p>5 electron gun?</p> <p>6 MR. CUMMINGS: Objection; form.</p> <p>7 A. If it's a field-emission display, there's</p> <p>8 an emitter tip that's emitting a beam of electrons.</p> <p>9 I don't care what you call it, it's still an</p> <p>10 electron gun. It uses field emission instead of --</p> <p>11 most CRTs use a thermionic emission, but the</p> <p>12 principle is still the same. I'm pulling electrons</p> <p>13 off of a material and accelerating them in a vacuum.</p> <p>14 Q. If you could go to paragraph 95 of your</p> <p>15 expert report, please.</p> <p>16 A. Okay.</p> <p>17 Q. This deals with the -- your definition of</p> <p>18 the claim term "auxiliary." Do you see that?</p> <p>19 A. Yes.</p> <p>20 Q. And at the bottom of page 37, you say "It</p> <p>21 is my opinion that the term 'auxiliary' should be</p> <p>22 afforded its plain and ordinary meaning, which does</p>
<p style="text-align: right;">62</p> <p>1 That's a completely different mechanism</p> <p>2 for generating light. Because all you're doing is</p> <p>3 turn on an electron gun, and you make a point of</p> <p>4 light. It's such a dramatically different</p> <p>5 technology from LEDs or OLEDs.</p> <p>6 Q. Do field-emitting displays have pixels?</p> <p>7 MR. CUMMINGS: Objection; form.</p> <p>8 A. The ones I'm aware of, one electron gun,</p> <p>9 one phosphor, one pixel. So they're separated.</p> <p>10 But, again, the mechanism for generating light is</p> <p>11 completely different. It's high energy electrons</p> <p>12 hitting a phosphor in a vacuum environment. If you</p> <p>13 tried to do the same thing to LEDs or OLEDs, you'd</p> <p>14 probably destroy the materials.</p> <p>15 Q. Do the field-emitting displays have</p> <p>16 similar lines powering the pixels, board lines that</p> <p>17 runs --</p> <p>18 A. I can't say they're similar, because the</p> <p>19 voltages are completely different.</p> <p>20 Q. The line configuration is the same. Is</p> <p>21 that right?</p> <p>22 MR. CUMMINGS: Objection; form.</p>	<p style="text-align: right;">64</p> <p>1 not include primary and essential." Do you see</p> <p>2 that?</p> <p>3 A. Yes.</p> <p>4 Q. Did you come up with this definition</p> <p>5 yourself?</p> <p>6 MR. CUMMINGS: Objection; form.</p> <p>7 A. I don't recall. It's consistent. On the</p> <p>8 next paragraph, there's a little more explanation as</p> <p>9 well.</p> <p>10 Q. Was this definition possibly provided to</p> <p>11 you?</p> <p>12 MR. CUMMINGS: Objection; form. And to</p> <p>13 the extent it calls for privileged information, I'm</p> <p>14 going to instruct the witness not to answer.</p> <p>15 A. I don't recall. And, again, between</p> <p>16 paragraph 95 and 96, it's all consistent with the</p> <p>17 plain and ordinary meaning of auxiliary. On</p> <p>18 paragraph 96, I state "The plain meaning of</p> <p>19 auxiliary is something that is subsidiary or is</p> <p>20 supplemental to another thing."</p> <p>21 Q. But you, sitting here today, can't recall</p> <p>22 whether you came up with this by yourself or if any</p>

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<p>65</p> <p>1 aspect of it was provided for you?</p> <p>2 MR. CUMMINGS: Objection; form. And the</p> <p>3 same caution to the witness.</p> <p>4 A. The best I can say is it makes plain and</p> <p>5 simple sense to me.</p> <p>6 Q. If you go to paragraph 96, it begins "The</p> <p>7 plain meaning of auxiliary is something that is</p> <p>8 subsidiary or supplemental to another thing." Do</p> <p>9 you see that?</p> <p>10 A. Yes. I just read that a minute ago.</p> <p>11 Q. Yep.</p> <p>12 Does being subsidiary or supplemental</p> <p>13 alone preclude primary and essential?</p> <p>14 MR. CUMMINGS: Objection; form.</p> <p>15 A. Could you repeat the question? Because</p> <p>16 it's a very awkward question.</p> <p>17 Q. Sure.</p> <p>18 Does being subsidiary or supplemental</p> <p>19 alone preclude primary and essential?</p> <p>20 MR. CUMMINGS: Objection; form.</p> <p>21 A. If it's subsidiary and supplemental, then</p> <p>22 it's not primary and essential.</p>	<p>67</p> <p>1 MR. CUMMINGS: Objection; form.</p> <p>2 A. Again, if it's additional, it's not</p> <p>3 primary or essential. The word "additional" means</p> <p>4 what it means. So I'm struggling.</p> <p>5 Q. Well, can you add something and have it</p> <p>6 perform a primary and essential function?</p> <p>7 MR. CUMMINGS: Objection --</p> <p>8 A. I'm sorry. I'm struggling. Because one</p> <p>9 of the general design philosophies I was taught in</p> <p>10 engineering is to have parts or components serve</p> <p>11 multiple functions if possible, part of the</p> <p>12 elegance of engineering. So what keeps going</p> <p>13 through my mind with your questions is, well, it's</p> <p>14 additional or supplemental in terms of this</p> <p>15 function, but it has another function. So that's</p> <p>16 why I'm struggling.</p> <p>17 But if it's additional, then you're adding</p> <p>18 on to the primary. You're supplementing the</p> <p>19 primary.</p> <p>20 Q. So you're saying that if you add something</p> <p>21 it can't serve a primary and essential function?</p> <p>22 MR. CUMMINGS: Objection; form.</p>
<p>66</p> <p>1 Q. Why is that?</p> <p>2 MR. CUMMINGS: Objection; form.</p> <p>3 A. If it's primary and essential, it's</p> <p>4 primary and essential. If it's subsidiary or</p> <p>5 supplemental, then it's subsidizing or supplementing</p> <p>6 something.</p> <p>7 Q. Do you see those words as mutually</p> <p>8 exclusive? If it's subsidiary or supplemental, it</p> <p>9 cannot be primary or essential. Is that your</p> <p>10 testimony?</p> <p>11 MR. CUMMINGS: Objection; form.</p> <p>12 A. I answered as best I could. That's the</p> <p>13 best I can state.</p> <p>14 Q. And in the -- lines 3 and 4 of that</p> <p>15 paragraph, you cite to Exhibit 2015, and you cite to</p> <p>16 a dictionary definition that is "additional;</p> <p>17 supplementary; semicolon; reserve." Do you see</p> <p>18 that?</p> <p>19 A. Yes.</p> <p>20 Q. And the first example is "additional."</p> <p>21 Why does "additional" preclude primary and</p> <p>22 essential?</p>	<p>68</p> <p>1 A. No. What I'm saying -- if we're only</p> <p>2 talking about one function and that's -- if I have</p> <p>3 strange expressions on my face, I'm thinking, well,</p> <p>4 maybe it does another function as well.</p> <p>5 If I'm supplementing something, the</p> <p>6 supplement is not primary or essential.</p> <p>7 Q. Your definition just says "does not</p> <p>8 include primary and essential." You don't limit it</p> <p>9 to any particular function.</p> <p>10 So my question to you is: Are you saying</p> <p>11 that when you add something, if something is</p> <p>12 additional, it can't serve a primary and essential</p> <p>13 function?</p> <p>14 MR. CUMMINGS: Objection; form.</p> <p>15 A. Actually, my definition is in</p> <p>16 paragraphs 95 and 96. Because in 96, I say "The</p> <p>17 plain meaning of auxiliary is something that is</p> <p>18 subsidiary or supplemental to another thing."</p> <p>19 That's kind of a repeat or rephrasing of auxiliary,</p> <p>20 which does not include primary and essential.</p> <p>21 Again, if we're talking about one</p> <p>22 function -- that's implicit in all your questions --</p>

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<p style="text-align: right;">69</p> <p>1 that's what I'm understanding. If I'm supplementing</p> <p>2 something, I'm supplementing the primary. The</p> <p>3 primary doesn't supplement the supplemental.</p> <p>4 Without the primary, you're stuck.</p> <p>5 Q. Okay. But the definition at the bottom of</p> <p>6 page 37 just says it does not include primary and</p> <p>7 essential. It doesn't tie it to any specific</p> <p>8 function. It can't -- that definition at the bottom</p> <p>9 of page 37 -- correct me if I'm wrong -- says it</p> <p>10 can't provide a primary and essential function,</p> <p>11 period. Am I wrong?</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 A. Yes, you are wrong.</p> <p>14 Q. How so?</p> <p>15 A. Because, again, if it's not primary and</p> <p>16 essential. Okay? If I'm providing auxiliary -- the</p> <p>17 example, I believe, later on that Petitioner gave</p> <p>18 referred to an auxiliary electrode in terms of</p> <p>19 plating. Well, the auxiliary electrode makes the</p> <p>20 plating more uniform, but you can still do plating</p> <p>21 without the auxiliary electrode in that example.</p> <p>22 So if you want to invent some bizarre,</p>	<p style="text-align: right;">71</p> <p>1 A. Yes.</p> <p>2 Q. Can the auxiliary electrode, in the</p> <p>3 context of the '509 patent, perform a primary and</p> <p>4 essential function?</p> <p>5 MR. CUMMINGS: Objection; form.</p> <p>6 A. That's an incomplete question. It's an</p> <p>7 electrode. If it's supposed to be a flagpole as</p> <p>8 well, then you would say it's a primary flagpole,</p> <p>9 not an auxiliary flagpole. But that's where the</p> <p>10 disconnect is. Auxiliary is modifying something</p> <p>11 else, and you seem to want to make it apply to</p> <p>12 absolutely everything.</p> <p>13 Q. Well, doesn't your definition apply to</p> <p>14 absolutely everything?</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. No. And, again, I've stated it many</p> <p>17 times, the last sentence in paragraph 95 and the</p> <p>18 first sentence in paragraph 96.</p> <p>19 Q. So "The plain meaning of auxiliary is</p> <p>20 something that is subsidiary or supplemental to</p> <p>21 another thing." That's at the top of 96.</p> <p>22 A. Yes.</p>
<p style="text-align: right;">70</p> <p>1 unrelated thing and say that it's primary for this,</p> <p>2 then auxiliary is not applying something else.</p> <p>3 Q. Okay.</p> <p>4 A. So, again, I think the term is clear. It</p> <p>5 doesn't include primary and essential, and it's</p> <p>6 something that's subsidiary or supplemental to</p> <p>7 another thing.</p> <p>8 Q. So when you say "does not include primary</p> <p>9 and essential," that's tied to whatever the</p> <p>10 auxiliary term is qualifying, like, in this case, an</p> <p>11 electrode?</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 A. I would say that's understood.</p> <p>14 Q. So in this case, the auxiliary electrode</p> <p>15 is an electrode that cannot function -- that cannot</p> <p>16 include a primary and essential function.</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 Q. Is that your opinion?</p> <p>19 A. No. And that's not what I've stated.</p> <p>20 Q. Okay. Let's break this down.</p> <p>21 The term is "auxiliary electrode,"</p> <p>22 correct?</p>	<p style="text-align: right;">72</p> <p>1 Q. What is the first auxiliary electrode in</p> <p>2 Claim 1 subsidiary or supplemental to?</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. An electrode layer in the pixel.</p> <p>5 Q. Why is the electrode layer in the pixel</p> <p>6 not part of your definition?</p> <p>7 MR. CUMMINGS: Objection; form.</p> <p>8 A. Because the term is "auxiliary."</p> <p>9 Q. If you say "The plain meaning of auxiliary</p> <p>10 is something that is subsidiary or supplemental to</p> <p>11 another thing," don't you have to specify what the</p> <p>12 other thing is so then you can figure out what -- if</p> <p>13 it is or is not primary and essential relative to</p> <p>14 that other thing?</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. Since auxiliary is used in the context of</p> <p>17 an auxiliary electrode, I think that's done, and</p> <p>18 it's very clear.</p> <p>19 Q. So when we talk about the plain meaning of</p> <p>20 auxiliary, that is something that is subsidiary or</p> <p>21 supplemental to another thing and you tie that with</p> <p>22 its context, which is electrode, the other thing is</p>

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<p>73</p> <p>1 an electrode?</p> <p>2 MR. CUMMINGS: Objection; form.</p> <p>3 A. I don't understand the question. Because</p> <p>4 you seem to be asking about auxiliary can be applied</p> <p>5 to anything, so even when it's applied to something</p> <p>6 specific, it still applies to everything.</p> <p>7 Q. Well, you're the one that's proposed</p> <p>8 construing auxiliary by itself. So I'm trying to</p> <p>9 figure out what the metes and bounds are of your</p> <p>10 definition. You did not construe auxiliary</p> <p>11 electrode. You split it up. You construed</p> <p>12 auxiliary, and you construed electrode. So I'm</p> <p>13 trying to figure out what is the scope of your</p> <p>14 definition of auxiliary.</p> <p>15 A. I've stated it in paragraphs 95 and 96. I</p> <p>16 can reread what I've opined there again if you'd</p> <p>17 like.</p> <p>18 Q. So when you say "The plain meaning of</p> <p>19 auxiliary is something that is subsidiary or</p> <p>20 supplemental to another thing," you're not baking</p> <p>21 into your definition at all what that other thing</p> <p>22 is. Is that fair?</p>	<p>75</p> <p>1 Q. When the city power grid goes out, isn't</p> <p>2 the battery or generator the primary and essential</p> <p>3 source of power?</p> <p>4 MR. CUMMINGS: Objection; form.</p> <p>5 A. No. By definition, the power plant would</p> <p>6 be the primary source. You switch to backup</p> <p>7 necessarily. So your backup can't be the primary.</p> <p>8 Q. Say you go off grid, disconnect.</p> <p>9 MR. CUMMINGS: Objection; form.</p> <p>10 Q. Then it's primary and essential?</p> <p>11 MR. CUMMINGS: Objection; form.</p> <p>12 A. Now you've changed the context entirely.</p> <p>13 Q. Yes, I have.</p> <p>14 A. So what's the full question? So you're</p> <p>15 saying we have a power grid. The power grid goes</p> <p>16 out. We're on a battery or a backup.</p> <p>17 Now you're saying we don't have a power</p> <p>18 grid. That's a completely different scenario. Now</p> <p>19 we're doing not even apples to oranges anymore.</p> <p>20 Q. So you've got two power sources. You've</p> <p>21 got the grid, and you've got the generator. And in</p> <p>22 your analogy, the grid is primary and essential, and</p>
<p>74</p> <p>1 MR. CUMMINGS: Objection; form.</p> <p>2 A. Auxiliary is what it is. I'm struggling</p> <p>3 with your question.</p> <p>4 Q. Going back to Exhibit 2015 and the</p> <p>5 dictionary definition "additional; supplementary;</p> <p>6 and reserve."</p> <p>7 Did you look up the word "supplementary"</p> <p>8 also in that same dictionary?</p> <p>9 MR. CUMMINGS: Objection; form.</p> <p>10 Q. And to be fair, it's not included in the</p> <p>11 exhibit. I'm not trying to test your memory. It</p> <p>12 wasn't included as an included page.</p> <p>13 A. I looked at a few different dictionaries</p> <p>14 is all I can say. I don't recall the exact ones,</p> <p>15 but the definitions were very, very similar.</p> <p>16 Q. Now, you give an example -- or an analogy</p> <p>17 in paragraph 96. "For example, 'auxiliary' when</p> <p>18 used in the power context could refer to a backup</p> <p>19 power source, like a battery or generator, that</p> <p>20 would be used to supplement a main power source,</p> <p>21 like a city power grid." Do you see that?</p> <p>22 A. Yes.</p>	<p>76</p> <p>1 the generator is not.</p> <p>2 A. A specific battery or generator</p> <p>3 supplements the main power source.</p> <p>4 Q. So it's not a primary and essential power</p> <p>5 source, right?</p> <p>6 A. It's a supplemental power source in that</p> <p>7 scenario.</p> <p>8 Q. Okay. And when the power grid goes out,</p> <p>9 it's still a supplemental source. Is that your</p> <p>10 testimony?</p> <p>11 MR. CUMMINGS: Objection; form.</p> <p>12 A. It's supplementing until the grid comes</p> <p>13 back on.</p> <p>14 Q. Okay. And then if the homeowner just</p> <p>15 disconnects from the grid, physically disconnects</p> <p>16 it, is it still supplemental?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. Now you've changed the scenario. You seem</p> <p>19 to be asking is a battery or generator always a</p> <p>20 supplemental source. Is that what you're trying to</p> <p>21 ask?</p> <p>22 Q. I'm just asking if I disconnect the house</p>

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<p>77</p> <p>1 from the grid does the generator become primary and 2 essential.</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. It's not the context or example I gave. 5 So, again, you're changing things completely 6 differently.</p> <p>7 Q. Yes. I am changing things differently. 8 Can you answer my question?</p> <p>9 A. If there's no city grid, that's a 10 completely different scenario. Then a generator 11 could be a primary source because there's nothing 12 else.</p> <p>13 Q. In paragraph 98, about five lines down, it 14 says "The claims are consistent with the plain and 15 ordinary meaning of 'auxiliary.' They are contrary, 16 however, to Petitioner's broader interpretation of 17 auxiliary to mean any electrode other than the first 18 electrode." Do you see that?</p> <p>19 A. Yes.</p> <p>20 Q. So isn't Petitioner's interpretation 21 consistent with the definition of additional?</p> <p>22 MR. CUMMINGS: Objection; form.</p>	<p>79</p> <p>1 Do you believe that Petitioner's broad 2 interpretation of auxiliary is different from 3 additional?</p> <p>4 A. What I state in paragraph 100 is "In 5 deposition, Petitioner's expert further explained 6 that his opinion was that auxiliary electrode is 7 anything other than the claimed first electrode 8 layer."</p> <p>9 So if the auxiliary electrode is anything 10 that's not the first electrode, then that really -- 11 that's something additional that -- it's kind of a 12 pointless definition. Because then you point to 13 anything other than the first electrode layer, and 14 now you've got your auxiliary electrode. Whether or 15 not it's an electrode or not, what he stated is what 16 he stated.</p> <p>17 Q. Isn't that consistent with the definition 18 that you provided, "additional"?</p> <p>19 MR. CUMMINGS: Objection; form.</p> <p>20 A. No. Because, again, you're taking things 21 out of context.</p> <p>22 Further in paragraph 100, "The claims,</p>
<p>78</p> <p>1 A. No.</p> <p>2 Q. Why not?</p> <p>3 A. Because for any LED device -- as we 4 discussed earlier, they're bipolar devices. You 5 have an anode and a cathode. So if you're -- you're 6 basically saying that if the first electrode is the 7 anode, the cathode is supplementary and additional 8 because that's a second electrode. That's not the 9 case. An anode and a cathode are different things. 10 So now you're doing a cats and dogs swap, and it 11 doesn't apply.</p> <p>12 So if I have a first electrode and a 13 second electrode, no, the second electrode isn't 14 necessarily auxiliary just because it's something 15 additional.</p> <p>16 Q. Isn't it Petitioner's -- your 17 understanding of Petitioner's broad interpretation 18 that auxiliary just means any other electrode? An 19 additional electrode, right?</p> <p>20 MR. CUMMINGS: Objection; form.</p> <p>21 A. Could you repeat the question, please?</p> <p>22 Q. Let me rephrase it.</p>	<p>80</p> <p>1 when read in the context of the plain meaning of 2 auxiliary and the specification, tell a POSITA that 3 the function or characteristic being supplemented by 4 the auxiliary electrode is the function or 5 characteristic of the first electrode layer."</p> <p>6 So it's not -- it does something else. I 7 don't care if it has anything to do with the first 8 electrode layer. It's an auxiliary electrode. It's 9 supplementing a function or characteristic of the 10 first electrode layer.</p> <p>11 Q. But I'm --</p> <p>12 A. That's pretty specific, and that's in 13 context. So...</p> <p>14 Q. But we're just talking about the 15 dictionary definition of additional. All of that 16 stuff that you just said is not in the dictionary 17 definition of additional.</p> <p>18 I'm just asking you. Is the Petitioner's 19 broad interpretation of auxiliary consistent with 20 additional?</p> <p>21 MR. CUMMINGS: Objection; form.</p> <p>22 A. I've stated my opinions as best I can.</p>

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<p>81</p> <p>1 Q. Yes or no. Is Petitioner's broad 2 interpretation of auxiliary consistent with the 3 dictionary definition of additional? 4 MR. CUMMINGS: Objection; form.</p> <p>5 A. I think Petitioner goes far outside the 6 definition we've been talking about. Because the 7 definition -- dictionary definition we've been 8 talking about is "additional; supplementary; 9 reserve," and as I stated, Petitioner's expert, in 10 deposition, explained that his opinion was that 11 auxiliary electrode is anything other than the 12 claimed first electrode layer. So he forgets about 13 what auxiliary is being used in the context of, and 14 I don't think a person of ordinary skill in the art 15 would do that.</p> <p>16 Q. And I'm not asking about all three of the 17 definitions in Exhibit 2015. I'm asking about the 18 first, "additional". 19 Is Petitioner's broad interpretation of 20 auxiliary consistent with the term "additional"? 21 Yes or no. 22 MR. CUMMINGS: Objection; form.</p>	<p>83</p> <p>1 POSITA that the function or characteristic being 2 supplemented by the auxiliary electrode is the 3 function or characteristic of the first electrode 4 layer."</p> <p>5 Q. And when he said "anything other," did you 6 interpret that to mean that he was referring to 7 things that weren't electrodes? 8 MR. CUMMINGS: Objection; form.</p> <p>9 A. In paragraph 98, I state "Claims are 10 consistent with the plain and ordinary meaning of 11 auxiliary. They are contrary, however, to 12 Petitioner's broad interpretation of auxiliary to 13 mean any electrode other than the first electrode. 14 Indeed, in the '509 patent, the claims require an 15 auxiliary electrode in addition to a first electrode 16 layer and a second electrode layer. If any meaning, 17 it is unclear what the difference between auxiliary 18 electrode and second electrode layer is because they 19 are both not the first electrode layer. The plain 20 and ordinary meaning has no such issues."</p> <p>21 So, again, the interpretation that 22 Dr. Baker and the petitioner are applying, if I had</p>
<p>82</p> <p>1 A. Again, I've stated no. Because in 2 deposition, Petitioner's expert further explained 3 that his opinion was that auxiliary electrode is 4 anything other than the claimed first electrode 5 layer. So it's not an additional anything. It's 6 just something else I could point to.</p> <p>7 Q. What is your interpretation of what he was 8 talking about when he said "anything other"? 9 MR. CUMMINGS: Objection; form.</p> <p>10 A. I'd have to review his declaration 11 transcript in more detail.</p> <p>12 But, again, paragraph 100 sums it up. 13 He's the one who stated that, in his opinion, 14 auxiliary electrode is anything other than the first 15 electrode layer. I cite his deposition 16 transcript --</p> <p>17 Q. Okay.</p> <p>18 A. -- and then state "Petitioner's expert 19 seems to consider auxiliary electrode without the 20 context of the remainder of intrinsic evidence. 21 Claims, when read in the context of the plain 22 meaning of auxiliary and the specification, tell a</p>	<p>84</p> <p>1 a first electrode and a second electrode because 2 the layer -- first electrode layer, second electrode 3 layer, the second electrode layer can be the 4 auxiliary electrode even if it has nothing to do 5 with it. An anode and a cathode are not an 6 electrode and a supplementary or an auxiliary 7 electrode.</p> <p>8 So, again, Dr. Baker is the one who is 9 saying it can be anything else.</p> <p>10 Q. And, again, when you just said that, 11 "anything else," anything else in terms -- but still 12 an electrode. Yes or no. 13 MR. CUMMINGS: Objection; form.</p> <p>14 A. I'd have to review, again, his deposition 15 transcript. I provided a cite in paragraph 100, but 16 he's the one who offered the opinion that auxiliary 17 electrode is anything other than the claimed first 18 electrode layer.</p> <p>19 Q. I'm asking about --</p> <p>20 A. I disagree with that.</p> <p>21 Q. I'm asking about your interpretation as 22 you quoted it in your declaration. You quoted his</p>

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<p style="text-align: right;">85</p> <p>1 words. I'm asking you what you understand his words</p> <p>2 to mean.</p> <p>3 When he said "anything else," was he</p> <p>4 limiting that to electrodes? Or was it other things</p> <p>5 other than electrodes? Do you know the answer to</p> <p>6 that?</p> <p>7 MR. CUMMINGS: Objection; form.</p> <p>8 A. I've stated at least three times if you</p> <p>9 want me to review that section of his deposition</p> <p>10 transcript I can give you a better answer.</p> <p>11 Q. Sitting here today, you can't tell me what</p> <p>12 he was referring to was limited to electrodes or</p> <p>13 not?</p> <p>14 MR. CUMMINGS: Objection; form.</p> <p>15 A. After that statement, I offer the opinion</p> <p>16 "Petitioner's expert seems to consider auxiliary</p> <p>17 electrode without the context of the remainder of</p> <p>18 the intrinsic evidence."</p> <p>19 Again, if you want me to try to remember</p> <p>20 everything verbatim from his deposition transcript,</p> <p>21 that was a long deposition.</p> <p>22 Q. At the bottom of page 38, the third line</p>	<p style="text-align: right;">87</p> <p>1 Q. It says "The specification also confirms</p> <p>2 that auxiliary is meant to refer to something that</p> <p>3 is not primary and essential. The specification</p> <p>4 describes embodiments where the electrode layer can</p> <p>5 be coordinated with the first electrode layer to</p> <p>6 reduce the resistance of the first electrode</p> <p>7 layer 132." Do you see that?</p> <p>8 A. Yes.</p> <p>9 Q. And in the third line of this paragraph,</p> <p>10 the key word that I want to ask you about is "where</p> <p>11 the electrode layer can be coordinated."</p> <p>12 Are you interpreting "can be" to be "must</p> <p>13 be"?</p> <p>14 MR. CUMMINGS: Objection; form.</p> <p>15 A. I'm not sure I understand your question.</p> <p>16 I'm saying it can be coordinated with the first</p> <p>17 electrode layer to reduce the resistance of the</p> <p>18 first electrode layer.</p> <p>19 Q. Must it be coordinated with the first</p> <p>20 electrode layer to reduce the resistance of the</p> <p>21 first electrode layer 132?</p> <p>22 MR. CUMMINGS: Objection; form.</p>
<p style="text-align: right;">86</p> <p>1 up, "Indeed, in the '509 patent, the claims require</p> <p>2 an auxiliary electrode in addition to a first</p> <p>3 electrode layer and a second electrode layer." Do</p> <p>4 you see that?</p> <p>5 A. Yes.</p> <p>6 Q. So this description -- your description of</p> <p>7 the '509 patent, is that consistent with the</p> <p>8 dictionary definition of additional?</p> <p>9 MR. CUMMINGS: Objection; form.</p> <p>10 A. Again, we've gone over my opinion on this</p> <p>11 multiple times.</p> <p>12 Q. Well, you use the words "in addition to."</p> <p>13 So is "in addition to" consistent with the</p> <p>14 dictionary definition of additional?</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. Again, it's going to be additional to the</p> <p>17 first electrode layer. It's going to be</p> <p>18 supplementing the function or performance of the</p> <p>19 first electrode layer.</p> <p>20 Q. In paragraph 99 -- if you'll go to</p> <p>21 paragraph 99, please.</p> <p>22 A. Okay.</p>	<p style="text-align: right;">88</p> <p>1 A. I haven't formed an opinion on that. I</p> <p>2 stated what I stated.</p> <p>3 Q. Well, your definition talks about the</p> <p>4 supplemental function of reducing resistance. So</p> <p>5 are you requiring -- are you limiting the term to</p> <p>6 what the specification says can be done?</p> <p>7 MR. CUMMINGS: Objection; form.</p> <p>8 A. It's an embodiment described in the</p> <p>9 specification.</p> <p>10 Q. Is the embodiment required by your</p> <p>11 definition?</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 A. The embodiment is what it is, and my</p> <p>14 definition is what it is. I'm confused. I mean, if</p> <p>15 the auxiliary electrode isn't supplementing the</p> <p>16 function, then it's not an auxiliary electrode. So</p> <p>17 your question is extremely awkward, at best.</p> <p>18 Q. So it's your opinion that auxiliary</p> <p>19 requires that it supplement the function?</p> <p>20 MR. CUMMINGS: Objection; form.</p> <p>21 A. Again, in paragraph 96, "The plain meaning</p> <p>22 of auxiliary is something that is subsidiary or</p>

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<p style="text-align: right;">89</p> <p>1 supplemental to another thing," pointing to an 2 example and embodiment. And you seem to be asking 3 if an embodiment is required by the claims. 4 Q. The function of that embodiment to reduce 5 resistance. 6 A. It's one possible function. 7 Q. Is it a required function, to your 8 definition? 9 MR. CUMMINGS: Objection; form. 10 A. First off, I don't think I provided an 11 opinion on that. 12 But I will comment that reviewing Claim 1 13 I don't see the word "resistance." 14 Q. And what does that tell you? 15 MR. CUMMINGS: Form. 16 A. I believe the phrase I've heard before in 17 the past is that you're trying to import a 18 limitation of a body into the claims. 19 Q. Can you do that? 20 MR. CUMMINGS: Objection; form. 21 A. That would be a legal conclusion, and I'm 22 not an attorney.</p>	<p style="text-align: right;">91</p> <p>1 A. It's not specified or limited. As I point 2 out in the following paragraph, paragraph 100, 3 starting at the bottom of page 39, "The claims, when 4 read in the context of the plain meaning of 5 auxiliary and the specification, tell a POSITA that 6 the function or characteristic being supplemented by 7 the auxiliary electrode is the function or 8 characteristic of the first electrode layer. One of 9 the examples used in the specification is a parallel 10 arrangement that would reduce resistance. In that 11 embodiment, the electrode is auxiliary because it is 12 not the primary and essential electrode. It 13 provides the supplemental functionality of allowing 14 for electrodes to reduce the resistance of the pixel 15 structure. Conversely, without the auxiliary 16 electrode in this preferred embodiment, the first 17 electrode layer would still result in an operable 18 pixel structure, but it would have higher 19 resistance." 20 Q. Okay. So you identified one supplemental 21 functionality, and that's reduced resistance. How 22 about others?</p>
<p style="text-align: right;">90</p> <p>1 Q. Do you believe you're doing that? 2 MR. CUMMINGS: Objection; form. 3 A. I believe what I stated is you're trying 4 to do that. And my understanding is that's not 5 something that should be done, but, again, I am -- 6 don't have a legal background. 7 Q. Does your -- 8 A. So you are asking about a word that's not 9 in a claim and saying the claim requires something 10 that's not in it. I don't know how I can answer 11 your question more plainly other than that word is 12 not in that claim. 13 Q. At the bottom -- the last sentence of 14 paragraph 99, it says "In other words, consistent 15 with the plain meaning of auxiliary, the 16 specification describes the auxiliary electrode as 17 providing supplemental functionality to the first 18 electrode layer. It's not simply an additional 19 electrode." Do you see that? 20 A. Yes. 21 Q. What is the supplemental functionality to 22 the first electrode layer?</p>	<p style="text-align: right;">92</p> <p>1 MR. CUMMINGS: Objection; form. 2 A. I haven't formed an opinion on that. If 3 you want to give me some time to review the patent 4 and think about it, I could possibly give you an 5 answer, but I don't have an opinion on that that I 6 believe I've stated. 7 Q. So the supplemental functionality for the 8 first electrode layer, besides reducing resistance, 9 sitting here today, you can't name any others? 10 MR. CUMMINGS: Objection; form. 11 A. I don't have any opinions. Again, I do 12 not want to answer off cuff. My job is to carefully 13 consider the references, the teachings, and 14 knowledge of a person of ordinary skill in the art 15 before providing an opinion. 16 Q. And how does the '509 patent teach 17 reducing resistance by adding the auxiliary 18 electrode? 19 MR. CUMMINGS: Objection; form. 20 A. I can reread the second half of 21 paragraph 100, but I think I already answered that. 22 Q. If you're going to sit here -- I've read</p>

<p style="text-align: right;">93</p> <p>1 your declaration, so just reading me paragraphs 2 doesn't assist the process. But I've asked you a 3 very simple question. You shouldn't need to read 4 your paragraphs of your declaration to answer. 5 A. Respectfully, my declaration is carefully 6 thought out and is the result of a lot of work and 7 consideration. It's written. The words were chosen 8 carefully. If I ad lib, it's not going to be the 9 same forethought. So I am trying to be very 10 precise. 11 Q. Does the '509 patent teach that the 12 first -- that the auxiliary electrode can reduce 13 resistance through parallel connection? 14 MR. CUMMINGS: Objection; form. 15 A. What I stated -- one of the examples used 16 in the specification is a parallel arrangement that 17 would reduce resistance. 18 Q. Can you describe that parallel 19 arrangement? 20 MR. CUMMINGS: Objection; form. 21 A. There's an embodiment in Column 7. I can 22 skip to later parts of the embodiment. Starting at</p>	<p style="text-align: right;">95</p> <p>1 you just read? 2 MR. CUMMINGS: Objection; form. 3 A. Your question doesn't match with what the 4 patent was saying. 5 Q. Well, the patent has the word "parallel 6 connection." You just read it. 7 A. Yes. And it was also talking about sheet 8 resistance. 9 Q. Okay. 10 A. So sheet resistance is a two-dimensional 11 problem, an area problem, if you will. And there's 12 a difference between sheet resistance and, I'll say, 13 traditional resistance. Literally, the units of 14 sheet resistivity are Ohms per square. If you 15 haven't dealt with the problem, it's a really 16 strange sounding thing, because there's an implied 17 unit area. You have two sheet resistances in 18 parallel. 19 It's -- the function -- it's the 20 characteristics that's in parallel. So that's the 21 whole problem. You're asking about physical things 22 in parallel, but what's described is sheet</p>
<p style="text-align: right;">94</p> <p>1 about line 37, "It should be noted that because a 2 metal that has lower sheet resistance and higher 3 electrical conductivity can be used in the second 4 electrode layer 136 of the light-emitting device 130 5 and the second auxiliary electrode 460, the 6 resistance of the second electrode layer 136 can be 7 reduced more effectively to improve the problem of 8 IR drop. 9 "It is also worth noting that the first 10 electrode layer 132 is electrically connected to the 11 first auxiliary electrode 120 and the second 12 auxiliary electrode 460. Therefore, the design of 13 the invention that coordinates the first electrode 14 layer 132 of the light-emitting device 130 with two 15 auxiliary electrodes decreases the resistance of the 16 first electrode layer 132 through parallel 17 connection so as to reduce the total resistance of 18 the pixel structure 400 by about 90 percent, thereby 19 improving the overall luminous uniformity of the 20 display panel." 21 Q. So what is connected in parallel -- what 22 elements are connected in parallel in the words that</p>	<p style="text-align: right;">96</p> <p>1 resistance in parallel. 2 Q. Can a single electrode be a parallel 3 connection? 4 MR. CUMMINGS: Objection; form. 5 A. Could you repeat that question? 6 Q. Sure. 7 Can a single electrode be a parallel -- 8 have a parallel connection? 9 MR. CUMMINGS: Objection; form. 10 A. There's not enough context to answer that. 11 Q. My understanding of parallel connection -- 12 you correct me if I'm wrong -- is you have two 13 elements and they're connected at multiple points, 14 or at least more than one point. Is that wrong? 15 MR. CUMMINGS: Objection; form. 16 A. If you're talking about components, 17 components could be connected in parallel. 18 But, again, we're talking about sheet 19 resistance here. So you've changed the topic. I'm 20 fine. I just wanted to point out that we've changed 21 the topic. 22 Q. Yeah. Yeah. Yes.</p>

<p style="text-align: right;">97</p> <p>1 Does the '509 patent teach that you do a</p> <p>2 parallel connection between the auxiliary electrode</p> <p>3 and the first electrode layer?</p> <p>4 MR. CUMMINGS: Objection; form.</p> <p>5 A. Again, you're -- I'm trying to be</p> <p>6 specific. Because what I described was not a</p> <p>7 parallel electrical connection, which is what you</p> <p>8 have been asking. It's a characteristic of the</p> <p>9 layer. It's the sheet resistivity.</p> <p>10 If we go to the top of Column 6, starting</p> <p>11 at line 4, the '509 patent states "For example, the</p> <p>12 design of coordinating the aforementioned electrode</p> <p>13 layer with the auxiliary electrode is applicable to</p> <p>14 the anode of the top-emission organic</p> <p>15 electroluminescent device so as to reduce the</p> <p>16 resistance of the anode through parallel</p> <p>17 connection."</p> <p>18 So if you are familiar with design of</p> <p>19 OLEDs or LEDs, it's pretty clear. Because you have</p> <p>20 issues with current spreading, which is a sheet</p> <p>21 resistivity problem. And the parallel connection</p> <p>22 you're talking about is parallel sheet resistance.</p>	<p style="text-align: right;">99</p> <p>1 parallel connection."</p> <p>2 Q. Okay. So it's referring to the anode.</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. There, that example, that discussion is</p> <p>5 specific to the anode.</p> <p>6 Q. Does the parallel connection specific to</p> <p>7 the anode involve any other element?</p> <p>8 MR. CUMMINGS: Objection; form.</p> <p>9 A. I'm not sure what you're talking about</p> <p>10 with respect to "any other element."</p> <p>11 Q. Does the parallel connection in Column 6</p> <p>12 also involve the auxiliary electrode?</p> <p>13 A. I can reread the section again. It's</p> <p>14 talking about the auxiliary electrode and an example</p> <p>15 where it's applicable to the anode. So you seem to</p> <p>16 be asking a question that's answered itself.</p> <p>17 Q. The answer is yes?</p> <p>18 A. The specification says what it says.</p> <p>19 Q. Well, I'm asking you what it means, and</p> <p>20 you said the parallel connection here involves the</p> <p>21 anode. I'm asking you. Does it also involve the</p> <p>22 auxiliary electrode?</p>
<p style="text-align: right;">98</p> <p>1 So you're improving current spreading, if you will.</p> <p>2 So your question about components in</p> <p>3 parallel doesn't apply to a single component.</p> <p>4 That's where it's getting very, very confusing.</p> <p>5 Okay?</p> <p>6 The OLED is shown -- in the circuit</p> <p>7 diagram, you'll see a schematic for an LED. How can</p> <p>8 I make something inside the LED in parallel with the</p> <p>9 LED? That seems to be what you're asking, and it's</p> <p>10 a nonsensical -- sorry -- nonsensical question. Can</p> <p>11 I put a device in parallel with itself? It's a</p> <p>12 device. How do I make it in parallel with itself?</p> <p>13 A device is what it is.</p> <p>14 Q. Parallel connection is referred to in</p> <p>15 Column 6 that you just read. What element of the</p> <p>16 pixel -- or of the device is that parallel</p> <p>17 connection referring to -- what element or elements</p> <p>18 is that parallel connection in Column 6 referring</p> <p>19 to?</p> <p>20 MR. CUMMINGS: Objection; form.</p> <p>21 A. It's fairly clear. Because it states "so</p> <p>22 as to reduce the resistance of the anode through</p>	<p style="text-align: right;">100</p> <p>1 A. Again, you're asking a nonsensical</p> <p>2 question. Because can I put a single component,</p> <p>3 even part of a device, in parallel with itself?</p> <p>4 Okay? At some limit, a component is basically a</p> <p>5 point. I can't put an LED in parallel with itself.</p> <p>6 It doesn't work. I can run all kinds of lines to</p> <p>7 it. I can run lines in parallel to it and lines</p> <p>8 leaving it in parallel, but I can't put one thing in</p> <p>9 parallel by itself, which is what you seem to be</p> <p>10 asking.</p> <p>11 Q. I'm not asking any of that. I'm asking</p> <p>12 you: This parallel connection, you've told me, yes,</p> <p>13 it involves the anode. All I'm asking you is yes or</p> <p>14 no. Does it involve the auxiliary electrode?</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. Inherent is your question, and your</p> <p>17 question is can the anode be in parallel with</p> <p>18 itself.</p> <p>19 So, again, it's very specific. "The</p> <p>20 design of coordinating the aforementioned electrode</p> <p>21 layer with the auxiliary electrode is applicable to</p> <p>22 the anode of the top-emission organic</p>

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<p style="text-align: right;">101</p> <p>1 electroluminescent device so as to reduce the</p> <p>2 resistance of the anode through parallel</p> <p>3 connection."</p> <p>4 You're asking me can the anode be in</p> <p>5 parallel with itself.</p> <p>6 Q. No, I'm not.</p> <p>7 A. It's a nonsensical question.</p> <p>8 Q. I'm not asking you that at all. I'm</p> <p>9 asking you: Does the parallel connection in 6 also</p> <p>10 involve the auxiliary electrode? Yes or no.</p> <p>11 A. It involves sheet resistance. And that's</p> <p>12 the problem. Your question doesn't have an answer.</p> <p>13 Because you're still thinking about components in a</p> <p>14 schematic, and you're not thinking about sheet</p> <p>15 resistance, which would affect the resistance of the</p> <p>16 device. I'm changing the resistance of a pixel.</p> <p>17 You're asking a question about a circuit schematic,</p> <p>18 not the component.</p> <p>19 Q. When you refer to sheet resistance, are</p> <p>20 you referring to sheet resistance of the anode?</p> <p>21 A. It's of the whole device. I can't divorce</p> <p>22 it. That's where we've got a problem here.</p>	<p style="text-align: right;">103</p> <p>1 question, and you keep asking the circuit schematic</p> <p>2 question about device level issues.</p> <p>3 Q. No, I'm not. The words are right there at</p> <p>4 line 8, "parallel connection."</p> <p>5 A. Yes.</p> <p>6 Q. I want to know what that refers to. And</p> <p>7 you earlier testified that it does involve the</p> <p>8 anode, correct?</p> <p>9 A. It involves sheet resistance.</p> <p>10 Q. Of?</p> <p>11 A. Of different layers. The anode is part of</p> <p>12 it, but it's still -- it affects the whole device.</p> <p>13 You're trying to divide up something that can't be</p> <p>14 divided. Okay? There are different components to</p> <p>15 how you calculate the resistance of a pixel, of a</p> <p>16 light-emitting device. You're trying to parse it</p> <p>17 inappropriately because you're still thinking about</p> <p>18 circuit schematics.</p> <p>19 Q. So just so the record is clear, you can't</p> <p>20 tell me, given my understanding, that that parallel</p> <p>21 connection in Column 6 involves the auxiliary</p> <p>22 electrode.</p>
<p style="text-align: right;">102</p> <p>1 You know how pixels work. You know how LEDs and</p> <p>2 OLEDs work -- or you don't. I can spend a couple</p> <p>3 hours, and we can go through the background theory</p> <p>4 how they work, and after three or four hours you</p> <p>5 won't have to ask me the question. But you're still</p> <p>6 asking questions that don't have an answer.</p> <p>7 Q. Okay. So just so I'm clear, for the</p> <p>8 parallel connection in Column 6, you can tell me it</p> <p>9 involves the anode, but you cannot tell me it</p> <p>10 involves the auxiliary electrode. Is that right?</p> <p>11 MR. CUMMINGS: Objection; form.</p> <p>12 A. That's not even what I said. I said the</p> <p>13 anode is discussed there. But you're reducing the</p> <p>14 resistance of the pixel. The pixel is an anode, a</p> <p>15 hole injection layer, a light-emitting layer, an</p> <p>16 electron injection layer, and a cathode. So the</p> <p>17 whole device, that's what I'm reducing the</p> <p>18 resistance of.</p> <p>19 Q. Okay. And I'm talking about the --</p> <p>20 A. Yes, but it's very clear. You're talking</p> <p>21 about the parallel connection. And, again, this is</p> <p>22 a device level question, not a circuit schematic</p>	<p style="text-align: right;">104</p> <p>1 MR. CUMMINGS: Objection; form.</p> <p>2 A. It involves more than that. You're trying</p> <p>3 to limit it to that. And, again, you're ignoring</p> <p>4 the issues of sheet resistance, and there's only so</p> <p>5 much I can do around that when you don't consider</p> <p>6 how the device works.</p> <p>7 Q. Well, to be clear --</p> <p>8 A. This example is specific to an auxiliary</p> <p>9 electrode with the anode as the primary. But,</p> <p>10 again, the effects aren't just from -- not just at</p> <p>11 the anode. It's the entire device that operates</p> <p>12 differently. So --</p> <p>13 Q. I'm not --</p> <p>14 A. -- that's why I can't answer your</p> <p>15 question. It doesn't have an answer.</p> <p>16 Q. Okay. Again, I'm not talking about the</p> <p>17 effect. I'm just talking about, when it refers to</p> <p>18 parallel connection, what elements of the pixel are</p> <p>19 involved in that. And my question simply -- I</p> <p>20 wasn't saying it's only this or only that. I'm just</p> <p>21 saying is the auxiliary electrode part of that</p> <p>22 parallel connection. Yes or no.</p>

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<p>105</p> <p>1 MR. CUMMINGS: Objection; form.</p> <p>2 A. Again, where I hesitate – because you're</p> <p>3 not making – it's not clear to me that you're</p> <p>4 understanding that we're talking about sheet</p> <p>5 resistance in parallel versus electrical connections</p> <p>6 in parallel.</p> <p>7 I can say every layer in the emission</p> <p>8 portion has a sheet resistance. The auxiliary</p> <p>9 electrode is supplementing, in this example, the</p> <p>10 performance and characteristic of the anode, but it</p> <p>11 affects the whole device. And that's really all I</p> <p>12 can say.</p> <p>13 Because if you follow on from the section</p> <p>14 I read, starting at line 8 in Column 6, "However,</p> <p>15 the invention is not limited thereto. In other</p> <p>16 embodiments the design of coordinating the</p> <p>17 aforementioned electrode layer within" – or "with</p> <p>18 the auxiliary electrode is applicable to other</p> <p>19 suitable electrode layers or conductive layers."</p> <p>20 So there's an example with the anode, but</p> <p>21 it's not just applicable to that.</p> <p>22 Q. Going back to the top of 96, the first</p>	<p>107</p> <p>1 pixel structure. Conversely, without the auxiliary</p> <p>2 electrode in this preferred embodiment, the first</p> <p>3 electrode layer would still result in an operable</p> <p>4 pixel structure, but it would have higher</p> <p>5 resistance."</p> <p>6 Q. Why do you believe that the auxiliary</p> <p>7 electrode in the '509 patent could be removed and</p> <p>8 the circuit would still work?</p> <p>9 MR. CUMMINGS: Objection; form.</p> <p>10 A. You asked a question that doesn't have an</p> <p>11 answer. Because we're talking about pixels, and</p> <p>12 you're talking about a circuit. So are we inside</p> <p>13 the pixel? Or are we outside the pixel and dealing</p> <p>14 with the circuit? The auxiliary electrode is a part</p> <p>15 of the device, and you asked a question about would</p> <p>16 the outside of the device still work.</p> <p>17 Q. Okay. Let me clarify that.</p> <p>18 You say "Conversely, without the auxiliary</p> <p>19 electrode in this preferred embodiment, the first</p> <p>20 electrode layer would still result in an operable</p> <p>21 pixel structure, but it would have higher</p> <p>22 resistance."</p>
<p>106</p> <p>1 sentence of 96. "The plain meaning of auxiliary is</p> <p>2 something that's subsidiary or supplemental to</p> <p>3 another thing."</p> <p>4 How do you get to -- from supplemental</p> <p>5 functionality to not primary and essential?</p> <p>6 MR. CUMMINGS: Objection; form.</p> <p>7 A. The meaning of the words are pretty clear.</p> <p>8 If it's supplemental, again, it's supplementing</p> <p>9 something. So it's not primary and essential. It's</p> <p>10 a supplement.</p> <p>11 Q. In your opinion, anything that's</p> <p>12 supplemental, you should be able to remove it and</p> <p>13 the device will still work?</p> <p>14 MR. CUMMINGS: Objection; form.</p> <p>15 A. I had a specific opinion about that.</p> <p>16 The last part of paragraph 100. "One of</p> <p>17 the examples used in the specification is a parallel</p> <p>18 arrangement that would reduce resistance. In that</p> <p>19 embodiment, the electrode is auxiliary because it is</p> <p>20 not the primary and essential electrode. It</p> <p>21 provides the supplemental functionality of allowing</p> <p>22 for the electrodes to reduce the resistance of the</p>	<p>108</p> <p>1 My question is: Why do you believe that</p> <p>2 the auxiliary electrode could be removed and still</p> <p>3 result in an operable pixel structure?</p> <p>4 MR. CUMMINGS: Objection; form.</p> <p>5 A. Because in this embodiment -- and we</p> <p>6 discussed passages or descriptions of the embodiment</p> <p>7 in the patent -- the supplemental electrode reduces</p> <p>8 the resistance. So if you remove the auxiliary</p> <p>9 electrode, you still have a functioning pixel. It</p> <p>10 just has a higher resistance. It's clear.</p> <p>11 Q. Does the first electrode layer extend all</p> <p>12 the way out to the power line and make physical</p> <p>13 contact with the power line?</p> <p>14 MR. CUMMINGS: Objection; form.</p> <p>15 A. Could you point me in my declaration where</p> <p>16 I talk about that?</p> <p>17 Q. You don't talk about that. I'm just</p> <p>18 asking your understanding of the '509 patent.</p> <p>19 Does the '509 patent tell us what makes</p> <p>20 physical contact with the power line?</p> <p>21 A. Again, the patent is about a pixel</p> <p>22 structure. If we go to Column 1, starting at</p>

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<p style="text-align: right;">109</p> <p>1 line 17 under "Field of Invention." "The invention 2 relates to a pixel structure and particularly 3 relates to a pixel structure capable of improving 4 the overall luminous uniformity of a display panel." 5 So the patent is talking about pixel 6 structure. 7 Q. How does power get from the power line to 8 the first electrode layer? 9 MR. CUMMINGS: Objection; form. 10 A. Again, I don't believe I provide an 11 opinion on that. And, again, we're talking about a 12 pixel structure. You're talking about a circuit. 13 Q. The circuit is in the patent. It's 14 Figure 1. It shows a power line, and it shows an 15 electrical connection to the pixel, correct? 16 MR. CUMMINGS: Objection; form. 17 A. Figure 1 shows a circuit diagram. 18 Q. Can you tell me? Does the '509 patent 19 tell us how power gets from the power line to the 20 first electrode layer? 21 MR. CUMMINGS: Objection; form. 22 A. I'll take a step back.</p>	<p style="text-align: right;">111</p> <p>1 '509 patent, how that pixel would receive its power? 2 MR. CUMMINGS: Objection; form. 3 A. A POSITA would understand how to provide 4 power to a pixel, I think, is the best answer I can 5 give. 6 Q. Would a POSITA assume that the first 7 electrode layer is physically connected to the power 8 line? 9 MR. CUMMINGS: Objection; form. 10 A. I haven't considered that or formed an 11 opinion on that. 12 Q. Would a POSITA understand that the 13 auxiliary electrode would physically contact the 14 power line? 15 MR. CUMMINGS: Objection; form. 16 A. Again, I haven't considered that. Because 17 now, again, you're going -- you're switching scopes. 18 The '509 patent talks about how to design a 19 component, and you're asking about how to connect 20 the component to a display. 21 Again, a POSITA would understand how to 22 connect power to a pixel, but the field of the</p>
<p style="text-align: right;">110</p> <p>1 And I believe Dr. Baker also said there's 2 not a congruence between the schematic and a 3 cross-sectional area of a component. 4 So, again, we're talking about pixel 5 structure. You're asking about details of a 6 circuit. So I'm going to stick with the opinions I 7 offered. Because the patent is about a pixel 8 structure, and you're asking about a circuit. 9 Q. You can't tell me what the -- what is 10 connected to the first electrode layer that provides 11 power from the power line. You can't tell me what 12 that is. Is that fair? 13 MR. CUMMINGS: Objection; form. 14 A. No. What's fair is I haven't formed an 15 opinion on that. My declaration was responsive to 16 Dr. Baker. 17 Q. Do you believe that -- 18 A. And -- 19 Q. Oh, sorry. 20 A. Again, we're talking about a component, 21 and you're asking circuit questions. 22 Q. Would a POSITA understand, reading the</p>	<p style="text-align: right;">112</p> <p>1 patent is construction of the pixel itself. 2 Q. Would a POSITA consider physically the -- 3 strike that. 4 Would a POSITA consider, reviewing the 5 '509, that the first electrode layer could make 6 physical contact with the power line to complete 7 that circuit? 8 MR. CUMMINGS: Objection; form. 9 A. The POSITA would consider countless 10 things. But, again, I haven't formed an opinion on 11 that. 12 Q. The same question but involving the 13 auxiliary electrode. Would a POSITA consider, 14 reviewing the '509 patent, that the auxiliary 15 electrode could make physical contact with the power 16 line to complete the circuit? 17 MR. CUMMINGS: Objection; form. 18 A. Again, I haven't offered any opinion on 19 that, and I'm not going to do it off cuff. 20 Q. If the auxiliary electrode makes physical 21 contact with the power line and the first electrode 22 layer does not, would the auxiliary electrode be</p>

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<p>113</p> <p>1 primary and essential?</p> <p>2 MR. CUMMINGS: Objection; form.</p> <p>3 A. I don't think I've offered an opinion on</p> <p>4 that, and, again, I'm not going to attempt to do</p> <p>5 that off cuff.</p> <p>6 Q. If you could go to paragraph 101, please.</p> <p>7 A. Okay.</p> <p>8 Q. The last sentence says "Thus, a POSITA</p> <p>9 reading the specification clearly understands at</p> <p>10 least one function of the auxiliary electrode in a</p> <p>11 preferred embodiment, namely, to reduce the</p> <p>12 resistance of the first electrode layer and thereby</p> <p>13 reduce the total resistance of the pixel structure."</p> <p>14 Do you see that?</p> <p>15 A. Yes.</p> <p>16 Q. I think we've talked about this before,</p> <p>17 but I just want to make sure. Is that required by</p> <p>18 Claim 1?</p> <p>19 MR. CUMMINGS: Objection; form.</p> <p>20 A. Again, the best I can say, the word</p> <p>21 "resistance" does not appear in Claim 1.</p> <p>22 Q. Is there anything in Claim 1 that would</p>	<p>115</p> <p>1 THE WITNESS: Okay.</p> <p>2 THE VIDEOGRAPHER: Stand by.</p> <p>3 We are going off the record. The time is</p> <p>4 11:55 a.m.</p> <p>5 (Off the record.)</p> <p>6 THE VIDEOGRAPHER: We are back on the</p> <p>7 record. Time is 12:45 p.m.</p> <p>8 Q. Welcome back, Dr. Bretschneider.</p> <p>9 A. Thank you.</p> <p>10 Q. Did you talk or communicate with anybody</p> <p>11 during your lunch break?</p> <p>12 A. With my wife briefly.</p> <p>13 Q. Not about the case, I presume.</p> <p>14 A. No. A monitor problem. I have a new</p> <p>15 display monitor that I have to hook up.</p> <p>16 Q. Something for your to-do list.</p> <p>17 A. Yes.</p> <p>18 MR. CUMMINGS: Mr. Shaker, can you pin</p> <p>19 Dr. Bretschneider?</p> <p>20 THE VIDEOGRAPHER: Counsel, I'm</p> <p>21 unfortunately not able to pin for everybody with</p> <p>22 this video setup, but if you go to "view" on the top</p>
<p>114</p> <p>1 require this?</p> <p>2 MR. CUMMINGS: Objection; form.</p> <p>3 A. The best I can say, resistance isn't in</p> <p>4 Claim 1. So your question seems to be can a claim</p> <p>5 require something it doesn't discuss.</p> <p>6 Q. Does your construction of auxiliary</p> <p>7 require it?</p> <p>8 MR. CUMMINGS: Objection; form.</p> <p>9 A. As I stated in paragraph 100, "The claims,</p> <p>10 when read in the context of the plain meaning of</p> <p>11 auxiliary and the specification, tell the POSITA</p> <p>12 that the function or characteristic being</p> <p>13 supplemented by the auxiliary electrode is the</p> <p>14 function or characteristic of the first electrode</p> <p>15 layer."</p> <p>16 Q. And reducing resistance is one of those</p> <p>17 functions?</p> <p>18 A. I think the more correct statement would</p> <p>19 be that one characteristic of an electrode layer</p> <p>20 could be the resistance.</p> <p>21 MR. LIMBACH: Let's go off the record for</p> <p>22 a second.</p>	<p>116</p> <p>1 right, you can change the view settings to</p> <p>2 "speaker." Alternatively, if you open the</p> <p>3 "participants" tab and click the three dots next to</p> <p>4 the doctor's name, you can pin him from there.</p> <p>5 MR. CUMMINGS: Thank you.</p> <p>6 Q. If you could please go to paragraph 104 of</p> <p>7 your declaration.</p> <p>8 A. Okay.</p> <p>9 Q. There you say that -- for the term</p> <p>10 "electrode," that should be afforded its plain and</p> <p>11 ordinary meaning, which is an end structure of a</p> <p>12 conductor for making electrical contact. Do you see</p> <p>13 that?</p> <p>14 A. Yes.</p> <p>15 Q. Did you come up with this definition</p> <p>16 yourself?</p> <p>17 MR. CUMMINGS: Objection; form. To the</p> <p>18 extent that it calls for privilege, I'm going to</p> <p>19 instruct the witness not to answer.</p> <p>20 A. I don't recall the exact, but it's</p> <p>21 consistent, and it's essentially what I would use</p> <p>22 anytime in the last 30 years.</p>

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<p>117</p> <p>1 Q. If you go down to paragraph 106, it says</p> <p>2 "In my opinion, nothing in the claims or</p> <p>3 specifications expand the definition of electrode as</p> <p>4 to be any conductor." Do you see that?</p> <p>5 A. Yes.</p> <p>6 Q. And you stand by that definition. Is that</p> <p>7 right?</p> <p>8 A. Yes.</p> <p>9 Q. I'm sorry. Strike that.</p> <p>10 You stand by that opinion.</p> <p>11 A. Yes.</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 Q. On the next page, you state "In the</p> <p>14 claims, the electrode layers and auxiliary electrode</p> <p>15 are electrically connected to each other, and the</p> <p>16 first electrode layer is electrically connected to</p> <p>17 the active device." Do you see that?</p> <p>18 A. Yes.</p> <p>19 Q. How do those electrical connections limit</p> <p>20 electrode to the end structure of a conductor?</p> <p>21 MR. CUMMINGS: Objection; form.</p> <p>22 A. That's an awkward question. Could you</p>	<p>119</p> <p>1 electrical contact. If electrical contact is made,</p> <p>2 then either electrons or holes can travel from the</p> <p>3 conductor into the material that it's made contact</p> <p>4 or the structure it's made contact with.</p> <p>5 And when an electrode layer is used, those</p> <p>6 charged carriers go through the interface, the</p> <p>7 portion adjacent to the material. They don't</p> <p>8 somehow -- if you think of a sandwich structure,</p> <p>9 they don't come out of the top of the sandwich and</p> <p>10 somehow end up in the middle of the sandwich. It's</p> <p>11 got to go from the bread to the inside of the</p> <p>12 sandwich.</p> <p>13 Q. For connecting -- for making an electrical</p> <p>14 connection aspect of your construction, do these</p> <p>15 electrical conduction support your conclusion that</p> <p>16 the electrode is only the end structure of a</p> <p>17 conductor?</p> <p>18 MR. CUMMINGS: Objection; form.</p> <p>19 A. The best I can say is what I state in</p> <p>20 paragraph 106. "In the claims, electrode layers and</p> <p>21 auxiliary electrode are electrically connected to</p> <p>22 each other, and the first electrode layer is</p>
<p>118</p> <p>1 rephrase it?</p> <p>2 Q. Well, you're identifying these electrical</p> <p>3 connections in support of your opinion of what</p> <p>4 electrode is, which is an end structure of a</p> <p>5 conductor, right?</p> <p>6 A. It's the end structure of a conductor for</p> <p>7 making electrical contact, not just the end</p> <p>8 structure of a conductor.</p> <p>9 Q. And how do these connections that you've</p> <p>10 identified in this sentence support that conclusion?</p> <p>11 MR. CUMMINGS: Objection; form.</p> <p>12 A. The auxiliary -- or sorry -- the electrode</p> <p>13 layers, those are the layers that inject current.</p> <p>14 Electrons are holes into the pixel structure.</p> <p>15 Q. And how does the -- how does the injection</p> <p>16 of a current limit those structures to the end</p> <p>17 structure of conductors -- or the end structures of</p> <p>18 conductors?</p> <p>19 MR. CUMMINGS: Objection; form.</p> <p>20 A. Well, as I stated in paragraph 104 the</p> <p>21 plain and ordinary meaning -- excuse me -- meaning</p> <p>22 is an end structure of a conductor for making</p>	<p>120</p> <p>1 electrically connected to the active device."</p> <p>2 So the layer is making the electrical</p> <p>3 connection. I guess I'm not understanding your</p> <p>4 question.</p> <p>5 Q. Well, if we have a wire and it's connected</p> <p>6 to -- at the end of the wire it's connected to a</p> <p>7 component, I believe your construction is, to the</p> <p>8 extent that the wire has an electrode at its end,</p> <p>9 the electrode is not the wire. It's just the end</p> <p>10 structure of the wire. Does that make sense?</p> <p>11 MR. CUMMINGS: Objection; form.</p> <p>12 A. Yes.</p> <p>13 Q. So why does the -- why do the electrical</p> <p>14 connections that you've identified support your</p> <p>15 conclusion that the electrode is just the end of the</p> <p>16 wire and not the entire wire?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. It's not just that. I mean, that's the</p> <p>19 plain and ordinary meaning. I have a thousand feet</p> <p>20 of wire and I make a point contact to, say, a solar</p> <p>21 cell. The electrode is not a thousand feet long.</p> <p>22 It's that end of the wire where it makes electrical</p>

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<p style="text-align: right;">121</p> <p>1 contact. That's plain and ordinary meaning. That's 2 just the understanding of a person of ordinary skill 3 in the art. 4 Q. And that dovetails into the next sentence, 5 which says "Like its plain and ordinary meaning, 6 electrode is used as an end point, not the road to 7 get to the end point." 8 So in that respect, in the wire example 9 you just gave, the road to get there is mostly the 10 wire, and the end point is just the end structure 11 that makes the contact. Am I following your analogy 12 or your point here? 13 MR. CUMMINGS: Objection; form. 14 A. Yes. 15 Q. Okay. So the road is the entire wire, and 16 then the end point of that wire is the electron. 17 A. The structure at the end that makes the 18 electrical contact. And more specifically, the -- 19 in this paragraph, my statement was that nothing in 20 the claims or specifications expand the definition 21 of electrode to be any other conductor. So I gave 22 an example and basically said this is consistent</p>	<p style="text-align: right;">123</p> <p>1 "depending" and "intended" as well. 2 Q. Do the figures show the end structures or 3 end points of conductors? 4 MR. CUMMINGS: Objection; form. 5 A. The figures are cross-sectional views, so 6 they can't show a two-dimensional structure. 7 Q. Let's go to Figure 3, if you would. 8 Let me know when you're there. 9 A. Okay. 10 Q. Where is the auxiliary electrode in this 11 figure? 12 A. I'm trying to make sure I use the numbers 13 correctly. 14 In Figure 3, auxiliary electrode is 15 designated -- the first auxiliary electrode is 16 element 220. 17 Q. And you see that in Figure 3? 18 A. Yes. 19 Q. What is the conductor for which the 20 auxiliary electrode 220 is an end structure or end 21 point? 22 MR. CUMMINGS: Objection; form.</p>
<p style="text-align: right;">122</p> <p>1 with plain and ordinary meaning. There's nothing 2 strange. 3 Q. Did the '509 patent ever refer to its 4 electrode or electrode layers as an end structure or 5 an end point of a conductor, that you recall? 6 MR. CUMMINGS: Objection; form. 7 A. Not that I recall. And an electronic 8 search shows that the term "electrode" appears over 9 200 times in the '509 patent, so it would take some 10 time to go through everything. 11 Q. And if you do a search for "end," how many 12 times does it refer to "end" in the patent? 13 MR. CUMMINGS: Objection; form. 14 A. "End" by itself shows up in Column 3, 15 section -- from about line 14 to line 31. And it 16 does -- excuse me -- reference an electrode end E1, 17 the other electrode end E2. 18 Q. So those are the only two occurrences of 19 "end" in the specification? 20 MR. CUMMINGS: Objection; form. 21 A. That's all Adobe is showing for me. 22 Although, it's showing "e-n-d" showing up in</p>	<p style="text-align: right;">124</p> <p>1 A. My opinions about auxiliary electrode, 2 that term is supplementing the function or 3 characteristic of the primary electrode. So now 4 you're switching in between definitions. 5 Q. I'm just asking about electrode. You say 6 that electrode is an end structure of a conductor. 7 A. Yes. 8 Q. 220 is an electrode. Yes? 9 A. No. I stated 220 is an auxiliary 10 electrode. That's where you changed definitions. 11 Q. Is the auxiliary electrode an end point of 12 a conductor? 13 MR. CUMMINGS: Objection; form. 14 A. An auxiliary electrode, I believe we 15 discussed before, supplements the function or 16 characteristic of the primary electrode. 17 Q. Does the auxiliary electrode 220 meet your 18 definition of electrode? 19 MR. CUMMINGS: Objection; form. 20 A. It's an auxiliary electrode according to 21 the '509 patent. I don't know how else to answer. 22 Q. Does the auxiliary electrode 220 meet your</p>

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<p>1 definition of electrode? 2 MR. CUMMINGS: Objection; form. 3 A. All I can state is my opinions. An 4 auxiliary electrode is an auxiliary electrode. I 5 don't believe I offered an opinion about an 6 auxiliary electrode being something different. If 7 you could point me to that in my declaration, then I 8 can review that. 9 Q. I'm not asking you about whether it's 10 something different. You've offered a construction 11 for the term "electrode." Yes? 12 A. Yes. 13 Q. Does element 220 meet that definition? 14 MR. CUMMINGS: Objection; form. 15 A. I haven't offered an opinion on that yet. 16 I haven't considered it. 17 Q. And you're unwilling to tell me that 18 opinion now or form that opinion now? 19 MR. CUMMINGS: Objection; form. 20 A. I think any expert would have a difficult 21 time forming an opinion on the spot. Again, it's 22 not the function and purpose of an expert.</p>	<p>125 1 Q. But the entire layer is called electrode, 2 correct? 3 MR. CUMMINGS: Objection; form. 4 A. No. The entire layer is called electrode 5 layer. 6 Q. Does electrode layer 132 in its entirety 7 meet your construction of electrode? 8 MR. CUMMINGS: Objection; form. 9 A. I haven't considered that and haven't 10 offered an opinion on that. 11 Q. Where is the second electrode layer in 12 this figure? 13 A. 136. 14 Q. How many electrodes are shown in Figure 3 15 relative to layer 136? 16 MR. CUMMINGS: Objection; form. 17 A. Could you repeat the question, please? 18 Q. Sure. 19 How many electrodes are shown in Figure 3 20 as part of layer 136? 21 MR. CUMMINGS: Objection; form. 22 A. I haven't analyzed the figure and</p>
<p>126 1 Q. Let's go to Figure 6, if you would. You 2 may have to spin it around so it's right side up. 3 A. Okay. 4 Q. Where is the auxiliary electrode in this 5 figure? 6 A. The second auxiliary electrode is 460. 7 Q. Does element 460 meet your definition of 8 electrode? 9 MR. CUMMINGS: Objection; form. 10 A. Again, I don't believe I offered an 11 opinion on that. 12 Q. Go back to Figure 3, if you could. 13 A. Okay. 14 Q. Where in Figure 3 is the first electrode 15 layer? 16 A. The first electrode layer is labeled 132. 17 Q. And does the first electrode layer 132 18 meet your definition of electrode? 19 MR. CUMMINGS: Objection; form. 20 A. I would say the portion of 132 -- the end 21 structure where it makes contact with 134 would be 22 the electrode.</p>	<p>127 1 considered that. 2 Q. So you can't tell me, sitting here today? 3 A. I'm saying I haven't formed an opinion on 4 that. 5 Q. And you're unwilling to tell me the answer 6 to the question if you haven't formed an opinion on 7 it? 8 MR. CUMMINGS: Objection; form. 9 A. I'm saying if I haven't formed an opinion 10 then I can't answer the question. You're asking me 11 about my opinion, and if I haven't formed it, then 12 obviously I can't answer. 13 Q. Does second electrode layer 136 meet your 14 definition of electrode? 15 MR. CUMMINGS: Objection; form. 16 A. Again, the best I can state is it's an 17 electrode layer. 136 is not described as an 18 electrode. It's described as an electrode layer. 19 Q. So is the answer yes or no whether or not 20 it meets your definition? 21 MR. CUMMINGS: Objection; form. 22 A. I believe you're asking is 136 an</p>

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<p style="text-align: right;">129</p> <p>1 electrode, but the patent is clear that 136 is an 2 electrode layer.</p> <p>3 Q. What I'm asking you: Is electrode -- 4 sorry -- second electrode layer 136 an end structure 5 of a conductor that meets your definition?</p> <p>6 MR. CUMMINGS: Objection; form.</p> <p>7 A. Well, your question admits that 136 is an 8 electrode layer and not an end structure, so the 9 answer is contained in your question. The patent 10 describes 136 as an electrode layer. I agree with 11 that, and that's the opinions I've expressed.</p> <p>12 Q. I'm applying that to your construction of 13 what an electrode is, which is an end structure of a 14 conductor. Does that layer meet that definition?</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. And, again, I haven't considered that, and 17 I'm not willing to guess and make a rapid decision. 18 I need to consider things carefully.</p> <p>19 Q. If you'd go to Column 5, please.</p> <p>20 A. Okay.</p> <p>21 Q. I may have the wrong column. Hold on.</p> <p>22 I do have the wrong column. Please go to</p>	<p style="text-align: right;">131</p> <p>1 end." So more specifically, it's electrode end of 2 the capacitor.</p> <p>3 Q. So you don't find that redundant --</p> <p>4 MR. CUMMINGS: Objection; form.</p> <p>5 Q. -- with your definition?</p> <p>6 MR. CUMMINGS: Objection; form.</p> <p>7 A. No, I don't.</p> <p>8 Q. If you could go to paragraph 109 of your 9 declaration.</p> <p>10 A. Okay.</p> <p>11 Q. It says "In my opinion, Dr. Baker's 12 reliance on hindsight is rampant and plainly visible 13 throughout the record." Do you see that?</p> <p>14 A. Yes.</p> <p>15 Q. And then in paragraph 110 you say at -- 16 over on the right, "He started by reviewing the 17 '842 patent."</p> <p>18 I'm going to stop right here. I believe 19 you meant to say the '509 patent.</p> <p>20 A. Yes.</p> <p>21 Q. Obvious typo. I knew we'd hit at least 22 one today.</p>
<p style="text-align: right;">130</p> <p>1 Column 3.</p> <p>2 A. Okay.</p> <p>3 Q. You just referenced line 26 when you did a 4 word search for "end," and it says "An electrode end 5 E1." Do you see that?</p> <p>6 A. Yes.</p> <p>7 Q. Actually, it says "An electrode end E1 of 8 the capacitor CS is electrically connected with the 9 drain D2 of the active device T1 and the gate G2 of 10 the active device T2. The other electrode end E2 of 11 the capacitor CS is electrically connected with the 12 source S2 of the active device T2 and connected to a 13 ground voltage." Do you see that?</p> <p>14 A. Yes.</p> <p>15 Q. If an electrode refers only to the end 16 structure of a conductor, why does the '509 patent 17 use the term "electrode end"?</p> <p>18 MR. CUMMINGS: Objection; form.</p> <p>19 A. Because the discussion is about a 20 capacitor, and it's talking about the electrode end 21 of the capacitor of the device. So, again, it's not 22 just saying "electrode." It's saying "electrode</p>	<p style="text-align: right;">132</p> <p>1 A. We skipped over another one. I said "IPR" 2 instead of "IR."</p> <p>3 Q. Okay. So I'll start again. "He started 4 by reviewing the sic '509 patent before looking at 5 the prior art to form an opinion about what was 6 obvious."</p> <p>7 Then you have a citation to his -- to 8 Exhibit 2028.</p> <p>9 "Thus, he looked at the solution before 10 looking at the problem." Do you see that?</p> <p>11 A. Yes.</p> <p>12 Q. Is it your opinion that in order to form 13 an opinion on obviousness you must always look at 14 the prior art before reviewing the patent at issue?</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. I believe the bigger issue is that he 17 repeatedly demonstrated how he was working backwards 18 from the claim language. He couldn't say what was 19 obvious until he read the claims and then basically 20 said, "Oh. Form this structure that's in the 21 claims. Yeah, you would do this." He wouldn't say, 22 "Well, you're starting with this, and these are</p>

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<p>133</p> <p>1 obvious changes."</p> <p>2 Q. And you're referring to his deposition.</p> <p>3 Is that right?</p> <p>4 MR. CUMMINGS: Objection; form.</p> <p>5 A. I do have citations to his deposition.</p> <p>6 Yes.</p> <p>7 Q. And in his deposition, the order of going</p> <p>8 through analysis is really set forth by the taking</p> <p>9 attorney, not the expert. Is that fair?</p> <p>10 MR. CUMMINGS: Objection; form.</p> <p>11 A. I don't think it is. Because what I cite</p> <p>12 in his deposition -- the question from the</p> <p>13 attorney: "So to the extent that any other</p> <p>14 modifications you think are necessary and obvious,</p> <p>15 let me know. Otherwise, I will PDF this and get it</p> <p>16 committed [sic] as an exhibit."</p> <p>17 And his response: "Well, just one sec. I</p> <p>18 mean, Claim 11 teaches using the material 422. So</p> <p>19 you don't have an additional layer. So it'd</p> <p>20 probably be better to cover both claims 10 and 11</p> <p>21 with the modification, and you can easily do that by</p> <p>22 getting rid of the red box and just -- or moving the</p>	<p>135</p> <p>1 Q. And did you find that same process in his</p> <p>2 declaration?</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. I'll say that process or a similar one.</p> <p>5 My discussion is in paragraph 113. I would strongly</p> <p>6 disagree that the modifications are not, in fact,</p> <p>7 obvious and the only way from the reference to come</p> <p>8 up with that modification was looking at the claims</p> <p>9 and trying to match what was in the claims.</p> <p>10 Q. You read the '509 patent before rendering</p> <p>11 any opinions in this case, right?</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 A. I'll say I was going back and forth</p> <p>14 between the '509 patent and Dr. Baker's declaration.</p> <p>15 Q. When you first started, I believe you said</p> <p>16 you read the '509 patent first and then the prior</p> <p>17 art second. Is that fair?</p> <p>18 MR. CUMMINGS: Objection; form.</p> <p>19 A. We can review the transcript, but it</p> <p>20 sounds reasonable.</p> <p>21 Q. Are you qualified to render an opinion on</p> <p>22 obviousness even though you saw the patent before</p>
<p>134</p> <p>1 red box to where it's on another layer 422 and then</p> <p>2 just extending it down to the -- yeah, kind of."</p> <p>3 Then at another point, "Hold on a second.</p> <p>4 Let me look at the claim language."</p> <p>5 A third time, "Let me read them, read the</p> <p>6 claim again."</p> <p>7 If he thought it was obvious, it should</p> <p>8 have been easy to just say it would be obvious for a</p> <p>9 person of ordinary skill in the art to do this,</p> <p>10 provide a rationale, a motivation, and not "Let me</p> <p>11 look at the claim language and make sure I match the</p> <p>12 claim language."</p> <p>13 Q. Wasn't he just confirming that the</p> <p>14 annotations that were written by counsel met the</p> <p>15 claim language?</p> <p>16 MR. CUMMINGS: Objection; form.</p> <p>17 A. I think the question was pretty clear.</p> <p>18 "So to the extent that any other modifications you</p> <p>19 think are necessary and obvious, let me know now."</p> <p>20 So if he thought a modification was</p> <p>21 necessary and obvious, well, if it's obvious, he</p> <p>22 should just be able to say why.</p>	<p>136</p> <p>1 you saw the prior art?</p> <p>2 MR. CUMMINGS: Objection; form.</p> <p>3 A. My opinions are responsive to Dr. Baker,</p> <p>4 so I will say there is a difference.</p> <p>5 Q. My question is: Are you qualified to</p> <p>6 offer an opinion on obviousness when you reviewed</p> <p>7 the '509 patent first and the prior art second?</p> <p>8 MR. CUMMINGS: Objection; form.</p> <p>9 A. I can just state again what my opinions</p> <p>10 are based on. They're responsive to Dr. Baker.</p> <p>11 Q. If the board reviews the '509 patent first</p> <p>12 before they review the prior art, are they</p> <p>13 unqualified to make a determination on the issue of</p> <p>14 obviousness?</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. I'm not sure it would be appropriate for</p> <p>17 me to opine on the qualifications of the board.</p> <p>18 Q. What about patent examiners? They read</p> <p>19 the patent application first. They search prior</p> <p>20 art. And then they make determinations on</p> <p>21 obviousness.</p> <p>22 Because they look at the patent first, are</p>

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<p>137</p> <p>1 they unqualified to make a determination on 2 obviousness? 3 MR. CUMMINGS: Objection; form. 4 A. I don't think I've offered an opinion on 5 that. 6 But I can just go back to Dr. Baker's 7 process. He estimated spending 115 hours preparing 8 his declarations for the '509 and the related 9 '733 patent, yet was unable to demonstrate the 10 purportedly obvious combinations without resorting 11 to hindsight. If you can't say what's obvious 12 without reviewing the claims first, I think that's 13 problematic. 14 Q. But I'm asking about patent examiners. 15 MR. CUMMINGS: Objection; form. 16 A. And, again, I haven't offered an opinion 17 about the qualifications or the process of patent 18 examiners. 19 I'm aware that there's the MPEP, the 20 Manual of Patent Examining Procedures. I have seen 21 very small portions of it, small fractions of it, 22 but I also believe that that compendium runs to</p>	<p>139</p> <p>1 meet it. Is that fair? 2 A. Well, there's two things. First of all, 3 it's -- what I state at first, if it were removed, 4 then the pixel structure is just that. It's a chunk 5 of material. It's not the light of any pixel. 6 Q. So therefore, it's primary and essential 7 and does not meet your construction of auxiliary, 8 correct? 9 MR. CUMMINGS: Objection; form. 10 A. It's what I state. "Accordingly, bus 11 line 430 is not auxiliary because it is primary and 12 essential to the operation of the pixel structure." 13 So if you remove it, the pixel doesn't 14 work, does -- can't light. It's clearly not an 15 auxiliary electrode. 16 Q. And the "primary and essential" that comes 17 from your construction, the one that's disputed 18 between the parties, correct? 19 MR. CUMMINGS: Objection; form. 20 A. It's essential to the operation. 21 Q. So you're not willing to admit that in 22 paragraph 125 you're applying your construction for</p>
<p>138</p> <p>1 several thousand pages. I have not sat for an exam 2 as a patent examiner. 3 So, again, in order for me to -- I'm not 4 qualified to question a patent examiner. I'm not 5 familiar with their full process. 6 Q. If you could go to paragraph 120. 7 A. Okay. 8 Q. Here is where you begin your discussion on 9 challenge 1. Do you see that? 10 A. Yes. 11 Q. And you render an opinion in 120. "In my 12 opinion, as I've discussed below, Weaver fails to 13 disclose the limitations of the '509 patent." Do 14 you see that? 15 A. Yes. 16 Q. And down in 125, the second line, 17 "Accordingly, bus line 430 is not auxiliary because 18 it is primary and essential to the operation of the 19 pixel structure." Do you see that opinion? 20 A. Yes. 21 Q. So here you're applying your definition of 22 auxiliary and finding that the bus line 430 doesn't</p>	<p>140</p> <p>1 auxiliary in finding that bus line 430 is not an 2 auxiliary electrode? 3 MR. CUMMINGS: Objection; form. 4 A. I'm trying to be more precise. You're 5 looking for a simple yes/no answer, but in the whole 6 paragraph -- at the end, I state "But given that 7 Weaver's bus line 430 functions like and corresponds 8 to the power line PL of the '509 patent that is 9 omitted from the patent figures, Weaver's bus line 10 cannot also be the auxiliary electrode that is shown 11 in the figures of the '509 patent." 12 Q. In paragraph 125, are you applying your 13 construction of auxiliary? Yes or no. 14 MR. CUMMINGS: Objection; form. 15 A. Again, I state it's not auxiliary because 16 it's primary and essential to the operation of a 17 pixel structure. 18 Q. And you're unwilling to admit that you're 19 applying the construction that you're offering the 20 board on auxiliary in this paragraph. Is that 21 right? 22 MR. CUMMINGS: Objection; form.</p>

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<p>141</p> <p>1 A. I just stated what I applied. I said it 2 is not auxiliary because it is primary and essential 3 to the operation of the pixel structure. 4 Q. Did you apply Dr. Baker's proposed 5 construction to Weaver for the term "auxiliary"? 6 MR. CUMMINGS: Objection; form. 7 A. As I believe we discussed earlier, 8 Dr. Baker was rather liberal with auxiliary being 9 anything additional. 10 Q. Yes. Did you apply that construction to 11 Weaver with respect to the term "auxiliary"? 12 MR. CUMMINGS: Objection; form. 13 A. I don't see that I did, because there's 14 other problems with Dr. Baker's analysis. 15 Q. In paragraph 127, you state "Specifically, 16 bus line 430 extends well beyond any end structure 17 for making electrical contact and encompasses the 18 entire wiring of the bus line. A POSITA would not 19 refer to such a structure as an electrode without 20 hindsight." Do you see that? 21 A. Yes. 22 Q. So here you're applying your proposed</p>	<p>143</p> <p>1 Q. What is element 428 that's marked there in 2 that figure? 3 A. I'd have to refer to Weaver to be sure. 4 Q. Do you recall that they might be vias? 5 A. They might be. I just want to be careful. 6 Q. Sure. 7 So I can get Weaver, but do you recall 8 what those are connected to? 9 A. Below paragraph 32, there is a 10 cross-sectional figure that's been annotated and 11 modified by Dr. Baker. It shows the vias go 12 between – I believe that's 430 and 406, but – the 13 line drawing to 430 shows to something he added. 14 That's why it has stayed. 15 Q. You have a clean version of Figure 4 up at 16 the top of page 50. That might be a better drawing 17 to look at. 18 A. Okay. So the via goes between 430 – 19 Q. Uh-huh. 20 A. – which I believe we decided was the bus 21 line, and 406. 22 Q. And 406 is the anode for the pixel?</p>
<p>142</p> <p>1 construction for electrode. Is that right? 2 A. It's that and the opinion and 3 understanding of a person of ordinary skill in the 4 art. The electrode is a part of the pixel 5 structure. Something that conducts electricity to 6 multiple pixels can't be a part of a pixel structure 7 unless someone is applying hindsight. 8 Q. And here you include an annotated figure 9 from Weaver. It's Figure 6. Do you see that? 10 A. Yes. 11 Q. And you've highlighted bus line 430 in 12 red. Do you see that? 13 A. Yes. 14 Q. And you've also put brackets around a 15 portion of that line marked "Not end points, extends 16 onward." Do you see that? 17 A. Yes. 18 Q. Extends onward from what? 19 MR. CUMMINGS: Objection; form. 20 A. The bus line extends in between pixels. 21 It's a source -- one of the sources of power, 22 depending on your viewpoint.</p>	<p>144</p> <p>1 A. I guess Adobe doesn't want to help me out 2 here. 3 I'm not finding it in reviewing the '509, 4 but in paragraph 124, I talk about anode 406. 5 Q. So the vias 428 connect between the 6 anode 406 and the bus line 430. Is that fair? 7 A. Yes. 8 Q. So going back to page 52 of your 9 declaration. Is the portion of line 430 that's 10 highlighted in red but outside of the bracket that 11 you've got there -- is that entire thing an 12 electrode because that portion is connecting to all 13 of the vias 428? 14 MR. CUMMINGS: Objection; form. 15 A. The whole thing in red is not connected to 16 the anode. So it continues above and below. 17 Q. Is any portion of 430 in this picture an 18 electrode? 19 MR. CUMMINGS: Objection; form. 20 A. My opinions about this annotated figure 21 are just talking about the bus line not being an 22 anode.</p>

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<p>145</p> <p>1 Q. Can you tell me whether any portion of 430</p> <p>2 in this drawing is an electrode, applying your</p> <p>3 construction?</p> <p>4 A. I'd have to match the labeled elements of</p> <p>5 the figure to the specification of the patent, and I</p> <p>6 don't see that I've done that in this section.</p> <p>7 Q. You've got a power line that extends</p> <p>8 across two vias and makes electrical connection with</p> <p>9 both vias and extends on to connect to other things.</p> <p>10 Is that a conductor?</p> <p>11 MR. CUMMINGS: Objection; form.</p> <p>12 A. That's an incomplete question. Are you</p> <p>13 talking about a line with vias? I don't know the</p> <p>14 material. So I think you just asked a very broad,</p> <p>15 general question.</p> <p>16 Q. Okay. Power line 430, is that a</p> <p>17 conductor?</p> <p>18 A. It's a bus line.</p> <p>19 MR. CUMMINGS: -- form.</p> <p>20 Q. Is it a conductor?</p> <p>21 MR. CUMMINGS: Objection; form.</p> <p>22 A. It would be an electrical conductor.</p>	<p>147</p> <p>1 construction sitting here today in the deposition?</p> <p>2 MR. CUMMINGS: Objection; form.</p> <p>3 A. I'm unwilling because that would require</p> <p>4 another review of the Weaver reference, and it would</p> <p>5 take some time to consider everything properly.</p> <p>6 Q. So you're saying that you need more</p> <p>7 information about a conductor and its electrical</p> <p>8 connection to a via in determining whether or not</p> <p>9 there's an electrode there?</p> <p>10 MR. CUMMINGS: Objection; form.</p> <p>11 A. I'm saying you're asking me to rely on</p> <p>12 memory to form a brand-new opinion on a reference</p> <p>13 that I don't even have in front of me and also an</p> <p>14 opinion that I don't believe Dr. Baker expressed.</p> <p>15 Again, my declaration is responsive to Dr. Baker.</p> <p>16 Q. Dr. Baker's opinion is that an electrode</p> <p>17 is just the conductor. Is that a fair -- is that</p> <p>18 your understanding of his construction?</p> <p>19 MR. CUMMINGS: Objection; form.</p> <p>20 A. What I stated in paragraph 122, that</p> <p>21 Dr. Baker and Petitioner point to the bus line 430</p> <p>22 of Weaver as the claimed first auxiliary electrode.</p>
<p>146</p> <p>1 Q. And when it reaches that first via 428 --</p> <p>2 it's actually marked -- it makes an electrical</p> <p>3 connection with that via. Is that your</p> <p>4 understanding?</p> <p>5 MR. CUMMINGS: Objection; form.</p> <p>6 A. I believe so, but I don't have Weaver in</p> <p>7 front of me to refer to.</p> <p>8 Q. Let's assume that it is electrically</p> <p>9 connected right there at that via. Is that portion</p> <p>10 of the bus line 430 that's electrically connected to</p> <p>11 via 428 an electrode?</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 A. I don't think I formed an opinion on that,</p> <p>14 because I don't recall Dr. Baker stating that</p> <p>15 opinion.</p> <p>16 Q. Let me rephrase.</p> <p>17 Does the portion of bus line 430 that is</p> <p>18 electrically connected to via 428 meet your</p> <p>19 construction of electrode?</p> <p>20 MR. CUMMINGS: Objection; form.</p> <p>21 A. I haven't considered that.</p> <p>22 Q. And are you unwilling to apply your</p>	<p>148</p> <p>1 Again, a bus line -- a person of ordinary skill in</p> <p>2 the art would not understand that to be an</p> <p>3 electrode, or an auxiliary electrode for that</p> <p>4 matter.</p> <p>5 Q. Do you recall Dr. Baker's testimony in his</p> <p>6 deposition on what he thought an electrode was?</p> <p>7 MR. CUMMINGS: Objection; form.</p> <p>8 A. If I cited it in my declaration, if you</p> <p>9 could point me to it, that would help. But I do</p> <p>10 address in paragraph 123 some comments about the bus</p> <p>11 line and -- but I would have to do a search to see</p> <p>12 where I cited Dr. Baker's deposition, but I did not</p> <p>13 memorize his deposition testimony.</p> <p>14 Q. I'm looking in this section, and it</p> <p>15 doesn't look like you applied his construction.</p> <p>16 That was what I was getting at.</p> <p>17 A. Okay.</p> <p>18 Q. And I commend you for not memorizing his</p> <p>19 deposition.</p> <p>20 A. The best I can say, in paragraph 122, the</p> <p>21 interpretation from Dr. Baker and Petitioner is</p> <p>22 based on an incorrect and overbroad interpretation</p>

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<p>149</p> <p>1 of the terms.</p> <p>2 Q. But you did not apply those</p> <p>3 interpretations to Weaver. You just said they were</p> <p>4 too broad. Is that fair?</p> <p>5 MR. CUMMINGS: Objection; form.</p> <p>6 A. Incorrect and overly broad.</p> <p>7 Q. If you could go to paragraph 130, please.</p> <p>8 A. Okay.</p> <p>9 Q. So paragraph 130 in its entirety says "A</p> <p>10 POSITA would not combine Weaver and Lee053.</p> <p>11 Combining Weaver and Lee053 as proposed would modify</p> <p>12 the process." Do you see that?</p> <p>13 A. Yes.</p> <p>14 Q. Is it your opinion that it would not be</p> <p>15 obvious to combine two OLED references if it would</p> <p>16 require a modification of the process?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. This is where Dr. Baker's opinions were</p> <p>19 contradictory and very difficult to follow. He did</p> <p>20 make it clear on the record that a POSITA wouldn't</p> <p>21 be able to mess with the process when designing the</p> <p>22 pixel. So if it's his opinion that a POSITA</p>	<p>151</p> <p>1 A. I'd have to have a more specific example.</p> <p>2 Q. Dropping down to paragraph 132.</p> <p>3 A. Okay.</p> <p>4 Q. There's a figure here. And this is from</p> <p>5 Dr. Baker's declaration, I believe. Is that right?</p> <p>6 A. I believe so.</p> <p>7 Q. This figure -- this Figure 4 is from</p> <p>8 Weaver with modifications proposed by Dr. Baker. Is</p> <p>9 that right?</p> <p>10 A. I believe that's correct. I believe</p> <p>11 Exhibit 1003 that I reference is Dr. Baker's</p> <p>12 declaration.</p> <p>13 Q. In your opinion as an expert in this</p> <p>14 field, can the modifications -- can the structure in</p> <p>15 modified Figure 4 be manufactured?</p> <p>16 MR. CUMMINGS: Objection; form.</p> <p>17 A. As a person of ordinary skill in the art,</p> <p>18 there would just be a lot of questions about what</p> <p>19 exactly you're trying to do and how you would</p> <p>20 accomplish it.</p> <p>21 Because you have two vias shown, 420 and</p> <p>22 428. They share the same cross-hatching, which</p>
<p>150</p> <p>1 wouldn't change the process, then to stay</p> <p>2 consistent, he can't then say "I read these two</p> <p>3 things, and, oh, let me propose a modification."</p> <p>4 He's got a contradiction there, and</p> <p>5 that's -- honestly, I don't understand how he</p> <p>6 couldn't realize the contradiction he was making and</p> <p>7 still express opinions.</p> <p>8 Q. Okay.</p> <p>9 A. He said a person of ordinary skill in the</p> <p>10 art wouldn't modify the process, but every single</p> <p>11 challenge is based on modifying the process. So</p> <p>12 something has got to give.</p> <p>13 Q. Can it be obvious to change the process</p> <p>14 when combining two LED references?</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. I would say that question doesn't have a</p> <p>17 clear answer, because it depends on a lot of factors</p> <p>18 that need to be considered.</p> <p>19 Q. Is it possible that it can be obvious to</p> <p>20 change the process when combining two LED</p> <p>21 references?</p> <p>22 MR. CUMMINGS: Objection; form.</p>	<p>152</p> <p>1 indicates they're the same material done by the same</p> <p>2 process, but the one of 420 stops at 405. And the</p> <p>3 modified bus line is indicated to be the same</p> <p>4 material, so the red material -- highlighted</p> <p>5 material is an etch stop for the via process.</p> <p>6 But it looks like for 428 the via has to</p> <p>7 go through an etch stop, which means you have to</p> <p>8 make the structure. You would have to come up with</p> <p>9 a new etch process, or you would have to do a lot of</p> <p>10 work for the bus line, and there's just -- honestly,</p> <p>11 there's no clear reason why you would try any of</p> <p>12 that.</p> <p>13 Q. Could it be done?</p> <p>14 MR. CUMMINGS: Objection; form.</p> <p>15 A. I don't know. I can say there's no</p> <p>16 obvious easy way to do it.</p> <p>17 Q. Do vias 420 and 428 have to be formed</p> <p>18 using the same process?</p> <p>19 MR. CUMMINGS: Objection; form.</p> <p>20 A. They're indicated as being the same. If</p> <p>21 they're not the same, then you're asking about yet</p> <p>22 another modification to a process, which Dr. Baker</p>

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<p>153</p> <p>1 said a person of ordinary skill in the art wouldn't</p> <p>2 do. So you're asking about taking what's, at best,</p> <p>3 an incredibly complicated modification and making it</p> <p>4 even more complicated. I have no idea why someone</p> <p>5 would try to do that. That definitely wouldn't be</p> <p>6 obvious.</p> <p>7 Q. Could it be done is my question.</p> <p>8 MR. CUMMINGS: Objection; form.</p> <p>9 A. Again, the issue is now you've gone beyond</p> <p>10 even Dr. Baker's opinions. And so you're asking me</p> <p>11 about something he's already said a person of</p> <p>12 ordinary skill in the art wouldn't do. You're</p> <p>13 asking me to go beyond something he said a person of</p> <p>14 ordinary skill wouldn't do.</p> <p>15 Q. I'll try and simplify this.</p> <p>16 Do you have an opinion on whether or not</p> <p>17 the structure in modified Figure 4 can be made?</p> <p>18 MR. CUMMINGS: Objection; form.</p> <p>19 A. I haven't expressed an opinion on that,</p> <p>20 only that if it were made it would be a change to</p> <p>21 the process, and it would take an enormous amount of</p> <p>22 work, and I'm not sure that it would succeed.</p>	<p>155</p> <p>1 A. I just wanted to be clear.</p> <p>2 Q. Thank you for the clarity. Appreciate</p> <p>3 that.</p> <p>4 A. Okay.</p> <p>5 Q. And actually, the title is on the</p> <p>6 previous -- end of the previous page. But this is</p> <p>7 where you enter an opinion that there's no</p> <p>8 motivation to combine Weaver and Lee149 for</p> <p>9 Ground 4. Does that ring a bell?</p> <p>10 A. Yes.</p> <p>11 Q. And then in paragraph 143, you rely on</p> <p>12 Exhibits 9 and 11 from Dr. Baker's deposition. Do</p> <p>13 you see that?</p> <p>14 A. Yes.</p> <p>15 Q. Why did you rely on Exhibits 9 and 11 for</p> <p>16 this part of your opinion?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. They're examples -- and I discuss this in</p> <p>19 paragraph 144 -- that if you were trying to solve a</p> <p>20 problem, there were much less complicated ways than</p> <p>21 what Dr. Baker had said the problem was. There were</p> <p>22 easy, obvious solutions, and what he proposed was,</p>
<p>154</p> <p>1 Q. If you go down --</p> <p>2 MR. LIMBACH: Well, let's see. We've been</p> <p>3 going over an hour. Do folks want to take a quick</p> <p>4 break before I move on to the next topic?</p> <p>5 THE WITNESS: We could do a quick</p> <p>6 ten-minute break. I'm trying to be better about</p> <p>7 considering other people.</p> <p>8 THE VIDEOGRAPHER: All right. Stand by.</p> <p>9 We are going off the record. The time is</p> <p>10 1:54 p.m.</p> <p>11 (Off the record.)</p> <p>12 THE VIDEOGRAPHER: We are back on the</p> <p>13 record. The time is 2:05 p.m.</p> <p>14 Q. Welcome back, Dr. Bretschneider.</p> <p>15 A. Thank you.</p> <p>16 Q. Did you speak or communicate with anyone</p> <p>17 during the break?</p> <p>18 A. No.</p> <p>19 Q. If you could please go to paragraph 142,</p> <p>20 please.</p> <p>21 A. In my declaration, I assume.</p> <p>22 Q. Yes.</p>	<p>156</p> <p>1 at best, incredibly complicated and not consistent</p> <p>2 with what someone would actually do.</p> <p>3 Q. Do you believe Exhibits 9 and 11</p> <p>4 accurately represent the opinions of Dr. Baker as</p> <p>5 expressed in his declaration?</p> <p>6 MR. CUMMINGS: Objection; form.</p> <p>7 A. I will say they represent opinions.</p> <p>8 Although, Exhibit 11 was -- I believe -- and this is</p> <p>9 without reviewing everything -- he realized he had</p> <p>10 made some significant issues.</p> <p>11 I will say specifically that Exhibit 9</p> <p>12 won't work, because -- short of the anode and</p> <p>13 cathode at the LED or the OLED structure. So that</p> <p>14 won't work.</p> <p>15 And so he revised it -- and this is going</p> <p>16 from memory -- to create Exhibit 11 that would at</p> <p>17 least be operational. But, again, it's an</p> <p>18 incredibly complex and convoluted modification,</p> <p>19 which he said a person of ordinary skill in the art</p> <p>20 wouldn't modify the process, but this is a process</p> <p>21 modification. Even ignoring the process</p> <p>22 modification issue, it is incredibly complicated and</p>

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<p style="text-align: right;">157</p> <p>1 is not what would be done to solve what he said the 2 issue was.</p> <p>3 Q. Did Dr. Baker draw these drawings? 4 MR. CUMMINGS: Objection; form.</p> <p>5 A. If I recall, counsel for Optronics created 6 them and confirmed that it was what Dr. Baker was 7 intending it to be.</p> <p>8 Q. Were you aware that Dr. Baker testified 9 that had he included drawings in his declaration to 10 represent what is in his declaration he would not 11 have drawn them this way? 12 MR. CUMMINGS: Objection; form.</p> <p>13 A. I'm aware that at some point he approved 14 them and said, "Yes. This represents my opinions." 15 If he changed his mind afterwards, it still has to 16 be the fact that he said, "Yes. This is -- these 17 are the changes a person of ordinary skill would 18 make."</p> <p>19 Q. Did you read the portion of his 20 declaration -- of his deposition where he explained 21 that he would not have drawn it this way? 22 MR. CUMMINGS: Objection; form.</p>	<p style="text-align: right;">159</p> <p>1 started, if it's not what he would have come up 2 with, he should have said something in the 3 beginning. He didn't. At some point he had a hand 4 in creation of these. He approved them and said, 5 "Yes. That's correct," and that's why they're 6 entered as exhibits. So if he changed his mind 7 afterwards, that still does not counter the fact 8 that at some point he thought they were correct.</p> <p>9 Q. Therefore, it's fair for you to rely on 10 them, correct? 11 MR. CUMMINGS: Objection; form.</p> <p>12 A. If we go to paragraph 145, you have some 13 of the bigger issues.</p> <p>14 So, again, he's reading the claims to make 15 sure that the modifications cover the claims, not 16 saying what would be obvious to address the issue -- 17 original issue he was trying to address.</p> <p>18 Q. Going back to my question. 19 You found it fair to rely on his drawings 20 from that deposition where he testified they do not 21 represent what he would do. Is that right? 22 MR. CUMMINGS: Objection; form.</p>
<p style="text-align: right;">158</p> <p>1 A. I read that, but still at some point he 2 said, "Yes. That's correct."</p> <p>3 Q. Okay. Did you read the portion of his 4 deposition transcript where he said he wouldn't even 5 have started with this drawing? 6 MR. CUMMINGS: Objection; form.</p> <p>7 A. Again, whether he would have started with 8 it or not, he was involved in the creation and 9 directed counsel to make changes, and he said this 10 is what would be done. So, again, he had a 11 significant role in creating these. If he changed 12 his mind after he said, "Yes. That's right," I 13 can't comment at that. But, again, at some point he 14 said, "Yes. That's it."</p> <p>15 Q. And you don't consider his explanation for 16 why he would not have drawn it this way or even 17 started with this drawing anywhere in your 18 declaration. Is that right? 19 MR. CUMMINGS: Objection; form.</p> <p>20 A. The best I can say, it's -- at best, it's 21 another example of taking contradictory positions 22 and trying to agree with both. If he wouldn't have</p>	<p style="text-align: right;">160</p> <p>1 A. He first testified that they would 2 represent what he would do, and then he changed his 3 mind. I can -- that's -- I think that's clear on 4 the record.</p> <p>5 So if he formed an opinion, said it was 6 his opinion, and then changed his mind on that 7 opinion, do I only go with the last opinion? Do I 8 give him three chances, four, five, ten, till he 9 stumbles across something that he finally says, "Oh, 10 yes. This is my final answer?"</p> <p>11 He approved them at one point. If he 12 changed his mind later, it still represented his 13 opinion at one point.</p> <p>14 And as I stated in paragraph 145, he 15 participated, and then he looked at the claims to 16 make sure that the obvious changes covered the 17 claims. If it was obvious to do, he shouldn't have 18 had to look at the claims and say, "Oh, yes. I 19 covered the limitations of the claims." So it's an 20 example of hindsight.</p> <p>21 Q. I've just placed Dr. Baker's declaration 22 into the chat room. Could you please download it</p>

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<p>1 and open it and let me know when you're ready. 2 (Exhibit Number 1003 introduced.) 3 A. Okay. 4 Q. So if you go to paragraph 183, please -- 5 wait. I may be wrong. 6 That's the wrong paragraph. I apologize. 7 It should be 174. 8 A. Okay. 9 Q. So this is where Dr. Baker renders his 10 opinions on Ground 4. Do you see that? 11 A. Yes. "Claims 10 and 11 rendered obvious 12 by Weaver and Lee149." 13 Q. So if you go to 183, please. 14 Let me know when you're there. 15 A. Okay. 16 Q. 183 says "The modification to Weaver could 17 be implemented, for example, by forming a contact 18 window with an undercut, similar to that of Lee's 19 buffer layer 50, over the anode 406 before forming 20 the cathode 422, so that when the conductive layer 21 for the cathode 422 is formed, it would result in a 22 first portion of the conductive layer as the</p>	<p>161 1 can't form a consistent opinion, then I can point 2 that out. But usually someone's last idea is 3 their -- when they've thought it out the most. 4 Q. So you don't have any opinion on 5 paragraph 183. Is that right? 6 MR. CUMMINGS: Objection; form. 7 A. Not that I expressed in my declaration 8 that I see. But in the previous paragraph, in 9 paragraph 183 [sic], there is a clear statement. "A 10 POSITA would have been motivated to implement the 11 solution of Lee149 in the Weaver device to lower the 12 resistance and voltage drop between anode 406 and 13 the VDD line of Weaver." So that's saying, 14 essentially, make the VDD line of Weaver more 15 conductive, reduce the resistance drop along that 16 line. 17 And the obvious way to do that has nothing 18 to do with paragraph 183. I believe at the end of 19 my declaration I do actually have a short section 20 about "this is how you would modify Weaver to 21 accomplish the goals." It's obvious, it's 22 straightforward, and it matches Dr. Baker's stated</p>
<p>162 1 cathode 422 of the OLED 400 and a separate second 2 portion of the conductive layer in the contact 3 window as the second auxiliary electrode at the side 4 of the OLED 400." Do you see that? 5 A. Yes. 6 Q. So here he's described exactly how he 7 envisions the changes to be made. Is that fair? 8 MR. CUMMINGS: Objection; form. 9 A. It was his opinion at one time. 10 Q. You don't address this paragraph in your 11 declaration, do you? 12 MR. CUMMINGS: Objection; form. 13 A. I don't believe so. 14 Q. Why not? 15 MR. CUMMINGS: Objection; form. 16 A. Dr. Baker wrote his declaration first. 17 Then he had his deposition. And apparently he 18 changed his mind in between the time of the 19 declaration and his deposition. And so -- 20 Q. So you -- 21 A. -- he's kind of playing Whack-a-Mole here 22 with his opinions. He keeps changing them. If he</p>	<p>163 1 goals. 2 Q. Going back to my question. 3 You don't have an opinion on 4 paragraph 183. Is that right? 5 MR. CUMMINGS: Objection; form. 6 A. Again, I said -- I did a search for 183. 7 I didn't find that in my declaration. But, again, 8 at best, all of Dr. Baker's modifications -- even 9 though he said a person of ordinary skill in the art 10 wouldn't make modification -- they were all 11 incredibly complex, convoluted, may or may not work, 12 and hardly obvious. 13 Dr. Baker's motivation was reducing 14 resistance losses in the bus line, and that's easy 15 to do. That's very easy to do. If that's your 16 goal, increase the area of the bus line. Change the 17 material of the bus line. Make it wider, make it 18 thicker, or make it a more conductive material. 19 That's really simple and easy. That's why it's 20 obvious. 21 In Dr. Baker's declaration here at 22 paragraph 183, what he's talking about, you would</p>
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<p>165</p> <p>1 only arrive at that if you read the claims of the</p> <p>2 '509 patent and you decided you wanted to invalidate</p> <p>3 that. So you know the solution you're looking for.</p> <p>4 You work backwards. And whether it's obvious or not</p> <p>5 be damned.</p> <p>6 Q. Okay. So you don't have an opinion on</p> <p>7 183.</p> <p>8 So let me ask you this question. Do you</p> <p>9 believe that Figure 4, as modified by Patent Owner's</p> <p>10 counsel and presented to Dr. Baker, reflects the</p> <p>11 opinions in 183 in terms of forming a contact window</p> <p>12 with an undercut and forming the location of the</p> <p>13 various elements in the way that Dr. Baker</p> <p>14 explained? Is that reflected in Exhibit 11?</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. The best I can say is Dr. Baker apparently</p> <p>17 has a lot of opinions how to do these modifications.</p> <p>18 And I will say if it had been obvious and</p> <p>19 straightforward, the two modifications should have</p> <p>20 been essentially identical. The fact that it's not</p> <p>21 means at least one of them has to be wrong, and I --</p> <p>22 all I can point is he's changed his opinions. If</p>	<p>167</p> <p>1 If he forgot what he said in his</p> <p>2 declaration, I suppose that's one possible</p> <p>3 explanation. But, again, they're his opinions.</p> <p>4 They're different.</p> <p>5 I'm reading the question from counsel.</p> <p>6 "So to the extent that any other modifications you</p> <p>7 think are necessary and obvious, let me know now."</p> <p>8 He could have asked to review his</p> <p>9 declaration and reviewed that. He reviewed the</p> <p>10 claims. And that's how he got Exhibits 9 and 11.</p> <p>11 Q. Could you go to paragraph 148, please --</p> <p>12 if you can go to 147, just to set the table.</p> <p>13 A. Okay.</p> <p>14 Q. So this is Challenge 5. This is Weaver</p> <p>15 and Bae. Do you see that?</p> <p>16 A. Yes.</p> <p>17 Q. And then at 148, you talk about no</p> <p>18 motivation to combine based upon Exhibit 10 of his</p> <p>19 deposition. Do you see that?</p> <p>20 A. Yes. Actually, in 148, I state that he</p> <p>21 provided only a conclusory paragraph describing how</p> <p>22 the combination would be implemented. Saying what</p>
<p>166</p> <p>1 you want me to judge which opinion is correct, he</p> <p>2 made the opinions at different times. I don't know</p> <p>3 why he changed them.</p> <p>4 Q. Was Dr. Baker ever asked about</p> <p>5 paragraph 183 in his deposition?</p> <p>6 MR. CUMMINGS: Objection; form.</p> <p>7 A. As we spoke earlier, I haven't memorized</p> <p>8 his deposition transcript. He should be familiar</p> <p>9 with his opinions. He -- I believe that was a part</p> <p>10 of his preparation for deposition. If he decided to</p> <p>11 ignore his previous opinions or what he had written,</p> <p>12 I can't comment as to why.</p> <p>13 Q. Do you think it's fair to say that he</p> <p>14 changed his opinions when he was never asked about</p> <p>15 paragraph 183 in his deposition, if that's the case?</p> <p>16 MR. CUMMINGS: Objection; form.</p> <p>17 A. I think it's clear that counsel asked him</p> <p>18 about any other modifications necessary and obvious</p> <p>19 between Exhibit 9 and Exhibit 11. He made changes.</p> <p>20 He could have gone with what he originally proposed.</p> <p>21 I don't -- again, I don't know why he changed his</p> <p>22 opinions.</p>	<p>168</p> <p>1 you're going to do is not saying why it's obvious.</p> <p>2 What's your motivation for combination --</p> <p>3 Q. Well, those are two different things --</p> <p>4 well, those are two different things, right? You'd</p> <p>5 say "These are the changes I'd make, and then this</p> <p>6 is why it would be obvious." Isn't that a fair</p> <p>7 assumption?</p> <p>8 MR. CUMMINGS: Objection; form.</p> <p>9 A. The section is titled "No Motivation to</p> <p>10 Combine."</p> <p>11 Q. Are you aware that -- well, let's see.</p> <p>12 Well, let's read your conclusion in 148.</p> <p>13 "Again, Dr. Baker provides only a conclusory</p> <p>14 paragraph describing how the combination of Weaver</p> <p>15 and Bae would be implemented," citing to</p> <p>16 paragraph 202 of his declaration.</p> <p>17 And then "When asked to depict the</p> <p>18 resulting figure, Dr. Baker came up with the</p> <p>19 following image." Do you see that?</p> <p>20 A. Yes.</p> <p>21 Q. Here you say "When asked to depict the</p> <p>22 resulting figure." Is that in relation to</p>

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<p>169</p> <p>1 paragraph 202 --</p> <p>2 MR. CUMMINGS: Objection; form.</p> <p>3 Q. -- of his declaration?</p> <p>4 A. The image is what he came up with in his</p> <p>5 deposition. So, again, why that's different from</p> <p>6 his declaration, I can't answer that.</p> <p>7 Q. Are you aware of the fact that he also</p> <p>8 said that were he to draw this he would not have</p> <p>9 drawn it this way?</p> <p>10 MR. CUMMINGS: Objection; form.</p> <p>11 A. Again, he agreed with it at one point. If</p> <p>12 he wants to continually change his opinions, I</p> <p>13 suppose that's his prerogative.</p> <p>14 Q. You don't mention in your declaration,</p> <p>15 though, that he said that this is not how he would</p> <p>16 draw it.</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. Again, I haven't committed his deposition</p> <p>19 transcript to memory. But saying "It's not how I</p> <p>20 would draw it," maybe he wouldn't have done the same</p> <p>21 types of cut and paste. Maybe he would have just</p> <p>22 inserted other shapes. I don't know exactly what he</p>	<p>171</p> <p>1 contact window with an undercut, similar to Bae's,</p> <p>2 over the anode before forming the cathode and so</p> <p>3 forth and so on.</p> <p>4 You don't rebut the details of this</p> <p>5 paragraph in your declaration, do you?</p> <p>6 MR. CUMMINGS: Objection; form.</p> <p>7 A. First of all, I have to point out that</p> <p>8 it's a huge modification to a process, which</p> <p>9 Dr. Baker already said you can't -- a person of</p> <p>10 ordinary skill in the art wouldn't do.</p> <p>11 I think a reasonable expectation of</p> <p>12 success -- if you say "I made something different,"</p> <p>13 then absolutely. You're going to be correct. You</p> <p>14 made something different. Whether it works or not,</p> <p>15 I don't think you can say that.</p> <p>16 Because now you're undercutting portions.</p> <p>17 Where is any suggestions of any type of structure</p> <p>18 like that in Weaver? You're making substantial</p> <p>19 changes to a process that Dr. Baker already said a</p> <p>20 person of ordinary skill in the art wouldn't do.</p> <p>21 And, again, to just say, "Oh, yeah,</p> <p>22 reasonable expectation of success," no, I don't</p>
<p>170</p> <p>1 means.</p> <p>2 But, again, he approved it. He said it</p> <p>3 was fine at one point. And I can't address his</p> <p>4 reasoning for changing his opinion.</p> <p>5 So, at best, what you're implying is the</p> <p>6 opinion in his declaration was what he really</p> <p>7 believed. He changed his opinion in deposition, and</p> <p>8 then he changed it again. Whether he changed it</p> <p>9 back to the original by saying "I wouldn't have</p> <p>10 drawn it that way," I don't know. He had the</p> <p>11 opportunity to say "Let's go to my declaration, and</p> <p>12 that's very clearly what I thought."</p> <p>13 So, again, why the different opinions, I</p> <p>14 can't address that. If it was an obvious change,</p> <p>15 they should be very, very similar.</p> <p>16 Q. So if you can go back to Exhibit 1003, his</p> <p>17 declaration, paragraph 202.</p> <p>18 Let me know when you're there.</p> <p>19 A. Okay.</p> <p>20 Q. This is the paragraph that you described</p> <p>21 as conclusory. It details the modification to</p> <p>22 Weaver to be implemented, including forming the</p>	<p>172</p> <p>1 think so. This isn't just "Yeah. I made these</p> <p>2 changes, and I said it would work." It's far from</p> <p>3 that simple.</p> <p>4 Q. But in your declaration, you don't offer</p> <p>5 any opinions on paragraph 202 other than merely</p> <p>6 stating it's conclusory, correct?</p> <p>7 MR. CUMMINGS: Objection; form.</p> <p>8 A. Again, paragraph 202, it's a simple</p> <p>9 conclusory statement. And, again, I don't know why</p> <p>10 he changed his opinions between his declaration and</p> <p>11 the deposition. I can't answer that.</p> <p>12 Q. I'm not asking you about whether he</p> <p>13 changed it. I'm just asking you whether or not you</p> <p>14 offered any opinions on the changes proposed in 202.</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. Again, 202 is a simple conclusion. This</p> <p>17 is what you do.</p> <p>18 Q. And you did not offer an opinion on that</p> <p>19 paragraph, correct?</p> <p>20 MR. CUMMINGS: Objection; form.</p> <p>21 A. No, I did offer an opinion. I said it was</p> <p>22 a mere conclusory statement.</p>

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<p>173</p> <p>1 Q. And that is the total of your opinion on</p> <p>2 paragraph 202?</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. Well, at the beginning of paragraph 148, I</p> <p>5 said "It would not have been obvious to combine</p> <p>6 Weaver and Bae to produce the structure of Claims 10</p> <p>7 and 11 of the '509 patent."</p> <p>8 Dr. Baker just said "Oh, yeah. Here's</p> <p>9 what you would do."</p> <p>10 And, again, he's changed his opinion on</p> <p>11 this. I can't keep addressing it, because at the</p> <p>12 rate this is going, he may have two or three other</p> <p>13 different opinions now.</p> <p>14 So I don't think it would have been</p> <p>15 obvious to do.</p> <p>16 Q. If you could go to paragraph 159 of your</p> <p>17 declaration.</p> <p>18 A. Okay.</p> <p>19 Q. Here you opine, starting at 159, that Han</p> <p>20 is not analogous art. Do you see that?</p> <p>21 A. Yes.</p> <p>22 Q. And going to the next page, the fourth</p>	<p>175</p> <p>1 to designing a display that's going to go through a</p> <p>2 fabrication process where you're talking about</p> <p>3 feature widths. I can't even -- it's hard to</p> <p>4 emphasize how different the processes are. Putting</p> <p>5 down a thin conductor that's microns of dimensions</p> <p>6 versus wire that's measured in millimeters and I buy</p> <p>7 it by the ton.</p> <p>8 Q. So Han doesn't care about IR drop, then,</p> <p>9 is what you're saying, given the nature of the</p> <p>10 technology?</p> <p>11 MR. CUMMINGS: Objection; form.</p> <p>12 A. Not IR drop going to the emitter.</p> <p>13 Q. I'm dropping in the chat box -- if I can</p> <p>14 get it to work -- the Han reference, which is</p> <p>15 Exhibit 1010 in the '509 IPR.</p> <p>16 Let me know when you have it.</p> <p>17 (Exhibit Number 1010 introduced.)</p> <p>18 A. Okay.</p> <p>19 Q. I'll direct your attention to</p> <p>20 paragraph 33.</p> <p>21 Let me know when you're there.</p> <p>22 A. Okay.</p>
<p>174</p> <p>1 line down, there's a sentence that says "Large area</p> <p>2 flat panel light sources have significantly</p> <p>3 different design considerations than pixels in a</p> <p>4 display, due to a -- due in large part to the</p> <p>5 relative size differences." Do you see that?</p> <p>6 A. Yes.</p> <p>7 Q. Is IR drop along the lines providing the</p> <p>8 drive current in the OLED device one of those design</p> <p>9 considerations for large area flat panel light</p> <p>10 sources?</p> <p>11 MR. CUMMINGS: Objection; form.</p> <p>12 A. No.</p> <p>13 Q. Why not?</p> <p>14 MR. CUMMINGS: Objection; form.</p> <p>15 A. Because you have wires going to it. It's</p> <p>16 as simple as two wires. You know the current.</p> <p>17 You know the voltage. You can specify the wire</p> <p>18 gauge. And it's just -- it's not a consideration.</p> <p>19 Q. Okay.</p> <p>20 A. The minimum wire size would be codified in</p> <p>21 UL or ETL safety certification standards. And</p> <p>22 literally, you're buying it off of a reel as opposed</p>	<p>176</p> <p>1 Q. In paragraph 33, it says "Each of the</p> <p>2 first and third subsidiary electrodes 750 and 770</p> <p>3 may be electrically connected in parallel to the</p> <p>4 anode 720 in the emission area and function to</p> <p>5 reduce the influence of IR drop due to the driving</p> <p>6 current. That is, the first and third subsidiary</p> <p>7 electrodes 750 and 770 may supply additional power</p> <p>8 to the anode and reduce the influence of IR drop."</p> <p>9 Do you see that?</p> <p>10 A. Yes.</p> <p>11 Q. So Han is concerned with IR drop.</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 A. Your previous question was about IR drop</p> <p>14 in the power delivery lines to the emitter</p> <p>15 structure. So you just pointed to something that's</p> <p>16 inside the emitter, and you asked about IR drop on</p> <p>17 the outside.</p> <p>18 Q. Well, isn't the --</p> <p>19 A. They're very different subjects and</p> <p>20 performance concerns.</p> <p>21 Q. So Han is concerned with IR drop within</p> <p>22 the emitter and is unconcerned about IR drop outside</p>

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<p>177</p> <p>1 the emitter. Is that your testimony?</p> <p>2 MR. CUMMINGS: Objection; form.</p> <p>3 A. My testimony is that your previous</p> <p>4 question was related to IR drop outside the emitter.</p> <p>5 You just asked about something that was specific</p> <p>6 inside the emitter. So you asked two very different</p> <p>7 questions and said, "It's really the same thing."</p> <p>8 No. They're different questions.</p> <p>9 Q. Doesn't the -- providing dry current --</p> <p>10 you have to provide dry current inside the emitter.</p> <p>11 So actually, I don't think my question was as</p> <p>12 limited as you interpreted it.</p> <p>13 A. In the context of large area OLED flat</p> <p>14 panel light sources, I interpreted it the way a</p> <p>15 person of ordinary skill in the art would. You were</p> <p>16 asking about IR drops in delivery of power to the</p> <p>17 source, to the emitter.</p> <p>18 So, again, I could take a step back and</p> <p>19 say, no, if you're designing an OLED display, pixel</p> <p>20 display -- basic display, you're not going to look</p> <p>21 at Han. Okay? In the OLED displays, those pixels</p> <p>22 are less than a millimeter dimension, as opposed to</p>	<p>179</p> <p>1 A. Yes.</p> <p>2 Q. You created these drawings, correct?</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. I believe so.</p> <p>5 Q. These are annotated drawings from Han and</p> <p>6 Weaver. Is that right?</p> <p>7 A. Yes.</p> <p>8 Q. So Figure 8 of Han, you've colorized the</p> <p>9 subsidiary electrodes 750, 760, and 770. Do you see</p> <p>10 that?</p> <p>11 A. Yes.</p> <p>12 Q. And Han calls those subsidiary electrodes.</p> <p>13 Do you recall that?</p> <p>14 A. Yes.</p> <p>15 Q. And then in Figure 6 of Weaver, you've</p> <p>16 highlighted the bus line 430 in red, right?</p> <p>17 A. Yes.</p> <p>18 Q. And then you've drawn in two additional</p> <p>19 red lines into the device. Do you see that?</p> <p>20 A. Yes.</p> <p>21 Q. What do those red lines represent?</p> <p>22 MR. CUMMINGS: Objection; form.</p>
<p>178</p> <p>1 Han, which is going to be on the order of a hundred</p> <p>2 millimeters by a hundred millimeters. That's five</p> <p>3 orders of magnitude difference in light-emitting</p> <p>4 area.</p> <p>5 Han only cares about emitting one color</p> <p>6 and the same color every time. There's no</p> <p>7 variation. You turn it on, it's on. You turn it</p> <p>8 off, it's off. In a display, you have to do a lot</p> <p>9 more.</p> <p>10 Han is fine with DC drive. I never change</p> <p>11 the current. In displays we're always changing the</p> <p>12 current. Even if it's a static image, there's a</p> <p>13 refresh in between frames.</p> <p>14 So the arts, the skills, the design</p> <p>15 considerations are completely different.</p> <p>16 Q. At the bottom of page 69, it says "If a</p> <p>17 POSITA were instructed to apply Han's teachings</p> <p>18 about branched electrodes to Weaver, the POSITA</p> <p>19 would do something like this to repeat Weaver's bus</p> <p>20 line several times for improved current</p> <p>21 distribution." And then on the following page you</p> <p>22 have some annotations. Do you see that?</p>	<p>180</p> <p>1 A. Additional bus lines. We physically bring</p> <p>2 power to different portions of the LED. Again, what</p> <p>3 Han is doing -- for a large area flat panel light</p> <p>4 source, you're bringing in power in different areas.</p> <p>5 Han's description for subsidiary electrodes, I will</p> <p>6 say, is different. Because as long as I have one,</p> <p>7 it'll emit some light. It won't be very uniform,</p> <p>8 but some light would be emitted.</p> <p>9 Q. What are -- the red lines that you've</p> <p>10 added to Figure 6 of Weaver, what are those</p> <p>11 connected to?</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 A. Again, those are additional bus lines. At</p> <p>14 some point they would be connected to a power</p> <p>15 source.</p> <p>16 Q. And then would they also be connected to</p> <p>17 the pixels?</p> <p>18 MR. CUMMINGS: Objection; form.</p> <p>19 A. I just state if you tried to apply Han's</p> <p>20 teachings that's what you would come up with. You</p> <p>21 would basically add bus lines all over your</p> <p>22 structure. Although Han's bus lines -- given the</p>

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<p style="text-align: right;">181</p> <p>1 currents they're doing, the bus lines are probably</p> <p>2 larger than the pixels.</p> <p>3 Q. You don't show any connections for the red</p> <p>4 lines you put in. So I was wondering. Would there</p> <p>5 be vias 428 underneath them as you've drawn them</p> <p>6 here?</p> <p>7 MR. CUMMINGS: Objection; form.</p> <p>8 A. I didn't consider that. Again, the point</p> <p>9 is that you would just be adding more bus lines.</p> <p>10 Q. Han refers to the entire conductor 760,</p> <p>11 750, and 770 in Figure 8 as supplementary</p> <p>12 electrodes. Do you recall that?</p> <p>13 A. I thought they were subsidiary electrodes.</p> <p>14 Where you directed me to paragraph 33, it says</p> <p>15 "subsidiary electrodes."</p> <p>16 Q. You were right. I was wrong in that</p> <p>17 question. Let me rephrase.</p> <p>18 Han calls them subsidiary electrodes. Is</p> <p>19 that right?</p> <p>20 A. Yes.</p> <p>21 Q. Thank you for that correction.</p> <p>22 Do the subsidiary electrodes 760, 750, and</p>	<p style="text-align: right;">183</p> <p>1 Gupta's resistor to be an electrode. Putting a</p> <p>2 resistor in parallel with a bus line simply results</p> <p>3 in just that, a resistor and a bus line, neither of</p> <p>4 which are electrodes under the construction in</p> <p>5 Section 4 double I(B) above." Do you see that?</p> <p>6 A. Which paragraph?</p> <p>7 Q. I'm sorry. Your paragraph 160.</p> <p>8 A. Yeah. I was stuck on the 4 double I(B),</p> <p>9 and I'm not seeing that. That's why I'm --</p> <p>10 Q. I should have said Section 7(B). I</p> <p>11 started reading out --</p> <p>12 A. Okay.</p> <p>13 Q. -- and I'm like, why am I going down this</p> <p>14 road. But I was stuck. I had to keep going.</p> <p>15 A. That's fine. That's why I was confused.</p> <p>16 I'm like, I know I heard what he said, but there's</p> <p>17 no 4 double I(B).</p> <p>18 Could you repeat the question?</p> <p>19 Q. Sure.</p> <p>20 Do you see -- so I'm asking you about</p> <p>21 paragraph 160 and the fact that you say that it is</p> <p>22 just a resistor and a bus line, neither of which are</p>
<p style="text-align: right;">182</p> <p>1 770 meet your definition of electrode for the</p> <p>2 '509 patent?</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. Are we talking as a simple electrode</p> <p>5 versus subsidiary electrode, which isn't described</p> <p>6 in the '509 patent?</p> <p>7 Q. Well, Han references -- used the term</p> <p>8 "electrode" with respect to elements 750, 760, and</p> <p>9 770. And my question to you is: Do those</p> <p>10 electrodes meet your construction of electrode for</p> <p>11 the '509 patent?</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 A. I don't think I expressed an opinion on</p> <p>14 that yet.</p> <p>15 Q. Can you answer my question now, sitting</p> <p>16 here?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. At a minimum, I would have to read through</p> <p>19 Han again, and that would take a fair amount of</p> <p>20 time.</p> <p>21 Q. Starting in 160, you pivot to Gupta. It</p> <p>22 says "Separately, a POSITA would not have considered</p>	<p style="text-align: right;">184</p> <p>1 electrodes. Do you see that opinion there?</p> <p>2 A. Yes. It's fairly clear. If I put a</p> <p>3 resistor in parallel with a bus line, then I have</p> <p>4 a -- for some strange reason, I have a resistor and</p> <p>5 a bus line in parallel.</p> <p>6 While it does hypothetically reduce the</p> <p>7 resistance compared to the bus line by itself,</p> <p>8 assuming no changes are made, the bus line is</p> <p>9 probably going to be a lot more conductive, and</p> <p>10 you're going to need some good equipment to see the</p> <p>11 improvement, the decrease in resistance.</p> <p>12 So, again, there's no clear reason to do</p> <p>13 that. I can put a resistor on any bus line or power</p> <p>14 line. I just don't know why I would do it.</p> <p>15 Q. What is the resistor in Gupta? Do you</p> <p>16 recall?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. I don't have the Gupta reference</p> <p>19 memorized.</p> <p>20 Q. Well, the next sentence says "To the</p> <p>21 extent Gupta -- to the extent Gupta discloses a</p> <p>22 resistor," and then you quote from Gupta, "The</p>

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<p>1 resistor may be formed of a conductive mesh or 2 strip." Do you see that? 3 A. Yes. 4 Q. Does that refresh your recollection on 5 what the Gupta resistor is? 6 A. The sentence after that, "This resistor 7 mesh 238 is shown in Gupta's Figures 3A and 3B, as 8 well as Figures 4A through 4D." 9 So the resistor is an electrically 10 conductive mesh, basically, on routing the bus line 11 everywhere in between pixels. 12 Q. Okay. And -- 13 A. So it's still a bus line. 14 Q. And it's got some resistance associated 15 with it, because Gupta calls it a resistor. Is that 16 fair? 17 MR. CUMMINGS: Objection; form. 18 A. Unless we're at really cold temperatures, 19 everything has a resistance associated with it. I'm 20 ignoring super conductors for now. So I'll say 21 everything has a resistance. 22 Q. So is it fair to say that a conductive</p>	<p>185</p> <p>1 So the cross-sectional area is what's 2 important. If you're making something wider, you 3 don't have to change the thickness. There's no 4 process change. It's a mass change. To make it 5 thicker, anything else associated with that same 6 conductive layer that's being deposited could 7 potentially be impacted. I don't know. That would 8 have to be evaluated. 9 But that's why as long as the area is 10 changed, you could change the material as well to be 11 more electrically conductive. That would be a 12 slightly bigger process modification, but you're 13 only changing the material, not the mass. 14 Q. Did you consider the possibility that the 15 Weaver bus line can be made only with such -- only 16 with a cross-sectional size so large and with a 17 material only so conductive that they might be 18 motivated to reduce resistance beyond what can be 19 accomplished by a cross-sectional size in material? 20 MR. CUMMINGS: Objection; form. 21 A. That's not consistent with any of the 22 opinions or teachings.</p> <p>187</p>
<p>1 strip is a conductor? 2 A. I would hope so. Yes. 3 Q. If you drop down to paragraph 165. 4 A. Okay. 5 Q. So paragraph 165 is where you start with a 6 section called "Hindsight-Free Modification to 7 Weaver." 8 And paragraph 165 begins "It is my opinion 9 that if a POSITA were, in fact, motivated to reduce 10 the resistance along the bus line of Weaver, a 11 POSITA would have simply made the bus line wider." 12 Do you see that? 13 A. Yes. 14 Q. In forming that opinion, did you consider 15 the possibility that the Weaver bus line can be made 16 only so wide and that a POSITA might be motivated to 17 reduce resistance beyond what can be accomplished by 18 the bus size? 19 A. Yes, I did. Because later in the 20 paragraph, I state "The POSITA could have simply 21 increased the cross-sectional area A of the bus line 22 by making it thicker or wider."</p> <p>186</p>	<p>1 I believe that there were discussions with 2 Dr. Baker. I believe the bus line is ITO. ITO is a 3 good conductor for a transparent material. That 4 does not mean it's a good conductor. If I switched 5 from ITO to aluminum, virtually any metal, the 6 conductivity is going to be much, much higher. It's 7 orders of magnitude difference. The bus line could 8 be smaller and still more conductive. So there are 9 easier options than the convoluted responses -- 10 modifications proposed by Dr. Baker. 11 Q. Is it possible that even with all of the 12 suggestions that you have just identified that a 13 POSITA would still be modified -- would still be 14 motivated to reduce resistance even further? 15 MR. CUMMINGS: Objection; form. 16 A. That would be difficult, at best. 17 Paragraph 157 and 158, I talk about some of these 18 changes. 19 Paragraph 157, "Petitioner misleadingly 20 states that Weaver uses highly conductive material, 21 indium tin oxide, ITO, for the anode 406 and the bus 22 line 430. This statement is partly true. ITO is</p> <p>188</p>

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<p style="text-align: right;">189</p> <p>1 highly conductive, but only for a transparent 2 material. Petitioner's expert noted that a typical 3 material for bus line would be aluminum or copper 4 and that the resistivity of ITO is orders of 5 magnitude higher than copper and aluminum." 6 So if the -- or if the conductivity is 7 orders of magnitude higher, then your question 8 answers itself. Because unless you're looking to 9 increase the current of the conductivity by a factor 10 of a thousand, in which you probably -- I will say 11 you would destroy the pixels as soon as you turned 12 them on -- there's no point. If I can get orders of 13 magnitude more current through the same dimensions, 14 then no. It just doesn't make sense. You could use 15 thinner aluminum or copper. 16 And, again, Dr. Baker admitted typical 17 material would be aluminum or copper. I think 18 aluminum would be preferable, just because copper 19 tends to oxidize. It's a little harder to -- it's 20 got some issues. But in either case, he admitted 21 those would be typical materials, and they would be 22 orders of magnitude better at conducting current,</p>	<p style="text-align: right;">191</p> <p>1 electrode on the '509 patent? 2 A. Because the auxiliary electrode is a 3 change to the architecture of the pixel, not the bus 4 lines going to the pixel. 5 Q. So is the auxiliary electrode of the 6 '509 patent only reducing resistance inside the 7 pixel? 8 MR. CUMMINGS: Objection; form. 9 A. I believe we had discussions before about 10 the claims, and Claim 1 does not include the word 11 "resistance." So it sounds like you're asking about 12 the auxiliary electrode only addressing resistance. 13 Q. I'm not talking about Claim 1. I'm 14 talking about the auxiliary electrode disclosed in 15 the specification of the '509 patent. 16 By adding that electrode, is it reducing 17 resistance only within the electrode -- I'm sorry -- 18 only within the pixel? 19 MR. CUMMINGS: Objection; form. 20 A. The discussion is about that auxiliary 21 electrode reducing the resistance of the pixel 22 structure.</p>
<p style="text-align: right;">190</p> <p>1 orders of magnitude lower IR drop than ITO. 2 Q. So in your opinion, a POSITA would not 3 consider reducing resistance other than changing the 4 size of the line and/or its material. Is that 5 right? 6 MR. CUMMINGS: Objection; form. 7 A. I would say those are the easiest -- the 8 easy and obvious modifications that would be made. 9 If I'm worried about IR drop in the bus line, that's 10 what I'm going to do. I don't need to do anything 11 more complicated. 12 Q. If you could go to paragraph 166, please. 13 It says "A typical engineer designing a 14 pixel would have had the freedom to do this. 15 Designing features of a pixel to have different 16 sizes, shapes, and arrangements is a fundamental and 17 basic part of pixel design." Do you see that? 18 A. Yes. 19 Q. So if a design engineer has the freedom to 20 make the lines as wide as they want or with the 21 materials they want for reducing resistance, why 22 would a POSITA ever consider using the auxiliary</p>	<p style="text-align: right;">192</p> <p>1 Q. And the pixel structure is just what's at 2 the pixel. In other words, the auxiliary electrode 3 is not reducing resistance to any of the lines going 4 to the pixel structure. Am I understanding your 5 testimony correctly? 6 MR. CUMMINGS: Objection; form. 7 A. I'm going to recite back from the 8 '509 patent in Column 7, starting at line 45. 9 "Therefore, the design of the invention 10 that coordinates the first electrode layer 132 of 11 the light-emitting device 130 with the two auxiliary 12 electrodes decreases the resistance of the first 13 electrode layer 132 through parallel connection so 14 as to reduce the total resistance of the pixel 15 structure 400 by about 90 percent, thereby improving 16 the overall luminous uniformity of the display 17 panel." 18 Q. So that tells -- oh, go ahead. 19 A. Again, what the patent specification is 20 talking about is the changes to the pixel structure. 21 Q. Got it. 22 And so what it's not talking about is</p>

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<p style="text-align: right;">193</p> <p>1 reducing the resistance outside the pixel structure.</p> <p>2 Is that fair?</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. If you're talking about the bus line, I</p> <p>5 don't think the '509 patent talks about reducing the</p> <p>6 resistance of the bus line. Again, the '509 patent</p> <p>7 is clear. In Column 1, at line 17, "The invention</p> <p>8 relates to a pixel structure and particularly</p> <p>9 relates to a pixel structure capable of improving</p> <p>10 the overall luminous uniformity of a display pixel."</p> <p>11 Q. In order to increase -- I'm sorry. Strike</p> <p>12 that.</p> <p>13 In order to reduce the resistance within</p> <p>14 the pixel structure of the '509 patent, wouldn't you</p> <p>15 just make the first electrode layer have a</p> <p>16 cross-section that's larger?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. I would say it would depend.</p> <p>19 Q. Depend on what?</p> <p>20 A. In particular, the material. Everyone</p> <p>21 talks about ITO as being a fantastic transparent</p> <p>22 conducting oxide. It's known as a TCO. That</p>	<p style="text-align: right;">195</p> <p>1 MR. CUMMINGS: Objection; form.</p> <p>2 A. As I stated previously, you would have to</p> <p>3 consider the impact, and I gave an example of why</p> <p>4 you may not be able to do it. To give a full and</p> <p>5 complete answer would require a careful review of</p> <p>6 the pixel structure that you're trying to modify.</p> <p>7 Q. So then reverting to material, couldn't</p> <p>8 you reduce the resistance of the pixel structure in</p> <p>9 the '509 patent by changing the material of the</p> <p>10 first electrode layer as opposed to adding the</p> <p>11 auxiliary electrode?</p> <p>12 MR. CUMMINGS: Objection; form.</p> <p>13 A. Again, there's a lot of issues that would</p> <p>14 have to be considered. The reason previously I</p> <p>15 mentioned ITO is this -- we're talking about display</p> <p>16 panels. Light has to get out. I can throw down</p> <p>17 thick layers of metal on both sides and be just</p> <p>18 fine. I won't get any light out. Light has to come</p> <p>19 out through one side at least, which means that</p> <p>20 you're using ITO. Some metals can be used, but the</p> <p>21 metal has to be thin enough for the light to be able</p> <p>22 to be extracted from the device to be emitted.</p>
<p style="text-align: right;">194</p> <p>1 doesn't mean it's a great conductor. It doesn't</p> <p>2 mean it's perfectly transparent.</p> <p>3 In particular, it's a little better at</p> <p>4 absorbing blue light than green, orange, yellow,</p> <p>5 red. So you can end up having to make other</p> <p>6 compensating changes. If I'm absorbing blue light,</p> <p>7 I'm going to have to make up for it somehow.</p> <p>8 So within a pixel, there's a difference</p> <p>9 for the structure.</p> <p>10 Q. So I asked you about cross-section, and</p> <p>11 you started talking about material. I'd like to go</p> <p>12 back to cross-section.</p> <p>13 In order to reduce the resistance of the</p> <p>14 pixel structure in the '509 patent, couldn't you</p> <p>15 just make the first electrode layer have a larger</p> <p>16 cross-section?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. I don't think I've formed an opinion or</p> <p>19 stated an opinion on that, and I don't think</p> <p>20 Dr. Baker did either.</p> <p>21 Q. Can you tell me, sitting here today, if</p> <p>22 that's an option?</p>	<p style="text-align: right;">196</p> <p>1 So, again, you're running into the same</p> <p>2 type, although a different order of magnitude with</p> <p>3 respect to thickness, issue. Thin silver, I can get</p> <p>4 some light out of that. If I make it thicker, it's</p> <p>5 better conducting, but now it's better at absorbing</p> <p>6 light.</p> <p>7 So, again, without having a specific</p> <p>8 structure and materials and time to review, it can't</p> <p>9 be easily answered.</p> <p>10 Q. Doesn't the light in the '509 patent exit</p> <p>11 out through the second electrode layer, not the</p> <p>12 first electrode layer?</p> <p>13 MR. CUMMINGS: Objection; form.</p> <p>14 Q. If you want to go to Claim 12, it talks</p> <p>15 about "wherein the device is a top-emission device."</p> <p>16 Maybe that will help refresh your recollection.</p> <p>17 A. I'm just going to go back to -- whether</p> <p>18 it's top emission or bottom emission, you're going</p> <p>19 through a transparent material, which is either an</p> <p>20 exceptionally thin metal or ITO. So, again, without</p> <p>21 a specific device structure, that question can't be</p> <p>22 easily answered.</p>

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<p>197</p> <p>1 Q. But I'm talking about the device structure</p> <p>2 of the '509 patent. So let's go ahead and pull up</p> <p>3 Figure 3 of the '509 patent.</p> <p>4 A. Okay.</p> <p>5 Q. And in Figure 3, we've been talking about</p> <p>6 the size and material of the first electrode</p> <p>7 layer 132, correct?</p> <p>8 A. I thought you said second before, but...</p> <p>9 Q. With respect to materials and</p> <p>10 cross-section and reducing the resistance as opposed</p> <p>11 to adding the auxiliary electrode connected to the</p> <p>12 first electrode layer.</p> <p>13 A. Okay. I'd have to go to Column 4,</p> <p>14 starting at line 43. "The first electrode layer 132</p> <p>15 of the light-emitting device 130 is deposited --</p> <p>16 disposed on the first insulating layer 106. A</p> <p>17 material of the first electrode layer 132 is</p> <p>18 aluminum, ITO, or other materials that are suitable</p> <p>19 as an anode."</p> <p>20 Q. My question to you was: Can you increase</p> <p>21 the cross-section area of second electrode layer --</p> <p>22 I'm sorry -- of first electrode layer 132 to reduce</p>	<p>199</p> <p>1 would not necessarily have made the pixel bigger at</p> <p>2 all because the width could be extended within the</p> <p>3 pixel."</p> <p>4 So you're trying to say that the only --</p> <p>5 that the change necessarily has to make the pixel</p> <p>6 bigger, but it might not make the pixel bigger.</p> <p>7 Q. I'm just reading your sentence. You said</p> <p>8 it could make it bigger. I was just reading your</p> <p>9 sentence.</p> <p>10 A. I said "even if." But then if you read</p> <p>11 the following sentence, you have to pay attention to</p> <p>12 the context, of what context.</p> <p>13 Q. What about the portion of the line outside</p> <p>14 the pixel and specifically its contribution to the</p> <p>15 resistance of the pixel? Did you consider that in</p> <p>16 forming your opinions?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. That question makes no sense, because</p> <p>19 what's -- the line outside the pixel doesn't affect</p> <p>20 the resistance of the pixel. That goes back to do I</p> <p>21 have a thousand feet of a wire, do I have an inch,</p> <p>22 do I have a centimeter of wire. The pixel</p>
<p>198</p> <p>1 resistance without the need to add the auxiliary</p> <p>2 electrode?</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. Again, it would require a full analysis of</p> <p>5 the structure, all the component layers. I can't</p> <p>6 answer that question quickly. I'm not sure anyone</p> <p>7 can answer that question quickly.</p> <p>8 Q. Going to 166 of your declaration, at the</p> <p>9 bottom of page 74, you say -- the very last line --</p> <p>10 "Even if this made the pixel marginally bigger, it</p> <p>11 would have been an acceptable trade-off." Do you</p> <p>12 see that?</p> <p>13 A. Yes.</p> <p>14 Q. What if it was not -- what if a POSITA</p> <p>15 determined it was not an acceptable trade-off to</p> <p>16 make the pixel bigger?</p> <p>17 MR. CUMMINGS: Objection; form.</p> <p>18 A. As I state, "If it made the pixel</p> <p>19 marginally bigger, it would have been an acceptable</p> <p>20 trade-off."</p> <p>21 But then the following sentence, I state</p> <p>22 "However, as illustrated above, this modification</p>	<p>200</p> <p>1 resistance is what the pixel resistance is.</p> <p>2 Q. So your opinions were based solely on the</p> <p>3 resistance of the pixel itself and not the</p> <p>4 resistance of the lines going to and from the pixel.</p> <p>5 Is that fair?</p> <p>6 MR. CUMMINGS: Objection; form.</p> <p>7 A. I think it's fair to reiterate, as I've</p> <p>8 stated before, that the field of the invention</p> <p>9 relates to a pixel structure. Dr. Baker's</p> <p>10 motivation and proposed combinations were all</p> <p>11 changes made to the bus line, which is not a part of</p> <p>12 the pixel structure.</p> <p>13 So I paid attention to and read the patent</p> <p>14 and followed the teachings of the patent, and</p> <p>15 Dr. Baker went off on a major tangent would be one</p> <p>16 way to phrase it.</p> <p>17 But changing the resistance of the bus</p> <p>18 line is not changing the resistance of the pixel.</p> <p>19 It's changing the resistance of the bus line.</p> <p>20 Q. I'm putting in the chat room another</p> <p>21 exhibit. This is Exhibit 1011, which is the Lee</p> <p>22 patent.</p>

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<p>201</p> <p>1 (Exhibit Number 1011 introduced.)</p> <p>2 A. Specifically the Lee149?</p> <p>3 Q. Lee149, yes.</p> <p>4 A. We've got two of them. That's why I want</p> <p>5 to be clear.</p> <p>6 Q. Yes. There should be a law that you can't</p> <p>7 use references of the last numbers in a case. And</p> <p>8 more importantly, you should never assert patents in</p> <p>9 a case with the same last three numbers, because the</p> <p>10 confusion is -- it should be illegal. But that's my</p> <p>11 own personal opinion.</p> <p>12 All right. I'm going to stop ranting now.</p> <p>13 You recognize that this is the secondary</p> <p>14 reference you opined on for Ground 4?</p> <p>15 A. I'd have to look at Ground 4. I'll just</p> <p>16 say I'm familiar with it.</p> <p>17 Q. If you go to Figure 1.</p> <p>18 Do you recognize the electrode pattern 45</p> <p>19 formed on first electrode 41?</p> <p>20 A. Sorry. I have to make the picture bigger.</p> <p>21 Yes.</p> <p>22 Q. Do you recall why Lee149 forms electrode</p>	<p>203</p> <p>1 cross-sectional area or electrical resistance were</p> <p>2 the bus line, and that was Dr. Baker's focus.</p> <p>3 Dr. Baker looked at Lee149 and said it would be</p> <p>4 obvious to make changes to the bus line, so that's</p> <p>5 what my opinions are addressing.</p> <p>6 Q. Doesn't the bus line extend into the pixel</p> <p>7 so that the pixel can receive power?</p> <p>8 MR. CUMMINGS: Objection; form.</p> <p>9 A. I would say there's a clear -- there's</p> <p>10 definitely a boundary between the pixel and the bus</p> <p>11 line.</p> <p>12 Q. And what defines that boundary?</p> <p>13 A. The pixel structure is something that's</p> <p>14 repeated and dialed across the display. The purpose</p> <p>15 of the bus line is just carrying power.</p> <p>16 Q. In the '509 patent, does the first</p> <p>17 auxiliary electrode extend outside of the pixel</p> <p>18 structure?</p> <p>19 A. The first auxiliary electrode is part of</p> <p>20 the pixel structure. So you seem to be asking if</p> <p>21 something can extend beyond its own boundaries. The</p> <p>22 question doesn't make sense.</p>
<p>202</p> <p>1 pattern 45?</p> <p>2 MR. CUMMINGS: Objection; form.</p> <p>3 A. I don't, because I believe -- I'm not sure</p> <p>4 Dr. Baker opined on that.</p> <p>5 Q. Okay. If you could go to paragraph 38,</p> <p>6 please, which is at the bottom of page 2.</p> <p>7 A. Okay.</p> <p>8 Q. The second-to-last line on the bottom of</p> <p>9 page 2 and going over to the next page, "At this</p> <p>10 point, the electrode pattern 45 is formed on the</p> <p>11 first electrode 41 at the undercut region of the</p> <p>12 buffer layer 50. The electrode pattern 45 serves to</p> <p>13 lower the resistance of the first electrode 41." Do</p> <p>14 you see that?</p> <p>15 A. Yes.</p> <p>16 Q. So why would Lee149 consider the</p> <p>17 complexity of forming electrode pattern 45 to reduce</p> <p>18 resistance when all they needed to do was increase</p> <p>19 the cross-sectional area and/or the material of the</p> <p>20 anode?</p> <p>21 MR. CUMMINGS: Objection; form.</p> <p>22 A. The previous questions about changing the</p>	<p>204</p> <p>1 Q. Okay. So --</p> <p>2 A. Does an object extend beyond its own</p> <p>3 boundaries? Well, no. The boundaries define the</p> <p>4 object. So if it extended beyond its boundaries,</p> <p>5 then you drew the boundary wrong would seem to be</p> <p>6 the answer.</p> <p>7 Q. Does the -- if you go back to Figure 1.</p> <p>8 Does the electrode pattern 45 reduce the</p> <p>9 resistance of first electrode 41 within the pixel?</p> <p>10 MR. CUMMINGS: Objection; form.</p> <p>11 A. I don't believe I stated an opinion about</p> <p>12 that in the declaration.</p> <p>13 Q. I'm just asking you, looking at it.</p> <p>14 A. I'd have to review the reference in full</p> <p>15 to answer that.</p> <p>16 Q. So sitting here, where Lee149 tell us that</p> <p>17 it reduces resistance, you can't tell me whether</p> <p>18 that resistance reduction occurs within the pixel or</p> <p>19 not. Is that your testimony?</p> <p>20 MR. CUMMINGS: Objection; form.</p> <p>21 A. Lee149 is 52 paragraphs, and you've</p> <p>22 pointed to one sentence, which means you're asking</p>

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<p style="text-align: right;">205</p> <p>1 me to form and state an opinion based on far less 2 than 1 percent of the reference. The reference is 3 six pages and, as I said, 52 paragraphs and a number 4 of figures. 5 Q. Is the first electrode 41 part of the 6 pixel? 7 MR. CUMMINGS: Objection; form. 8 A. Again, I don't think I've offered an 9 opinion on that. 10 Q. As an expert in field, can you tell me, 11 looking at this, whether or not the first 12 electrode 41 is part of the pixel structure? 13 MR. CUMMINGS: Objection; form. 14 A. As an expert in the field, again, it's not 15 my job to make snap judgments. 16 Q. So you can't answer my question? 17 A. Again, if you want to give me time to 18 review all of the Lee149 reference and consider it 19 in the context of the patent, Dr. Baker's 20 declaration, and mine, then I can answer your 21 question. 22 Q. To clarify, the first electrode 41 is the</p>	<p style="text-align: right;">207</p> <p>1 before rendering an opinion on it? 2 MR. CUMMINGS: Objection; form. 3 A. There's a difference between reading a 4 patent and memorizing a patent. 5 Q. So sitting here today, after reading this 6 entire patent, you can't tell me if electrode 41 is 7 an electrode -- the anode of the pixel that is in 8 Figure 1. Is that right? 9 MR. CUMMINGS: Objection; form. 10 A. I'm stating that I didn't reference 11 electrode 41 of the Lee149 reference and that I did 12 not memorize Lee149. 13 Q. I'm bringing down another exhibit to the 14 chat room. This is the Bae reference, which is 15 Exhibit 1012. 16 (Exhibit Number 1012 introduced.) 17 A. Okay. 18 Q. Do you recognize this as one of the 19 secondary references for one of the grounds that you 20 opined on? 21 A. Yes. 22 Q. This would be Ground 5.</p>
<p style="text-align: right;">206</p> <p>1 anode to the LED in this device, correct? 2 MR. CUMMINGS: Objection; form. 3 A. In Lee's device? 4 Q. In Lee149, that's correct. 5 A. Just where we were does say "first 6 electrode 41." 7 Q. And you wouldn't consider that the anode 8 of the LED device that you see in Figure 1? 9 MR. CUMMINGS: Objection; form. 10 A. Again, we've looked at a portion of one 11 paragraph, and you're asking me questions that I 12 need to review the document in its totality. I also 13 recall that Dr. Baker expressed an opinion that it's 14 impossible to reduce the resistance of an electrode. 15 Q. What does that have to do with whether or 16 not electrode 41 is the anode of a pixel? 17 MR. CUMMINGS: Objection; form. 18 A. It goes to your previous questions. And, 19 again, you're asking me to answer a question after 20 reviewing far less than 1 percent of a reference. 21 Q. But you've rendered an opinion based upon 22 this patent. Did you not read the whole patent</p>	<p style="text-align: right;">208</p> <p>1 If you could turn to page 4, please -- no. 2 I'm sorry -- Figure 4. 3 Do you recognize the components -- the 4 auxiliary electrode 139 that's formed on first 5 electrode 132? Do you see that? 6 A. I do see 139 is formed on 132. I think 7 this is a safe statement at this point. 8 Q. Do you recall why Bae forms auxiliary 9 electrodes 139? 10 MR. CUMMINGS: Objection; form. 11 A. No. Again, I did not commit the Bae 12 reference to memory. 13 Q. That's fair. 14 Let's go to paragraph 0059, please. 15 A. Okay. 16 Q. So this paragraph says "Also, the 17 auxiliary electrode 139 is formed on the first 18 electrode 132 in the space 534 formed by the 19 undercut structure. The auxiliary electrode 139 is 20 formed during the process of forming the second 21 electrode 138. The auxiliary electrode reduces the 22 resistance of the first electrode 132." Do you see</p>

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<p>209</p> <p>1 that?</p> <p>2 A. Yes.</p> <p>3 Q. Why would Bae add the complexity of this</p> <p>4 electrode when they can simply make the first</p> <p>5 electrode 132 larger in cross-section?</p> <p>6 MR. CUMMINGS: Objection; form.</p> <p>7 A. Again, our discussions about changing</p> <p>8 resistance by changing the cross-section or material</p> <p>9 were related to a bus line. Now you're talking</p> <p>10 about an electrode structure in a pixel. So we've</p> <p>11 changed topics dramatically.</p> <p>12 Q. So going back to Figure 4.</p> <p>13 Do you believe that layer 132 is part of</p> <p>14 the pixel structure?</p> <p>15 A. I don't think I expressed an opinion on</p> <p>16 that in my declaration.</p> <p>17 Q. I'm sorry. I thought you just said now</p> <p>18 we're talking about an electrode in a pixel</p> <p>19 structure. Maybe I misrecalled your testimony just</p> <p>20 now. Do you believe --</p> <p>21 A. Well -- I'll let you go ahead.</p> <p>22 Q. Sorry about that.</p>	<p>211</p> <p>1 not, does Bae teach that the auxiliary electrode 139</p> <p>2 reduces the resistance of first electrode 132?</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. Again, I don't think that opinion is</p> <p>5 stated in my declaration or in Dr. Baker's</p> <p>6 declaration.</p> <p>7 Q. But doesn't Bae say that?</p> <p>8 MR. CUMMINGS: Objection; form.</p> <p>9 Q. Go back to paragraph 59. "The auxiliary</p> <p>10 electrode 139 reduces the resistance of the first</p> <p>11 electrode 132."</p> <p>12 So doesn't Bae tell us that?</p> <p>13 A. Again, you're pointing to one part of a</p> <p>14 patent that -- a portion of one paragraph from a</p> <p>15 106-page specification. Again, to answer properly,</p> <p>16 I need to review the full patent and consider it in</p> <p>17 light of my declaration and Dr. Baker's declaration.</p> <p>18 So I don't think a short, brief answer would be</p> <p>19 appropriate.</p> <p>20 Q. So even though the auxiliary -- it says</p> <p>21 "The auxiliary electrode 139 reduces the resistance</p> <p>22 of the first electrode 132," you refuse to concede</p>
<p>210</p> <p>1 Do you believe that Figure 4 shows a pixel</p> <p>2 structure?</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. Figure 4 is described as "an enlarged view</p> <p>5 of region A illustrated in Figure 3."</p> <p>6 "Figure 3 is a sectional view taken along</p> <p>7 line I-prime of Figure 2."</p> <p>8 And Figure 2 is described as "a plan view</p> <p>9 of an organic electroluminescence display device</p> <p>10 according to a first embodiment of the present</p> <p>11 invention."</p> <p>12 Q. And in looking at the figure, do you have</p> <p>13 an understanding whether or not it shows a pixel</p> <p>14 structure?</p> <p>15 MR. CUMMINGS: Objection; form.</p> <p>16 A. Again, I'd want to review the</p> <p>17 specification carefully before answering, just</p> <p>18 because, clearly, when one figure references another</p> <p>19 figure based on another figure, I want to make sure</p> <p>20 that I would be answering correctly.</p> <p>21 Q. Irrespective of whether or not what</p> <p>22 Figure 4 -- whether Figure 4 is a pixel structure or</p>	<p>212</p> <p>1 that without reviewing the entire reference. Is</p> <p>2 that fair?</p> <p>3 MR. CUMMINGS: Objection; form.</p> <p>4 A. I'd say that's similar to asking someone</p> <p>5 to sign a five-page contract after reading the first</p> <p>6 paragraph.</p> <p>7 Q. You rendered an opinion based upon this</p> <p>8 patent. Yes?</p> <p>9 MR. CUMMINGS: Objection; form.</p> <p>10 A. There are opinions about the Bae reference</p> <p>11 in my declaration.</p> <p>12 Q. And to do that, you read the entire patent</p> <p>13 publication. Yes?</p> <p>14 A. Again, I read it. I did not commit it to</p> <p>15 memory.</p> <p>16 Q. Okay.</p> <p>17 A. And my declaration is responsive to</p> <p>18 Dr. Baker's. So if Dr. Baker didn't address it,</p> <p>19 then I don't have anything to respond to.</p> <p>20 Q. Did you understand the Bae reference when</p> <p>21 you read it?</p> <p>22 MR. CUMMINGS: Objection; form.</p>

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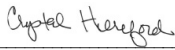
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Exhibit 1017 - Page 54

Transcript of Eric Bretschneider, Ph.D.
Conducted on July 15, 2025

54 (213 to 216)

<p>213</p> <p>1 A. I'll say I had an understanding at the 2 time I read it, but it's been several months since I 3 read it. 4 MR. LIMBACH: I think we can take a break 5 at this point. 6 THE WITNESS: Okay. 7 THE VIDEOGRAPHER: Stand by. 8 We are going off the record. The time is 9 3:37 p.m. 10 (Off the record.) 11 THE VIDEOGRAPHER: We are back on the 12 record. The time is 3:50 p.m. 13 MR. LIMBACH: I have no further questions 14 for the '509 IPR deposition. 15 MR. CUMMINGS: I have no recross for this 16 deposition. 17 MR. LIMBACH: Great. We can conclude, 18 then. 19 THE VIDEOGRAPHER: Stand by. 20 This marks the end of the deposition of 21 Dr. Eric Bretschneider in the IPR Number 2024-01133. 22 We are going off the record. The time is</p>	<p>215</p> <p>1 CERTIFICATE OF SHORTHAND REPORTER 2 I, CRYSTAL HEREFORD, Certified Reporter and 3 Notary Public within and for the State of California 4 do hereby certify: 5 That ERIC BRETSCHNEIDER, Ph.D., the witness 6 whose deposition is hereinbefore set forth, was duly 7 sworn by me before the commencement of such deposition 8 and that such deposition was taken before me and is 9 a true record of the testimony given by such witness. 10 I further certify that the adverse party, BOE 11 TECHNOLOGY GROUP CO., LTD., was represented by counsel 12 at the deposition. 13 I further certify that the deposition of 14 ERIC BRETSCHNEIDER, Ph.D., occurred virtually on 15 Tuesday, July 15, 2025, commencing at 9:00 a.m. to 16 3:52 p.m. 17 I further certify that I am not related to any 18 of the parties to this action by blood or marriage, 19 I am not employed by or an attorney to any of the 20 parties to this action, and that I am in no way 21 interested, financially or otherwise, in the outcome 22 of this matter. 23 IN WITNESS WHEREOF, I have hereunto set my 24 hand and affixed my signature this 24th day of 25 July, 2025. 26 27  28 _____ 29 Crystal Hereford, RPR No. 30819, 30 California Certified Reporter, 31 Certificate No. 14416 32</p>
<p>214</p> <p>1 3:51 p.m. Pacific. 2 (Video proceedings concluded.) 3 THE REPORTER: I have no spellings. 4 I have the order as a rough draft for you, 5 Mr. Limbach, and then seven-day turnaround of the 6 final. 7 MR. LIMBACH: Yes, please. 8 THE REPORTER: Mr. Cummings, would you 9 like to order the transcript? 10 MR. CUMMINGS: I don't think we need a 11 rush, but we'll take just a normal order. 12 THE REPORTER: Okay. Did you want the 13 rough? 14 MR. CUMMINGS: Sure. 15 (Proceedings concluded at 3:52 p.m.) 16 17 18 19 20 21 22</p>	