

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

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SAMSUNG ELECTRONICS CO., LTD.;	)	Case No.: PGR2024-00030
	)	U.S. Patent No. 11,868,178
	)	and
Petitioner	)	Case No.: PGR2024-00039
	)	U.S. Patent No. 11,874,702
v.	)	
	)	
OURARING, INC.,	)	
	)	
Patent Owner.	)	
_____	)	

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VOLUME II

REMOTE VIDEO DEPOSITION OF

PATRICK P. MERCIER, Ph.D.

WEDNESDAY, JUNE 25, 2025

8:18 A.M. PDT

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Reported by: JULIE RUMSEY, CSR 14144

Job No. 114244

<p style="text-align: right;">Page 170</p> <p>1 UNITED STATES PATENT AND TRADEMARK OFFICE</p> <p>2 BEFORE THE PATENT TRIAL AND APPEAL BOARD</p> <p>3 ---000---</p> <p>4 SAMSUNG ELECTRONICS CO., LTD.;) Case No.: PGR2024-00030</p> <p>5) U.S. Patent No. 11,868,178</p> <p>6) and</p> <p>7 Petitioner) Case No.: PGR2024-00039</p> <p>8) U.S. Patent No. 11,874,702</p> <p>9 v.)</p> <p>10)</p> <p>11 OURARING, INC.,)</p> <p>12)</p> <p>13 Patent Owner.)</p> <p>14)</p> <p>15 REMOTE VIDEO DEPOSITION OF Patrick P. Mercier,</p> <p>16 Ph.D., located in San Diego, California, commencing at 8:18</p> <p>17 A.M. PDT on Wednesday, June 25, 2025, before JULIE RUMSEY,</p> <p>18 Certified Shorthand Reporter 14144, in and for the State of</p> <p>19 California.</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p style="text-align: right;">Page 172</p> <p>1 INDEX</p> <p>2 ---000---</p> <p>3 FURTHER EXAMINATION</p> <p>4 PAGE</p> <p>5 BY ATTORNEY HABER 174, 235</p> <p>6 EXAMINATION</p> <p>7</p> <p>8 BY ATTORNEY PLUTA</p> <p>9 ---000---</p> <p>10 EXHIBITS</p> <p>11 EXHIBIT DESCRIPTION PAGE</p> <p>12 Exhibit 1001 von Badinski et al.</p> <p>13 U.S. 11,874,702 B2</p> <p>14 Bates Petitioner Samsung Ex-1001, 0001</p> <p>15 through Petitioner Samsung Ex-1001, 0090</p> <p>16 90 Pages 177</p> <p>17 Exhibit 1012 LeBoeuf et al.</p> <p>18 U.S. 8,700,111 B2</p> <p>19 Bates Petitioner Samsung Ex-1012, 0001</p> <p>20 through Petitioner Samsung Ex-1012, 0040</p> <p>21 40 Pages 177</p> <p>22 Exhibit 2018 U.S. Patent No. 11,874,702</p> <p>23 Declaration of Dr. Patrick Mercier</p> <p>24 Bates Patent Owner Oura Ex. 2018, 0001</p> <p>25 through Patent Owner Oura Ex. 2018, 0146</p> <p>146 Pages 207</p> <p>Exhibit 2121 Oura Ring 1 Photos</p> <p>8 Pages 227</p> <p>Exhibit 2122 ASC Sensors Article</p> <p>Wearable Ring-Based Sensing Platform for</p> <p>Detecting Chemical Threats</p> <p>8 Pages 230</p> <p>---000---</p>
<p style="text-align: right;">Page 171</p> <p>1 APPEARANCES VIA ZOOM:</p> <p>2</p> <p>3 FOR THE PETITIONER:</p> <p>4 OMELVENY & MYERS LLP</p> <p>5 BY: BENJAMIN HABER, ESQ.</p> <p>6 RENIA ZERVOS, ESQ.</p> <p>7 JASON FOUNTAIN, ESQ.</p> <p>8 400 SOUTH HOPE ST., 19TH FL.</p> <p>9 LOS ANGELES, CA 90071</p> <p>10 (213) 430-6000</p> <p>11 bhaber@omm.com</p> <p>12</p> <p>13 FOR THE PATENT OWNER:</p> <p>14 MAYER BROWN LLP</p> <p>15 BY: ROBERT G. PLUTA, ESQ.</p> <p>16 NICHOLAS H. CIULLA, ESQ.</p> <p>17 71 S. WACKER DR.</p> <p>18 CHICAGO, IL 60606</p> <p>19 (312) 782-0600</p> <p>20 RPluta@mayerbrown.com</p> <p>21 NCiulla@mayerbrown.com</p> <p>22</p> <p>23 MAYER BROWN LLP</p> <p>24 BY: JASJIT S. VIDWAN, ESQ.</p> <p>25 1999 K ST., N.W.</p> <p>WASHINGTON, D.C. 20006-1101</p> <p>(202) 263-3065</p> <p>JVidwan@mayerbrown.com</p> <p>LEGAL VIDEOGRAPHER:</p> <p>DANIEL LONG</p> <p>---</p>	<p style="text-align: right;">Page 173</p> <p>1 WEDNESDAY, JUNE 25, 2025, 8:18 A.M. PDT</p> <p>2 ---000---</p> <p>3 THE VIDEOGRAPHER: We're now on the record, and</p> <p>4 this is the beginning of media number 1 in the</p> <p>5 video-recorded deposition of Patrick P. Mercier, Ph.D.,</p> <p>6 held in the matter of Samsung Electronics versus Oura Ring,</p> <p>7 Inc., case number PGR2024-00030, second case number</p> <p>8 PGR2024-00039, held in the United States Patent and</p> <p>9 Trademark Office before the Patent Trial and Appeal Board.</p> <p>10 This deposition is being taken on behalf of Petitioner.</p> <p>11 Today's date is June 25th, 2025. And the time on the</p> <p>12 monitor is 8:18 a.m.</p> <p>13 The court reporter today is Julie Rumsey. I'm</p> <p>14 Daniel Long, the videographer, on behalf of First Legal</p> <p>15 Depositions, located in Los Angeles, California. This</p> <p>16 deposition is being videotaped at all times unless</p> <p>17 specified to go off the video record.</p> <p>18 Would all present please identify themselves,</p> <p>19 beginning with the noticing attorney.</p> <p>20 ATTORNEY HABER: Benjamin Haber for Petitioner</p> <p>21 Samsung. With me on the line is Renia Zervos and Jason</p> <p>22 Fountain.</p> <p>23 ATTORNEY PLUTA: Rob Pluta from Mayer Brown on</p> <p>24 behalf of Oura Ring. With me is Jasjit Vidwan and Nicholas</p> <p>25 Ciulla.</p>

<p style="text-align: right;">Page 174</p> <p>1 THE VIDEOGRAPHER: Will the court reporter please 2 swear in the witness. 3 CERTIFIED STENOGRAPHER: Good morning. My name is 4 Julie Rumsey, California Certified Shorthand Reporter 5 Number 14144. The stenographic record is the official 6 record pursuant to C.C.P. 2025. 7 ---000--- 8 PATRICK P. MERCIER, Ph.D., 9 called as a witness herein, having been 10 administered an oath remotely in accordance with C.C.P. 11 Section 2096, was examined and testified as follows: 12 ---000--- 13 CONTINUED EXAMINATION 14 BY ATTORNEY HABER: 15 Q. Welcome back, Dr. Mercier. 16 A. Thank you. 17 Q. You understand that you are still under oath, and 18 you have the same obligation to testify truthfully and 19 accurately as if you were in a court of law, correct? 20 A. I do. 21 Q. Any reason why you can't do that today? 22 A. No. 23 Q. Did you speak with anyone about your deposition 24 testimony between yesterday and this morning? 25 A. No.</p>	<p style="text-align: right;">Page 176</p> <p>1 open. 2 ATTORNEY PLUTA: Yeah. Me as well. 3 ATTORNEY HABER: Okay. Why don't we go off the 4 record so we can fix that. I think there might be a 5 setting somewhere. 6 THE VIDEOGRAPHER: Going off the record. Time on 7 the monitor is 8:22 a.m. 8 (Discussion held off the record.) 9 THE VIDEOGRAPHER: We're now back on the video 10 record. Time on the monitor is 8:34 a.m. 11 BY ATTORNEY HABER: 12 Q. All right. I apologize for technical 13 difficulties. 14 I sent along some electronic copies of the 15 exhibits that I'm planning on using. I understand the 16 witness also has his own electronic copies, which is fine. 17 You can use your electronic copies as long as there's not 18 any additional marking or annotation in them. And if you 19 refer to anything else other than what I've sent you, just 20 let me know. 21 A. Will do. Thank you. 22 Q. So today I'm going to start with a couple 23 documents. The first is your declaration in connection 24 with PGR -- PGR2024-00039, and that is a declaration 25 regarding U.S. Patent Number 11,874,702, and we're going to</p>
<p style="text-align: right;">Page 175</p> <p>1 Q. Did you speak with anyone about any aspect of the 2 case between yesterday and this morning? 3 A. No. 4 Q. Okay. I'm going to put into the chat a 5 declaration that you submitted in connection with 6 PGR2024-00039 regarding the '702 patent. If you have that 7 in front of you, you can feel free to pull up a paper copy 8 while I take care of this. 9 A. Thank you. 10 ATTORNEY HABER: For the technician, it doesn't 11 appear to allow me to drag and drop a file into the chat. 12 Is that a setting you can fix on your end? 13 (Clarification by the certified stenographer.) 14 THE VIDEOGRAPHER: Yes. 15 ATTORNEY HABER: Is that a setting you can fix on 16 your end? I can't drag and drop a document into the chat. 17 THE VIDEOGRAPHER: One second. 18 It doesn't show that the chat is disabled, but, if 19 you'd like, we can go off the record and I can do further 20 research. 21 (Clarification by the certified stenographer.) 22 ATTORNEY HABER: I mean, we each have copies of 23 this document. I think we can proceed unless -- I can 24 throw it on the screen so people can see it. 25 THE WITNESS: I prefer to have an electronic copy</p>	<p style="text-align: right;">Page 177</p> <p>1 refer to that as the '702 patent today, and that document 2 was previously submitted in this PGR proceeding as 3 Exhibit 1001. 4 (Clarification by the certified stenographer.) 5 (Exhibit 2018, previously marked, was 6 presented.) 7 (Exhibit 1001, previously marked, was 8 presented.) 9 BY ATTORNEY HABER: 10 Q. So if you have a copy of the patent, maybe we can 11 just start with the '702 patent. 12 A. Okay. 13 Q. I'll pull it up on the screen as well. 14 And I wanted to begin by discussing some of the 15 claims of the '702 patent. So if we scroll all the way to 16 the end, you see claim 1 begins with a finger-worn wearable 17 ring device. 18 Do you see that? 19 A. Yes. 20 Q. All right. And on the next page of the patent, in 21 the first kind of indented claim element there, towards the 22 end of the claim element, it states (as read): 23 Wherein the internal housing 24 component comprises a substantially transparent 25 material that enables light to pass through the</p>

<p style="text-align: right;">Page 178</p> <p>1 internal housing component.</p> <p>2 Do you see that?</p> <p>3 A. Yes.</p> <p>4 Q. Do you have an understanding of what the term</p> <p>5 "substantially transparent" means?</p> <p>6 A. So when I discuss claim construction, I discuss</p> <p>7 that terms should take their plain and ordinary meaning,</p> <p>8 and I didn't feel the need to construe a definition for any</p> <p>9 of the -- any terms in the claims. So plain and ordinary</p> <p>10 meaning.</p> <p>11 Q. Can you tell me what the plain and ordinary</p> <p>12 meaning of "substantially transparent" is?</p> <p>13 A. Again, without trying to come -- you know, with --</p> <p>14 with a very precise or specific definition, a general</p> <p>15 understanding of the words "substantially transparent"</p> <p>16 would be, you know, there's varying degrees of</p> <p>17 transparency. Something can be fully transparent to light</p> <p>18 where it doesn't block light at all. Something could be</p> <p>19 nontransparent where it completely blocks light. So</p> <p>20 substantially transparent would be more transparent than</p> <p>21 not.</p> <p>22 Q. Okay. Would you agree that a IR transmissive</p> <p>23 window is substantially transparent?</p> <p>24 ATTORNEY PLUTA: Object to form. Foundation.</p> <p>25 THE WITNESS: An IR transmissive what? Sorry.</p>	<p style="text-align: right;">Page 180</p> <p>1 material that enables light to pass through the internal</p> <p>2 housing component. Normally, in the art, if we're</p> <p>3 referring to non-visible light, we would specify if it were</p> <p>4 non-visible light.</p> <p>5 And in this case, it doesn't. So I would assume</p> <p>6 that substantially transparent would enable light to --</p> <p>7 visible light to pass through -- or, I mean, in this case,</p> <p>8 it just says light to pass through. So if there were a</p> <p>9 material that only allowed IR, or infrared light, to pass</p> <p>10 through, I'm not sure it would meet this definition.</p> <p>11 Q. Okay. And you're kind of reading that from the</p> <p>12 claim recitation of light; is that correct?</p> <p>13 A. Correct.</p> <p>14 Q. And is there, in your mind, a particular</p> <p>15 wavelength range that defines light as it's used in this</p> <p>16 claim?</p> <p>17 A. Again, without context, if an ordinary person is</p> <p>18 using the word "light," I think it's pretty safe to assume</p> <p>19 it's visible light. So visible light wavelengths would</p> <p>20 certainly encompass this range.</p> <p>21 Q. Okay. Are there other wavelengths that would be</p> <p>22 encompassed in your view of this term "light"?</p> <p>23 A. Yeah. Possibly.</p> <p>24 Q. Can you give me some examples?</p> <p>25 A. So, again, without further construing or further</p>
<p style="text-align: right;">Page 179</p> <p>1 BY ATTORNEY HABER:</p> <p>2 Q. Sorry. IR, infrared.</p> <p>3 So would you agree that an infrared transmissive</p> <p>4 window is substantially transparent?</p> <p>5 A. I think it would be fair to say it's substantially</p> <p>6 transparent to infrared but doesn't suggest any possibility</p> <p>7 to other wavelengths of light.</p> <p>8 Q. In your opinion, does this term "substantially</p> <p>9 transparent" require transparency to all wavelengths of</p> <p>10 light?</p> <p>11 A. So terms should take their plain and ordinary</p> <p>12 meaning. And the plain and ordinary meaning of light</p> <p>13 without any further context would -- you know, if you're</p> <p>14 talking to a regular person, you would assume that would be</p> <p>15 visible light unless otherwise specified.</p> <p>16 So my read of substantially transparent material</p> <p>17 that enables light to pass through ought to include visible</p> <p>18 light.</p> <p>19 Q. Okay. Just to be clear. If, for example, a</p> <p>20 window was transmissive in the infrared but not</p> <p>21 transmissive in a visible ultraviolet range, in your</p> <p>22 opinion, that would not be substantially transparent as</p> <p>23 claimed?</p> <p>24 A. I think that's fair. I think, you know, the claim</p> <p>25 term specifically refers to substantially transparent</p>	<p style="text-align: right;">Page 181</p> <p>1 specifying what's meant by the word "light," one would</p> <p>2 assume certainly visible light, possibly infrared, possibly</p> <p>3 ultraviolet, and wavelengths extend beyond that. The word</p> <p>4 "light" itself is not exactly limiting in this context.</p> <p>5 But, again, a person of ordinary -- a person of</p> <p>6 ordinary skill, if they specifically refer to, for example,</p> <p>7 a window that only passes -- sorry -- a window that passes</p> <p>8 infrared light, that says nothing about the other</p> <p>9 wavelengths, but it is very specific to infrared light;</p> <p>10 whereas, in this passage, it just says light.</p> <p>11 So, again, a person of ordinary skill would assume</p> <p>12 visible wavelengths or more. I don't think it's limiting</p> <p>13 in that way.</p> <p>14 Q. Let's say that there was a piece of glass with a</p> <p>15 filter over it that was transparent to blue light, for</p> <p>16 example, which is a visible light range, but filtered out</p> <p>17 every other wavelength -- no red, no green, no ultraviolet,</p> <p>18 et cetera -- would that be substantially transparent in</p> <p>19 your definition?</p> <p>20 A. It would be substantially transparent to blue</p> <p>21 light.</p> <p>22 Q. But would it be substantially transparent as</p> <p>23 reciting the claim in that it enables light to pass through</p> <p>24 the internal housing component, just a narrow wavelength of</p> <p>25 light, just blue light?</p>

<p style="text-align: right;">Page 182</p> <p>1 (Clarification by the certified stenographer.)</p> <p>2 ATTORNEY PLUTA: Object to form.</p> <p>3 THE WITNESS: Well, I don't think that would be</p> <p>4 very clear communication to say, hey, this window or this</p> <p>5 material is substantially transparent to light, and then</p> <p>6 not mention that, oh, by the way, only blue light. Right?</p> <p>7 That's a pretty restrictive interpretation of the word</p> <p>8 "light" without further context.</p> <p>9 And so, again, I think a person of ordinary skill</p> <p>10 saying something like this, knowing that it only passes</p> <p>11 blue light, would specify it's substantially transparent to</p> <p>12 blue light specifically.</p> <p>13 BY ATTORNEY HABER:</p> <p>14 Q. Right. It probably would.</p> <p>15 And so what I'm trying to understand is</p> <p>16 substantially transparent to light seems to be fairly</p> <p>17 broad, and substantially transparent to blue light seems to</p> <p>18 be a subset of that broad definition. And so the question</p> <p>19 is: Is the term "substantially transparent to light,"</p> <p>20 which is broad, does it somehow exclude the more narrow</p> <p>21 subsets where it's substantially transparent to just a</p> <p>22 smaller wavelength of light within that broader universe?</p> <p>23 ATTORNEY PLUTA: Object to form.</p> <p>24 THE WITNESS: Yeah. I mean, I think if we're</p> <p>25 taking plain and ordinary meaning, if someone says</p>	<p style="text-align: right;">Page 184</p> <p>1 Do you see that?</p> <p>2 A. Yes.</p> <p>3 Q. And in describing what it is substantially</p> <p>4 transparent to, it uses this term "and/or."</p> <p>5 Do you see that?</p> <p>6 A. I do.</p> <p>7 Q. And so, as a POSITA reading that, would you</p> <p>8 understand that substantially transparent can be</p> <p>9 transparent to all of those things or just one of those</p> <p>10 things?</p> <p>11 A. So I think it's never a bad idea in writing</p> <p>12 anything, patents in particular, to be expressive and use</p> <p>13 words to describe things well and clearly. And in this</p> <p>14 case, the authors decided to, you know, explicitly describe</p> <p>15 the types of light they had in mind, which, again, is in</p> <p>16 line with how I was interpreting or -- you know, with some</p> <p>17 of our discussions that we had earlier.</p> <p>18 So in this case, they do specifically say visible</p> <p>19 light, infrared light, and/or ultra light -- ultraviolet</p> <p>20 light. My apologies. So, again, and/or means it could be</p> <p>21 all three or it could be one of those three, but at least</p> <p>22 they have specified the range and light over which this is</p> <p>23 operating under.</p> <p>24 In the claims, they only say light. But, again,</p> <p>25 if we take the plain and ordinary meaning of light, we have</p>
<p style="text-align: right;">Page 183</p> <p>1 substantially transparent to light, and they don't qualify</p> <p>2 that it's only substantially transparent to a single</p> <p>3 wavelength, I think that's a misrepresentation of being</p> <p>4 substantially transparent to light. And, yeah, I don't</p> <p>5 think that would be appropriate without further context or</p> <p>6 clarification.</p> <p>7 BY ATTORNEY HABER:</p> <p>8 Q. Okay. So you have the '702 patent in front of</p> <p>9 you, right?</p> <p>10 A. Yes.</p> <p>11 Q. I'm going to go up to the abstract, which is on</p> <p>12 the cover of the patent. In the last two lines, it talks</p> <p>13 about the invention. It says there's a --</p> <p>14 (Clarification by the certified stenographer.)</p> <p>15 BY ATTORNEY HABER:</p> <p>16 Q. (As read):</p> <p>17 There is potting material that encapsulates</p> <p>18 the components, and it's substantially transparent</p> <p>19 to visible light, infrared light, and/or</p> <p>20 ultraviolet light.</p> <p>21 Do you see that?</p> <p>22 A. I do.</p> <p>23 Q. And when describing the invention, the applicant</p> <p>24 gave three examples of different types of light: Visible</p> <p>25 light, infrared light, and ultraviolet light.</p>	<p style="text-align: right;">Page 185</p> <p>1 to assume that encompasses visible light if there's no</p> <p>2 other qualifier. But, again, if there's another instance</p> <p>3 in which we're only talking about one particular wavelength</p> <p>4 of light and nothing else, then it would be -- then I would</p> <p>5 assume it would be substantially transparent to that one</p> <p>6 wavelength and not the others.</p> <p>7 Hopefully, that makes sense.</p> <p>8 Q. Somewhat. I mean, I think we're on the same page</p> <p>9 that you need to understand the claim language in light of</p> <p>10 the words used to describe the invention and specification,</p> <p>11 right?</p> <p>12 A. Right.</p> <p>13 Q. And at least in this portion, describing at a high</p> <p>14 level what the invention is, the applicant says it can be</p> <p>15 substantially transparent to visible light, infrared light,</p> <p>16 and ultraviolet light, right?</p> <p>17 A. Right.</p> <p>18 Q. The applicant also says it can be substantially</p> <p>19 transparent to any one of those things. So, for example,</p> <p>20 just infrared light, correct?</p> <p>21 A. Yeah. I mean, using the words in the abstract, I</p> <p>22 would agree with that. But, again, if there's no</p> <p>23 description of what wavelengths of light is specifically</p> <p>24 being used, then the plain and ordinary meaning of light</p> <p>25 would be visible light.</p>

<p style="text-align: right;">Page 186</p> <p>1 Q. In your opinion, the plain and ordinary meaning of</p> <p>2 light is never understood to mean infrared light only?</p> <p>3 A. I mean, without bigger context, if you enter a</p> <p>4 room and say, oh, it's light in here, it's not likely that</p> <p>5 you're referring to there's a lot of infrared light in that</p> <p>6 room, right? So I think the plain and ordinary meaning of</p> <p>7 light, as humans tend to use it or even ordinary -- people</p> <p>8 of ordinary skill, would be referring to visible light.</p> <p>9 Q. You would agree that there are instances, for</p> <p>10 example, where people are referring to light and they're</p> <p>11 only referring to infrared light. For example, a</p> <p>12 television remote control uses light, right? What sort of</p> <p>13 light does it use?</p> <p>14 A. Likely uses infrared light.</p> <p>15 Q. Exactly. So there are engineering applications</p> <p>16 that the people of skill in the art would understand where</p> <p>17 light is referring to infrared light, correct?</p> <p>18 A. Yes. I agree. But, again, in that context, I</p> <p>19 think it's clear from the context it would be referring to</p> <p>20 infrared light, because a person of ordinary skill would</p> <p>21 know that the remote is using infrared light. And so if</p> <p>22 you drop the word "infrared," the context is still</p> <p>23 understood.</p> <p>24 Q. And is it your opinion that without specifying</p> <p>25 infrared light, one of skill in the art would never</p>	<p style="text-align: right;">Page 188</p> <p>1 there (as read):</p> <p>2 The IR illumination can pass through a window</p> <p>3 provided on the interior housing or can pass</p> <p>4 through a transparent potting material.</p> <p>5 Do you see that?</p> <p>6 A. I do. Yes.</p> <p>7 Q. And the window that's being described here is IR</p> <p>8 transmissive, right?</p> <p>9 A. Yes.</p> <p>10 Q. Would you agree that it's substantially</p> <p>11 transparent in the IR range?</p> <p>12 A. I would agree. Yes.</p> <p>13 Q. And there's no other description of any sort of</p> <p>14 transparency in any of the other wavelengths of light,</p> <p>15 right?</p> <p>16 Doesn't say anything about visible or ultraviolet,</p> <p>17 correct?</p> <p>18 A. That's correct.</p> <p>19 Q. And so would you agree that this IR transmissive</p> <p>20 window falls within the scope of the claim language that</p> <p>21 requires substantial transmissivity to light?</p> <p>22 ATTORNEY PLUTA: Object to the form.</p> <p>23 THE WITNESS: I don't believe that it is. Again,</p> <p>24 claim 1 says, substantially transparent to light, which,</p> <p>25 again, would assume to mean visible light unless otherwise</p>
<p style="text-align: right;">Page 187</p> <p>1 understand this term "light" to be referring to infrared</p> <p>2 light?</p> <p>3 A. To only infrared light without further context?</p> <p>4 Yeah. I think so. I mean, if it's only transparent to</p> <p>5 infrared light and there's no kind of appropriate context</p> <p>6 to suggest that otherwise, then that needs to be stated</p> <p>7 somewhere. Right?</p> <p>8 Q. Let me turn you to another part of the '702</p> <p>9 patent. We're talking a little bit in the abstract here.</p> <p>10 Let's get some context. And I want to turn to column 25,</p> <p>11 around line 5.</p> <p>12 A. Okay.</p> <p>13 Q. This is a particular application that is described</p> <p>14 in the '702 patent discussed in figure 21A. And --</p> <p>15 A. Okay.</p> <p>16 Q. -- you have a chance to look at it.</p> <p>17 Can you describe for me kind of the context that's</p> <p>18 being described at this portion of the specification?</p> <p>19 (Clarification by the certified stenographer.)</p> <p>20 THE WITNESS: So in this area, the specification</p> <p>21 is talking about shining infrared light into a finger and</p> <p>22 then receiving that light to produce an image of the skin</p> <p>23 of the finger.</p> <p>24 BY ATTORNEY HABER:</p> <p>25 Q. And around column 25, line 17, there is a sentence</p>	<p style="text-align: right;">Page 189</p> <p>1 specified. The claims don't otherwise specify.</p> <p>2 And so this embodiment that they're talking about</p> <p>3 only talks about IR and no other forms of light. If, later</p> <p>4 on, that same embodiment were described as passing other</p> <p>5 wavelengths of light that would include visible light,</p> <p>6 then, in that case, yes, it would be following the</p> <p>7 limitations of claim 1, but in isolation on its own, I</p> <p>8 don't believe that it does.</p> <p>9 BY ATTORNEY HABER:</p> <p>10 Q. Okay. And just to be clear, the embodiment here</p> <p>11 describing figure 21 and related functionality, in your</p> <p>12 opinion, is not within the scope of claim 1, right?</p> <p>13 A. With respect to light, that's correct.</p> <p>14 Q. Okay. And the -- going back to claim 1. Is there</p> <p>15 a particular kind of functionality that needs to be</p> <p>16 performed with the light that is kind of transmitted,</p> <p>17 collected, and received in the other elements of the claim?</p> <p>18 ATTORNEY PLUTA: Object to form.</p> <p>19 THE WITNESS: So some of the other claim</p> <p>20 limitations require that this light is emitted through the</p> <p>21 substantially transmissive material -- sorry -- through the</p> <p>22 substantially transparent material of the internal housing</p> <p>23 component into the tissue of a user and then that</p> <p>24 same or -- same or other light should be received through a</p> <p>25 substantially transparent material of the internal housing</p>

<p style="text-align: right;">Page 190</p> <p>1 component. Those -- that language is used in claim 1.</p> <p>2 BY ATTORNEY HABER:</p> <p>3 Q. Okay. And then, I think, if you scroll down to</p> <p>4 the second to the last element of claim 1, there are</p> <p>5 recited (as read):</p> <p>6 One or more processors configured to process</p> <p>7 data based at least in part on the light...</p> <p>8 And then it goes on.</p> <p>9 Do you see that?</p> <p>10 A. I do.</p> <p>11 Q. Other than processing data, is there any</p> <p>12 particular function that needs to be done with that light?</p> <p>13 (Clarification by the certified stenographer.)</p> <p>14 THE WITNESS: I mean, claim 1 discusses</p> <p>15 transmitting light into the tissue of a user, receiving</p> <p>16 light, processing data based, at least in part, on the</p> <p>17 light received by that light-receiving component. That's,</p> <p>18 you know, what claim 1 talks about.</p> <p>19 BY ATTORNEY HABER:</p> <p>20 Q. Okay. Maybe I can ask a more specific question.</p> <p>21 You know there are a number of kind of biometric</p> <p>22 functions you can perform by shining light onto a body part</p> <p>23 and kind of analyzing that light, correct?</p> <p>24 A. Correct.</p> <p>25 Q. You can do things like measuring pulse oxygenation</p>	<p style="text-align: right;">Page 192</p> <p>1 A. I do.</p> <p>2 Q. What is that?</p> <p>3 A. So it's a -- basically a map of the vascular</p> <p>4 structure in a biological sample.</p> <p>5 Q. And for what purpose does the '702 patent describe</p> <p>6 creating this capillary map?</p> <p>7 A. It says it would -- (as read):</p> <p>8 The user can generate a reference capillary</p> <p>9 map in order to identify himself or herself as the</p> <p>10 authorized user of the WCD, the wearable computing</p> <p>11 device.</p> <p>12 Q. Would you agree that the creation and use of this</p> <p>13 capillary map is for general security purposes?</p> <p>14 A. I mean, the language of the '702 patent does</p> <p>15 directly say the authorized user and identification of the</p> <p>16 authorized user. Those are security terms.</p> <p>17 Q. And you recall yesterday we were talking about the</p> <p>18 Schroder reference and its vein-mapping functionality;</p> <p>19 that's substantially the same as what's being described</p> <p>20 here at column 25 in connection with figures 21 and 22,</p> <p>21 correct?</p> <p>22 A. It is.</p> <p>23 Q. And Schroder performs that functionality in a</p> <p>24 similar way using an IR illumination technique, correct?</p> <p>25 A. Well, to be fair, Schroder discusses doing this</p>
<p style="text-align: right;">Page 191</p> <p>1 and things like that; certain health functions, right?</p> <p>2 A. Blood oxygenation, but yes.</p> <p>3 Q. Yes. I'll apologize for my loose use of medical</p> <p>4 terms. I'm not a doctor.</p> <p>5 The patent also describes, in the example that we</p> <p>6 were just looking at, doing capillary mapping, right?</p> <p>7 A. Yes. That's right.</p> <p>8 Q. But those particular biometric functions aren't</p> <p>9 actually recited in claim 1, correct?</p> <p>10 A. That's -- that -- yeah, that's correct.</p> <p>11 Q. The claim 1 recites, more broadly, processing</p> <p>12 data, and the type of processing could include specific</p> <p>13 biometric functions, but it's not necessarily limited to</p> <p>14 any particular function, correct?</p> <p>15 A. That's correct. The language in claim 1 doesn't</p> <p>16 specify.</p> <p>17 Q. Maybe we can go back to column 25 where we were</p> <p>18 talking about the embodiment of figures 21 and 22,</p> <p>19 actually. Let me just get there.</p> <p>20 And if you look at 25, around line 27, there's</p> <p>21 reference to a capillary map.</p> <p>22 Do you see that?</p> <p>23 A. I do.</p> <p>24 Q. Do you have an understanding what a capillary map</p> <p>25 is?</p>	<p style="text-align: right;">Page 193</p> <p>1 but doesn't give a whole lot of instruction on how exactly</p> <p>2 it manages to do that. But in general Schroder does</p> <p>3 discuss that, yes.</p> <p>4 Q. And Schroder discusses in general using an IR</p> <p>5 illuminator, correct?</p> <p>6 A. That's correct.</p> <p>7 Q. And Schroder includes a discussion of a window</p> <p>8 that will allow IR light to pass through the ring, correct?</p> <p>9 A. I'm going to pull up Schroder.</p> <p>10 Q. Sure.</p> <p>11 If it helps, I think the information is discussed</p> <p>12 around column 9. There's reference to a window around</p> <p>13 line 34.</p> <p>14 A. So Schroder does disclose a window, but in the</p> <p>15 passage you recite, column 9, starting at line 26, Schroder</p> <p>16 is referring to security features as protection against</p> <p>17 forgery where he goes on to explain things like holograms,</p> <p>18 Kinograms, microprints, and things like this, optically</p> <p>19 variable inks, transparent regions through windows, et</p> <p>20 cetera.</p> <p>21 And so a POSITA reading this -- and they do say on</p> <p>22 the surface. The POSITA reading this, I think, would</p> <p>23 understand this to be not for imaging, but this description</p> <p>24 is referring to, you know, placement of some hologram or</p> <p>25 something like this.</p>

<p style="text-align: right;">Page 194</p> <p>1 Q. You would agree, though, that this is generally</p> <p>2 teaching what it says there: Transparent regions and</p> <p>3 windows, correct?</p> <p>4 A. So I'd like to also refer you to Schroder,</p> <p>5 column 2, lines 38 to 42, where Schroder says (as read):</p> <p>6 The at least one security feature can be</p> <p>7 arranged, for example, on an outer area of the</p> <p>8 external secure unit.</p> <p>9 Here, external secure unit is generally, although</p> <p>10 not exclusively, referring to a ring form factor. And so</p> <p>11 here he provides at least a little bit more context for the</p> <p>12 discussions in this cited section in column 9 we were just</p> <p>13 reading.</p> <p>14 So to answer your question, yes, Schroder is</p> <p>15 referring to windows. But, again, in this context he's</p> <p>16 referring to windows on the outer area of the secure</p> <p>17 external unit for the purpose of displaying something like</p> <p>18 a hologram.</p> <p>19 Q. If you go down two paragraphs from where you</p> <p>20 directed me to, around line 47, there's discussion of</p> <p>21 (as read):</p> <p>22 A further advantageous embodiment example of</p> <p>23 the invention is that the external secure unit</p> <p>24 employs a sensor in order to recognize finger</p> <p>25 veins.</p>	<p style="text-align: right;">Page 196</p> <p>1 the finger as the user is putting the ring on his finger,</p> <p>2 correct?</p> <p>3 A. Yes.</p> <p>4 Q. And that image is being captured by at least one</p> <p>5 infrared diode and at least one infrared sensor, right?</p> <p>6 That's what Schroder says?</p> <p>7 A. He does say that in the subsequent sentences.</p> <p>8 Yes.</p> <p>9 Q. So in order for the infrared light to be</p> <p>10 transmitted from the inside of the ring and shining on the</p> <p>11 finger that's passing through the ring, there would have to</p> <p>12 be at least an IR transmissive window or other IR</p> <p>13 transmissive material for that to be possible, right?</p> <p>14 A. That would be needed in order to do this. I would</p> <p>15 like to point out that I don't believe Schroder actually</p> <p>16 states that anywhere.</p> <p>17 Q. Okay. But one of skill in the art would have</p> <p>18 understood that, in order for an IR light to be transmitted</p> <p>19 from the inside of a structure to the outside of a</p> <p>20 structure, there needs to be some sort of IR transmissive</p> <p>21 window or other IR transmissive material that allows that</p> <p>22 to happen, right? That's how that would function, right?</p> <p>23 A. Yeah. I mean, that's correct. And as I stated in</p> <p>24 my disclosure, you know, I do, in paragraph 92, discuss how</p> <p>25 Schroder doesn't actually disclose windows on the inside of</p>
<p style="text-align: right;">Page 195</p> <p>1 Do you see that?</p> <p>2 A. I do.</p> <p>3 Q. And a sensor to recognize finger veins would be on</p> <p>4 the inside of the ring -- right? -- to recognize the veins</p> <p>5 as the finger goes into the ring, correct?</p> <p>6 A. I'm not sure it has to be. You could do this</p> <p>7 measurement by holding the ring up to a finger and not</p> <p>8 actually wearing it.</p> <p>9 Q. Sure. You could.</p> <p>10 But you would agree that you could also do it</p> <p>11 while the finger is being inserted into the ring, right?</p> <p>12 A. That's possible.</p> <p>13 Q. And, in fact, that's what Schroder says at the</p> <p>14 bottom of column 9, right, around line 64?</p> <p>15 A. Let me just recite this. The --</p> <p>16 (Clarification by the certified stenographer.)</p> <p>17 THE WITNESS: Sorry.</p> <p>18 (As read):</p> <p>19 The biometric sensor can be integrated into</p> <p>20 the finger-ring 2, example, such that the</p> <p>21 biometric sensor captures, example, at least a</p> <p>22 partial vein image in the finger while the</p> <p>23 finger-ring 2 is being pushed over a finger.</p> <p>24 BY ATTORNEY HABER:</p> <p>25 Q. Right. And so while the ring is being pushed over</p>	<p style="text-align: right;">Page 197</p> <p>1 the ring or that the materials that compose the inside of</p> <p>2 the ring are transparent to all light.</p> <p>3 I'll concede that it would be pointless to say</p> <p>4 that you would use infrared diodes and sensors to image</p> <p>5 something if you can't get the light into the thing you're</p> <p>6 trying to image. But, again, my position is that, even if</p> <p>7 it were so, there's no disclosure about being transmissive</p> <p>8 to other forms of light in Schroder.</p> <p>9 Q. Okay. We can, I think, take that in parts.</p> <p>10 First part is, is it your opinion that one of</p> <p>11 skill in the art seeing the teaching in Schroder to use</p> <p>12 transparent regions in windows arguably on the outside of</p> <p>13 the ring would not have been able to take those transparent</p> <p>14 regions or windows and place them on the inside of the</p> <p>15 ring? Is that your opinion?</p> <p>16 A. Again, here's where I just -- I wish Schroder was</p> <p>17 a little bit more clear in his disclosure about this and</p> <p>18 many other things. But, you know, Schroder is just leaving</p> <p>19 a lot up to the ordinary person of skill in the art in</p> <p>20 order to figure things out and fill in the blanks.</p> <p>21 So yes, Schroder does disclose windows located on</p> <p>22 the outside of the ring. Schroder discloses infrared</p> <p>23 diodes and infrared sensors. Schroder does not disclose</p> <p>24 the location of those, but I think it's fair to say a</p> <p>25 person of ordinary skill would likely place them on the</p>

<p style="text-align: right;">Page 198</p> <p>1 inside of the ring, although, of course, again, Schroder 2 offers no recipe or direction to do this.</p> <p>3 And then Schroder offers no recipe, direction, or 4 suggestion at all that there needs to be transparency on 5 the internal surface. I think it's fair to say a POSITA 6 would understand there would need to be that, but Schroder 7 offers no guidance or direction on how to accomplish that.</p> <p>8 Q. You understand that a person of ordinary skill in 9 the art, you know, is not an automaton, right? They have a 10 level of creativity of an ordinary engineer, right?</p> <p>11 A. Correct.</p> <p>12 Q. And so a person of ordinary skill in the art 13 reading a reference takes it for what it teaches and then 14 applies general engineering principles to make kind of the 15 right and standard trade-offs to achieve the objective that 16 that engineer is trying to achieve, correct?</p> <p>17 A. Correct.</p> <p>18 Q. And if one of the objectives was to shine infrared 19 light through the inside of a ring and Schroder says, hey, 20 there are these IR transmissive windows out there, wouldn't 21 one of skill in the art understand that you could use such 22 an IR transmissive window to transmit IR light wherever it 23 needs to be transmitted?</p> <p>24 (Clarification by the certified stenographer.)</p> <p>25 THE WITNESS: So I think it's -- it's a little</p>	<p style="text-align: right;">Page 200</p> <p>1 finger. Do you see that?</p> <p>2 A. Yes.</p> <p>3 Q. And we were looking at '702 patent before, where 4 it talked about a capillary map. The capture of the vein 5 image and the capture of a capillary map, that's talking 6 about substantially the same thing, right?</p> <p>7 A. Yes.</p> <p>8 Q. And in your opinion, the way Schroder does this 9 with an IR diode is the same as the way the '702 patent is 10 saying to do it with an IR source, correct?</p> <p>11 A. I mean, in the sense that they both suggest using 12 infrared light to illuminate and capture capillary maps, 13 yes.</p> <p>14 Q. And in your opinion, Schroder, in talking about 15 this vein mapping embodiment, is outside of the scope of 16 the claims for the same reason that the embodiment 17 described in the '702 patent in figure 21 is outside the 18 scope of the claims, namely that they use IR light and not 19 other wavelengths, correct?</p> <p>20 ATTORNEY PLUTA: Object to form.</p> <p>21 THE WITNESS: Yes.</p> <p>22 BY ATTORNEY HABER:</p> <p>23 Q. Are you familiar with the process of doing this 24 capillary mapping or vein mapping?</p> <p>25 A. I'm generally familiar.</p>
<p style="text-align: right;">Page 199</p> <p>1 difficult to answer that question when reviewing it through 2 a lens of isolating it to one specific problem, simply 3 because the design of, you know, a wearable ring like this 4 is extremely complicated with many design trade-offs and 5 nuances and so on.</p> <p>6 And so, I mean, yes. A person of ordinary skill 7 in the art could look at, you know, a window, recognize the 8 need for a window, look to install a window on the interior 9 of the ring. But just because you can consider doing that 10 doesn't mean that that person of the ordinary skill knows 11 how to execute all of the other features that would be 12 necessary to make that happen, including adding a battery 13 and driver circuitry and, you know, carrier foils that 14 would contain this or, you know, other -- other mechanisms 15 to package and integrate all of these things together and 16 so on.</p> <p>17 There's a lot of design challenges here that, in 18 my opinion, go beyond the ordinary skill of the person -- 19 of a person of ordinary skill in the art circa 2013. But 20 when you break it down to one simple problem in isolation 21 of everything else, sure, I'll concede that.</p> <p>22 BY ATTORNEY HABER:</p> <p>23 Q. The function that Schroder is describing, and it 24 continues in the discussion from column 9 to column 10 -- 25 is column 10, line 4, capture of a vein image of the ring</p>	<p style="text-align: right;">Page 201</p> <p>1 Q. Are there other wavelengths of light besides IR 2 that could useful or used for preparing a capillary or vein 3 map?</p> <p>4 A. So I'll first state that I'm not an expert in 5 capillary mapping. I'm generally aware of the techniques 6 used. And it's my understanding that infrared is a 7 preferred wavelength because it passes through tissue more 8 readily than other wavelengths of light.</p> <p>9 Q. Are there --</p> <p>10 (Clarification by the certified stenographer.)</p> <p>11 BY ATTORNEY HABER:</p> <p>12 Q. Implementations of capillary or vein mapping that 13 use light in addition to IR light, such as various 14 wavelengths of visible light or other spectra?</p> <p>15 A. I'm not aware.</p> <p>16 THE WITNESS: Would now perhaps be a good time for 17 a break?</p> <p>18 ATTORNEY HABER: Sure. Sure. We can take a 19 break.</p> <p>20 (Clarification by the certified stenographer.)</p> <p>21 ATTORNEY PLUTA: Yes.</p> <p>22 THE VIDEOGRAPHER: Going off the video record. 23 The time on the monitor is 9:27 a.m.</p> <p>24 (Recess taken.)</p> <p>25 THE VIDEOGRAPHER: We're now back on the record.</p>

<p style="text-align: right;">Page 202</p> <p>1 Time on the monitor is 9:38 a.m.</p> <p>2 BY ATTORNEY HABER:</p> <p>3 Q. All right. Welcome back.</p> <p>4 We were talking about claim 1, the '702 patent.</p> <p>5 And claim 1 of the '702 patent uses a number of terms that</p> <p>6 are the same as terms that are used in claims of the '178</p> <p>7 patent.</p> <p>8 A. Uh-huh.</p> <p>9 Q. And so the question that I have for you is where</p> <p>10 the '178 patent and the '702 patent use the same claim</p> <p>11 terms, are those terms generally -- do those terms have the</p> <p>12 same meaning in each claim?</p> <p>13 A. I'm not sure I've done a patent-to-patent analysis</p> <p>14 of the claim. So I'm not -- I'm not certain.</p> <p>15 Q. Okay. So I'll give you an example. The '702</p> <p>16 patent uses the term "printed circuit board," and the '178</p> <p>17 patent also uses the term "printed circuit board." Are you</p> <p>18 applying a different meaning for that term in the '702</p> <p>19 patent as you are compared to the '178 patent?</p> <p>20 A. No, I'm not. And I suppose I could answer a</p> <p>21 little bit more generally and say, you know, in our claim</p> <p>22 construction discussions, we -- we use the plain and</p> <p>23 ordinary meaning of the terms. And if it's not clear it's</p> <p>24 informed by the specification, of course, the specification</p> <p>25 between the two patents is the same so -- and likely the</p>	<p style="text-align: right;">Page 204</p> <p>1 BY ATTORNEY HABER:</p> <p>2 Q. Okay. And, in fact, claim 1 doesn't recite a</p> <p>3 battery or any sort of power management circuitry, right?</p> <p>4 A. That's correct.</p> <p>5 Q. So claim 1 doesn't require a battery at all,</p> <p>6 regardless of shape or size?</p> <p>7 A. Claim 1 doesn't mention a battery, but a POSITA</p> <p>8 would understand that the elements cited in claim 1 would</p> <p>9 need a power source in order to operate.</p> <p>10 Q. Certainly. Certainly. And the power source,</p> <p>11 whatever power source is driving the components of claim 1,</p> <p>12 it's not specified or required in any way in the actual</p> <p>13 claim elements, right?</p> <p>14 A. Not in claim 1. In some of the other claims, yes.</p> <p>15 Q. Okay. So in claim 1, the only component that has</p> <p>16 to have some sort of a shaping to fit within the ring</p> <p>17 wearable device is the printed circuit board, and the claim</p> <p>18 specifies it has to be configured to conform to arc within</p> <p>19 the cavity.</p> <p>20 Do you see that?</p> <p>21 A. I do. Yes.</p> <p>22 Q. The -- I think the later claims that require some</p> <p>23 power management are claims 12 and 13 that depends on</p> <p>24 claim 1, right?</p> <p>25 A. Claim 12 cites a battery as well as claim 16</p>
<p style="text-align: right;">Page 203</p> <p>1 term meanings would be similar, again, although I haven't</p> <p>2 done a claim-by-claim analysis of this between the two</p> <p>3 patents.</p> <p>4 Q. And the '702 patent uses the term "cavity," and</p> <p>5 that is also used in the '178 patent. There's no different</p> <p>6 meaning you're applying to that term between the two</p> <p>7 patents, correct?</p> <p>8 A. Correct.</p> <p>9 Q. Sitting here today, are there any particular words</p> <p>10 that are used in both of the claims that you are</p> <p>11 understanding to mean meaningfully different things?</p> <p>12 ATTORNEY PLUTA: Object to form.</p> <p>13 THE WITNESS: Again, I haven't done a full</p> <p>14 claim-by-claim analysis.</p> <p>15 BY ATTORNEY HABER:</p> <p>16 Q. Okay. Yesterday we were talking about claim 1 of</p> <p>17 the '178 patent. And I believe you offered the opinion</p> <p>18 that the battery that's recited in claim 1 has to be</p> <p>19 curved. And is it your opinion that claim 1 of the '702</p> <p>20 patent also requires a curved battery?</p> <p>21 ATTORNEY PLUTA: Object to form.</p> <p>22 THE WITNESS: I'm just going to refer to my</p> <p>23 declaration. Just give me a moment.</p> <p>24 So I guess I should note the word "battery" is not</p> <p>25 present in claim 1.</p>	<p style="text-align: right;">Page 205</p> <p>1 and 17.</p> <p>2 Q. The claims 16 and 17 recite, specifically, a</p> <p>3 curved battery, right?</p> <p>4 A. Correct.</p> <p>5 Q. And claims 12 and 13 also recite a battery, but</p> <p>6 they don't specify that it is a curved battery, right?</p> <p>7 A. Yes. That's correct. But I'd like to kind of</p> <p>8 also state that, as we discussed yesterday, you know, a</p> <p>9 POSITA's understanding in reading the -- in this case, '702</p> <p>10 patent, would understand the construction that is described</p> <p>11 in claim 1, in external and internal housing components,</p> <p>12 printed circuit board disposed between those external and</p> <p>13 internal housing components that conforms to an arc within</p> <p>14 the cavity, I think, that, we agree with.</p> <p>15 Claim 1 discloses light-emitting components,</p> <p>16 light-receiving components, processors, communication</p> <p>17 modules, which a POSITA would understand are located on the</p> <p>18 disclosed printed circuit board.</p> <p>19 And, further, a POSITA would understand that the</p> <p>20 device requires a power source. The specification spent a</p> <p>21 great deal of time discussing the battery, a curved battery</p> <p>22 specifically, as well as the construction, assembly, and so</p> <p>23 on of that.</p> <p>24 So I think it's very reasonable to -- that a</p> <p>25 person of ordinary skill would understand that, in light of</p>

<p style="text-align: right;">Page 206</p> <p>1 the specification, a battery is required to develop a</p> <p>2 system -- a ring that meets the needs of -- that meets the</p> <p>3 limitations of claim 1.</p> <p>4 Q. Okay. So just to be clear, just like your opinion</p> <p>5 for claim 1 of the '178 patent, in your opinion, claims 12</p> <p>6 and 13 require that the battery be a curved battery; is</p> <p>7 that fair?</p> <p>8 A. Yes. With the understanding that a POSITA would</p> <p>9 recognize the features present within claim 1 and the other</p> <p>10 claims recognize there are power requirements, both peak</p> <p>11 and average power requirements, and that a curved battery</p> <p>12 would be necessary to meet those -- the requirements from</p> <p>13 those components.</p> <p>14 Q. I want to turn to another prior art reference.</p> <p>15 This is the LeBoeuf reference. I'm not entirely sure how</p> <p>16 to say it. I say it lots of different ways. I'm going to</p> <p>17 try to say LeBoeuf, but if there's a different way to say</p> <p>18 it, let me know.</p> <p>19 I've emailed the reference to you. If you have a</p> <p>20 printout, you can use that as well. I'll throw it on the</p> <p>21 screen.</p> <p>22 A. Thank you.</p> <p>23 ATTORNEY HABER: It's U.S. patent 8,700,111 to</p> <p>24 LeBoeuf. And it has been previously marked in this</p> <p>25 proceeding as Exhibit 1012.</p>	<p style="text-align: right;">Page 208</p> <p>1 Q. And you would also agree that LeBoeuf explains</p> <p>2 that these windows may include optical filters, right?</p> <p>3 A. It does.</p> <p>4 Q. And an optical filter will filter out one or more</p> <p>5 frequencies or wavelengths of light, right?</p> <p>6 A. So LeBoeuf says (as read):</p> <p>7 Windows 74W may include optical filters to</p> <p>8 selectively pass one or more optical wavelengths.</p> <p>9 So yes.</p> <p>10 Q. I want to go back to your declaration here. The</p> <p>11 section that you prepared regarding secondary</p> <p>12 considerations and nexus. Now, there are a number of</p> <p>13 images captured in this section regarding your analysis of</p> <p>14 the Aura Ring gen 3 and gen 4 products, right?</p> <p>15 A. That's right.</p> <p>16 Q. And you conducted a teardown of the Aura Ring</p> <p>17 gen 3 and gen 4 products, correct?</p> <p>18 A. That's correct.</p> <p>19 Q. Did you follow some procedure or protocol in</p> <p>20 conducting that teardown?</p> <p>21 A. Can you elaborate on what you mean?</p> <p>22 Q. Maybe I can ask you a better question. Is there</p> <p>23 some sort of standard technique that you have or set of</p> <p>24 particular actions that you take in conducting your</p> <p>25 teardown? And if so, can you describe, generally, what --</p>
<p style="text-align: right;">Page 207</p> <p>1 (Exhibit 1012, previously marked, was</p> <p>2 presented.)</p> <p>3 BY ATTORNEY HABER:</p> <p>4 Q. I want to turn to figures 22A and B of LeBoeuf.</p> <p>5 And so you would agree that this is a ring-shaped</p> <p>6 device that's depicted here in figures 22A and 22B of</p> <p>7 LeBoeuf, right?</p> <p>8 A. Yes.</p> <p>9 Q. And included in these figures are elements 74W.</p> <p>10 Do you see that in figure 22B?</p> <p>11 A. Yes.</p> <p>12 Q. And if we go down to -- we're on column 28 of</p> <p>13 LeBoeuf which describe these figures. Element 74W are</p> <p>14 described as windows, correct?</p> <p>15 A. Correct.</p> <p>16 Q. And you would agree that these windows are</p> <p>17 substantially transparent to light, correct?</p> <p>18 A. I think that's fair to say. Yes.</p> <p>19 Q. And in that same paragraph, LeBoeuf describes that</p> <p>20 these windows may include lenses, correct?</p> <p>21 A. Correct.</p> <p>22 Q. And you would agree that a lens changes certain</p> <p>23 optical properties of light that transmits through it,</p> <p>24 correct?</p> <p>25 A. Correct.</p>	<p style="text-align: right;">Page 209</p> <p>1 how you came about those procedures?</p> <p>2 A. I -- for the teardowns, for the Aura gen 3 and</p> <p>3 gen 4, I mean, it wasn't particularly complicated. Take a</p> <p>4 few photos of the ring in various orientations, cut the</p> <p>5 ring to produce different cross sections and take</p> <p>6 photographs and inspect through the photographs and/or</p> <p>7 under the mic- -- microscope.</p> <p>8 Q. You mentioned you took various cross sections.</p> <p>9 How did you decide what cross sections you wanted to take?</p> <p>10 A. Well, I looked at the claim language, where the</p> <p>11 claim language describes various elements, including</p> <p>12 printed circuit boards, batteries, sensors and so on. And</p> <p>13 I attempted to cut in locations that would reveal some of</p> <p>14 these features.</p> <p>15 Q. Can you describe the particular cross sections</p> <p>16 that you took of the Aura Ring devices to do your analysis?</p> <p>17 A. Okay. Let's go to page 82. So here, we're</p> <p>18 showing two different cross sections of a Aura generation 3</p> <p>19 ring. In the bottom picture, we can see actually quite a</p> <p>20 bit of detail including the battery, the printed circuit</p> <p>21 board, LEDs and photodiodes. We can see some large chips</p> <p>22 that may correspond to processors or communication modules</p> <p>23 and so on.</p> <p>24 The top photo is a different cross section showing</p> <p>25 printed circuit board, a chip, and a sensing -- part of the</p>

<p style="text-align: right;">Page 210</p> <p>1 sensing module.</p> <p>2 Q. The two cross sections that are shown here on</p> <p>3 page 82, are those the only two cross sections that you</p> <p>4 took?</p> <p>5 A. I also have, on page 94, a cross section of the</p> <p>6 battery.</p> <p>7 Q. These are the same general cross sections that you</p> <p>8 looked at geometrically --</p> <p>9 A. Yes.</p> <p>10 Q. -- before? Just different images of the ring,</p> <p>11 correct?</p> <p>12 A. That's correct.</p> <p>13 Q. Okay. Are there any other differently -- strike</p> <p>14 that.</p> <p>15 Are there any other sort of different geometric</p> <p>16 cross sections that you took in conducting your analysis of</p> <p>17 the Oura Ring devices?</p> <p>18 A. No.</p> <p>19 Q. You mentioned yesterday when we were talking about</p> <p>20 Schroder, Schroder's figure 7 may have been some cross</p> <p>21 section that was difficult for you to explain and</p> <p>22 visualize.</p> <p>23 Did you take any such complicated or difficult</p> <p>24 cross section of the Oura Ring devices when you were</p> <p>25 conducting your analysis?</p>	<p style="text-align: right;">Page 212</p> <p>1 A. Yeah. I didn't find it necessary to do that cross</p> <p>2 section.</p> <p>3 Q. And so I think you said that in your opinion,</p> <p>4 Schroder's figure 7 is a cross section of some angle other</p> <p>5 than 90 degrees. Do you have any opinion as to what that</p> <p>6 angle might be?</p> <p>7 A. Again, Schroder, at best, is very unclear. And</p> <p>8 trying to depict a three-dimensional object with a very</p> <p>9 simple rectangle is extremely difficult without showing</p> <p>10 things like curvature and so on. And so, you know, I can</p> <p>11 see why his figure 7 is not very descriptive because of</p> <p>12 that.</p> <p>13 I'm sorry. I'm not sure I'm understanding the</p> <p>14 question that you're trying to ask here.</p> <p>15 Q. Sure.</p> <p>16 Do you think, as a reasonable assumption, that a</p> <p>17 cross section depicted in Schroder's figure 7 would be a</p> <p>18 similar sort of cross section as you took when you were</p> <p>19 comparing and trying to figure out the details of the ring</p> <p>20 device?</p> <p>21 A. So I think I have the benefit that, in my cross</p> <p>22 sections, I'm representing a real three-dimensional object</p> <p>23 and I'm taking a picture of a real three-dimensional</p> <p>24 project, and as a result, you know, things don't get lost</p> <p>25 in translation when moving it to a two-dimensional object.</p>
<p style="text-align: right;">Page 211</p> <p>1 A. No. I only took the two cross sections that we --</p> <p>2 that we discussed.</p> <p>3 Q. So the cross section that you have in mind for</p> <p>4 what Oura figure 7 is is not actually a cross section that</p> <p>5 you felt was necessary to conduct your analysis?</p> <p>6 (Clarification by the certified stenographer.)</p> <p>7 ATTORNEY PLUTA: Object to form.</p> <p>8 THE WITNESS: I --</p> <p>9 BY ATTORNEY HABER:</p> <p>10 Q. My question might have an error in it. Let me ask</p> <p>11 the question again.</p> <p>12 So the cross section that you have in mind for</p> <p>13 what Schroder's figure 7 is attempting to depict is not</p> <p>14 actually some cross section that you felt was necessary to</p> <p>15 conduct your analysis of the Oura Ring, correct?</p> <p>16 A. I didn't take any other cross sections. And,</p> <p>17 again, Schroder's figure 7, in my opinion, is a cross</p> <p>18 section at a, you know, non-right angle through the ring.</p> <p>19 And trying to depict that in a two-dimensional manner is --</p> <p>20 well, is leading -- is, as a result, in Schroder's</p> <p>21 figure 7.</p> <p>22 Q. And so this cross section that in your mind is at</p> <p>23 some non-right angle is not a cross section that you</p> <p>24 actually thought was necessary to determine the interior</p> <p>25 components of the Oura Ring, correct?</p>	<p style="text-align: right;">Page 213</p> <p>1 In addition, the Oura Rings, the generation 3 and</p> <p>2 generation 4 rings that I analyzed, correspond very nicely</p> <p>3 to the claims in the '178 and the '702 patents. And as a</p> <p>4 result, simple cross sections were sufficient for the</p> <p>5 purposes of this section in demonstrating nexus for my</p> <p>6 purposes.</p> <p>7 Q. Well, this might be an area where we just have a</p> <p>8 disagreement.</p> <p>9 I know Dr. Anthony has opined that Schroder</p> <p>10 corresponds very nicely to the claims in the '178 and '702</p> <p>11 patents, and the cross sections that he has seen in</p> <p>12 Schroder are also very similar to the analysis that you</p> <p>13 have done in the Oura Ring, and he understands those cross</p> <p>14 sections kind of in a simple way, the same way that you</p> <p>15 appear to understand the cross sections of the Oura Ring.</p> <p>16 And so the question that I have for you is why is</p> <p>17 that understanding not correct?</p> <p>18 ATTORNEY PLUTA: Object to form.</p> <p>19 THE WITNESS: So, again, the '178 and the '702</p> <p>20 patents are very descriptive and very illustrative with</p> <p>21 figures; long textual descriptions; very detailed</p> <p>22 mechanical drawings, and so on.</p> <p>23 And the Oura Rings, generations 3 and 4 that I</p> <p>24 analyzed, represent the claim language and many of the</p> <p>25 descriptions in the specification of the patents very</p>

<p style="text-align: right;">Page 214</p> <p>1 cleanly and very nicely. So I found that analysis very 2 easy to do.</p> <p>3 In contrast, Schroder is very brief. There's only 4 a small handful of figures. The text description is short. 5 And furthermore, those figures are not nearly as detailed 6 as what's in the '178 and '702 patents. They're all 7 two-dimensional images representing a three-dimensional 8 structure. And the corresponding texts that describe the 9 images is, in many cases, very, very unclear, with a lack 10 of detailed description of what's going on in some of those 11 figures.</p> <p>12 And, as a result, a POSITA, you know, has to infer 13 a lot of what's not said in Schroder in order to understand 14 what's actually going on in Schroder. And so I guess 15 that's the basis for, perhaps, the disagreement that I have 16 with Dr. Anthony on this matter.</p> <p>17 In addition, I do feel it's easy to exercise 18 hindsight when something is clear and well articulated as 19 the '178 and '702 patents are to use those teachings and 20 help inform opinions about prior art.</p> <p>21 BY ATTORNEY HABER:</p> <p>22 Q. So I want to just ask you a couple general 23 questions about the claims of the one oh -- of the '178 24 and '702 patent.</p> <p>25 So the claims of each one of these patents recite</p>	<p style="text-align: right;">Page 216</p> <p>1 pleasing design.</p> <p>2 If you don't have familiarity with design patents, 3 we don't need to have a course on the record. That's fine.</p> <p>4 Is there a certain level of comfort, user comfort, 5 required by the claims of the '178 or '702 patents?</p> <p>6 A. So the claims of the '178 and '702 patents don't 7 recite comfort in the language of the claims, but, again, 8 they need to be read in light of the specification in which 9 comfort and wearability and so on are important objectives 10 of the inventions.</p> <p>11 And, you know, the specification and, 12 subsequently, the claims, you know, offer solutions to 13 design a ring that ultimately does enable a comfortable 14 device to be worn.</p> <p>15 Q. You would agree that the elements recited in 16 claims, those are technical elements, right?</p> <p>17 A. Correct.</p> <p>18 Q. And so they don't have kind of subjective 19 requirements of visually appealing or specifically 20 comfortable to a particular user, correct?</p> <p>21 A. Again, the language in the claims don't -- when 22 read in light of the specification, you know, they do 23 provide a recipe for designing something that would be 24 comfortable.</p> <p>25 Q. Okay. And you would agree that if there was a</p>
<p style="text-align: right;">Page 215</p> <p>1 a ring generally, correct?</p> <p>2 A. Correct.</p> <p>3 Q. The claims don't recite an aesthetically pleasing 4 ring, correct?</p> <p>5 A. That's right. That language isn't in the claims, 6 but, again, the claims are read in light of the 7 specification, and the specification, you know, makes small 8 and comfortable use very important. And furthermore, 9 that's, you know, a big purpose of the patents is to 10 describe methods and techniques to build a ring that can 11 achieve those goals and that's captured in the claims.</p> <p>12 Q. Are you familiar with design patents?</p> <p>13 A. I'm not a lawyer. My understanding of the law is 14 informed by my discussions with counsel and stuff. I'm 15 familiar with the term "design patent," but I'd be -- it 16 would be difficult for me to define it.</p> <p>17 Q. Well, you'd agree that -- you'd agree that '178 18 and '702 patents, these are not design patents, correct?</p> <p>19 ATTORNEY PLUTA: Object to the form.</p> <p>20 THE WITNESS: Can you define "design patent" for 21 me?</p> <p>22 BY ATTORNEY HABER:</p> <p>23 Q. I could, but I don't think that we need to get 24 into a patent law class. Design patents are a class of 25 patents that are specifically directed to an aesthetically</p>	<p style="text-align: right;">Page 217</p> <p>1 prior art device that satisfied every single technical 2 limitation of the claims, but someone out there thought it 3 was unappealing to look at, it would still meet the claim 4 language, correct?</p> <p>5 ATTORNEY PLUTA: Object to form.</p> <p>6 THE WITNESS: I mean, I can't argue. If there was 7 a prior art that met all the claims, which there is not, 8 then it would meet the claims regardless of the visual look 9 of device.</p> <p>10 BY ATTORNEY HABER:</p> <p>11 Q. The '702 patent specifically recites a 12 communication module in claim 1, correct?</p> <p>13 A. That's correct.</p> <p>14 Q. And the '178 patent in its claim 1 does not recite 15 a communication module, right?</p> <p>16 A. I'm just going to read that claim just to verify. 17 The communication module is referred to 18 extensively in the specification of the '178 patent, but 19 the word "communication module," as far as I can tell, does 20 not appear in claim 1.</p> <p>21 Q. And the Oura Ring devices that you analyzed, the 22 gen 3 and gen 4 devices, they each have a communication 23 module, right?</p> <p>24 A. That's right.</p> <p>25 Q. We talked today about the '702 patent requires</p>

<p style="text-align: right;">Page 218</p> <p>1 transmissive materials as recited in the claims of the '702</p> <p>2 patent. Is there any requirement in the '178 patent to</p> <p>3 have transmissive materials such as windows or potting?</p> <p>4 A. So claim 1 of the '178 patent, the very last</p> <p>5 limitation cites -- and let me just read it (as read):</p> <p>6 One or more sensors electrically coupled with</p> <p>7 the printed circuit board and the battery and</p> <p>8 configured to acquire data from the user through</p> <p>9 the internal housing component.</p> <p>10 So this is referring to a sensor that captures</p> <p>11 data from the user through the internal housing component,</p> <p>12 which, in the specification and so on, is described as</p> <p>13 either being transparent or having transparent windows and</p> <p>14 there being various different types of light sources</p> <p>15 available to do sensing through that internal housing</p> <p>16 component.</p> <p>17 Q. And there are other non-light-based sensors</p> <p>18 described in the '178 patent --</p> <p>19 (Clarification by the certified stenographer.)</p> <p>20 BY ATTORNEY HABER:</p> <p>21 Q. -- near field communication, et cetera, right?</p> <p>22 A. Well, the '178 patent specification discusses</p> <p>23 things like an accelerometer. That wouldn't be something</p> <p>24 that captures data through the internal housing component.</p> <p>25 Q. Fair. But you would agree that RF-based sensors</p>	<p style="text-align: right;">Page 220</p> <p>1 THE WITNESS: I'm not an economist or a market</p> <p>2 researcher or an advertising specialist, so I wouldn't</p> <p>3 know.</p> <p>4 BY ATTORNEY HABER:</p> <p>5 Q. Just in your -- in your ordinary experience, would</p> <p>6 you expect an ordinary purchaser to know one way or the</p> <p>7 other whether the batteries inside the Oura Ring were</p> <p>8 curved?</p> <p>9 ATTORNEY PLUTA: Object to form.</p> <p>10 (Clarification by the certified stenographer.)</p> <p>11 ATTORNEY PLUTA: Relevance objection as well.</p> <p>12 THE WITNESS: I'm not sure. I can only speak for</p> <p>13 myself. Of course, I work in wearable sensors, I've</p> <p>14 considered ring designs, and so I'm very well aware that</p> <p>15 curved batteries exist in these products. I don't know</p> <p>16 what the average consumer would think.</p> <p>17 BY ATTORNEY HABER:</p> <p>18 Q. Well, you had to cut the ring in half to confirm</p> <p>19 that it had a curved battery in it, correct?</p> <p>20 A. I think it's a nice evidence to include in my</p> <p>21 report. Of course, this was not a surprise to me, given</p> <p>22 everything I know about the Oura Ring, including Oura's own</p> <p>23 marketing material that describes curved batteries.</p> <p>24 Q. Do you expect an ordinary consumer to cut their</p> <p>25 ring in half?</p>
<p style="text-align: right;">Page 219</p> <p>1 can capture data through the component that are not</p> <p>2 light-based, right?</p> <p>3 A. Is there something specific you're referring to in</p> <p>4 the '178 patent?</p> <p>5 Q. So let's look at column 12.</p> <p>6 A. Okay.</p> <p>7 Q. Line 32. There's a Galvanic Skin Response sensor,</p> <p>8 electrocardiogram -- EKG, ECG -- sensor recited there.</p> <p>9 Those are not light-based sensors, right?</p> <p>10 A. That's correct. They're not light-based sensors.</p> <p>11 Q. And so when the '178 is describing connecting</p> <p>12 information through the interior housing, it's not</p> <p>13 requiring light transmissive windows or potting, correct?</p> <p>14 (Clarification by the certified stenographer.)</p> <p>15 THE WITNESS: I'd have to think about that more</p> <p>16 actually.</p> <p>17 BY ATTORNEY HABER:</p> <p>18 Q. Well, you would agree that the '178 patent doesn't</p> <p>19 use same words as the '702 patent which specifically</p> <p>20 require transmissive material for light, correct?</p> <p>21 A. In claim 1, yes.</p> <p>22 Q. In your opinion, do purchasers of the Oura Ring</p> <p>23 devices have any idea whether or not the batteries inside</p> <p>24 them are curved?</p> <p>25 ATTORNEY PLUTA: Object to form.</p>	<p style="text-align: right;">Page 221</p> <p>1 A. No. Although, I have seen a video of someone in</p> <p>2 the ER getting their ring cut because they had some problem</p> <p>3 and the ring needed to be taken off.</p> <p>4 Q. That was hopefully an emergency situation; not an</p> <p>5 everyday occurrence?</p> <p>6 A. Yes.</p> <p>7 Q. Let's assume that the Oura Ring device didn't have</p> <p>8 a curved battery and had a sequence of flat batteries in</p> <p>9 it. And let's also assume that there was a very curious</p> <p>10 consumer out there decided to cut the ring in half and</p> <p>11 determine that, in fact, the Oura Ring did not have a</p> <p>12 curved battery. It had a sequence of flat batteries. Do</p> <p>13 you think that that consumer would be upset, disappointed</p> <p>14 in the fact that the ring that he purchased did not have a</p> <p>15 curved battery in it?</p> <p>16 ATTORNEY PLUTA: Object to form.</p> <p>17 THE WITNESS: I -- again, I would really -- I</p> <p>18 don't want to speculate on what the average consumer would</p> <p>19 think. For myself, I would be very surprised knowing what</p> <p>20 I know as a POSITA about battery energy densities and</p> <p>21 capacities and the power requirements of Bluetooth and</p> <p>22 sensors and so on, I would personally be very surprised if</p> <p>23 that were the case.</p> <p>24 BY ATTORNEY HABER:</p> <p>25 Q. You'd be surprised, but assuming that the ring</p>

<p style="text-align: right;">Page 222</p> <p>1 functioned the way that it was supposed to function and did 2 everything it was supposed to do and the flat batteries 3 provided all the power they needed to provide, you might be 4 surprised. Would you be disappointed, be upset -- 5 ATTORNEY PLUTA: I'm sorry. Object to form. 6 THE WITNESS: I don't know. This is a 7 hypothetical situation that I haven't encountered. And I 8 guess I'd like to point out that all of the prior art of 9 smart rings that I'm aware of that are of similar form 10 factors to Oura also use curved batteries, including some 11 of the ones shown in the teardown report here. 12 So, again, I'd be surprised. Would I be 13 disappointed? I don't know. Maybe. I think a curved 14 battery is cool. Beyond that, I don't know. 15 BY ATTORNEY HABER: 16 Q. Okay. Do any of the claims of the '178 or '702 17 patent require an external app to be installed on a user's 18 phone to practice the claims? 19 A. So the '702 patent does discuss a communication 20 module, and let me just recite that here. It says 21 (as read): 22 A communication module communicatively coupled 23 with one or more processors, the communication 24 module configured to transmit the data processed 25 by the one or more processors.</p>	<p style="text-align: right;">Page 224</p> <p>1 But, of course, there are other ways to do that as well. 2 Q. So none of those app design features in other 3 components that are in the specification are actually 4 claimed in the '702 and '178 patent, right? 5 A. Again, you know, there is discussion of the 6 communication module that data must go somewhere, and you 7 know, that's processed, for example, by the app. So the 8 app really kind of goes hand in hand with the ring. 9 As far as discussions of details of the app design 10 and so on in the claims, beyond there being a communication 11 module that communicates somewhere, there's no other 12 description in the claims, but, again, the specification 13 does have a lot of detail about this. 14 Q. And so you're aware that both the '702 and '178 15 patent are a continuation. There are a number of other 16 patents -- there are other patents that are directed to 17 apps and other software features in the Oura family, 18 correct? 19 (Clarification by the certified stenographer.) 20 ATTORNEY HABER: In the Oura patent family, 21 correct? 22 ATTORNEY PLUTA: Object to form. Relevance. 23 THE WITNESS: I was, for the purposes of this 24 case, only asked to analyze the '702 and the '178 patents, 25 and I haven't analyzed any of the other patents beyond this</p>
<p style="text-align: right;">Page 223</p> <p>1 So given that the ring doesn't have a display, the 2 user needs some way to access or view the data generated by 3 the ring. And so the communication module here is 4 transmitting that data. That data needs to be received by 5 something. Could be the Bluetooth radio on a smartphone. 6 Could be the Bluetooth radio on a computer or other types 7 of wireless communication infrastructure on which the user 8 could, you know, receive and view or further process the 9 data. 10 And so the ring is, you know, the key ingredient 11 here. It's the device that's generating the data, but then 12 the app on the phone or the program on the computer or 13 whatever interface it happens to be, goes hand in hand with 14 that in order to have the user gain utility over the smart 15 features of the device. 16 Q. And you say that, you know, it could be an app. I 17 mean, it could be anything that receives that response from 18 the communication module, right? 19 A. Yeah. I mean, there must be something to receive 20 the data and, at minimum, you know, show it to the user. 21 So, you know, the specification of the patent spends a 22 great deal of time talking about, you know, app design and 23 various ways to display data to the user and so on. So 24 that's, you know, a very logical way to do that. 25 So I think a POSITA would be motivated to do that.</p>	<p style="text-align: right;">Page 225</p> <p>1 for this case. 2 ATTORNEY HABER: And maybe we can take a quick 3 break. I think I'm kind of nearing the end of my 4 questions. Let me just look over my notes for five 5 minutes, and we can come back on the record. 6 ATTORNEY PLUTA: Please do. 7 THE VIDEOGRAPHER: Off the record. The time on 8 the monitor is 10:28 a.m. 9 (Recess taken.) 10 THE VIDEOGRAPHER: We're now back on the video 11 record. Time on the monitor is 10:36 a.m. 12 ATTORNEY HABER: All right. With that, I have no 13 further questions at this time. So thank you for your time 14 today, Dr. Mercier. 15 ATTORNEY PLUTA: I only have several questions. 16 FURTHER EXAMINATION 17 BY ATTORNEY PLUTA: 18 Q. I'd like to go back to 15 minutes ago. You were 19 asked the following question and gave the following answer: 20 Assuming the ring functioned the way it was 21 supposed to function, did everything it was supposed to do, 22 and the flat batteries provided all the power they needed 23 to, you might be surprised. Would you be disappointed? 24 And your answer was: I don't know. This is a 25 hypothetical situation that I haven't encountered, and I</p>

<p style="text-align: right;">Page 226</p> <p>1 guess I'd like to point out that all of the prior art of</p> <p>2 smart rings that I'm aware of that are of similar form</p> <p>3 factor to Oura also used curved batteries including some of</p> <p>4 the ones shown in the teardown report here.</p> <p>5 Do you recall that testimony?</p> <p>6 A. I do.</p> <p>7 Q. And is that the answer?</p> <p>8 A. I'm sorry. In reviewing my comments, I believe I</p> <p>9 meant to say -- or I meant to say all of the current art</p> <p>10 that has the same form factor as Oura rather than the prior</p> <p>11 art of which there's none that has the same form factor as</p> <p>12 Oura.</p> <p>13 Q. Do you recall counsel asked you yesterday certain</p> <p>14 questions about the Oura gen 1 ring?</p> <p>15 A. I do.</p> <p>16 Q. And I believe you testified you spoke with an Oura</p> <p>17 engineer regarding the Oura gen 1 ring?</p> <p>18 A. I did.</p> <p>19 Q. And do you recall your testimony regarding certain</p> <p>20 pictures that you saw in connection with the Oura gen 1</p> <p>21 ring?</p> <p>22 A. Yes.</p> <p>23 ATTORNEY PLUTA: I'd like to introduce</p> <p>24 Exhibit 2121 into the record, which I'm dropping into the</p> <p>25 chat box.</p>	<p style="text-align: right;">Page 228</p> <p>1 ATTORNEY HABER: All right. Give me a moment to</p> <p>2 just quickly look through it.</p> <p>3 Just for the record, I'm going to object to this</p> <p>4 exhibit as untimely. To the extent it is necessary to</p> <p>5 Dr. Mercier's opinions, they should have been submitted</p> <p>6 when his opinions were submitted. I'll object on relevancy</p> <p>7 grounds, completeness grounds. I'm not sure how this</p> <p>8 disassembly is done. I'm not sure what we're looking at.</p> <p>9 To the extent that this is information provided by</p> <p>10 another witness, I don't know who that witness is. I don't</p> <p>11 know his background. He hasn't been subject to deposition</p> <p>12 in this case. This is an improper exhibit on a number of</p> <p>13 bases, and I'm going to -- those are the bases that I can</p> <p>14 think of right now, having looked at this document for all</p> <p>15 of 30 seconds, but I'm going to reserve my right to</p> <p>16 additional objections as well.</p> <p>17 (Clarification by the certified stenographer.)</p> <p>18 BY ATTORNEY PLUTA:</p> <p>19 Q. Do you have Exhibit 2121 open in front of you?</p> <p>20 A. I do.</p> <p>21 Q. And do you recall counsel asked you yesterday</p> <p>22 certain questions about the Oura gen 1 ring?</p> <p>23 (Clarification by the certified stenographer.)</p> <p>24 THE WITNESS: I do.</p> <p>25 BY ATTORNEY PLUTA:</p>
<p style="text-align: right;">Page 227</p> <p>1 (Exhibit 2121 was presented and subsequently</p> <p>2 marked for identification.)</p> <p>3 ATTORNEY HABER: Just to be clear, this is a new</p> <p>4 exhibit that hasn't been previously introduced?</p> <p>5 ATTORNEY PLUTA: Correct.</p> <p>6 ATTORNEY HABER: I'm not sure the chat is working</p> <p>7 for me, so maybe you could email it to me.</p> <p>8 ATTORNEY PLUTA: Yeah. I'll email it to you.</p> <p>9 ATTORNEY HABER: I'd like to just get a chance to</p> <p>10 look at it before you start asking questions. I may have</p> <p>11 objections.</p> <p>12 ATTORNEY PLUTA: Sure.</p> <p>13 Were you able to download the exhibit,</p> <p>14 Dr. Mercier?</p> <p>15 THE WITNESS: Yes, I have it here, thank you.</p> <p>16 ATTORNEY HABER: You can get it through the chat.</p> <p>17 One of my colleagues sent it to me. Hold on. Let me see</p> <p>18 if I can --</p> <p>19 ATTORNEY PLUTA: Okay. Counsel just sent it to</p> <p>20 you, Ben.</p> <p>21 ATTORNEY HABER: Downloading right now.</p> <p>22 Okay. I think I've received a file here. It</p> <p>23 looks to be eight images. Is this the file that you're</p> <p>24 intending to use?</p> <p>25 ATTORNEY PLUTA: That's right.</p>	<p style="text-align: right;">Page 229</p> <p>1 Q. And you testified you spoke with an Oura engineer</p> <p>2 regarding the Oura gen 1 ring; is that right?</p> <p>3 A. Yes.</p> <p>4 Q. Have you seen Exhibit 2121 today -- before today?</p> <p>5 A. Yes.</p> <p>6 Q. Can you describe what you see in Exhibit 2121?</p> <p>7 A. My understanding is that these are historical</p> <p>8 pictures of the Oura generation 1 ring design in various</p> <p>9 states of disassembly.</p> <p>10 Q. And what -- what do some of the pictures show?</p> <p>11 A. So I can see the battery, the flat battery</p> <p>12 connected to the printed circuit board. I can see a few</p> <p>13 chip modules mounted on the printed circuit board. Part of</p> <p>14 the printed circuit board is flexible. That's a brief</p> <p>15 summary of what I'm seeing here.</p> <p>16 Q. And is the ring depicted in Exhibit 2121 similar</p> <p>17 to any figures you described in your declarations --</p> <p>18 ATTORNEY HABER: Objection. Objection. Leading.</p> <p>19 Scope. Relevance.</p> <p>20 THE WITNESS: Yes. This is a real-life depiction</p> <p>21 of the Oura generation 1 design that is depicted in</p> <p>22 paragraph 71 of the '702 patent, and the same figure is</p> <p>23 used in the '178 patent.</p> <p>24 And I suppose I should say my opinion, as written</p> <p>25 in my declaration, did not change. None of my opinions</p>

<p style="text-align: right;">Page 230</p> <p>1 changed after the conference call with the Oura engineer 2 nor with viewing of these photographs. 3 ATTORNEY PLUTA: All right. Thank you. 4 I've dropped into the chat box what I've marked as 5 Exhibit 2122. 6 (Exhibit 2122 was presented and subsequently 7 marked for identification.) 8 ATTORNEY PLUTA: I've also emailed counsel. 9 ATTORNEY HABER: Make sure I have this. Yeah, 10 this is a new exhibit I haven't viewed before, so let me 11 just look at it before we proceed. 12 I have the document. And, again, for the record, 13 I will object to this document being submitted now at this 14 late stage as untimely. It's important to the doctor's 15 opinions. It should have been submitted with his 16 declaration. 17 I object as to this document on relevancy grounds 18 under 402, 403. Document appears to be hearsay. It's 19 being offered for the truth of the matter asserted. 20 There's no evidence that this document has ever been 21 published or publicly available. 22 I object to this document to the extent it's being 23 offered as evidence of prior art or state of the art or any 24 other substantive purpose in this case. It's improper to 25 submit evidence after the patent owner response goes in.</p>	<p style="text-align: right;">Page 232</p> <p>1 Joseph Wang, and he's my closest collaborator. 2 BY ATTORNEY PLUTA: 3 Q. Have you seen Exhibit 2122 before? 4 A. Yes. 5 Q. What is Exhibit 2122? 6 A. This is a peer-reviewed paper authored by Joseph 7 Wang and colleagues. Some of these are students that I 8 helped supervise on other projects. And this paper 9 appearing in the journal ACS Sensors in 2017 describes a 10 wearable ring-based platform for detecting chemical 11 threats. 12 Q. When was this paper published? 13 A. 2017, October 11th, 2017. 14 Q. I'd like to direct your attention to the second 15 paragraph. If you could read that. 16 A. Okay. Wearable chemical sensors, that paragraph? 17 Q. Yes. 18 A. Yeah. (As read): 19 Wearable chemical sensors have relied 20 primarily on the noninvasive monitoring of sweat, 21 saliva, or tears in connection to epidermal -- 22 tattoo or textile -- devices, mouth guards, and 23 contact lenses, respectively. Particular 24 attention has been given to wearable sensors worn 25 as a patch, wristband, or headband. Incorporating</p>
<p style="text-align: right;">Page 231</p> <p>1 There is no additional evidence to the submitted by the 2 patent owner without authorization of the board unless such 3 authorization has been granted. 4 Again, I reserve the right to lodge additional 5 objections. 6 ATTORNEY PLUTA: Probably needless to say, but we 7 disagree to your objections to Exhibits 2121 and 2122, but 8 I'll proceed. 9 BY ATTORNEY PLUTA: 10 Q. Do you have the Exhibit 2122 open? 11 A. I do. 12 Q. Do you recall testimony yesterday counsel asked 13 you regarding certain activities in the Center of Wearable 14 Sensors? 15 A. I do. 16 Q. And you, I believe, testified about a collaborator 17 that you worked closely with? 18 ATTORNEY HABER: Objection. Leading. 19 Mischaracterizing. 20 BY ATTORNEY PLUTA: 21 Q. Do you recall testimony regarding certain 22 personnel in the Center for Wearable Sensors? 23 (Clarification by the certified stenographer.) 24 THE WITNESS: I believe I mentioned Joseph Wang, 25 who is -- I codirect the Center for Wearable Sensors with</p>	<p style="text-align: right;">Page 233</p> <p>1 the electronic interface, energy source, and 2 wireless data transmission capabilities onto these 3 compact and light noninvasive platforms requires a 4 high degree of integration and, miniaturization -- 5 citing to two references. 6 Major integration challenges arise due to the 7 different fabrication processes of the different 8 system components. The creation of chemical 9 sensors that can be easily and completely 10 integrated into an individual's lifestyle, for 11 example, on daily fashion accessories, will 12 facilitate a widespread acceptance of wearable 13 sensor technology -- citing to two references. 14 Q. What kind of wearable sensor is Dr. Wang 15 describing that's in there? 16 ATTORNEY HABER: Objection. Leading. 17 THE WITNESS: A ring. 18 BY ATTORNEY PLUTA: 19 Q. Were there components associated with the ring 20 Dr. Wang is describing? 21 A. Yes. If you refer to figure 1, it shows the ring 22 portion that gets circular and the finger is inserted 23 through, and on top of that ring portion is a housing 24 component that features a circular flat battery, some 25 electronic components, and a sensor mounted on top.</p>

<p style="text-align: right;">Page 234</p> <p>1 Q. Where are the electronic components situated in 2 Dr. Wang's ring? 3 ATTORNEY HABER: Objection. Leading. 4 (Clarification by the certified stenographer.) 5 BY ATTORNEY PLUTA: 6 Q. Sure. 7 Where are the electronic components situated in 8 Dr. Wang's ring of 2017? 9 ATTORNEY HABER: Objection. Leading. 10 THE WITNESS: They're located in the housing -- a 11 rather large housing, I should say, that's located on the 12 top of the ring, like a large crown. 13 BY ATTORNEY PLUTA: 14 Q. Was there a battery included in Dr. Wang's ring? 15 A. Yes. As I mentioned, there's a large flat battery 16 that's mounted on top of the electronics and located in 17 that large housing component on the top of the ring. 18 ATTORNEY PLUTA: I have no further questions. 19 ATTORNEY HABER: All right. So a couple things. 20 One, obviously, we maintain our objections to these new 21 exhibits, and we reserve the right to move to exclude or 22 strike them, including Dr. Mercier's testimony that he just 23 provided on them. I've not had a chance to review these 24 documents, but I do have a few follow-up questions. 25 /////</p>	<p style="text-align: right;">Page 236</p> <p>1 Q. And ring-type pulse oximeters are the sorts of 2 sensors that are envisioned by the '178, '702 patents, 3 correct? 4 A. Correct. 5 Q. And this sensor for detecting chemical and 6 biological threats is substantially larger than a pulse 7 oximeter sensor, correct? 8 A. I mean, I would say this is of roughly similar 9 size to some of the earlier work that I saw from Professor 10 Harry Asada's group, for example. 11 Q. That earlier work was done in 2003 by Professor 12 Asada, correct? 13 A. That's right. 14 Q. And you would agree that between 2003 and 2017 15 when this paper was published, the components that 16 Professor Asada was working with got substantially smaller 17 than they were in 2003, right? 18 A. I'm not certain if the exact components did. In 19 general, electronic miniaturization happened between 2003 20 and 2017. Yes. 21 Q. So the components that Dr. Asada working with in 22 2017 -- in 2003, in your opinion, would be smaller than 23 these large chemical and biological threat-detecting 24 components that are described in this 2017 paper, correct? 25 A. My understanding of this work is that the largest</p>
<p style="text-align: right;">Page 235</p> <p>1 FURTHER EXAMINATION 2 BY ATTORNEY HABER: 3 Q. First, regarding this document that is on screen, 4 Exhibit 2122, you describe this as a chemical sensor? 5 A. That's correct. 6 Q. Does the '178 or '702 patent relate to this sort 7 of chemical sensor? 8 A. The specification of both the '178 and the '702 9 patents do describe glucose sensing, which is a form of 10 chemical sensing. 11 Q. The document that's on the screen is relating to 12 developing wearable sensing platforms for detecting 13 chemical and biological threats. Do you see that? 14 A. Yes. 15 Q. Are the '178 patent and '702 patent directed to 16 detecting chemical and biological threats? 17 A. No. 18 Q. And in the first page of this document, in the 19 second column in the middle of the paragraph, there's a 20 sentence that says (as read): 21 To the best of our knowledge, only ring-type 22 pulse oximeters have been reported as wearable 23 sensing devices. 24 Do you see that? 25 A. Yes.</p>	<p style="text-align: right;">Page 237</p> <p>1 component on the system is the Bluetooth transmitter. The 2 other components, the sensing component is smaller than the 3 Bluetooth module. So I think it's a little difficult to 4 kind of say a direct apples to apples comparison. 5 Q. Have there ever been commercialized wearable 6 devices that are used for chemical and biological 7 threat-monitoring to your knowledge? 8 A. I'm generally aware of activities in this space, 9 but I'm not certain if there's been successful 10 commercialization efforts. 11 Q. You would agree that the problems envisioned by 12 the '178 and '702 patent, while there are a number of them, 13 was not chemical and biological warfare, right? 14 A. Correct. 15 Q. I want to go back to Exhibit 2121. 16 These images were provided to you in your 17 discussion with an Oura engineer; is that right? 18 A. That's correct. 19 Q. Is there a physical -- strike that. 20 The physical component that's depicted in these 21 images, did you actually see it, physically? 22 A. I was given a prototype or -- strike that. Not 23 prototype. 24 I was given an Oura generation 1 that had the 25 electronics inside available for inspection. I don't</p>

<p style="text-align: right;">Page 238</p> <p>1 believe it was this exact device. The casing was white, if 2 I recall correctly, not black. But, otherwise, it appeared 3 to be the same.</p> <p>4 Q. This device in these images is disassembled. Did 5 you disassemble the device?</p> <p>6 A. The device I was given looked kind of like -- it 7 was in a similar state of disassembly. The circuit boards 8 were external. But they could be placed back inside.</p> <p>9 Q. Okay. So the device that you physically 10 manipulated yourself, when you received it, it was at least 11 in a partial state of disassembly, correct?</p> <p>12 A. Correct.</p> <p>13 Q. And what's depicted in these images is similarly 14 in a state of partial disassembly, right?</p> <p>15 A. Correct.</p> <p>16 Q. Were you provided a fully assembled gen 1 ring at 17 any time?</p> <p>18 A. No. I don't believe so.</p> <p>19 Q. And do you know with certainty that the at least 20 partially disassembled ring that you were provided that's 21 depicted in this image actually includes all of the 22 components of a finally assembled product?</p> <p>23 A. The device wasn't functional. I wasn't able to 24 test its functionality, so from that perspective, I'm not 25 certain. I wasn't given any reason to believe otherwise,</p>	<p style="text-align: right;">Page 240</p> <p>1 A. I mean, on the fly I can identify the green 2 regions certainly look like printed circuit boards. The 3 orange and brown regions, I'm not certain. I'd have to 4 take a closer inspection. Same with the region under the 5 battery.</p> <p>6 ATTORNEY HABER: All right. Again, reserving my 7 rights to exclude this additional belated evidence and 8 testimony, I have nothing further.</p> <p>9 ATTORNEY PLUTA: No further questions.</p> <p>10 CERTIFIED STENOGRAPHER: Robert, I'll get your 11 transcript order on the record, please.</p> <p>12 ATTORNEY PLUTA: We don't need a copy of the 13 transcript. Just a rough.</p> <p>14 CERTIFIED STENOGRAPHER: We'll discuss this off 15 record.</p> <p>16 Okay to go off record?</p> <p>17 ATTORNEY HABER: Yes.</p> <p>18 ATTORNEY PLUTA: Yes.</p> <p>19 THE VIDEOGRAPHER: Going off the video record. 20 This concludes today's video deposition. Time on the 21 monitor is 11:05 a.m. 22 (Proceedings adjourned at 11:05 a.m. PDT.) 23 ---000--- 24 25</p>
<p style="text-align: right;">Page 239</p> <p>1 that it wasn't a complete design, though.</p> <p>2 Q. So the only devices that you were given, including 3 what's depicted here were non-functioning, at least 4 partially disassembled gen 1 devices, correct?</p> <p>5 A. Correct.</p> <p>6 Q. The battery that's depicted in these images, that 7 is a -- you would characterize it as a flat battery, 8 correct?</p> <p>9 A. That's right.</p> <p>10 Q. Did you do any analysis of the battery that's 11 depicted in Exhibit 2121 on the device that you were 12 provided with?</p> <p>13 A. I didn't.</p> <p>14 Q. So based only on your visual inspection of the 15 battery, you reached the opinion that a flat battery of the 16 gen 1 device takes the gen 1 device outside of the scope of 17 the claims; is that correct?</p> <p>18 A. I didn't perform that -- that full analysis.</p> <p>19 Q. The -- in your opinion, which parts of what's 20 shown on page 3 of Exhibit 2121 comprise the printed 21 circuit board?</p> <p>22 A. Again, I didn't do a detailed analysis.</p> <p>23 Q. So looking at this image, you can't immediately 24 identify the printed circuit board as compared to other 25 components?</p>	<p style="text-align: right;">Page 241</p> <p>1 ---000---</p> <p>2</p> <p>3 I, PATRICK P. MERCIER, Ph.D., do hereby declare 4 under penalty of perjury that I have read the foregoing 5 deposition; that I have made any corrections as appear 6 noted, in ink, initialed by me, or attached hereto; that my 7 testimony as contained herein, as corrected, is true and 8 correct.</p> <p>9 EXECUTED on this ____ day of _____, 10 2025, at _____, _____.</p> <p>11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p> <p style="text-align: right;">PATRICK P. MERCIER, Ph.D.</p>

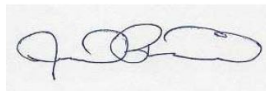
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REPORTER'S CERTIFICATE

I, JULIE RUMSEY, CSR 14144 do hereby certify that the foregoing deposition of PATRICK P. MERCIER, Ph.D., VOL.2, was taken on JUNE 25, 2025 via zoom videoconference before me at 8:18 A.M. for the purpose in the caption stated; that the Witness was first duly sworn to tell the truth, the whole truth, and nothing but the truth; that the deposition was taken before me stenographically and afterwards transcribed under my direction; that the foregoing is a full, true, and correct transcript of the said deposition so given; that counsel for all parties were present at the time of the deposition; that there was a request that the witness read and sign the transcript.

I further certify that i am neither of counsel nor of kin to any of the parties to this action, and am in no way interested in the outcome of said action.

Witness My Signature on June 27, 2025.



JULIE RUMSEY, CSR No. 14144

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Errata Sheet

NAME OF CASE: SAMSUNG ELECTRONICS CO., et al. vs OURARING, INC.

DATE OF DEPOSITION: 06/25/2025

NAME OF WITNESS: PATRICK P. MERCIER, Ph.D., VOLUME II

Reason Codes:

1. To clarify the record.
2. To conform to the facts.
3. To correct transcription errors.

Page ____ Line ____ Reason ____

From ____ to ____

Page ____ Line ____ Reason ____

From ____ to ____

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