

Deposition of
Brian W. Anthony
April 17, 2026
Volume I

Samsung Electronics Co.
VS.
Omni Medsci, Inc.



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Omni MedSci Ex. 2045

Samsung Electronics Co. Ltd., et al., v. Omni MedSci - IPR2025-01250

1 UNITED STATES PATENT AND TRADEMARK OFFICE 2 3 BEFORE THE PATENT TRIAL AND APPEAL BOARD 4 5 SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC., FOSSIL GROUP, INC., FOSSIL STORES I, INC., 6 FOSSIL PARTNERS, L.P., OURA HEALTH OY, AND ONEPLUS TECHNOLOGY (SHENZHEN) CO., LTD., 7 Petitioners, 8 v. 9 OMNI MEDSCI 10 Patent Owner. 11 Inter Partes Review No. IPR2025-01250 Inter Partes Review No. IPR2025-01251 12 Inter Partes Review No. IPR2025-01252 Inter Partes Review No. IPR2025-01253 13 Inter Partes Review No. IPR2025-01254 14 15 16 DEPOSITION OF BRIAN W. ANTHONY 17 VOLUME I 18 HELD VIA VIDEOCONFERENCE 19 FRIDAY, APRIL 17, 2026 20 6:04 A.M. - 2:29 P.M. 21 22 23 24 STENOGRAPHICALLY REPORTED BY: CHERYL ASADA CA CSR NO. 13496 25 JOB NO. 10188949	Page 1 1 A P P E A R A N C E S (all parties appearing remotely) - 2 (CONTINUED): 3 4 FOR THE PATENT OWNER: 5 NIXON PEABODY LLP By: ANGELO J. CHRISTOPHER, Esq. (Appearing via videoconference) 6 300 South Grand Avenue, Suite 4100 Los Angeles, California 90071 7 (213) 629-6190 achristopher@nixonpeabody.com 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 Page 3												
1 DEPOSITION OF BRIAN W. ANTHONY, VOLUME I, 2 HELD VIA VIDEOCONFERENCE, TAKEN ON BEHALF OF 3 THE PATENT OWNER, COMMENCING AT 6:04 A.M. AND 4 CONCLUDING AT 2:29 P.M., FRIDAY, 5 APRIL 17, 2026, BEFORE CHERYL ASADA, 6 CALIFORNIA CERTIFIED SHORTHAND REPORTER 7 NO. 13496. 8 * * * 9 10 11 A P P E A R A N C E S (ALL PARTIES APPEARING REMOTELY): 12 13 FOR THE PETITIONER SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.: 14 15 SHEPPARD MULLIN RICHTER & HAMPTON LLP By: HYUN-JOONG KIM, Esq. 1540 El Camino Real, Suite 120 16 Menlo Park, California 94025 (650) 815-2600 hykim@sheppardmullin.com 17 18 19 FOR THE PETITIONER OURA HEALTH OY: 20 MAYER BROWN LLP By: JAMES A. (TRIPP) FUSSELL III, Esq. 21 JASJIT S. VIDWAN, Esq. 1999 K Street NW 22 Washington, DC 20006 (202) 263-3065 jfussell@mayerbrown.com 23 jvidwan@mayerbrown.com 24 25 Page 2	1 I N D E X 2 3 W I T N E S S : 4 BRIAN W. ANTHONY PAGE 5 EXAMINATION BY MR. CHRISTOPHER 6 6 -AFTERNOON SESSION- 7 EXAMINATION (resumed) BY MR. CHRISTOPHER 136 8 9 INFORMATION REQUESTED: 10 (NONE) 11 12 QUESTIONS INSTRUCTED NOT TO ANSWER: 13 (NONE) 14 15 16 PREVIOUSLY MARKED EXHIBITS: <table><thead><tr><th>NUMBER</th><th>PAGE</th></tr></thead><tbody><tr><td>Exhibit 1001 in IPR2025-01250</td><td>19</td></tr><tr><td>Exhibit 1001 in IPR2025-01251</td><td>12</td></tr><tr><td>Exhibit 1001 in IPR2025-01252</td><td>21</td></tr><tr><td>Exhibit 1001 in IPR2025-01253</td><td>22</td></tr><tr><td>Exhibit 1001 in IPR2025-01254</td><td>24</td></tr></tbody></table> 25 Page 4	NUMBER	PAGE	Exhibit 1001 in IPR2025-01250	19	Exhibit 1001 in IPR2025-01251	12	Exhibit 1001 in IPR2025-01252	21	Exhibit 1001 in IPR2025-01253	22	Exhibit 1001 in IPR2025-01254	24
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1	HELD VIA VIDEOCONFERENCE	
2	FRIDAY, APRIL 17, 2026	
3	6:04 A.M. - 2:29 P.M.	
4	***	
5	THE COURT REPORTER: In accordance with	
6	AB 3252, we are on the record. My name is Cheryl Asada,	
7	CSR No. 13496. I will now swear in the witness.	
8		
9	BRIAN W. ANTHONY,	
10	HAVING BEEN DULY ADMINISTERED AN OATH,	
11	WAS THEREUPON EXAMINED AND TESTIFIED AS FOLLOWS:	
12	THE WITNESS: Yes.	
13	THE COURT REPORTER: Thank you.	
14		
15	EXAMINATION	
16	BY MR. CHRISTOPHER:	
17	Q. Good morning. Can you please state your name	
18	for the record?	
19	A. Brian W. Anthony.	
20	Q. And, Dr. Anthony, is there any reason why you	
21	cannot give complete, truthful, and accurate testimony	
22	today?	
23	A. No.	
24	Q. Okay. And I understand you have been deposed	
25	before. Is that correct?	

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1	A. Correct.	
2	Q. Approximately how many times have you been	
3	deposed?	
4	A. Approximately 15 times.	
5	Q. Okay. Well, when was the last time you were	
6	deposed?	
7	A. Probably about six -- five, six months ago.	
8	Q. Okay. So I suspect you're familiar with the	
9	process, but just as a reminder, we have a court reporter	
10	here today writing down everything we say, so please	
11	remember: Verbalize your answers, please try to pause	
12	after my question so we're not talking over each other.	
13	It helps the court reporter out. All make sense?	
14	A. Yes.	
15	Q. Okay. And then from time to time, you know,	
16	your counsel may object to some questions. You should	
17	still answer unless he instructs you not to answer the	
18	question. Make sense?	
19	A. Yes.	
20	Q. Okay. And if you need me to clarify a	
21	question, you know, please let me know. I'll do my best	
22	to clarify; otherwise, I'm going to assume you understand	
23	the question and you can answer it. Is that fair?	
24	A. Yes.	
25	Q. And then, lastly, in our ground rules, I'm sure	

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1	you know this. If you need a break, just let me know,	
2	you're not a prisoner. My only caveat to that is if a	
3	question is pending, I'd ask that you answer the question	
4	and then we can take a break. Sound fair?	
5	A. Yes.	
6	Q. Okay. And I know we just mentioned this off	
7	the record, but while we're on the record, where are you	
8	physically located for today's deposition?	
9	A. Cambridge, Massachusetts.	
10	Q. Are you at home or at the office?	
11	A. I'm in my -- I'm in my office at MIT.	
12	Q. Okay. Anyone else in the room with you today?	
13	A. No.	
14	Q. Do you have any programs open on your computer	
15	other than the Zoom application you're using to connect	
16	to the deposition?	
17	A. No.	
18	Q. Okay. Dr. Anthony, do you understand that	
19	you're here today to testify regarding five declarations	
20	you authored that were submitted in five proceedings	
21	before the Patent Trial and Appeal Board -- or PTAB?	
22	A. Yes.	
23	Q. Okay. Did you do anything to prepare for	
24	today's deposition?	
25	A. Yes.	

Page 9 1 Q. Can you please describe everything you did to 2 prepare for today's deposition? 3 A. I had meetings with counsel, reviewed my 4 declarations, the primary references that I cite. 5 Q. Okay. You mentioned you had meetings with 6 counsel. I'm not interested in anything you talked about 7 with counsel, but can you tell me which counsel you met 8 with? 9 A. Mr. Kim and his colleagues. 10 Q. All right. Do you recall the names of 11 Mr. Kim's colleagues? 12 A. I forget Patrick's last name. 13 Q. Fair. Fair enough. You mentioned you reviewed 14 your declarations and the primary references you cited. 15 Did you review any other documents in 16 preparation for today's deposition? 17 MR. KIM: Objection. Privilege. Instruct the 18 witness to not disclose any attorney-client privileged 19 communication. 20 You may answer "yes" or "no." 21 THE WITNESS: Mr. Christopher, can you repeat 22 the question? 23 BY MR. CHRISTOPHER: 24 Q. Sure. You mentioned that you had reviewed your 25 prior declaration -- you -- strike that?	Page 11 1 printed out my declarations and some of the other. 2 Sometimes I find it easier with my eyes to look at the 3 paper version after -- or sometimes the digital. 4 Q. Sure. So I'll -- I'll put them in the Zoom 5 chat. If you want to look at your own electronic copies, 6 I'm find with that based on your -- your representation 7 that they're clean copies. 8 So let's start. I'm going to show you in our 9 Zoom chat what's been previously marked as Exhibit 1001 10 in IPR2025-01250 [sic]. 11 MR. CHRISTOPHER: Let me know when you have 12 that open. 13 THE WITNESS: Okay. Yes. 14 BY MR. CHRISTOPHER: 15 Q. Okay. And do you recognize this as U.S. 16 Patent No. 10,874,304? 17 A. Yes. I refer to it -- I know it as '304, but 18 yes. 19 Q. Perfect, because that was my next question. 20 Understandable to you if we refer to that as 21 the '304 patent? 22 A. Perfectly acceptable. 23 Q. Great. And you've reviewed the 3 -- strike 24 that. I had the numbers backwards. 25 Have you reviewed the '533 patent?
Page 10 1 Let's start over. 2 You mentioned that you had reviewed your 3 declarations and the primary references in preparation 4 for today's deposition. 5 Do you remember that? 6 A. Yes. 7 Q. And my -- my question was did you review any 8 other documents in preparation for today's deposition? 9 MR. KIM: Same objection. 10 THE WITNESS: Yes. 11 BY MR. CHRISTOPHER: 12 Q. Which documents did you review? 13 A. I reviewed my -- my declarations, the 14 references, the patents, the prior -- I also cite my 15 prior declarations in prior cases, skimmed through those. 16 Those are the -- the dominant references. 17 Q. Okay. So as a matter of housekeeping, I -- I 18 plan to put our exhibits today in the Zoom chat. 19 You're -- you're free to use those and open them up. If 20 you have your own, you know, local electronic copies, I'm 21 okay with you using them. 22 Do you -- do you have a copy you would prefer 23 to use on your computer? 24 A. I have received clean digital copies from 25 Mr. Kim, and I also printed -- not all of them, but I	Page 12 1 A. This is the '304. Yes. 2 Q. Oh, excuse me. I've got it -- I -- I meant to 3 show you the '533 first. So let's -- let's back up. 4 This is -- for the record, we're looking at 5 Exhibit 1001 in IPR2025-01251, just for the record. 6 (Exhibit 1001 in IPR2025-01251 was 7 previously marked.) 8 BY MR. CHRISTOPHER: 9 Q. Okay. And we recognize this as the 10 '304 patent. Correct? 11 A. Correct. 12 Q. Okay. And did you review the '304 patent in 13 its entirety in forming your opinions? 14 A. Yes. 15 Q. Okay. You reviewed the specification. Right? 16 A. Yes. 17 Q. Okay. And you understood the subject matter of 18 the '304 patent. Correct? 19 A. Yes. 20 Q. Okay. Now, I'm going to show you what's been 21 marked previously in the proceedings as Exhibit 1003. 22 This is from IPR2025-01251. 23 Let me know when you have that available to 24 you. 25 ///

Page 13 1 (Exhibit 1003 in IPR2025-01251 was 2 previously marked.) 3 THE WITNESS: Yes. 4 BY MR. CHRISTOPHER: 5 Q. Perfect. And do you recognize Exhibit 1003 6 from IPR2025-01251 as your declaration concerning the 7 '304 patent? 8 A. Yes. 9 Q. Great. And on the very first page, at the 10 bottom, is that your signature? 11 A. Yes. 12 Q. And this declaration was executed on August 5, 13 2025. Correct? 14 A. Correct. 15 Q. Okay. How long did you spend preparing this 16 declaration concerning the '304 patent? 17 A. I don't remember the exact amount of time, but 18 order of 20, 30 hours, certainly over many days. 19 Q. Now, understood. I'm not looking down to 20 the -- the minute. 21 Did you write this declaration concerning the 22 '304 patent? 23 A. This is my declaration, these are my opinions. 24 I didn't necessarily type every word, but it certainly -- 25 they're my opinions.	Page 15 1 BY MR. CHRISTOPHER: 2 Q. Okay. And at the top of the first page, where 3 we were first looking, there's a -- a -- do you know 4 where it says "Petitioners"? 5 A. Yes. 6 Q. And there's a number of entities listed above 7 "Petitioners." 8 Do you see those? 9 A. Yes. 10 Q. And you mentioned you worked with Mr. Kim, who 11 I understand is a counsel for Samsung. 12 Is that your understanding? 13 A. That is my understanding. 14 Q. Did you work with any attorneys -- again, I'm 15 not looking for the substance of any communications. 16 This is a "yes" or "no." 17 Did you work with any attorneys from any of the 18 other non-Samsung entity petitioners in the course of 19 preparing your declaration for the '304 patent? 20 MR. KIM: Same objection. Privileged. 21 But you may answer "yes" or "no." 22 THE WITNESS: Mr. Christopher, can you repeat 23 the question? 24 BY MR. CHRISTOPHER: 25 Q. Sure.
Page 14 1 Q. And when you say you didn't necessarily type 2 every word, who would have typed any words that you 3 didn't type in this declaration? 4 MR. KIM: Objection. Privileged. 5 I instruct the witness to not disclose any 6 attorney-client privileged communication, but you may 7 answer the question. 8 THE WITNESS: I had many conversations with -- 9 with counsel, including Mr. Kim, expressing my opinions. 10 And sometimes he would capture my opinions and put them 11 into a document form and then I would review them and 12 edit them and -- in forming the document here that is 13 my -- all my opinions. 14 BY MR. CHRISTOPHER: 15 Q. And you mentioned you worked with Mr. Kim. 16 Again, I'm not interested in any conversations that you 17 had with any attorneys. 18 But did you work with any other attorneys in 19 preparing your declaration concerning the '304 patent? 20 MR. KIM: Same objection. 21 To the extent you recall any of their names, 22 you may answer the question. 23 THE WITNESS: I do -- I certainly remember 24 Mr. Kim's name. I do not recall the other names of the 25 other counsel on the -- on our various conversations.	Page 16 1 Did you work with any attorneys from any of the 2 non-Samsung entities in the course of preparing your 3 declaration concerning the '304 patent? 4 A. No. 5 Q. Great. What about in preparation for today's 6 deposition? Did you speak with any attorneys from any 7 non-Samsung entities in preparation for the deposition? 8 MR. KIM: Same objection. Privileged. 9 You may answer "yes" or "no." 10 THE WITNESS: No. 11 BY MR. CHRISTOPHER: 12 Q. Now, if you scroll down to Paragraph 9 -- this 13 is maybe easier if I give you the PDF page. PDF Page 9, 14 Paragraph 9 of your declaration, concerning the 15 '304 patent. 16 Let me know when you're there. 17 A. Okay. 18 Q. All right. And you mentioned here in 19 paragraph 9 (as read): 20 "I noted that I previously submitted 21 expert declarations in support of a prior 22 IPR challenging limitations of Patent 23 Numbers 9,651,533 (the '533 patent) and 24 10,517,484 (the '484 patent)." 25 Do you see that?

Page 17 1 A. Yes. 2 Q. And you were retained on behalf of Apple for 3 those prior declarations. Correct? 4 A. That is correct. 5 Q. Okay. And just as a matter of housekeeping, 6 I'm going to show you these so we have them. I'm going 7 to show you what has been previously marked as 8 Exhibit 1004 in each of the proceedings. 9 (Exhibit 1004 in each of the proceedings 10 was previously marked.) 11 BY MR. CHRISTOPHER: 12 Q. Let me know when you have that available. 13 MR. KIM: Also, you mentioned that it's 1004 in 14 each of the proceedings. So I'm missing 1004 in the 15 IPR202510 -- 125 -- no, sorry. Yes, 1251 only. 16 MR. CHRISTOPHER: Let me double-check that 17 because I believe it's cited in multiple IPRs. Maybe 18 different exhibit number. 19 I'm seeing it as 1004 in IPR2025-01250, in 20 the 51. 21 MR. KIM: Okay. You're saying that this same 22 document was cited as 1004 in all the IPRs. I just 23 wanted to confirm whether you're going to upload all 24 those documents. 25 MR. CHRISTOPHER: No. It's exhibit -- it's the	Page 19 1 (Exhibit 1010 in each of the proceedings 2 was previously marked.) 3 BY MR. CHRISTOPHER: 4 Q. And just for the record, as we just looked at 5 for the '533, the footer on this document may be for a 6 particular -- one of the five proceedings, but it's the 7 same Exhibit 1010 in each of the proceedings. 8 Do you recognize the Exhibit 1010? 9 A. Yes. This appears to be my prior declaration 10 for what I refer to as the '484 patent. 11 Q. Great. Continuing along, I'm going to show you 12 now, what's been submitted as Exhibit 1001 in 13 IPR2025-01250. 14 (Exhibit 1001 in IPR2025-01250 was 15 previously marked.) 16 BY MR. CHRISTOPHER: 17 Q. Let me know when you have that available. 18 A. Zoom is saying it's already downloaded, but 19 let's see. 20 Q. Do you need me to resend it? 21 A. No. I'm just making sure I'm not overwriting 22 something that -- I changed the name here. It had a 23 dash. 24 Q. Oh. 25 A. So this is the '533 -- whatever is the
Page 18 1 same Exhibit 1004 in all five proceedings. I think -- 2 MR. KIM: Okay. 3 MR. CHRISTOPHER: Your -- your point is that 4 maybe the footer has the -- has the 51-case number, but 5 it's the same document in all five proceedings. 6 MR. KIM: Understood. Thank you for the 7 clarification. 8 BY MR. CHRISTOPHER: 9 Q. All right. Dr. Anthony, do you have 10 Exhibit 1004? 11 A. Yes. This is the -- my declaration for the -- 12 what I call the '533. 13 Q. Your -- your prior declaration for the '533? 14 A. Right. 15 Q. Correct. 16 A. Right. 17 Q. And this declaration was from 2019, it was 18 executed. Correct? 19 If you need a refresher, it's at the bottom, 20 PDF Page 101. 21 A. Yes, executed April 10, 2019. 22 Q. Perfect. And now, I'm also going to show you 23 what has been previously marked as Exhibit 1010 in each 24 of the five proceedings. 25 ///	Page 20 1 '533 patent, correct. 2 Q. Perfect. 3 A. Yeah. 4 Q. And then I'm going to show you what has been 5 previously marked as Exhibit 1003 in IPR2025-01250. 6 Do you recognize Exhibit 1003 from the 1250 7 proceeding as your declaration concerning the 8 '533 patent? 9 (Exhibit 1003 in IPR2025-01250 was 10 previously marked.) 11 THE WITNESS: This is my declaration of the -- 12 this -- what I referred to as the '533. 13 BY MR. CHRISTOPHER: 14 Q. Okay. And just to make sure we have our 15 terminology straight, is it understandable to you if I 16 refer to the 2019 declaration concerning the '533 patent 17 as your prior '533 declaration? 18 A. Yes. 19 Q. Okay. And on the first page, Exhibit 1003, 20 from the 1250 proceeding, is that your signature? 21 A. The 1250 proceeding -- the 5 -- yes. Yes. 22 Q. Okay. And this declaration was executed on 23 August 5, 2025. Correct? 24 A. Correct. 25 Q. Okay. And approximately how long did you spend

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1 on your declaration concerning the '533 patent?
2 A. I'd say, roughly, the same amount of time.
3 Q. Did you work with -- again, I'm not looking for
4 the substance of any communication.
5 Did you work with the same counsel in the
6 course of preparing this declaration for the '533 patent?
7 MR. KIM: Objection. Privileged.
8 You may answer "yes" or "no."
9 THE WITNESS: Yes.
10 BY MR. CHRISTOPHER:
11 Q. Okay. We have three more. So I'm going to
12 show you what's been submitted as Exhibit 1001 in
13 IPR2025-0252 [sic].
14 Do you recognize this as the '455 patent?
15 (Exhibit 1001 in IPR2025-01252 was
16 previously marked.)
17 THE WITNESS: Yes. This is the '455 patent,
18 yes.
19 BY MR. CHRISTOPHER:
20 Q. All right. Now, I'm showing you in our Zoom
21 chat Exhibit 1003, in IPR2025-01252.
22 Do you recognize Exhibit 1003 as your
23 declaration concerning the '455 patent?
24 A. My declaration of the '455, signed August 5,
25 2025.

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1 Q. Perfect. Approximately how long did you spend
2 preparing your declaration concerning the '455 patent?
3 A. I'd say roughly the same amount of time.
4 Q. And fair to say roughly the same preparation
5 process as the other two declarations?
6 A. Yes.
7 Q. Perfect. All right. I'm going to show you
8 now -- we have two more. Exhibit 1001 -- hold on. I
9 skipped one. It will be the latest one I sent you. In
10 the chat, this is --
11 A. You just uploaded -- you uploaded two?
12 Q. Yeah. Yeah. The second one, if you could, for
13 me.
14 A. Okay.
15 Q. This is Exhibit 1001 in IPR2025-01253.
16 (Exhibit 1001 in IPR2025-01253 was
17 previously marked.)
18 BY MR. CHRISTOPHER:
19 Q. Let me know when you have that open.
20 A. This is the '790 patent. Correct?
21 Q. That was -- that was my question for you.
22 Do you recognize Exhibit 1001 as the -- as the
23 '790 patent?
24 A. Yes. Just confirming that's the one you meant
25 for me to --

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1 Q. That is the one I meant for you to look at.
2 We're almost done with these, so you'll have them all in
3 front of you.
4 So now I'm showing you Exhibit 1003 from
5 IPR2025-01253.
6 (Exhibit 1003 in IPR2025-01253 was
7 previously marked.)
8 BY MR. CHRISTOPHER:
9 Q. Do you recognize Exhibit 1003 as your
10 declaration concerning the '790 patent?
11 A. All right. The document that you just uploaded
12 seems to be the same.
13 Q. Let me double --
14 A. What's the exhibit number that I'm looking for
15 in the chat now?
16 Q. It should be Exhibit 1003. At least in my
17 screen, it's the very last thing in the chat. There's an
18 Exhibit 1003. This is from IPR2025-01253.
19 Let me know if you're seeing something
20 different. I can resend it.
21 A. Okay. So this is my '790 declaration, if
22 that's what you meant for me to be downloading.
23 Q. Yes. Your -- you recognize this Exhibit 1003
24 as your declaration concerning the '790 patent?
25 A. Yes.

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1 Q. This is also dated August 5th, 2025. Correct?
2 A. Yes.
3 Q. And you spent approximately same amount of time
4 on this declaration as the other three we've previously
5 looked at?
6 A. Yes.
7 Q. Okay. Last one. I jumped the gun on this one,
8 so I'm going to resend it. Show you what's been
9 previously submitted as Exhibit 1001 in IPR2025-01254.
10 (Exhibit 1001 in IPR2025-01254 was
11 previously marked.)
12 BY MR. CHRISTOPHER:
13 Q. Let me know when you have that open?
14 A. This is the '475 patent.
15 Q. Correct. Good. Got that in front of you.
16 And now I'm going to show you what's been
17 marked as Exhibit 1003 in IPR2025-01254.
18 When you have that open, let me know, do you
19 recognize that as your declaration concerning the
20 '475 patent?
21 A. This is my declaration for the '475 patent.
22 Q. Perfect. So you should now have five patents
23 available to you: The '533, the '304, the '455, the
24 '475, and the '790. Correct?
25 A. '533, '790, '304 -- yes.

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1 Q. And you -- you have in front of you five
2 declarations, one corresponding to each of those patents?
3 A. Yes.
4 Q. And then there's two prior declarations, one
5 for the '533, one for the '484. Right?
6 A. Correct.
7 Q. Okay. Can you tell me, just in your own words,
8 what -- what are the five patents -- the '533, the '304,
9 the '455, '475, and '790, what are those patents directed
10 to?
11 MR. KIM: Objection, form.
12 THE WITNESS: So as I describe in my
13 declaration, for example, for the '533 patent on Page 19
14 related to a paragraph 45 of physiological measurement
15 system, including a measurement -- a wearable measurement
16 device. So physiological measurement systems.
17 BY MR. CHRISTOPHER:
18 Q. Okay. Do you understand that the five
19 declarations that you authored were submitted by
20 petitioners in support of five corresponding petitions
21 for inter partes review for each of the patents?
22 A. Yes.
23 Q. Have you reviewed the petitions for
24 inter partes review of each of the five patents?
25 A. I don't recall having reviewed those, no.

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1 Q. Okay. And are you aware that patent owner
2 filed a preliminary response responding to each of those
3 five petitions?
4 A. Yes.
5 Q. Have you reviewed any of the patent owner
6 preliminary responses?
7 A. I believe I -- not revealing any
8 attorney-client privileges, yes, but, you know, I've, in
9 preparation, understood them from Mr. Kim.
10 Q. And have you actually personally read any of
11 the preliminary responses?
12 A. I may have skimmed through them, but I did not
13 read them in detail, no.
14 Q. Okay. And are you aware that patent owner
15 filed declarations from a Dr. Igor Efimov in support of
16 each of those preliminary responses?
17 A. I'm not familiar with the name, but I'm sure
18 that patent owner has -- has a expert submit opinions as
19 well.
20 Q. Have you reviewed any of the expert
21 declarations that patent owner submitted in support of
22 its preliminary responses?
23 A. I'm sorry, can you repeat the question?
24 Q. Sure.
25 Have you reviewed any expert declarations that

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1 patent owner submitted with its preliminary responses
2 from the five proceedings?
3 A. I'm referring to my declaration and the
4 exhibits at the end that I referred to in forming my
5 opinions and tried to list everything that I reviewed
6 there.
7 Q. I'll represent to you that any expert
8 declarations that were submitted with the preliminary
9 responses were created after your five declarations. So
10 my question is more in preparation for the deposition
11 today, subsequent to executing your declarations, have
12 you reviewed any declarations offered by patent owner in
13 support of its preliminary responses?
14 MR. KIM: Objection. Privileged. I instruct
15 the witness to not disclose any attorney-client privilege
16 communication.
17 But you may answer "yes" or "no" only.
18 MR. CHRISTOPHER: There's nothing privileged
19 about that, Counsel.
20 MR. KIM: Well, you asked about "in your
21 preparation for this deposition." So I'm allowing the
22 witness to answer "yes" or "no."
23 MR. CHRISTOPHER: Okay.
24 BY MR. CHRISTOPHER:
25 Q. Please answer.

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1 A. Mr. Christopher, can you repeat the question?
2 Q. Sure.
3 In preparation for today's deposition, did you
4 review any expert declarations that patent owner
5 submitted in support of its preliminary responses for the
6 five IPR proceedings?
7 MR. KIM: Same objection.
8 But again you may answer "yes" or "no" only.
9 THE WITNESS: No.
10 BY MR. CHRISTOPHER:
11 Q. Okay. Are you aware that another entity called
12 Whoop, Inc. filed IPR petitions challenging the '533,
13 '304, and '455 patents?
14 A. I'm not sure if they submitted -- I do not --
15 I'm not sure. I've heard -- I know Whoop is -- I've
16 heard of Whoop. I know -- but I'm not sure what --
17 what -- yes, I'm not sure.
18 Q. Sure. So you're not aware of whether Whoop had
19 filed its own IPRs challenging some of the patents that
20 you've opined on?
21 A. Correct.
22 Q. Okay. All right. I'm going to show you what
23 has been marked as Exhibit 1025 in each of the five
24 proceedings. As counsel has pointed out, the footer may
25 be for one particular proceeding, but it is the same

Page 29 1 Exhibit 1025 in each proceeding. 2 (Exhibit 1025 in each of the proceedings 3 was previously marked.) 4 BY MR. CHRISTOPHER: 5 Q. Do you recognize Exhibit 1025 as the Lisogurski 6 reference? 7 A. Yes. This is -- yes, Lisogurski. 8 Q. And you've opined on the Lisogurski reference 9 in each of the -- each of your five declarations. 10 Correct? 11 A. Correct. 12 Q. And you also opined on Lisogurski in the -- in 13 the two prior declarations, the prior '484 and the prior 14 '533. Correct? 15 A. Correct. 16 Q. Okay. And you've reviewed Lisogurski. 17 Correct? 18 A. Correct. 19 Q. Did you consider Lisogurski in its entirety 20 when forming your opinions expressed in your 21 declarations? 22 A. I considered Lisogurski and the teachings of 23 Lisogurski and how a POSITA would understand what's 24 taught by Lisogurski. 25 Q. Understood.	Page 31 1 directly by analyzing a blood sample 2 taken from the patient)." 3 Do you see that? 4 A. Yes. 5 Q. Okay. So according to Lisogurski, a pulse 6 oximeter is a device that measures the ratio of 7 oxygenated and deoxygenated hemoglobin. Correct? 8 MR. KIM: Objection, form. 9 THE WITNESS: Well, I mean, I -- I opine and 10 describe Lisogurski in -- in detail in -- in all of my 11 declarations, I believe, but, for example, in the '533 at 12 paragraph 76 describing that Lisogurski -- Lisogurski 13 discloses a medical device, specifically a physiological 14 monitoring system that monitors one or more physiological 15 parameters of a patient, such sensors may include a pulse 16 oximeter with a light sensor on a patient's fingertip. A 17 person of ordinary skill in the art would have understood 18 that disclosure as being consistent with standard 19 established physiological monitoring techniques. It's in 20 paragraph 76, so... 21 BY MR. CHRISTOPHER: 22 Q. Sure. 23 A. And I -- and I further describe the background 24 overview of -- of Lisogurski in subsequent paragraphs. 25 Q. Sure. Understood. You have lots of opinions
Page 30 1 Did you consider -- let me ask you this: When 2 you reviewed Lisogurski, did you read it cover to cover? 3 A. Yes. 4 Q. And so did you consider Lisogurski in its 5 entirety in forming those opinions regarding the patents? 6 A. Yes. And as I said, in the teaching of 7 Lisogurski and how a POSITA would understand what is 8 taught by Lisogurski. 9 Q. Okay. If you could turn to Column 3 of 10 Lisogurski. This is Page 34 of the PDF. I would direct 11 your attention to Column 3, starting at Line 61, very 12 bottom of the left-hand column. 13 Let me know when you're there. 14 A. Column 3. What line, please? 15 Q. 61. 16 A. Okay. 17 Q. Okay. And so starting at Line 61, Lisogurski 18 discloses (as read): 19 "An oximeter is a medical device that 20 may determine the oxygen saturation of an 21 analyzed tissue. One common type of 22 oximeter is a pulse oximeter which may 23 non-invasively measure the oxygen 24 saturation of a patient's blood (as 25 opposed to measuring oxygen saturation	Page 32 1 on Lisogurski. I'm just focused for now just on that 2 paragraph we read, starting at Line 61, the description 3 of a pulse oximeter. My question was: According to 4 Lisogurski, a pulse oximeter measures the ratio of 5 oxygenated and deoxygenated hemoglobin. Correct? 6 MR. KIM: Objection, form. 7 THE WITNESS: Well, I wasn't opining upon 8 individual paragraphs in isolation in forming my 9 opinions, but as you described there, Lisogurski, as -- 10 as you read, describes a oximeter as a medical device 11 that determines oxygen saturation of an analyzed tissue. 12 One common type of oximeter is a pulse oximeter, which 13 may non-invasively measure the oxygen saturation of a 14 patient's blood. 15 BY MR. CHRISTOPHER: 16 Q. A person of skill in the art would know we're 17 talking about measuring oxygen saturation that's measured 18 by taking a ratio of oxygenated and deoxygenated 19 hemoglobin. Correct? 20 MR. KIM: Objection. Form and scope. 21 THE WITNESS: So for example, I describe in 22 Paragraph 79 in my '533 declaration, a person of ordinary 23 skill in the art would have been familiar with the 24 well-established physical principle, underlying pulse 25 oximetry. That is changes in absorption, reflection of

Page 33 1 selected wavelengths related to and can be used to 2 determine the physiological parameters like oxygen 3 saturation levels in arterial blood. 4 Furthermore, the conversion of the detected 5 optical signals onto electric signals and their 6 subsequent processing will yield relevant physiological 7 parameters in our routine operations and align with 8 conventional designs and wearable medical sensors used at 9 the time. 10 BY MR. CHRISTOPHER: 11 Q. So you mentioned determining physiological 12 parameters like oxygen saturation. 13 How would a person of skill in the art 14 understand that a physiological parameter like oxygen 15 saturation would be determined by a pulse oximeter? 16 A. Well, as I -- as I described, I mean, that's 17 the -- what a -- a POSITA would be familiar with how a 18 pulse oximeter works in looking at multiple wavelengths 19 and the relative absorption and -- and reflection of 20 oxygenated and deoxygenated blood. And it is used to 21 estimate the -- the relative ratio of -- of the two. 22 Q. And the relative ratio of the two is used to 23 estimate oxygen saturation. Is that correct? 24 A. Yes. The oxygen saturation I described, 25 physiological parameters like oxygen saturation levels in	Page 35 1 Lisogurski is describing in that Column 4 from Line 6 2 through 8. 3 BY MR. CHRISTOPHER: 4 Q. And another way that an oximeter could estimate 5 oxygen saturation is by measuring light that is reflected 6 from the tissue, as opposed to passing through the 7 tissue. Correct? 8 I'm sorry. Are you looking at your 9 declarations? 10 A. I'm looking in my -- in my prior declarations, 11 I believe I described both the reflection mode and 12 transmission mode of pulse oximetry. And in -- both 13 involving the absorption of light. One is just looking 14 at the absorption after it passes -- the light further 15 passes through, versus light that comes back on the same 16 side. 17 Q. Got it. So what we were just looking at in 18 Column 4, starting at Line 6 of Lisogurski, that's a 19 transmission mode. Correct? 20 A. And as I described, I believe in the prior 21 declarations as well, that the principles are -- for 22 transmission mode and reflection mode are -- are the 23 same. 24 Q. Does Lisogurski disclose using the reflection 25 mode?
Page 34 1 arterial blood, as I described in Paragraph 79. 2 Q. Okay. And if you could turn now to Column 4 of 3 Lisogurski, at the top -- let me know when you're there. 4 Line 6 is the first full paragraph. 5 A. Column 4, starting at Line 6? 6 Q. Yeah. Column 4, Line 6. 7 A. Uh-huh. 8 Q. (As read): 9 "Lisogurski discloses an oximeter may 10 include a light sensor that is placed at 11 a site on a patient, typically a 12 fingertip, toe, forehead, or earlobe, or 13 in the case of a neonate across a foot. 14 The oximeter may use a light source to 15 pass light through blood profuse tissue 16 and photo electrically sense the 17 absorption of the light in the tissue." 18 Do you see that? 19 A. Yes. 20 Q. And so here, Lisogurski is explaining that an 21 oximeter passes light through tissue and then senses the 22 absorption of the light in the tissue. Correct? 23 MR. KIM: Objection, form. 24 THE WITNESS: Well, as what you read there, I 25 mean, that is -- with that -- at that place, what	Page 36 1 A. So as I describe in Paragraph 79, a person of 2 ordinary skill in the art would have understood that 3 Lisogurski's configuration is consistent with common 4 pulse oximetry systems, widely adopted. 5 A person of ordinary skill in the art would 6 have been familiar with the well-established physical 7 principles underlying pulse oximetry. That is both 8 changes in absorption and reflection of selective 9 wavelengths, are related to and can be used to determine 10 physiological parameters, like oxygen saturation levels 11 in arterial blood. 12 So a POSITA, certainly reading Lisogurski, 13 would already understand, be familiar with both 14 transmission mode and reflection mode. 15 Q. You mentioned Paragraph 79. Which declaration 16 are you looking at? 17 A. That was my -- my '533. 18 Q. Okay. And I -- my question was slightly 19 different, which was: Does Lisogurski expressly disclose 20 using the reflection mode? 21 A. Well, first of all, as I described, a POSITA 22 reading Lisogurski would be familiar with both 23 transmission mode and -- and reflectance mode. And then 24 furthermore, for example, in Column 11 of Lisogurski, 25 starting at Line 9 (as read):

Page 37 1 "In some embodiments, detector 140 may 2 be configured to detect intensity of 3 light of the Red and IR wavelengths. In 4 some embodiments, an array of sensors may 5 be used. Each sensor in the array may be 6 configured to detect an intensity of a 7 single wavelength. In operation, light 8 may enter detector 140 after passing 9 through the subject's tissue. Detector 10 [sic] may convert the intensity of the 11 received light and electrical signal. 12 The light intensity may be directly 13 related to the absorbance and/or 14 reflectance of the light in the tissue. 15 That is, when more light at a certain 16 wavelength is absorbed or reflected, less 17 light of that wavelength is received from 18 the from the tissue by the detector." 19 So certainly, a POSITA reading Lisogurski, as 20 I've described in -- in, you know, quite clearly there as 21 well, so talking about both the absorption and the 22 reflectance of -- of light and how those signals 23 correspond to the absorption of the constituents of blood 24 at those wavelengths. 25 Q. So in your view, the passage you just read from	Page 39 1 MR. KIM: Objection, form. 2 BY MR. CHRISTOPHER: 3 Q. Sorry. You were reviewing your declaration? 4 A. I'm looking at my -- my declaration where I 5 describe the principles of operation. For example, I'm 6 just looking back at prior declaration of the -- the 7 '533. But I'm just referencing, in Paragraph 136, 8 Lisogurski (as read): 9 "Lisogurski sensor includes one or 10 more detectors for detecting light that 11 is reflected by or has traveled through 12 the subjective tissue." 13 So light goes into the tissue, some of it's 14 absorbed, some of it passes through, some of it is 15 reflected, as is described in my declaration and in 16 Lisogurski. 17 Q. And when you say some of the light that passes 18 through is reflected, are you talking about internal 19 reflection within the tissue? 20 A. I'm sorry. The -- I'm not clear what the 21 question is. 22 Q. Yeah. You mentioned -- when we talked about 23 transmissive mode, right, the light passes through the 24 tissue and -- and we're measuring the light on the other 25 side and we're determining how much was absorbed. Right?
Page 38 1 Lisogurski discloses reflectance mode to a person of 2 skill in the art. Is that correct? 3 A. Well, even furthermore, for example, going 4 to -- reflection mode is -- is discussed quite 5 extensively, as it turns out. Column 19, for example, at 6 around Line 43 of Lisogurski (as read): 7 "The received light signal may, in 8 part, include light from the first 9 photonic signal. For example, the system 10 may emit light that is reflected by the 11 subject or transmitted through the 12 subject. The interaction of the omitted 13 light with the subject may cause the 14 light to be attenuated." 15 So Lisogurski talks about both reflection and 16 absorption. And, again, as I describe in my declaration, 17 POSITA would be very familiar with -- with both. 18 Q. Got it. So in the case of the transmissive 19 mode, the light is directed onto the patient's tissue. 20 Correct -- subject -- let's say subject -- subject's 21 tissue. Correct? 22 A. So the light is transmitted into the body. 23 Q. And when light is incident on the subject's 24 tissue, isn't it true that some of that light would be 25 reflected off of the subject's tissue?	Page 40 1 A. So as I've described, in pulse oximetry, light 2 goes into the body, light comes out of the body. Light 3 is absorbed and light comes out. So light that's not 4 absorbed comes out. It comes out if there is a pathway 5 on the -- on the opposite side, if you will, and also on 6 the same side. And that's true with both of the 7 wavelengths that are used. 8 And so what is explored in pulse oximetry is 9 the relative reflection or transmission, and it's -- it's 10 just the light that's not absorbed. And then 11 ascertaining the relative ratio of what is absorbed by 12 looking at either of the reflected signals or the 13 transmissive signals, as is what a POSITA would 14 understand, as I describe in my declaration, a POSITA 15 reading Lisogurski, and is also what's described in those 16 various sections that we read in Lisogurski just 17 previously. 18 Q. Understood. And I appreciate the explanation. 19 My question is more about, when you're in the 20 transmissive mode and you put the light incident on the 21 surface of the subject's skin, wouldn't some of that 22 light be reflected off the subject's skin? 23 MR. KIM: Objection, form and scope. 24 THE WITNESS: Light, when interacting with 25 tissue, will either be transmitted, reflected, or

Page 41 1 absorbed. 2 BY MR. CHRISTOPHER: 3 Q. So one option is, when we have light incident 4 on -- on tissue, is that it's reflected. True? 5 A. It does all three things, in general. 6 Q. Okay. 7 A. And it's wavelength dependent, as I described. 8 And in a POS- -- POSITA reading Lisogurski would 9 understand what is taught is a pulse oximeter that can be 10 operating in transmissive mode or reflection mode. 11 Q. Got it. If you can turn back to Column 4 of 12 Lisogurski, I'll direct your -- starting around Line 45. 13 I'll give you a moment to scroll back. It's Page 34 of 14 the PDF. 15 A. Column 4. What line, please? 16 Q. Forty-five, please. 17 A. Forty-five? 18 Q. Forty-five. 19 A. Yep. 20 Q. Great. And I'll -- I'll direct your attention 21 to the sentence that reads (as read): 22 "Red and infrared IR wavelengths may 23 be used because it has been observed that 24 highly oxygenated blood will absorb 25 relatively less red light and more IR	Page 43 1 determination. Correct? 2 MR. KIM: Objection, form. 3 THE WITNESS: Can you repeat the question? 4 BY MR. CHRISTOPHER: 5 Q. Yeah. 6 So in order to estimate the blood oxygen 7 saturation of hemoglobin in blood, a person of skill in 8 the art would understand that you don't need to identify 9 whether hemoglobin is present in the blood as a threshold 10 issue before making that estimation. Correct? 11 MR. KIM: Objection, form. 12 THE WITNESS: Well, a POSITA would understand 13 that you have to have your signal be detecting the -- 14 the -- detecting the signal that no blood -- that there's 15 nothing there that is responding to the light that you're 16 using. I'm confused a little bit by the -- the question. 17 BY MR. CHRISTOPHER: 18 Q. When you estimate the blood oxygen saturation 19 of hemoglobin, there's an assumption that there is, in 20 fact, hemoglobin in the blood that you're measuring. 21 Correct? 22 MR. KIM: Objection, form. 23 THE WITNESS: Well, for hemoglobin, for 24 example, you're -- you're using wavelengths to 25 preferentially detect the -- the signal from oxygenated
Page 42 1 light than blood with a lower oxygen 2 saturation." 3 Do you see that? 4 A. Yes. 5 Q. Okay. And so that's a -- the fact that 6 oxygenated blood will absorb less red light and more IR 7 light, that's a known characteristic of hemoglobin. 8 Correct? 9 A. What is stated there, you know, certainly, you 10 know, there's variable absorption of different 11 wavelengths in the constituents of blood, including 12 hemoglobin. 13 Q. And -- and then in the next sentence, it reads 14 (as read): 15 "By comparing the intensities of two 16 wavelengths at different points in the 17 pulse cycle, it is possible to estimate 18 the blood oxygen saturation of hemoglobin 19 in arterial blood." 20 Do you see that? 21 A. Yes. 22 Q. Okay. And in order to estimate the blood 23 oxygen saturation of hemoglobin, a person of skill in the 24 art would understand that it's not necessary to determine 25 whether or not hemoglobin is present as a threshold	Page 44 1 and deoxygenated blood. That's why you pick certain 2 wavelengths so you're detecting the presence of -- of the 3 constituent and then determining the relative ratio of 4 the constituent. 5 BY MR. CHRISTOPHER: 6 Q. Right. And in pulse oximetry, you don't need 7 to ask as a threshold matter whether there is hemoglobin 8 in the blood that you're measuring. Correct? 9 MR. KIM: Objection, form. 10 THE WITNESS: Well, you're detecting that 11 there's hemoglobin there. Otherwise, you're not 12 measuring the detected hemoglobin, so you're detecting 13 that the signal that you're getting from the preferential 14 wavelengths that you've used that are sensitive to 15 hemoglobin, so you're -- if you were measuring it on 16 somebody that was dead and had no oxygen, you would not 17 be detecting hemoglobin. 18 BY MR. CHRISTOPHER: 19 Q. I think I understand. So in pulse oximetry, 20 you're measuring the absorption of hemoglobin in the 21 blood to be able to estimate the oxygen saturation. Is 22 that right? 23 MR. KIM: Objection, form. 24 THE WITNESS: Well, your -- your measurement is 25 the detection that there's a signal that there's -- the

Page 45 1 constituent's there. For example, as -- as also 2 described in Lisogurski, you detect that -- for example, 3 if in the situation where the device is not on, you 4 detect that it's not on by the fact that you're not 5 detecting the hemoglobin and the signal that you're 6 looking for, so it's -- you have to detect to measure. 7 BY MR. CHRISTOPHER: 8 Q. So you mentioned a situation when a device is 9 not on. Is that called a probe-off signal in Lisogurski? 10 A. So, for example, Lisogurski, Line 36, at the 11 bottom -- or Column 36, starting at Line 66 (as read): 12 "In some embodiments, the system may 13 detect a signal indicative of a system 14 error, such as a physiological impossible 15 value, a probe-off signal" -- 16 So a physiological impossible value, meaning 17 detected that it's not there. So I'm detecting the 18 abs- -- I'm detecting the absence of the signal to 19 indicate that the probe is off. Conversely, to detect 20 that the signal is there to measure the hemoglobin. 21 Q. You mentioned you're detecting the absence of a 22 signal to indicate the probe is off. Which signal are 23 you referring to? 24 A. Well, before it was described there, for 25 example, in that Line -- Column 16 -- sorry, Column 36,	Page 47 1 sentence you're reading from in Lisogurski, they are 2 separately listed, the physiologically impossible value 3 and a probe-off signal? 4 Would you agree with that? 5 MR. KIM: Objection, form. 6 THE WITNESS: Well, as I describe in the prior 7 declaration of the '488 at Paragraph 221, you know, 8 Lisogurski teaches a sensor can detect when it has fallen 9 off. In Column 36, Line 66, through Column 372:2, the 10 system may detect a signal indicative of a system error, 11 such as a probe-off signal. Lisogurski sensor can 12 identify when an object is in range of the sensor. The 13 wearable device is at least, in part, configured to 14 identify an object. 15 BY MR. CHRISTOPHER: 16 Q. My question was just about the sentence in 17 Lisogurski, not your declaration. Just -- in that 18 sentence, they're listed as two separate signals, the 19 physiologically impossible value and a probe-off signal. 20 Right? 21 Sorry. Are you looking at your declaration? 22 A. I'm reading the Lisogurski around those lines 23 to make sure of them. 24 Q. Sure. 25 A. Putting it in context correctly.
Page 46 1 Line 66 (as read): 2 "In some embodiments, the system may 3 detect a signal indicative of a system 4 error, such as a physiological 5 impossible value or a probe-off signal." 6 So a physiologically impossible value indicates 7 a probe-off that's indicative of the signal not being 8 detected that we're looking for, the reflective light and 9 absorbed light used to calculate physiologically relevant 10 ranges. And so it's not being detected. That's one way 11 of indicating that the probe is off. 12 Q. In that passage of Lisogurski you were just 13 reading from, physiologically impossible value and a 14 probe-off signal, those are described as two different 15 signals. Correct? 16 MR. KIM: Objection, form. 17 THE WITNESS: Well, I hadn't opined in 18 isolation thinking whether those are separate signals, 19 but a -- a POSITA reading that would understand a 20 physiologically impossible value is also a indication of 21 a probe-off -- indicating a probe-off situation. You can 22 use probe-off signal or other suitable signals or any 23 combination thereof. 24 BY MR. CHRISTOPHER: 25 Q. Well, you would, at least, agree that in that	Page 48 1 Well, I mean, sitting here today reading this, 2 as I stated in the other declaration, a POSITA reading 3 that and in the context would understand that a 4 physiological impossible value is one example of a 5 probe-off signal, meaning that it's -- there's something 6 wrong with the system, an alternative probe-off signal, 7 or any other suitable signal or a combination thereof. 8 So a probe-off signal -- physiologically 9 impossible value is also a probe-off signal, or other 10 sensors could be used, as well, to have a secondary or 11 alternative way of doing a probe-off signal. But 12 certainly POSITA reading that would understand that the 13 physiological impossible value is a detection that we're 14 not getting the hemoglobin and could be used as the 15 probe-off signal. 16 Q. Well, a POSITA would understand that you could 17 have a physically [sic] impossible value even if the 18 probe is actually being worn. Correct? 19 MR. KIM: Objection, form. 20 THE WITNESS: Well, what's described here is 21 that the physiological -- and physiological impossible 22 signal can be used as one way in -- by itself or in 23 combination with other signals to indicate a system 24 error, including the device not being worn correctly. 25 ///

Page 49 1 BY MR. CHRISTOPHER: 2 Q. So there would be system errors other than the 3 device not being worn correctly. Is that correct? 4 A. Well, as I've just described, there are 5 multiple ways where a system error could occur, and 6 certainly probe-off is one of those, and a 7 non-physiological value detecting the presence of 8 hemoglobin would be one such way to indicate that the 9 hemoglobin is not there and whether it be probe-off or 10 light off, but you're detecting the hemoglobin in that 11 use of the physiologically impossible or not detecting it 12 in the case of the physiological impossible value. 13 Q. So the answer is yes, there are system errors 14 other than a probe-off. Correct? 15 MR. KIM: Objection, form. 16 THE WITNESS: As I said, indeed, other errors 17 could occur, but certainly a POSITA reading Lisogurski 18 would understand that the hemoglobin is being detected 19 and if it's not being detected, that is an indication 20 that probe is off or something other -- something else 21 could be happening. 22 BY MR. CHRISTOPHER: 23 Q. Okay. We've been going a little over an hour. 24 Why don't we take a short break and go off the record. 25 (Recess.)	Page 51 1 Q. Okay. 2 A. And as I describe in my declaration, Lisogurski 3 teaches that these components can be arranged in a number 4 of different ways, but in this state here, that's how 5 it's described. 6 Q. Right. And I'm just asking about Figure 1 for 7 now. We'll talk about some of those other issues later. 8 And then in Figure 1 on the right-hand side, Reference 9 Number 104 refers to a monitor. Correct? 10 A. Monitor 104. 11 Q. And the monitor 104 in Figure 1 is 12 communicatively coupled to the sensor 102. Correct? 13 A. You said 104? 14 Q. Yes. Monitor 104 is communicatively coupled to 15 the sensor 102. Correct? 16 A. 104 is a box that is connected to Box 102, and 17 as I describe in my declaration, you know, Lisogurski 18 teaches that these things can be arranged in a number of 19 different ways, but as drawn here, that's what the figure 20 shows. 21 Q. Sure. And one of the components inside 22 monitor 104 is light drive circuitry 120. 23 Do you see that? 24 A. Yes. 25 Q. And in Figure 1, there's a line drawn between
Page 50 1 MR. CHRISTOPHER: Back on the record. 2 BY MR. CHRISTOPHER: 3 Q. All right. Welcome back, Dr. Anthony. 4 Did you discuss the substance of your testimony 5 with anyone during our break? 6 A. No. 7 Q. Okay. All right. I'd like to spend some time 8 discussing some of Lisogurski figures, make sure we're on 9 the same page with some of the terminology. 10 Can you turn to Figure 1 of Lisogurski? You 11 may want to rotate your page. 12 A. Yep. 13 Q. When you're there. Okay. Figure 1 -- I'm 14 sorry, did you -- 15 A. I'm also going to bring up the -- my paper 16 version. 17 Q. Okay. So Figure 1 is a block diagram for a 18 System 100. Correct? 19 A. Correct. 20 Q. And on the left-hand side Reference Number 102 21 represents a sensor. Correct? 22 A. A sensor 102 as stated in Column 10, Line 45. 23 Q. Correct. And in Figure 1, sensor 102 includes 24 a light source 130 and a detector 140. Correct? 25 A. That is correct.	Page 52 1 the box light drive circuitry 120 going to the light 2 source 130. 3 Do you see that? 4 A. Yes. 5 Q. Okay. And that line would represent to a 6 person with skill in the art that in Figure 1, light 7 drive circuitry 120 is communicatively coupled to the 8 light source 139. Correct? 9 A. There's a connection there between 130 and 120. 10 Q. Right. And what would a person of skill in the 11 art understand the function of the light drive 12 circuitry 120 to be? 13 A. Well, I describe quite ostensibly in my 14 declaration that at least the '533, for example, starting 15 at Paragraph 92 and going through 93, 94, and 95, you 16 know, in 95, you know, describing the -- what a POSITA 17 would have been motivated to do; combine the 18 functionality, for example, of the light control 19 circuitry 110 and light drive circuitry 120 within the 20 light source 120 to control circuitry 110 and light drive 21 circuitry 120 are coupled and work in tandem with the 22 light source and the control circuitry 110, sends timing 23 control signals to the direct -- the light drive 24 circuitry 120 to generate a light drive signal. The 25 signal is the electric current provided to the light

Page 53 1 source 130 to, for example, turn the light source on and 2 off and to regulate their brightness. 3 Q. So the light drive circuitry 120 provides an 4 electric current to the light source 130. Is that right? 5 MR. KIM: Objection, form. 6 THE WITNESS: Well, as described in Lisogurski, 7 as I quote in the same paragraph (as read): 8 "For example the light drive circuit 9 120 may generate a light drive signal 10 which may be used to turn on and off the 11 light source, based on timing control 12 signals." 13 BY MR. CHRISTOPHER: 14 Q. Got it. And then in Figure 1, within 15 monitor 104, there is a front end processing 16 circuitry 150. 17 Do you see that? 18 A. Yes. 19 Q. Now, one of the components inside the front end 20 processing circuitry 150 is a dark subtracter 162. 21 Do you see that? 22 A. Yes. 23 Q. And the front end processing circuitry 150 is 24 communicatively coupled to the detector 140 within the 25 sensor 102, as shown in Figure 1. Correct?	Page 55 1 also, some type of memory. 2 Q. Okay. Well, you agree that at least in 3 Figure 1, it doesn't show a processor and memory inside 4 of the front end processing circuitry 150 as it does the 5 back end processing circuitry 170. Correct? 6 MR. KIM: Objection, form. 7 THE WITNESS: Well, a POSITA reading Lisogurski 8 would understand, first of all, that all the various 9 components can be assembled in different ways. So even 10 just taking that, a POSITA would know that they could 11 have that figure that's in 170, or that subfigure, and 12 put some of the processor where it's labeled. 13 And there is processing in 150, but quite 14 clearly, you can take that processing and put it 15 elsewhere, as with memory. But indeed, even independent 16 of -- of that, the digital conditioner, the -- the 17 digital converting, there's memory in processing that has 18 to be in the 150 as well in order to accomplish those. 19 BY MR. CHRISTOPHER: 20 Q. I totally understand, but that wasn't my 21 question. 22 My question is just simply: As we see 23 Figure 1, as it's -- as it's written, there's no 24 processor or memory shown inside of Figure 1. 25 You agree with that?
Page 54 1 A. Well, it's communicatively coupled to 2 everything. Right? Because it's coupled to the 3 detector 140, it's also connected to the 130 through -- 4 up through 110 and 120. So there are multiple 5 connections with everything, which sort of further 6 supports what Lisogurski teaches, which is all these 7 things can be rearranged into single devices or split 8 into multiple, depending on design considerations. 9 Q. Right. One -- one of the components that the 10 front end processing circuitry 150 is connected to is the 11 back end processing circuitry 170. Correct? 12 A. Mike, your connection dropped for a second. 13 Can you repeat the question? 14 Q. Yeah, sure. 15 So one -- one of the components that is 16 connected to the front end processing circuitry 150 is 17 the back end processing circuitry 170. Correct? 18 A. Correct. As shown in that figure. 19 Q. Okay. And as shown in Figure 1, the back end 20 processing circuitry 170 includes a processor 172 and a 21 memory 174. Correct? 22 A. There is processor memory shown there, right. 23 And also, there would be processing and memory in the 24 front end circuitry as well, because there's digital 25 conditioning, which requires some type of processor and	Page 56 1 MR. KIM: Objection, form. 2 THE WITNESS: There is processor and memory 3 implied. A POSITA reading this, in both the figure and 4 the declaration, understands that when there's digital 5 functionality, there has to be a processor to accomplish 6 that digital functionality. It has to be memory. And 7 then furthermore, POSITA teaches -- sorry -- Lisogurski 8 teaches that the components can be rearranged. 9 And so in some sense, it's a -- a 10 representation of one possible consideration, but not at 11 all the -- the only way that Lisogurski opines that such 12 a device can be realized. 13 BY MR. CHRISTOPHER: 14 Q. Not my -- not my question. Just the word 15 "processor," you don't see that anywhere inside Box 150. 16 Correct? 17 A. Well, for example, when the digital conditioner 18 is described, that is in the box of 150; 158, the digital 19 conditioner is described, for example, in Column 13 of 20 Lisogurski, I rely on Line 46 (as read): 21 "Digital conditioner 140" -- I'm 22 sorry -- "digital conditioner 158 may 23 perform any suitable digital conditioning 24 of the detector signal. The digital 25 conditioner, may include types of digital

Page 57 1 filtering of the signal (e.g., low pass, 2 high pass, band pass, notch, or any other 3 suitable filtering), amplifying, 4 performing an operation on the signal, 5 performing any other suitable digital 6 conditioning." 7 So any of that functionality has to have a 8 processor and has to have memory. And that is -- would 9 be, certainly, part of the block that is labeled 150. 10 MR. CHRISTOPHER: I'm going to move to strike 11 as nonresponsive. 12 BY MR. CHRISTOPHER: 13 Q. I -- I'm just asking you: In Figure 1, within 14 Box 150, you don't see the word "processor" in there, do 15 you? 16 A. Well, in Box 150, it's described as front end 17 processing. So processing happens on a processor. The 18 word "processor" is not drawn in that box, but it 19 certainly -- a POSITA reading that understands there's a 20 processor and memory there to accomplish processing. 21 Q. And the word "memory" doesn't appear in 22 Box 150. Correct? 23 A. As I've described, a POSITA reading this, and 24 as described in the -- it's a front end processing 25 circuitry. Processing requires a processor and requires	Page 59 1 explicitly written, but they know, to accomplish front 2 end processing, there has to be memory, there has to be 3 processing power. 4 And as described there what the digital 5 conditioner does, is processing a signal. You can't do 6 that without memory, without a processor. So I agree 7 that in that figure, it's not -- the word "processor" is 8 only showing up in 172, but "processing" shows up in the 9 box at 150. Processing requires that functionality of 10 memory and processor. 11 Q. Okay. And in Figure 1, just as it's shown in 12 Figure 1, you would agree that a majority of the 13 components within system 100 are in the monitor 104. 14 Correct? 15 MR. KIM: Objection, form. 16 THE WITNESS: Well, as I described there, 17 there's what is -- there's the figure as a 18 representation, and then quite clearly, as I state in 19 Paragraph 93 of my '533 declaration, a person of ordinary 20 skill in the art would have understood that this 21 disclosure of Lisogurski, that the functionality of some 22 of the components may be combined into a single 23 component, can be integrated into a combined unit. 24 Lisogurski further discloses the functionality 25 of some of the components of monitor 104 can be divided
Page 58 1 memory, and doesn't -- all the individual -- "processor" 2 is not, as a word, stated in that box, but a POSITA, 3 understanding what that box is, knows that there's memory 4 there and knows that there's processing there. 5 And, furthermore, Lisogurski teaches that the 6 components, as they're arranged there, can be rearranged 7 in any number of ways, into a single device or multiple. 8 Q. And "memory" is also not a word stated in 9 Box 150. Correct? 10 A. You can't -- 11 MR. KIM: Objection, form. 12 I'm sorry. 13 THE WITNESS: "Memory" is not a -- written as a 14 word there. Processing requires memory. Processing 15 requires a processor. So absolutely, there's memory and 16 processing in that functional block, even if the word is 17 not explicitly written there. 18 BY MR. CHRISTOPHER: 19 Q. Okay. So we agree it's not explicitly written 20 there. "Memory" is not explicitly written in 150. 21 Correct? 22 A. As I've said, Lisogurski explicitly teaches 23 that things can be rearranged. That figure is a 24 representation of the functionality, but a POSITA looking 25 at that the figure would explicitly know -- it's not	Page 60 1 over multiple components. 2 So there's, again, what is shown in the figure 3 and then with what Lisogurski teaches, and a POSITA would 4 understand, is that functionality can be moved around, as 5 I further described in the -- what a person of ordinary 6 skill in the art would have been motivated to do in some 7 of those motivations in the subsequent paragraphs. 8 MR. CHRISTOPHER: Okay. I'm going to move to 9 strike as nonresponsive. 10 BY MR. CHRISTOPHER: 11 Q. In Figure 1, how many -- 12 MR. KIM: I disagree. 13 MR. CHRISTOPHER: Okay. 14 MR. KIM: But you can go on. 15 BY MR. CHRISTOPHER: 16 Q. Dr. Anthony, in Figure 1, how many boxes are 17 inside monitor 104? 18 A. There is -- one, two, three, four -- six of 19 the -- I'll call them the bigger boxes. And then there's 20 -- one, two, three, four, five, six, seven, eight, nine, 21 ten, 11, 12, 13, 14, 15, 16, 17 -- 18 boxes, as drawn in 22 that representative figure. 23 But a POSITA, as I've explained, reading 24 Lisogurski, understands that that functionality can be 25 moved, as I describe in my subsequent paragraphs on the

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1 motivation that a POSITA would have had to modify, and is
2 taught by Lisogurski that even though they're showing a
3 particular set of boxes, a POSITA could choose a
4 different set of boxes to group the components.

5 **Q. Did I ask about any modifications to Figure 1**
6 **in my question?**

7 MR. KIM: Objection, form.

8 THE WITNESS: You asked me to count boxes, I
9 did. And I further expanded how I -- and my opinions
10 around box -- or Figure 1 in referencing it in how I
11 describe it in my declaration.

12 BY MR. CHRISTOPHER:

13 **Q. Right. I just asked how many boxes, not what**
14 **your declaration says.**

15 **And then in Figure 102, there's two boxes. Can**
16 **we, at least, agree on that, in Figure 1?**

17 A. In that figure, which is representative of the
18 teachings of Lisogurski, there are two boxes. But as I
19 further opine in my declaration, a POSITA would be
20 motivated, for example, to move Box 120 and 110 up into
21 the -- what is the 102 box, for example, amongst other
22 motivations to combine.

23 **Q. All right. Let's turn to Figure 3 of**
24 **Lisogurski. Let me know when you're there. Two pages**
25 **down.**

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1 A. Yep. I'm just pulling up my declaration and
2 the -- the patent.

3 **Q. So you said, "The patent"? Which patent?**

4 A. The Lisogurski patent.

5 **Q. Got you. Okay.**

6 A. Okay.

7 **Q. And in Figure 3, you see Reference Number 312?**

8 A. Yes.

9 **Q. And that's pointing to a sensor. Correct?**

10 A. Yes.

11 **Q. And that would correspond to the sensor 102 in**
12 **Figure 1 in the block diagram. Correct?**

13 **Sorry. Are you reading your declaration?**

14 A. I'm just making sure that I'm referring to
15 sensor unit 312 correctly in my declaration. So it's
16 described -- you know, the sensor unit that is described
17 in Figure 3 is the sensors -- or sensor unit in this
18 particular embodiment that's highlighted in Figure 3.

19 **Q. Well, and so it's -- it's a particular**
20 **embodiment, for example, of the sensor 102 that we had**
21 **looked at in Figure 1 of Lisogurski. Correct?**

22 A. Correct. And also highlighting, for example,
23 that you if you look at how -- Figure 102 there's a
24 singular light source and a singular detector labeled
25 there as a box, but in -- as Figure 3 is described as an

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1 embodiment, sensor unit 312 may be part of an oximeter.
2 312 may include one or more light sources, so that sensor
3 unit could include more light sources, even though that's
4 not shown as 10 -- what is in 102.

5 **Q. Understood.**

6 **And likewise, Reference Number 314 in Figure 3,**
7 **that's -- that's an example of how you could implement**
8 **the monitor 104 from Figure 1. Correct?**

9 **Sorry. Again, to -- not to interrupt you, are**
10 **you looking at your declaration? Since we're not in**
11 **person, I can't see what you're looking at.**

12 A. And the -- the Lisogurski patent and my
13 declaration.

14 So as -- you know, so 314 and some embodiments,
15 for example, the Paragraph -- Column 18 and some
16 embodiments monitor the 314, maybe implemented as
17 monitor 104 in Figure 1.

18 **Q. And the sensor unit 312 in Figure 3, that could**
19 **be, for example, placed on a subject's finger to take**
20 **measurements. Correct?**

21 A. Well, it's the sensor unit that would come in
22 contact with the person's body.

23 **Q. Sure. It would come into contact with some**
24 **portion of the person's body to take a measurement.**
25 **Right?**

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1 A. Yes.

2 **Q. Okay. And would you agree that the sensor unit**
3 **312 needs to be designed in such a way that it can be**
4 **placed on at least some portion of the subject's body to**
5 **take measurements?**

6 A. So to come in contact with the body, you need
7 to design it so it can contact the body, yes.

8 **Q. Got it.**

9 **And would you agree that if one were to add**
10 **components to the sensor unit 312, that could potentially**
11 **increase the size of the sensor unit 312?**

12 MR. KIM: Objection, form.

13 THE WITNESS: Well, for example, you know, a
14 POSITA would understand, as I described in Paragraph 85
15 of my '533, the bottom of Page 36, a person of ordinary
16 skill in the art would have recognized Lisogurski's
17 disclosure of combining and dividing functionality among
18 electronic components, such as control, front-end
19 processing. Back-end processing was common practice
20 based on design engineering considerations, such as power
21 management, miniaturization, reliability, and
22 manufacturability, and then I would also refer back to my
23 prior declaration on the '533 where I talk about industry
24 trends, for example, in Paragraph 48 in terms of the
25 advances in miniaturization of electronics and in

Page 65 1 communications technology. Those trends led to the 2 development of many remote and wearable and miniaturized 3 monitoring systems. 4 So all things being equal, right, you know, you 5 can use miniaturized components to -- to -- and modern 6 electronics to make things small, even when you move 7 functionality around. 8 BY MR. CHRISTOPHER: 9 Q. Got it. 10 But if -- let's just stick with Figure 3 of 11 Lisogurski. And all things being equal, you know, absent 12 some miniaturization, if I were to take the components 13 from the monitor 314 and put them into the sensor 14 unit 312 that could potentially increase the physical 15 size of the sensor unit 312. Correct? 16 MR. KIM: Objection, form. 17 THE WITNESS: Well, as I described, you know, 18 this is one embodiment. A POSITA reading Lisogurski and 19 being familiar with the state of the art as a POSITA 20 would be, as I described in my other declarations as 21 well, no. You know, you would move components around and 22 use -- if you wanted it to be small, you'd use smaller 23 components and you'd have the design trade-offs, 24 manufacturing trade-offs to accomplish a miniaturized 25 version even when you added more functionality.	Page 67 1 role that the thing -- the device they're trying to 2 accomplish. 3 Q. So in the context of Lisogurski, if a person of 4 skill in the art chose not to miniaturize the components 5 of monitor 314 and they were to reposition them inside 6 the sensor unit 312, you would agree that that would 7 increase the physical size of the sensor unit 312. 8 Correct? Again, assuming they haven't miniaturized 9 anything. 10 MR. KIM: Objection, form. 11 THE WITNESS: Well, even a hypothetical 12 arrangement of just moving things around, POSITA would 13 also need to consider not just moving components but the 14 manufacturability and the cost. It's not just, hey, I'm 15 going to move these things. There's other design 16 constraints. And so with other design constraints, 17 manufacturing constraints, even if you were to take 18 the -- what you're opining about here, which is not what 19 I was opining about -- just taking Figure 3 and moving it 20 around, POSITA could choose to do that. It's what's 21 taught in Lisogurski. It could be smaller. It could be 22 the same size. It depends on other design factors. But 23 certainly as I opine and describe in the declarations, 24 POSITA would be very familiar with the ability to 25 miniaturize in order to -- and be motivated to do so
Page 66 1 BY MR. CHRISTOPHER: 2 Q. So a person of skill in the art would know that 3 they would have to use smaller components if they were to 4 take components from monitor 314 and place them inside 5 sensor unit 312. Is that correct? 6 MR. KIM: Objection, form. 7 THE WITNESS: Well, as I described, you know, 8 POSITA, both in the '533 and the prior '533, you know, a 9 POSITA reading Lisogurski and having the knowledge of a 10 POSITA at the time would be familiar with electronics 11 that allow you to have embodiments that are enabled by 12 semiconductor miniaturized components. So it's not about 13 a wholesale, straight-up modification of Figure 3. 14 Figure 3 is one embodiment. POSITA taking the teachings 15 of Lisogurski would understand how to use miniaturized 16 electronics to enable a miniature wearable device. 17 BY MR. CHRISTOPHER: 18 Q. All right. Let me -- let me see if I 19 understand? So a person of skill in the art, if they 20 wanted to take components from the monitor 314, they 21 could use miniaturized versions of those components and 22 position them within the sensor unit 312. Is that right? 23 A. So a POSITA could choose to move things around 24 without miniaturizing. A POSITA could also choose to 25 move things around while miniaturizing, depending on the	Page 68 1 because of trends and -- and wearable fitness technology 2 and miniaturization of electronics and desire for health 3 and -- and fitness devices. 4 BY MR. CHRISTOPHER: 5 Q. Would it be fair, then, to say that there are 6 trade-offs associated with repositioning the components 7 within Lisogurski's system, for example, into the sensor 8 unit 312? 9 A. There are positive benefits and potentially 10 negative benefits -- or negative impli- -- there are 11 design trade-offs. And a POSITA would know how to weigh 12 those off and the benefit of being able to miniaturize 13 and put things in a sensor there to make it wearable and 14 low cost, that's -- that's a very significant positive, 15 even if it may increase a little bit of the complexity of 16 the manufacturing. But the complexity of the 17 manufacturing is mitigated by the fact, as I describe in 18 the prior declaration, of the trends of miniaturized 19 electronics. So even there, it's -- in volume, it's a 20 net positive. So there may be, in a particular design 21 goal, some negatives, but in general, it's going to be a 22 positive to move the things around as I've opined that a 23 POSITA would do at the time. 24 Q. You mentioned that the complexities of 25 manufacturing as a -- as a potential negative.

Page 69 1 Are there any other potential negatives that a 2 person of skill in the art would recognize as being 3 associated with one of these modifications? 4 A. First of all, I want to clarify. The 5 manufacturability was not necessarily a negative. It's 6 I'm relying on -- it may be a little bit more -- it would 7 change. You know, you'd have to use semiconductor 8 technology. So it's not a negative. It's a -- it's 9 different, and you would outweigh-- you would weigh those 10 trade-offs. So a POSITA in designing a device would look 11 at the design space and design accordingly for the thing 12 that they were trying to achieve, both on the cost, the 13 performance they're trying to achieve, the manufacturing 14 ability, and certainly a POSITA reading Lisogurski and 15 being familiar with the art would be very motivated and 16 not at all be demotivated to combine things in the way 17 that I have described that they would. 18 Q. So a moment ago you mentioned positive benefits 19 and potentially negative benefits, and I'm wondering what 20 are the potentially negative benefits? 21 A. What I meant there is not negative benefits, 22 but it's sort of design trade-offs. Some things are more 23 positive. Some things make -- the design, you need to 24 take a little bit more time to do the design, but there 25 are design trade-offs. The net positive is being able to	Page 71 1 manufacturability. There's the target market. And a 2 POSITA, as I've described, in -- with the motivations for 3 a -- of the market would understand to take -- how to 4 take the teachings of Lisogurski and use modern 5 electronics to miniaturize. And it's not a negative. 6 They're -- they're a designed space. And a designed 7 space, net overall, they would come to a design 8 configuration that made sense for the thing that they 9 were trying to accomplish. 10 Q. Well, understood. And I'm just -- you've 11 mentioned trade-offs. And I'm just trying to get a sense 12 of kind of the universe of trade-offs that a person of 13 skill in the art would be considering with this 14 modification. 15 Can you describe those? 16 A. I think I just did. What I was describing is 17 the design space. The act, the various design axes, if 18 you will, of cost and manufacturability, performance, 19 these are all the -- as you're designing some things, 20 say, well, okay, what's the cost of the end point? 21 What's the market? What's the -- the profit I'm trying 22 to make? What are the issues that I have to resolve with 23 manufacturing? 24 So it's not that they're negatives. They're 25 not teaching away from a particular -- it's like these
Page 70 1 take the teachings of Lisogurski and the knowledge of the 2 POSITA at the time with the trend towards miniaturization 3 and realize a functional, wearable wirelessly-enabled 4 system. So it's design trade-offs. Things go up and 5 down, but overall there's net positives when considering 6 those -- those different design trade-offs. 7 Q. Would one of the design trade-offs be cost? 8 A. You're trading off cost and complexity. You're 9 trying to achieve a certain product spec -- a price point 10 for a particular market, so a POSITA in realizing a 11 device for a presumptive sale in a commercial space would 12 consider all the trade-offs and design accordingly, and 13 make design decisions accordingly. You know, 14 fortunately, as I described, semiconductor 15 miniaturization technologies were very cost-effective and 16 very easy to manufacture. It would allow a POSITA to 17 move the functionality around as Lisogurski teaches. 18 Q. Are there any other trade-offs that a person of 19 skill in the art would recognize in modifying Lisogurski 20 to put some of the components from the monitor inside of 21 the sensor? 22 A. So what I'm trying to clarify is that it's -- 23 there are multiple design axes that a POSITA needs to 24 consider when realizing a device. There's the 25 functionality. There's the cost. There's the	Page 72 1 are the factors -- it's a system you're designing, and 2 you need to consider all the axes of the system. But the 3 fortunate thing is that -- and Lisogurski clearly 4 teaches -- that the components can be moved around in a 5 way, and POSITA being familiar with the trends in 6 miniaturization of technology would know that it's not 7 prohibitively expensive. In fact, it's quite inexpensive 8 to make things miniaturized and benefiting from 9 semiconductor technologies. 10 Q. Understood. You mentioned cost, you mentioned 11 manufacturability, and you mention -- excuse me -- 12 mentioned performance. 13 Are there -- are there any other factors that a 14 person of skill in the art would consider? 15 A. I wasn't opining about all the possible 16 considerations. It wasn't necessary to enumerate the 17 infinite number of considerations, but if a POSITA is 18 going to consider the cost, the quality, the 19 maintainability, the -- the market they're trying to 20 achieve -- but, again, you know, all those things are, as 21 I said, very, you know, with the trends of 22 miniaturization of electronics, quite achievable and be 23 quite straightforward to achieve a commercially viable 24 market -- product or just a product that wasn't 25 commercially viable, but it was demonstrating that it was

Page 73 1 miniaturized. 2 Q. Got it. 3 So if we could turn back now to Figure 1 of 4 Lisogurski. I would like to ask you about some of the 5 functionality of the light source 130. Lisogurski 6 teaches that the light source 130 can emit light with a 7 red wavelength and an IR wavelength into the subject's 8 tissue, for example. Correct? 9 And if you're looking for something in 10 Lisogurski, I would suggest Column 8, starting at 11 Line 48. So perhaps we should go there. Column 8, 12 Line 48. Let me know when you're there. 13 A. Line 8, Column? 14 Q. Sorry. Column 8, Line 48. 15 Wait. 16 A. -- of Lisogurski. 17 Q. Hold on. I may be off. A moment. 18 Column 10, Line 48. 19 A. Okay. 20 Q. All right. As you see in Line 49, Lisogurski 21 teaches (as read): 22 "Light source 130 may be configured to 23 emit photonic signals having one or more 24 wavelengths of light (e.g., red and IR), 25 into a subject's tissue."	Page 75 1 Q. Yes. So Column 11, starting around -- not 2 around -- at Line 20, Column 11, Line 20, Lisogurski 3 states (as read): 4 "After converting the received light 5 to an electrical signal, detector 140 may 6 send the detection signal to 7 monitor 104." 8 Do you see that? 9 A. Yes. 10 Q. So the detection signal is your electrical 11 signal generated by the detector 140. Right? 12 A. That's what's described there in that sentence. 13 Q. Okay. I'm just trying to get our terminology 14 straight. 15 Would you agree that one of Lisogurski's goals 16 is to improve the signal-to-noise ratio for the detection 17 signal? 18 A. So Lisogurski talks about various ways to 19 improve signal to noise, yes. 20 Q. And improving the signal-to-noise ratio is a 21 benefit. Correct? 22 A. In general, yes. Yeah. 23 Q. And Lisogurski -- one of the ways that 24 Lisogurski improves the signal-to-noise ratio is by 25 subtracting out noise. Correct?
Page 74 1 Do you see that? 2 A. Yes. 3 Q. Okay. And then if we go back to Figure 1, the 4 detector 140 will detect the intensity of light at the 5 red and IR wavelengths after passing through the 6 subject's tissue. Correct? 7 A. I mean, the light source emits that a 8 wavelength and the detector will -- will detect light 9 that's reflected or transmitted through. 10 Q. And the detector 140 will convert the intensity 11 of the received light into an electrical signal. 12 Correct? 13 A. For you know, then subsequent processing and -- 14 yes. 15 Q. Sure. 16 And that's referred to as the detection signal. 17 Correct? 18 A. Well, the detector light falls upon it and 19 generates a voltage that can be, you know, sampled and -- 20 Q. So if you go to Column 11 of Lisogurski, 21 Line 20. Let me know when you're there, we'll read it 22 together. 23 A. What column? I'm sorry. 24 Q. 11. It's Page 38 of your PDF. 25 A. Column 11, okay.	Page 76 1 A. Well, for example, in Column 13 some 2 embodiments Line 60 (as read): 3 "In some embodiments" -- I'm sorry, 4 Line 60 -- "In some embodiments, dark 5 subtractor may subtract dark" -- "dark 6 values from the Red and IR components to 7 generate adjusted Red and IR signals. 8 For example, a dark subtractor 162 may 9 determine a subtraction amount from the 10 dark signal portion of the detection 11 signal and subtract it from the peak 12 portion of the detection signal in order 13 to reduce the effect of the dark signal 14 on the peak." 15 You know, and reduce the effect of the dark 16 signal, you know, to improve signal's noise. 17 Q. Understood. What -- what would a person of 18 skill in the art understand to be the potential sources 19 of noise in Lisogurski's system, with respect to the 20 detection signal? 21 MR. KIM: Objection, form. 22 THE WITNESS: Well, for example, as I describe 23 Lisogurski in my '533 decl- -- declaration, at Paragraph 24 90, (as read): 25 "Lisogurski discloses various methods

Page 77 1 for improving signal to noise. For 2 example, Lisogurski discloses modulating 3 the light drive signal to have a period 4 of time, period the same or closely 5 related to the period of the cardiac 6 cycle. Using a dark subtraction process 7 to remove noise from the ambient light, 8 subtracting from the background or dark 9 level from the levels received during on 10 and off. Three varying parameters 11 related to the light drive signal, 12 including drive current or light 13 brightness duty cycle or other suitable 14 parameters." 15 So being able to deal with the noise, for 16 example, that comes from sensor noise, if you were, 17 sensor offset. When there's no light, there's a bias, 18 it's the dark subtraction. Modifying light parameters to 19 overcome, for example, ambient light, which a POSITA 20 understood as a pervasive need throughout all type of 21 wearable optical devices. And synchronizing to places in 22 the body response, where you get better signal. 23 BY MR. CHRISTOPHER: 24 Q. Okay. So you mentioned sensor noise and you 25 mentioned ambient light.	Page 79 1 with those sources of noise as well. 2 BY MR. CHRISTOPHER: 3 Q. Okay. And if we go back to Figure 1 of 4 Lisogurski, would you agree that the front end processing 5 circuitry 150, for example, would be a potential source 6 of noise with respect to the detection signal? 7 MR. KIM: Objection, form. 8 THE WITNESS: Well, as you describe in 9 Paragraph 99, you know, a POSITA would have been further 10 motivated to combine the front end processing -- 11 processing circuitry into the same device where the 12 detector is located. 13 A person of ordinary skill in the art would 14 have been motivated to do so for three reasons. Disclose 15 that the -- Lisogurski discloses its sensor preprocesses 16 a signal before transmitting the process signal to the 17 monitor. Accordingly, a person of ordinary skill in the 18 art would have been motivated to combine the components 19 that perform the same functionality together to 20 substantially minimize latency, improve signal fidelity, 21 i.e., improve noise. 22 And, overall -- and in overall system 23 architecture by reducing signal travel distances and 24 potential points of interference. 25 ///
Page 78 1 Are there other potential sources of noise in 2 Lisogurski's system with respect -- 3 MR. KIM: Objection, form. 4 BY MR. CHRISTOPHER: 5 Q. -- with respect to the detection signal? 6 A. Well, for example, as I described at the bottom 7 of Paragraph 95, and motivation to combine functionality 8 of the control circuitry, light drive circuitry, light 9 source, at the end of that Paragraph 95, the limitations 10 in transmitting accurate electrical signals, without 11 introducing noise or timing errors, a person of ordinary 12 skill in the art would have been motivated to address 13 those sources of noise, as well. 14 Q. Are electrical signals a potential source of 15 noise? 16 A. Of variation and timing, variation and sort of 17 ground playing. So distances between signals, all those 18 are -- are reasons why a POSITA would be motivated to 19 move things closer to each other. 20 Q. In Lisogurski, another form of potential noise 21 with respect to the detection signal would be patient 22 motion. Correct? 23 MR. KIM: Objection, form. 24 THE WITNESS: Motion artifacts, ambient 25 noise -- ambient light change, a POSITA would be familiar	Page 80 1 BY MR. CHRISTOPHER: 2 Q. I don't think that was my -- my question, 3 though. 4 My question was: Does the front end processing 5 circuitry in Figure 1 generate noise that impacts the 6 detection signal in the sensor 102? 7 MR. KIM: Same objection. 8 THE WITNESS: Well, I mean, as I described, the 9 POSITA, looking at Figure 1 and reading Lisogurski, as I 10 described in Paragraph 99, there's -- a POSITA would be 11 motivated to reduce the opportunity for noise between a 12 separated detector in front end processing circuitry to 13 minimize travel distances, to minimize sort of 14 transmitting analog signals, to reduce timing errors, 15 propagation errors. 16 So there's a level of noise associated with 17 the -- a presumptive configuration where they're 18 separated. And so a POSITA would be very motivated to 19 move them together in order to minimize that noise. 20 BY MR. CHRISTOPHER: 21 Q. So in an embodiment of Lisogurski in which the 22 front end processing circuitry 150 is -- is physically 23 separated in space from the sensor of 102, one source of 24 noise would be along the transmission path between the 25 sensor 102 and the front end processing circuitry. Is

Page 81 1 that right? 2 A. As I describe in Paragraph 99, that's one 3 potential source. The distance, the propagation timing, 4 whether you're -- how that sort of, at a distance, 5 connection is made. A POSITA would be motivated to bring 6 the functionality together to minimize that propagation 7 distance issues, improve signal to noise. 8 Q. Now, inside the front end processing 9 circuitry 150, you testified earlier that a person of 10 skill in the art would understand that there's a 11 processor and memory inside the circuitry 150. Is that 12 correct? 13 A. As I described, there would certainly be memory 14 and processing capabilities as part of a front end 15 processing circuitry. 16 Q. Right. And the components inside of front end 17 processing circuitry 150 would communicate with one 18 another. Correct? 19 A. They would be connected, yes, to -- attach 20 their -- have their functionality interconnected. 21 Q. And so there would be electrical current being 22 sent between the various components inside the front end 23 processing circuitry 150 in Lisogurski. Correct? 24 A. I'm sorry. Can you repeat the question? 25 Q. Yeah, sure.	Page 83 1 "Analog conditioner 152 may perform 2 any suitable analog conditioning of the 3 detector signal. A conditioning 4 performed may include different types of 5 filtering." 6 And then there's analog to digital conversion 7 to get into the digital space. So as I described in my 8 declaration, you know, that -- minimizing the propagation 9 distance of that analog signal would be one motivation to 10 move the front end circuitry closer, and then also, 11 minimizing any kind of timing jitters on the digital 12 circuitry as well. 13 Q. So in Figure 1 of Lisogurski, the communication 14 between the sensor 102 and the monitor 104 would be 15 analog. Correct? 16 A. Well, in -- in -- as depicted in Figure 1, 17 presumptively, it's analog coming out of the detector and 18 going into the analog conditioner. But as I described in 19 my motivations in the modifications, you know, the -- the 20 front end processor being moved up there, that would then 21 immediately, more proximally, be converted to a more 22 co-located digital signal within the integration. 23 Q. So even if a person of skill in the art were to 24 modify Lisogurski to put the front end processing 25 circuitry within the sensor 102, they would still have to
Page 82 1 You know, we mentioned, you know, electrical 2 current earlier as a potential source of noise. 3 And my question is: There is electrical 4 current being sent within the front end processing 5 circuitry 150 in Lisogurski. Correct? 6 A. I'm not sure I said electrical current is the 7 source of noise. I said the -- if you're trying to, for 8 example, transmit signals over a long instance, if 9 they're digital, there's timing issues with long 10 distances. If they're analog, there's degradation 11 issues. 12 So it's -- you know, current is not the source 13 of noise. But, you know, you can get noise in your -- in 14 your signals, which are currents and voltages. It's an 15 electrical system. 16 And so as I describe in Paragraph 99, a POSITA 17 would have been motivated to bring things together so you 18 didn't have those sources of -- of potential noise. 19 Q. And you mentioned just now analog and digital 20 communication. 21 In Lisogurski, in Figure 1, is the 22 communication between the sensor 102 and the 23 monitor 104 -- 104 digital or analog? 24 A. Well, as described in that figure, Figure 1 in 25 Column 13, for example (as read):	Page 84 1 convert an analog signal from the detector to digital. 2 Correct? 3 A. Wait. A sensor -- a detector is detecting a 4 continuous thing, light, transmitting -- changing photons 5 to electrons. Those electrons are a voltage, a signal, 6 an analog signal. Those are then needing to be sampled. 7 So a POSITA would be motivated to sample that 8 data as soon as possible so that you are not dealing with 9 any kind of analog issues or noise with analog domain and 10 also would be motivated to keep the footprint of the 11 digital processing small so you didn't have timing issues 12 once it's -- it's digital as well. 13 So there's a lot of motivation to co-locate 14 things and miniaturize things in order to minimize both 15 analog noise and digital noise. 16 Q. Let me just make sure I understand that. So 17 even if we were to co-locate the front-end processing 18 circuitry with the sensor 102, we still have to perform 19 an analog-to-digital conversion from the output of the 20 detector. It's just in closer proximity to the detector 21 relative to Figure 1. Is that right? 22 A. And therefore doesn't suffer from analog noise 23 sources, the propagation issues and... 24 Q. Understood. 25 Would you agree that heat is a potential source

Page 85 1 of noise in Lisogurski's system? 2 MR. KIM: Objection, form, scope. 3 THE WITNESS: I guess I'm -- I'm not clear what 4 you mean. 5 BY MR. CHRISTOPHER: 6 Q. Well, we've been talking about the detection 7 signal and improving the signal-to-noise ratio. Correct? 8 A. Yep. 9 Q. And would a person of skill in the art 10 understand that heat would be a source of noise in the 11 detection signal? 12 MR. KIM: Same objection. 13 THE WITNESS: You mean heat from the human 14 body? 15 BY MR. CHRISTOPHER: 16 Q. Sure. Let's -- let's use that as one example. 17 Heat from the human body, would that be a potential 18 source of noise in the detection signal? 19 A. Well, environment matters, but there's not -- I 20 mean, LEDs are -- you know, the human body is a known 21 temperature, plus or minus a little bit. LEDs don't 22 generate a lot of heat. So does varia- -- do thermal 23 variations potentially need to be understood, yes, but 24 it's -- there's no -- POSITA knows how to address -- you 25 know, modern electronics are not generating so much heat	Page 87 1 BY MR. CHRISTOPHER: 2 Q. You -- you haven't offered any opinions in your 3 declarations with respect to heat being a potential 4 source of noise in Lisogurski's system? 5 MR. KIM: Objection, form. 6 THE WITNESS: Well, I'm searching for -- into 7 my declaration that it was not opining about heat. I 8 didn't find it necessary to do so. A POSITA being 9 familiar with modern electronics would not be concerned 10 with any of the impact of the -- of the heat factors 11 associated with arranging the components as I suggested. 12 BY MR. CHRISTOPHER: 13 Q. Understood. 14 So if we go back to Figure 1, you would agree 15 that a front end processing circuitry 150 in operation 16 would generate heat. Correct? 17 MR. KIM: Objection, form. 18 THE WITNESS: Operating electronics where there 19 is resistances -- resistances turn current into heat. 20 But modern electronics, they do not generate a lot of 21 heat. That's why they can be miniaturized and that's why 22 they run low -- low power. And so there's heat in the 23 operation of a circuit, but not so much heat that a 24 POSITA would be concerned with the -- the performance or 25 the motivations to combine here. And at the same time,
Page 86 1 that -- with these types of systems that you'd be 2 negatively impacting the motivation to make the 3 combinations that I'm pointing -- that a POSITA would be 4 motivated to do so. 5 So environmental conditions vary, and that's a 6 source of variation. There are many sources of 7 variation, but heat would not be any bigger of an issue 8 than anything else. 9 Q. Understood. And I'm not asking about any 10 motivations. I'm just asking, you know, as a -- as a 11 technical matter, you know, thermal variations are a 12 potential source of noise in the detection signal. 13 Correct? 14 MR. KIM: Objection, form and scope. 15 THE WITNESS: Well, I mean, ambient light is 16 radiation. You know, that's -- you know, variation of 17 ambient light is thermal -- is thermal noise. There's 18 radiative heat, there's convective heat, there's 19 conductive heat. Oversimplified thermodynamics. Sources 20 of noise, system -- environmental conditions impact an 21 electronic system, but in this case, there's not -- I 22 haven't opined in my declaration about heat, I don't 23 believe, but there's -- the level of heat here is not 24 such that it would deter a person from making the -- the 25 combinations that I'm opining about.	Page 88 1 they would -- if -- if -- they would also know how to 2 deal with any heat issues by adding -- by arranging the 3 structure in a particular way or, you know, making sure 4 that they're using -- if they really want to sort of 5 compact things as much as possible, they would use the 6 appropriate thermal factors of the components they 7 select. So there aren't any heat issues that would lead 8 a person away from the motivations of com- -- of 9 modification that I have opined about in my declaration. 10 BY MR. CHRISTOPHER: 11 Q. But your declaration didn't address arranging 12 the structure in such a way to deal with potential heat 13 problems. Correct? 14 MR. KIM: Objection, form. 15 THE WITNESS: Implicit in the combinations, a 16 POSITA would be motivated to make these combinations, and 17 I did not opine about heat as -- in my declaration, but 18 it wasn't necessary to do so. It's not -- a POSITA 19 wouldn't -- would know how to deal with it and the -- the 20 issues would not be something too much needed to be dealt 21 with. 22 BY MR. CHRISTOPHER: 23 Q. In -- well, first of all, let's -- let's 24 actually take a step back. 25 You would agree that the components shown in

Page 89 1 Figure 1 of Lisogurski require a power source to operate. 2 Correct? 3 A. Circuitry requires power, yes. 4 Q. Right. And so in the case where a person of 5 skill in the art were to modify Lisogurski and to -- and 6 to put components from the monitor 104 inside the 7 sensor 102, what would a person of skill in the art use 8 as the power source? 9 A. Well, for example, as I describe in Paragraph 10 99 at the bottom of Page 45, sensory -- 11 Q. The '533 declaration? 12 A. Of the '533 declaration. 13 Q. Okay. Sorry -- 14 A. Sensory unit may be -- sensory unit may be 15 powered by an internal power source, a battery. And 16 then, for example -- yeah, actually in Paragraph 96 on 17 Page 44 of the '533 (as read): 18 "Person of ordinary skill would have 19 understood that adding light drive 20 control circuitry would not have 21 negatively impacted the operation. 22 Person of ordinary skill would have 23 appreciated the modern electronics, 24 control of drive circuits, their design 25 compactness, power efficiency, ease of	Page 91 1 BY MR. CHRISTOPHER: 2 Q. But the battery would, in fact, generate at 3 least some amount of heat in operation. Correct? 4 MR. KIM: Objection, form. 5 THE WITNESS: Again, the heat is not an issue 6 here. The low -- low power electronics powered by a 7 battery would -- low power, it's inher- -- it's low 8 power, and that low power is both in its operation. 9 Because it's low power, it's also low power in anything 10 that's dissipated. Low power, low dissipation meaning 11 low heat. So heat is not going to be an issue. 12 BY MR. CHRISTOPHER: 13 Q. Well, maybe in your view, low heat, but there 14 is actually, in fact, heat generated by the battery. We 15 agree on that? 16 MR. KIM: Objection, form. 17 THE WITNESS: The -- the presence of heat 18 that's generated by the circuitry and the operation of 19 the circuitry would not be a negative impact that the 20 POSITA wouldn't know how to appropriately design and pick 21 the components in order to realize their device in a form 22 factor and cost-effective way. And heat would not be an 23 issue. 24 BY MR. CHRISTOPHER: 25 Q. And again, you didn't offer any opinions in
Page 90 1 integration in mind, making them 2 well-suited within the form factor for a 3 wearable device. Their small size would 4 not add bulk or weight, and their 5 efficient power consumptions help 6 maintain the device's overall battery 7 life." 8 And -- let's see. Talking about Paragraph 99. 9 I talk about battery powering in 101. So, you know, 10 battery would be an appropriate way to power the 11 electronics. 12 Q. Okay. So in the proposed modification of 13 Lisogurski, the electronics would be powered by a 14 battery. Correct? 15 A. As I opined in the declaration, yes. 16 Q. Sure. And a person of skill in the art would 17 understand that a battery would give off heat. Correct? 18 MR. KIM: Objection, form. 19 THE WITNESS: A POSITA would understand how to 20 pick appropriate batteries in their design to enable a 21 device that can be powered by the battery and not have 22 negative effects, and batteries do not run that hot for 23 such a device for the power that would be needed, so 24 there's no issue. 25 ///	Page 92 1 your declaration with respect to managing heat in the 2 proposed combination modification of Lisogurski. 3 Correct? 4 MR. KIM: Objection, form. 5 THE WITNESS: Well, I do talk about low power, 6 and the power -- low power again being low power of 7 operation, and low power also being minimal power to get 8 dissipated into heat. So I'm not directly discussing 9 heat, but it's implied in one of the factors that a 10 POSITA knows is addressed with modern electronics in the 11 way that I suggested combining them. 12 BY MR. CHRISTOPHER: 13 Q. You didn't directly address heat in your 14 declaration. Correct? 15 MR. KIM: Objection, form. 16 THE WITNESS: I addressed it through the 17 discussion of power. Power, then dissipation of power in 18 the operation of the circuit would generate low heat and 19 would not be an issue. It's low power, both in its 20 function and in any dissipation. 21 BY MR. CHRISTOPHER: 22 Q. You haven't proposed any modifications to 23 Lisogurski to dissipate heat in your proposed 24 modification. Correct? 25 MR. KIM: Objection, form.

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1 THE WITNESS: Just one second. My Adobe is --
2 I'm getting the spinning wheel. One second. Sorry.
3 BY MR. CHRISTOPHER:
4 **Q. No problem. It happens.**
5 A. Well, as I'm waiting for that, if I refer to
6 the paper version, again, on Page 96, I talk about -- I'm
7 sorry -- Paragraph 96 of my '533 declaration, at the top
8 of Page 44, for example (as read):
9 "A person of ordinary skill would have
10 appreciated that modern electronic
11 components, such as control and drive
12 circuits, are designed with compactness,
13 power efficiency" -- meaning not wasting
14 a lot of power, therefore not generating
15 a lot of heat -- "and ease of integration
16 in mind, making them well-suited for
17 integration within the form factor of a
18 wearable device."
19 So I talked about it through the lens of being
20 power and power efficient.
21 **Q. But you haven't proposed modifying Lisogurski**
22 **to dissipate heat. Correct?**
23 MR. KIM: Objection, form.
24 THE WITNESS: And then further in that
25 Paragraph (as read):

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1 "Their small size would not add
2 significant bulk or weight. Their
3 power" -- "their efficient power
4 consumption helps maintain the device's
5 overall battery life" -- meaning they're
6 being efficient; they're not wasting a
7 lot of energy; meaning they're not
8 generating heat. "As a result, person of
9 ordinary skill in the art would have
10 found the integration of the light drive
11 circuitry, while practical, feasible,
12 advantageous," et cetera.
13 BY MR. CHRISTOPHER:
14 **Q. Right. And I understand that you're contending**
15 **that the amount of heat generated is insufficient to have**
16 **to worry about, but my question is different. You**
17 **haven't proposed any modification to Lisogurski, any**
18 **additional components that dissipate any heat generated**
19 **by the device. Correct?**
20 MR. KIM: Objection, form.
21 THE WITNESS: Well, I mean, another example of
22 minimizing heat, for example, when we're moving things
23 proximal to each other so they don't need to propagate
24 very long, meaning wear a long wire. The wire or a trace
25 is nothing more than a resistor effectively. And so

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1 shortening those distances also would tend to dissipate
2 less heat. And so their bringing things together is
3 actually serving to reduce even further the amount of --
4 of dissipation for heat that's being generated.
5 MR. CHRISTOPHER: We've been going, I think,
6 roughly an hour. It's probably a good spot to take five.
7 Why don't we go off the record.
8 (Recess.)
9 MR. CHRISTOPHER: All right. Back on? All
10 right. Back on the record.
11 BY MR. CHRISTOPHER:
12 **Q. Dr. Anthony, welcome back.**
13 **Did you discuss your testimony with anyone**
14 **during our break?**
15 A. No.
16 **Q. Okay. I would like to direct your attention**
17 **now to Figure 2A of Lisogurski.**
18 **Let me know when you're there.**
19 A. Okay.
20 **Q. In Figure 2A, the Y axis in the plot is the**
21 **amplitude of the light drive signal. Correct?**
22 A. And the hori- -- vertical axis is the light
23 drive signal, yes.
24 **Q. And the horizontal axis is time. Correct? The**
25 **X axis?**

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1 A. Correct, yep.
2 **Q. Okay. And the light drive signal, that's the**
3 **signal from the light drive circuitry we were looking at**
4 **in Figure 1. Correct?**
5 A. The signal light source between the Red on
6 period 202, in the IR on period 204, yeah.
7 **Q. Well, sorry, that was a -- that was a little**
8 **quiet.**
9 **Did you say "yes" at the end of that?**
10 A. I was -- I was quoting from Lisogurski, the 202
11 correspondence light drive signal for the IR versus the
12 other one -- or the Red versus the other one, which is
13 the IR. 202 was the Red, 204 IR.
14 **Q. Perfect. And then you see reference**
15 **Number 220?**
16 A. Yes.
17 **Q. Okay. So that's between 202, which is the -- I**
18 **think you said the IR and then 204, which is the Red.**
19 **Correct?**
20 A. Each Red light on period 202 in IR is 2042 two
21 dark periods, 220.
22 **Q. Got it. And so during that dark period 220,**
23 **the light drive signal is zero. Correct?**
24 **Are you viewing a document right now?**
25 A. Looking at Lisogurski.

Page 97 1 Q. Sure. 2 A. Okay. Sorry. Can you reask the question? 3 Q. Yeah. I'm just looking at Figure 2A and I'm 4 looking at the dark period 220. The light drive signal 5 that's reflected at the Y axis is zero during the dark 6 period. Correct? 7 A. In that illustrative figure is -- and -- but I 8 also -- and what I was looking for, there's also 9 description in Lisogurski that talks about the off may 10 not be completely off at times. That it may be just 11 modulated up and down, as opposed to completely off. 12 Q. Sure. But in -- at least in Figure 2A, this 13 particular example, it's here. Right? 14 A. It's a -- it's a -- it's a illustrative. It's 15 plotted as zero there, yes. 16 Q. And in this example, during dark period 220, 17 the emitter is turned off, it's not emitting any light. 18 Correct? 19 A. Again, in that figure, that is sort of the -- 20 what's shown, but Lisogurski also describes other 21 situations where it may not be completely on and off. It 22 does so in, for example, Column 29, in the Paragraph that 23 starts around Paragraph 38 -- or Line 38. 24 Q. Understood. And then if we go down, same page 25 Figure 2B, you see it? It's Page 4 of the PDF, if you	Page 99 1 that we see at the dark period 222 would be caused by 2 ambient light on the detector. Correct? 3 A. Well, for example, as is described in 4 Lisogurski in Column 16, Line 48, (as read): 5 "The first off portion and the second 6 off portion may be used to determine the 7 level of ambient light, noise, dark 8 current, other suitable signals or any 9 combination thereof." 10 So ambient light is -- there's -- there is -- a 11 detector will have a signal even when there's no light on 12 it. So a POSITA reading this would understand what's 13 embodied in that period where the light is not active, is 14 a combination of depending on how it's being timed and 15 configured. It could be ambient light, could be other 16 noise, could be the dark current, or some combination 17 thereof. 18 Q. Understood. So in Figure 2B, the dark period 19 222, the -- the detector current we see on the Y axis, 20 that would represent noise. Correct? 21 A. Well, as described there, ambient light, noise, 22 or dark current, or other combinations thereof, as 23 described by Lisogurski. 24 Q. What -- what is the dark current? 25 A. I just described that in the previous answer.
Page 98 1 have Lisogurski in front of you. 2 A. 2B. Yep. 3 Q. All right. So in Figure 2B, the Y axis 4 represents detector current. Correct? 5 A. Yes. 6 Q. And the detector current is proportional to the 7 light that's incident on the detector. Correct? 8 A. Well, it's proportional, as described there as 9 well, there's the dark current, which is present when 10 there's no light falling on it or some light, as is 11 alluded to the other description in Column 29. 12 Q. Understood. So Reference Number 222 in 13 Figure 2B, that represents the dark period. Correct? 14 A. Correct. 15 Q. And we see, at the dark period 222 in 16 Figure 2B, the detector current is not zero. Correct? 17 A. Correct. And that could be, as I described, 18 due to the -- the -- the dark current or the fact that 19 it's also that on and off may not be as extreme, as shown 20 in 2A. 21 Q. Right. And that was my next question. But the 22 dark current is from ambient light. Correct -- actually, 23 strike that. Let me -- let me ask a better question. 24 In Figure 2B, if you assumed that the dark 25 period 222 is when the emitter is turned off, the current	Page 100 1 Dark current is the current that's there. It's a diode, 2 it's a reverse bias. So even when there's no signal 3 there, it will have a -- well, even if there's no light 4 on it, it may have a signal present. 5 Q. Got it. Now, Lisogurski discloses techniques 6 for subtracting the detector current at the dark period 7 from the detector current on the on period 214. Correct? 8 A. I'm sorry. What -- what -- where are you 9 referring to? 10 Q. Well, I'm just looking at Figure 2B. And based 11 on your review and knowledge of Lisogurski, my question 12 is: Lisogurski teaches that -- teaches techniques for 13 subtracting the detector current shown at period 222 from 14 the detector current shown at the on period 214. 15 Correct? 16 A. So as described, for example, in Column 17 (as 17 read): 18 "The level of ambient light, noise, 19 dark current, or other suitable signals 20 or other combinations thereof, the system 21 may subtract that background or dark 22 level from the levels received during the 23 'on' period." Yeah. 24 Q. Right. And so a person of skill in the art 25 would understand that subtracting the signals from the

Page 101 1 dark period would increase the signal-to-noise ratio of 2 the detector signal. Correct? 3 A. Well, in the -- in that period of time, the -- 4 it's the combination of dark current noise, ambient 5 light. So it's trying to compensate for those things 6 that are not the -- the distinct signal that you're 7 looking for. So in improving the signal to noise. 8 Q. And a person of skill in the art would be 9 motivated to increase the signal-to-noise ratio on the 10 detection signal. Correct? 11 A. In general, you know, there are trade-offs. 12 But, you know, in general, you want more signal. 13 Q. Would a person of ordinary skill in the art be 14 motivated to maximize the signal-to-noise ratio of the 15 detection signal in Lisogurski? 16 MR. KIM: Objection, form. 17 THE WITNESS: Well, I mean, a POSITA, in 18 their -- whatever they're trying to accomplish, knows 19 that signal-to-noise ratio is important relative to 20 whatever their design specs are. 21 So whether the signal-to-noise ratio is the 22 thing they're trying to maximize as a design parameter or 23 some -- some combination of signal-to-noise ratio with 24 other factors, it's certainly an important consideration 25 in the overall design space.	Page 103 1 increase the signal to noise. And so -- so in general, 2 you want more signal. 3 But, again, it's a -- it's not the only design 4 consideration and there are multiple ways to achieve good 5 signal-to-noise ratio. So you can take a hit -- say 6 there are three different -- four different ways to 7 improve signal to noise, you can take a hit on one of 8 them if you're improving the other one. Right? 9 So it's -- it's the overall signal-to-noise 10 budget that you're dealing with. So there may be, as 11 you're looking at your design space, factors that would 12 degrade one aspect of it, but improve another aspect of 13 it, so the overall signal-to-noise ratio. 14 But, again, I was not opining around 15 motivations to -- combined to minimize or to decrease 16 signal to noise. 17 BY MR. CHRISTOPHER: 18 Q. And, again, I think that's a -- that's a fair 19 point. So let me -- let me just rephrase that to capture 20 what you said. 21 A person of skill in the art would not have 22 been motivated to modify Lisogurski to decrease the 23 overall signal-to-noise ratio of the detection signal. 24 Correct? 25 A. Correct. We're motivating to -- you know, all
Page 102 1 BY MR. CHRISTOPHER: 2 Q. Well, let me -- let me ask it this way: A 3 person of skill in the art would not have been motivated 4 to modify Lisogurski in a way that decreases the 5 signal-to-noise ratio of the detection signal. Correct? 6 MR. KIM: Objection, form. 7 THE WITNESS: Well, I mean, Lisogurski deals -- 8 talks about a number of different ways of dealing with 9 signal to noise. Modulating the frequency, doing the 10 back -- background subtraction, et cetera. 11 And in -- by itself, you want good signal to 12 noise. A POSITA would consider signal to noise and how 13 much it needs to be maximized, along with other design 14 trade-offs, but in general, you know, they have the 15 biggest design budget. They'd want to have good 16 signal-to-noise ratio. 17 BY MR. CHRISTOPHER: 18 Q. That's fair. So would you agree that, in 19 general, a person of skill in the art would have been 20 motivated to modify Lisogurski to decrease the 21 signal-to-noise ratio of the detection signal? 22 MR. KIM: Objection, form. 23 THE WITNESS: Well, I didn't propose a -- any 24 motivation why somebody would combine to minimize, talk 25 about the combination with Carlson, for example, to	Page 104 1 things being isolated. Right? I mean, again, could a -- 2 in a hypothetical situation, could a POSITA willingly 3 take a hit in signal to noise because it made the device 4 a thousand times cheaper? That would be a fair design 5 consideration that a POSITA would need to make. I didn't 6 opine upon that. 7 But yeah, that would -- sitting here now, 8 today, yeah, that could be something that me, as a 9 designer, could choose to do, if it's significantly 10 improving other design factors. All things being equal, 11 though, yeah, I'd like as much signal to noise as I can 12 and there are multiple ways to accomplish good signal to 13 noise. 14 Q. Got it. Can you turn to Column 3 of 15 Lisogurski. And I'd like to direct your attention -- 16 it's at Line 58. Let me know when you're there. 17 A. Line 58? 18 Q. Yeah. At Line -- in Line 58, Lisogurski 19 discloses that (as read): 20 "It may also be desirable to reduce 21 the power consumption by the light drive 22 signal to reduce heating effects caused 23 by an emitter." 24 Do you see that? 25 A. Yes.

Page 105 1 Q. And the emitter, we talked about this earlier, 2 that's an LED, for example. Correct? 3 A. Yes. 4 Q. And here, starting at Line 58 in Column 3, 5 Lisogurski discloses that it is desirable to reduce the 6 heating effects caused by emitter. Correct? 7 A. Well, it says they may be desirable to reduce 8 power consumption, to reduce heating effects caused by an 9 emitter. But again, there are, as I was talking about, 10 the low power consumption, low dissipation that's, you 11 know, what we were talking about before. And here there 12 are multiple ways to accomplish both power consumption 13 and too much noise in the appropriate design trade-offs 14 to both. 15 Q. Let's actually take a step back. 16 A person of skill in the art would understand 17 that Lisogurski's reference to heating effects caused by 18 an emitter refers to heat that's generated by the 19 emitter. Correct? 20 A. Well, with Lisogurski there, in that sentence, 21 it may also be desirable to reduce power consumption by 22 the light drive signal to reduce heating effects caused 23 by an emitter. 24 So a POSITA reading the -- the Lisogurski in 25 its entirety, as I opined, that, you know, the other	Page 107 1 Q. So you would agree that Lisogurski discloses 2 that the heating effects caused by an emitter may be 3 undesirable. Would you agree with that? 4 MR. KIM: Objection, form. 5 THE WITNESS: It may be desirable. It may be 6 desirable from both a power consumption perspective and, 7 you know, it may be desirable to reduce the power 8 consumption by the light drive signal to reduce the 9 heating effects. So POSITA reading that understands they 10 have a knob where they can consider reducing power. They 11 can reduce heat. And it's a -- it's a "may." It's a 12 design consideration. Well -- and it will be a factor of 13 which individual components they choose to use. 14 BY MR. CHRISTOPHER: 15 Q. So my question was slightly different. A 16 person of skill in the art reading Lisogurski would 17 understand based on this disclosure, Lines 58 through 60 18 in Column 3, that the heating effects caused by an 19 emitter may be undesirable. Correct? 20 MR. KIM: Objection, form. 21 THE WITNESS: Well, I mean, it's described 22 there, for example, in -- POSITA reading it may be 23 desirable to -- to think about both power and heating 24 with respect to the emitter. And then Column 5 it also 25 talks about the impact of the -- of the light source on
Page 106 1 reason to bring things proximal to each other is, you 2 know, low -- fewer -- shorter wires, therefore, lower 3 resistance along the wires that are going to the emitter. 4 Depending on the emitter that a POSITA chooses to use, 5 that will dictate whether -- how much it's necessary to 6 potentially consider this in their overall design. But 7 there's, again, design trade-offs in -- in improving 8 overall performance. 9 Q. Understood. I'm just trying to confirm a 10 person of skill in the art would understand heating 11 effects, and Line 59 of Lisogurski refers to heat that's 12 generated by the emitter. Correct? 13 A. But the emitter includes the connection to the 14 emitter and the -- and the length of the wires connecting 15 to the emitter as well, and so modern LEDs, as I 16 discussed in the -- in the -- my declarations are also 17 increasingly low power and more power efficient. So 18 there may be some heat coming from inefficient or 19 relative inefficient emitters versus less heat coming 20 from more efficient emitters, and so it's not saying here 21 that you have to do this. You know, it may be. It 22 may -- POSITA reading this would understand the maybe is 23 a design consideration, taking the things that are taught 24 by Lisogurski into consideration when realizing their 25 particular substantiation of the device.	Page 108 1 the subject, you know, in -- in Column 5, to play with 2 the power consumption heating. But it's a function of 3 design consideration with the particular components and 4 the trend to low-power components and miniaturized 5 semiconductor technology at the time. POSITA would also 6 understand that that also further mitigates any issues 7 associated with needing to potentially do this. 8 BY MR. CHRISTOPHER: 9 Q. You just mentioned "at the time." 10 What time frame are you referring to? 11 A. In the time period where I eval- -- opine on 12 this in my 2019 declaration, the 2025 declaration, you 13 know, what the -- what a POSITA reading Lisogurski in 14 view of POSITA knowledge would understand. 15 Q. In what time frame? 16 A. So it is set -- described in Paragraph 5. 17 The priority purposes of declaration, priority 18 date of December 31st, 2012. 19 Q. And if we can go back to more time, Column 3 of 20 Lisogurski, Lines 68 through -- 60 -- 58 through 60. 21 A. I'm sorry, what column? 22 Q. Column 3, Lines 58 through 60 of Lisogurski. 23 Would a person of skill in the art understand 24 that reducing the power consumption of a light drive 25 signal would reduce a potential source of noise with

Page 109 1 respect to the detector signal? 2 MR. KIM: Objection, form and scope. 3 THE WITNESS: Well, I think I already answered 4 this. I mean, it may be desirable, and it's a design 5 trade-off but depending on the particular emitters that 6 they were using and the -- and the power consumption that 7 they're concerned with, these are some of the 8 considerations. But would some heat potentially be 9 generated? Is there a way to minimize that? Yes. By 10 picking different components, by picking, you know, a way 11 to do the signaling. So it may be. It's a function of 12 what their design choices are. 13 BY MR. CHRISTOPHER: 14 Q. So my question is slightly different. I'm 15 driving at why is it desirable. It's desirable to reduce 16 the power consumption by the light drive signal in order 17 to reduce a potential source of noise with respect to the 18 detection signal. Correct? 19 MR. KIM: Same objection. 20 THE WITNESS: Well, I mean, what's described 21 there may be -- may be desirable to reduce the power 22 consumption by the light drive signal to reduce the 23 heating effects so an LED, an emitter is -- has a 24 resistive component. Right? And so one potential 25 benefit is -- is saving power, and that power-saving is	Page 111 1 introduced because of -- of potential heating versus the 2 frequency with which data is being acquired. So it's not 3 necessarily reducing the signal to noise. 4 BY MR. CHRISTOPHER: 5 Q. So fair point. Let me ask it slightly 6 differently. 7 All other factors being equal, would a person 8 of skill in the art understand that reducing the power 9 consumption by the light drive signal to reduce heating 10 effects caused by an emitter increase the signal-to-noise 11 ratio of the detection signal? 12 MR. KIM: Objection, form. 13 THE WITNESS: It's impossible to consider it in 14 isolation. It's part of a -- it's part of a teaching 15 that sort of has these different ways of improving signal 16 to noise, different factors. And it may be. You know, 17 the "maybe" is indicative of, well, it depends on other 18 things. And so it's -- it's -- it's -- it's in context 19 of the multiple design axes that a POSITA would be 20 bringing to bear to accomplish a target signal-to-noise 21 ratio and power consumption and battery life and 22 manufacturability. 23 BY MR. CHRISTOPHER: 24 Q. Right. And for purposes of this question, I'm 25 assuming -- I'm asking you to assume that all of those
Page 110 1 because we're minimizing -- if that LED is dissipating 2 heat, one way to minimize the heat that it's -- is by 3 reinstallation. 4 If the LED is not generating as much heat, then 5 you save -- you don't -- you're not as concerned with it, 6 and so you don't have to be as concerned with the power 7 consumption relative to a -- a less dissipative emitter. 8 BY MR. CHRISTOPHER: 9 Q. Would a person of skill in the art understand 10 that reducing the power consumption by the light drive 11 signal to reduce heating effects caused by an emitter 12 would improve the signal-to-noise ratio of the detection 13 signal? 14 MR. KIM: Objection, form. 15 THE WITNESS: Can you repeat the question, 16 please? 17 BY MR. CHRISTOPHER: 18 Q. Yeah. Would a person of skill in the art 19 reviewing Lisogurski understand that reducing the power 20 consumption by the light drive signal to reduce heating 21 effects caused by an emitter would increase the 22 signal-to-noise ratio of the detection signal? 23 MR. KIM: Same objection. 24 THE WITNESS: Again, it's a -- it's a balance 25 of factors. It's a balance of any variation that's	Page 112 1 design axes otherwise remain the same. And so assuming 2 they all otherwise remain the same, would reducing the 3 power consumption by the light drive signal to reduce 4 heating effects increase the signal-to-noise ratio of the 5 detection signal? 6 MR. KIM: Objection, form. 7 THE WITNESS: What those other axes are and 8 where they are on that particular space, it depends, 9 because it's not an independent thing. It's coupled to 10 the other design considerations. 11 BY MR. CHRISTOPHER: 12 Q. So it's possible that reducing the power 13 consumption of the light drive signal to reduce heating 14 effects caused by an emitter would not impact the 15 signal-to-noise ratio of the detection signal? 16 MR. KIM: Objection, form. 17 THE WITNESS: Again, I'm trying to convey it 18 may be desirable. It's a function of other factors 19 that's design trade-offs. POSITA reading Lisogurski in 20 its entirety understands what is taught, understands the 21 state of the art with respect to electronics and 22 miniature detectors and emitters. So the design space is 23 a coupled design space, and a POSITA would be motivated 24 to accomplish their design goal through adjustments along 25 the various design axes.

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1 BY MR. CHRISTOPHER:
2 Q. Let me just back up and ask you this: Would a
3 person of skill in the art understand that the power
4 consumption by the light drive signal and the heating
5 effects by the emitter affect the detection signal --
6 MR. KIM: He cut off.
7 THE COURT REPORTER: May we go off the record.
8 (Recess.)
9 BY MR. CHRISTOPHER:
10 Q. All right. We're back on the record.
11 Apologies for the technical difficulties.
12 Before we went off, we were talking about
13 Column 3, Lines 58 through 60 of Lisogurski, and I don't
14 know if you caught any of this before I dropped off, but
15 I was trying to take a step back and just ask you whether
16 a person of skill in the art would understand that the
17 power consumption by the light drive signal would have
18 any impact on the signal-to-noise ratio of the detection
19 signal in Lisogurski.
20 MR. KIM: Objection, form.
21 THE WITNESS: So as it described, you know, the
22 impact around any one factor is coupled to the other
23 aspects of the design. LEDs don't generate enough heat
24 to be a significant problem in general, and -- and you
25 want to balance power consumption, any -- any potential

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1 noise effects. But it's a trade-off. So, you know,
2 POSITA would understand, you know, all things being
3 equal, they're not. They're -- your design space is
4 balancing signal to noise and power consumption, cost,
5 usability. This does not teach away at all from being --
6 from miniaturizing the -- the emitters or combining
7 things in a smaller space. You know, heat here is -- is
8 a consideration, but it's not at all something that a
9 POSITA would be -- wouldn't know how to deal with it.
10 BY MR. CHRISTOPHER:
11 Q. Understood. I'm just trying to confirm that
12 all things being equal, the heating effects caused by an
13 emitter could impact the signal-to-noise ratio. Correct?
14 MR. KIM: Objection, form.
15 THE WITNESS: Again, it depends on the design
16 factors, the LEDs that they've used, the other
17 electronics. And it's also highlighted there. "It may
18 be desirable." It's a "may." It depends is what it
19 means. It depends on these other things.
20 BY MR. CHRISTOPHER:
21 Q. All right. Fair enough on that subject.
22 Can you turn to Column 36, Line 66 of
23 Lisogurski, which is on Page 50 of the PDF. Let me know
24 when you're there.
25 A. Column 36, what line?

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1 Q. Sixty-six, please. Very off, and then it
2 bridges on to the next page in Column 37.
3 Do you see Column 66 [sic]?
4 A. Yep.
5 Q. Okay. So start at -- we talked about this
6 earlier. So starting at Column 36, Line 66 of
7 Lisogurski, it discloses (as read):
8 "In some embodiments, the system may
9 detect a signal indicative of a system
10 error such as a physiological impossible
11 value, a probe-off signal, any other
12 suitable signal, or any combination
13 thereof."
14 Do you see that?
15 A. Yes.
16 Q. What would a person of skill in the art
17 understand that the term "system error" refers to?
18 A. Well, as described there, in isolation, (as
19 read):
20 "In some embodiments, the system may
21 detect a signal of indicative of a system
22 error such as a physiologically
23 impossible value, a probe-off signal, any
24 other suitable signal, or any combination
25 thereof. The system may detect the

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1 physiological condition using information
2 obtained through the measurements in
3 step 1902."
4 So its -- those are examples, system errors,
5 physiological impossible value, probe-off signal, any
6 other suitable signal.
7 Q. Let me see if I understand this.
8 So a physiologically impossible value, that's a
9 system error. Correct?
10 A. Well, what's described there in that sentence,
11 (as read):
12 "In some embodiments, the system may
13 detect a signal indicative of a system
14 error, such as a physiologically
15 impossible value, a probe-off signal, or
16 any other suitable signal, or combination
17 thereof."
18 Q. Right. So in that -- starting at Line 66 and
19 going down to Line 67, it refers -- "it" being
20 Lisogurski -- Lisogurski refers to (as read):
21 "A signal indicative of a system
22 error."
23 Do you see that?
24 A. Yes.
25 Q. And then it goes on to say (as read):

Page 117 1 "Such a physiologically impossible 2 value." 3 Right? 4 A. Yes. 5 Q. Okay. What is the system error? 6 A. Well, that sentence describing examples (as 7 read): 8 "A system error, such as a 9 physiologically impossible value to a 10 probe-off signal, any other suitable 11 signal, or combination thereof." 12 Q. So in your view, a physiological impossible 13 value and a probe-off signal are examples of system 14 errors. Is that correct? 15 Sorry. Are you just reviewing Lisogurski or... 16 A. I'm -- I'm looking at Liso- -- I'm reviewing 17 Lisogurski. 18 Q. Sure. 19 A. Well, I mean, that sentence is in the context 20 of what's being described in step 1904, which is 21 described in Figure 19. There's -- 1902 is (as read): 22 "Performing a physiological 23 measurement in the first mode." 24 That's 1902. (As read): 25 "Detect a physiological condition."	Page 119 1 detect a signal indicative of a system 2 error, such as a physiologically 3 impossible value, a probe-off signal, any 4 other suitable signal, or any combination 5 thereof. The system may detect the 6 physiological condition using the 7 information obtained through the 8 measurement in 1902, from an external 9 sensor or controller, by any other 10 suitable techniques, or any combination 11 thereof." 12 So can you repeat your question now? 13 Q. Yes. 14 A. Because in the context, it's becoming -- okay. 15 Q. And this goes back to your testimony from a 16 moment ago. 17 Is it your view that a physiologically 18 impossible value in a probe-off signal are examples of 19 system errors in Lisogurski? 20 MR. KIM: Objection, form. 21 THE WITNESS: Well, again, I -- I didn't need 22 to opine about this particular sentence in isolation. 23 But, you know, in some embodiments, that a system may 24 detect an error and that error could be that the probe is 25 off, there's something else going on, including a -- a
Page 118 1 1904. 2 "Perform a second measurement in the 3 second mode." 1906. 4 And 1904, that Paragraph from which we were 5 pointing in step 1904 (as read): 6 "The system may detect a physiological 7 condition." 8 Gives some examples of heartbeats, tachycardia, 9 cardiac irregularity (as read): 10 "The system may also detect no 11 heartbeat." 12 And then in some embodiments, presumptively in 13 that step (as read): 14 "The system may false positive detect 15 a physiological condition in the presence 16 of noise, ambient light, a loss of 17 detector signal, any other suitable 18 reason, or any combination thereof. And 19 in some embodiments, the system may 20 detect a physiological parameter. For 21 example, a low blood oxygen saturation, 22 low pulse rate." 23 It goes on and then back to where you were 24 pointing (as read): 25 "In some embodiments, the system may	Page 120 1 physiologically impossible value or other probe-off 2 signal. 3 BY MR. CHRISTOPHER: 4 Q. Any other system errors in Lisogurski, aside 5 from the physiological impossible value or probe-off 6 signal? 7 A. I'm sorry. Repeat that again. 8 Q. Yeah. Yeah. I'm just trying -- I'm just 9 trying to understand. 10 Having now read that entire section in context, 11 can you identify any other system errors, as that term is 12 used in Line 67 in Column 36, other than the 13 physiologically impossible value in the probe-off signal? 14 MR. KIM: Objection, form. 15 THE WITNESS: Well, for -- for example, just 16 continuing on that column in 37, in some embodiments, the 17 system may detect a condition where a second mode is 18 required that it's not related to a physiological 19 condition. So the system may detect a change in 20 background noise and change in ambient light, change in 21 available power. 22 So the system may perform physiological 23 measurements in a -- in a second mode. It can adjust for 24 low -- low signal, potentially, and in -- in a number of 25 ways.

Page 121 1 BY MR. CHRISTOPHER: 2 Q. Those functionalities you just described, would 3 a person of skill in the art understand those to be 4 system errors? 5 A. Yeah. I mean, that's sort of the -- the system 6 is the -- it's a system that's trying to measure a thing. 7 Right? And that is -- it's not -- that system isn't 8 necessarily a -- the system is the -- includes the 9 interaction with the -- the object being measured, the 10 person being measured. 11 And so having other aspects that impact the 12 overall system, such as high light or low -- high ambient 13 light, to compensate for that would be an example of 14 something that could be determined from that error 15 signal. 16 Q. Lisogurski doesn't disclose what the system 17 does upon detecting a signal indicative of a system 18 error. Correct? 19 Are you currently reviewing Lisogurski? 20 A. Yes. 21 Q. Okay. 22 A. Well, for example, I mean, as it goes on and 23 describes there, as a result of that potentially 24 physiologically unrealizable possible value that could 25 come from insufficient signal to noise. And so doing	Page 123 1 presumptively, either turned off or -- or not purposely 2 connected to the -- or as well attached to the person as 3 it could be. 4 Q. You mentioned "turned off." 5 The probe-off signal could mean that the probe 6 is just simply turned off. Correct? 7 A. Again, I didn't need to -- I wasn't opining 8 upon exactly what "probe-off" meant here. But I think 9 sitting here today, I think it's better interpreted as a 10 disconnection between the probe and the -- and the body. 11 Q. Could "probe-off" be interpreted by a person of 12 skill in the art as referring to the -- the probe just 13 being turned off? 14 MR. KIM: Objection, form. 15 THE WITNESS: Well, at that point, if the probe 16 is turned off, you're not getting any signals. So I 17 think that's probably unlikely. 18 BY MR. CHRISTOPHER: 19 Q. Got it. 20 Do you recall discussing earlier the detector 21 current signal during the dark period, for example, as 22 shown in Figure 2B of Lisogurski? 23 A. Yes. 24 Q. The dark signal would not be considered a 25 signal indicative of a system error. Correct?
Page 122 1 things like increasing the amount of light, increasing 2 emitter intensity, as it describes in the next Paragraph. 3 Q. What about the probe-off signal? What does 4 Lisogurski do in response to detecting a probe-off 5 signal? 6 MR. KIM: Objection, form. 7 THE WITNESS: Well, a probe-off signal, just 8 opining about it here momentarily, not to be opined upon 9 that specific thing in isolation, but probe-off can be 10 partially on versus completely off. 11 So, for example, small probe-off, a little bit 12 of offness, if you will, could be adjusted with -- you 13 know, that's a source of noise. So in the -- the 14 intensity of light being increased to compensate for an 15 increase in the gap, for example, between the sensor and 16 the -- the person as a result of motion would be a very 17 natural understanding of a POSITA reading this, of a way 18 that he -- Lisogurski describes in responding to that -- 19 that system error. 20 BY MR. CHRISTOPHER: 21 Q. So one example of a probe-off signal would be 22 that it's indicative of the device being worn, but 23 lacking sufficient contact with the person. Is that 24 right? 25 A. Well, "probe-off" means that it's,	Page 124 1 MR. KIM: Objection, form. 2 BY MR. CHRISTOPHER: 3 Q. Are you reviewing any document right now? 4 A. The Lisogurski. 5 So you -- you asked about the -- the off 6 period. I mean, that -- we discussed that before. That 7 is indicative -- it has certain information about ambient 8 light, noise, dark current. And so that ambient light 9 is -- more ambient light would be indicative of probe, 10 potentially, being less rigidly connected -- or 11 informally attached to the -- the wearer. 12 Q. Can we turn to your declaration for the 13 '304 patent. This is Exhibit 1003 in IPR2025-01251. 14 A. And I'm going to be using just paper for at 15 least the next 15 minutes, since Adobe has crashed again. 16 Q. Fair enough. And I'll try to get you some page 17 numbers while we're doing this, to speed it up. 18 Can you turn to Paragraph 109 of your 19 declaration from the '304 patent. This would be on 20 page -- using the internal pagination, Page 62. If 21 you're using the page number in the bottom right corner. 22 It's Page 65. 23 A. So Paragraph 109? 24 Q. Yeah. Paragraph 109, yeah. 25 A. Okay.

Page 125 1 Q. So here in Paragraph 109, you address 2 Element [1.pre] of Claim 1 of the '304 patent. Correct? 3 A. Yes. 4 Q. And then in Paragraph 110, you note that the 5 board previously found this identical limitation was met 6 by Lisogurski in the prior '533 IPR. 7 Do you see that? 8 A. Yes. 9 Q. And so you rely on the prior decision for the 10 '533 patent in connection with Element [1.pre]. Correct? 11 MR. KIM: Objection, form. 12 THE WITNESS: No, I'm not -- I mean, I'm 13 boarding their opinions; I agree with their opinion. I'm 14 not relying on their opinion. You know, this is 15 consistent with the opinions that I made in the prior 16 declaration. So this -- you know. 17 BY MR. CHRISTOPHER: 18 Q. So you're not relying on the board's findings 19 in the prior decision the '533 patent in your 20 declaration? 21 MR. KIM: Same objection. 22 THE WITNESS: So -- so as I described, the 23 board -- in Paragraph 110 (as read): 24 "The board previously found this 25 identical limitation was met by	Page 127 1 other -- I'm just reading this. 2 Q. So just to be clear, I'm just asking about 3 Element [1.pre] which you address in paragraphs 109 and 4 110. You don't cite the board's prior decision 5 concerning the '484 patent in paragraphs 109 or 110 of 6 your declaration. Correct? 7 A. In those paragraphs, I reference that I point 8 to my agreement with what the board had identified, 9 but -- so consistent with my opinions regarding the '533. 10 Q. But not the '484 -- strike that. 11 But you don't cite your prior declaration for 12 the '484 patent. Correct? 13 A. Not in [1.pre] I do not. Later on I -- further 14 on, I do under [1.a] I believe it is. But -- yeah, in 15 [1.a] I also reference my prior '484 declaration as well, 16 but in that Paragraph I do. 17 Q. Where do you see that for Element [1.a]? 18 A. When I get to, for example, Paragraph 115, I 19 talk about the prior '484, and then in Paragraph 116, 20 there's the -- at the end there, my '484 Anthony. 21 Q. Sure. So if we -- if we actually turn now, 22 this is under Element [1.a], Paragraph 115, this is, if 23 you're looking at the page number in the middle, Page 66. 24 Are you there? 25 A. Yes.
Page 126 1 Lisogurski in the prior '533 IPR, in 2 particular to meet a measurement system," 3 et cetera. Goes down. 4 And this is consistent with my opinions 5 regarding the '533 limitation provided in my prior '533 6 declaration, right. Which you know all these things are 7 represented in my prior '533 declaration. That's what I 8 agree with, as well as the board agreed. And I'm just 9 re-agreeing with myself through the lens of what the 10 board said. 11 BY MR. CHRISTOPHER: 12 Q. Okay. And so you cite your prior declaration 13 from the '533 patent is support for your opinion here for 14 Element [1.pre]. Correct? 15 A. Yeah. 16 Q. And, you know, earlier we talked about you had 17 a prior declaration for the '484 patent. 18 You recall that? 19 A. Yes. 20 Q. And you don't cite your prior declaration for 21 the '484 patent for Element [1.pre] in the '304 patent. 22 Correct? 23 Are you reviewing a different portion of the 24 declaration? 25 A. I'm just looking. I know I reference the	Page 128 1 Q. Okay. Paragraph 115 you wrote (as read): 2 "Though the '533 limitations do not 3 recite increasing a light intensity 4 'relative to an initial light intensity' 5 as recited in this '304 limitation, the 6 board found a substantially identical 7 limitation met by the same embodiment of 8 Lisogurski in the prior '484 IPR." 9 Do you see that? 10 A. Yes. 11 Q. And so do you agree that the board's decision 12 for the '533 patent did not address the claim language 13 relative to an initial light intensity as recited in 14 Element [1.a] of the '304 patent. Correct? 15 MR. KIM: Objection, form. 16 THE WITNESS: Well, as I describe in Paragraph 17 115, the '533 limitations do not recite increasing a 18 light intensity relative to initial light intensity. The 19 board did find a substantially identical limitation met 20 by the same embodiment of Lisogurski in the prior '484. 21 And I go on to describe that in particular, Lisogurski 22 increases light intensity of at least one of the 23 plurality of semiconductor sources from an initial light 24 intensity. 25 And this is consistent as I go down there with

Page 129 1 my opinions on the '484, which I incorporate. 2 BY MR. CHRISTOPHER: 3 Q. And then if you scroll up to Paragraph 113. 4 Let me know when you're there. 5 A. Yeah, 113? 6 Q. Sure. So in Paragraph 113, you refer to claim 7 language in the '533 patent that overlaps with 8 Element [1.a] in the '304 patent. Correct? 9 Still reading Paragraph 113? 10 A. I'm looking back at the '533 patent, which 11 recites -- let's see. So in 113, yes. So that's the 12 light source -- let's see. Plurality. Semiconductor 13 sources. Light-emitting diodes. Configured to generate 14 output beams. Yes. Subset of the language in the 15 corresponding '304. Yes. 16 Okay. So -- yes. And your question was, 17 sorry? 18 Q. Just more generally, in Element [1.a], you cite 19 both the prior decision for the '533 patent and you cite 20 the prior decision for the '484 patent. Correct? 21 A. Yes. 22 Q. But you would agree that neither prior decision 23 standing alone addresses each and every limitation within 24 Element [1.a] in the '304 patent. Correct? 25 MR. KIM: Objection, form.	Page 131 1 relying on is Lisogurski, and those prior decisions I 2 also refer to in both the '533 and the '480 -- '484 as 3 corroborating what I previously said in the prior 4 declarations. It's Lisogurski that is meeting these 5 limitations and the knowledge of a POSITA. 6 BY MR. CHRISTOPHER: 7 Q. Again, that's not my question. 8 You've reviewed the prior decision for the 9 '533 patent. Correct? 10 A. Yes. 11 Q. And you've also reviewed the prior decision for 12 the '484 patent. Correct? 13 A. Yes. 14 Q. And so you cite -- I understand you're saying 15 you're not relying on it. You cite the '533 decision, 16 the prior decision, for certain aspects of Element [1.a] 17 in Claim 1 of the '304 patent. Correct? 18 A. I'm citing -- 19 MR. KIM: Objection, form. 20 Sorry. 21 THE WITNESS: I'm citing those decisions, but 22 I'm citing them through the lens of Lisogurski and what 23 Lisogurski discloses, and I'm pointing to those as I'm 24 agreeing to what was found there. But it's Lisogurski 25 and the knowledge of a POSITA that's the underlying, and
Page 130 1 THE WITNESS: Well, Lisogurski is what is 2 teaching -- knowledge of POSITA is what is being taught 3 here. I'm referencing the prior decisions as -- that I 4 agree with. 5 So again, self-referentially, this is what I 6 opined about in both the prior, but in both of those it's 7 Lisogurski that is the -- at the... 8 MR. CHRISTOPHER: He may have frozen. 9 THE COURT REPORTER: I'm sorry. Mr. Anthony, 10 can you repeat your answer? 11 THE WITNESS: Certainly. I don't know how far 12 back you want me to go, but what is being -- Lisogurski 13 is what I'm referring to in teaching the limitations, and 14 I'm referring back to the prior decisions with respect to 15 Lisogurski knowledge of POSITA, so it's with -- 16 Lisogurski is what is revealing in the knowledge of a 17 POSITA is what is making these claims obvious. 18 BY MR. CHRISTOPHER: 19 Q. Wasn't quite my question, which was: Neither 20 of the prior decisions standing alone address all of the 21 elements and limitations in Element [1.a] in Claim 1 of 22 the '304 patent. Correct? 23 MR. KIM: Objection, form. 24 THE WITNESS: You asked the question in the 25 sense of I was relying on those decisions. What I'm	Page 132 1 so I'm relying on Lisogurski that shows up both in the 2 prior '533 and the prior '484. 3 BY MR. CHRISTOPHER: 4 Q. Understood. But based on your review and 5 citations to the prior decisions, you would agree that 6 neither prior decision standing alone addressed all 7 aspects of Element [1.a] in the '304 patent. Correct? 8 MR. KIM: Objection, form. 9 THE WITNESS: Well, in forming my opinions 10 here, I wasn't relying on just saying what the board find 11 in one and does that exactly meet everything or does the 12 other? 13 I'm relying on my opinions with respect to 14 Lisogurski and knowledge of a POSITA, which were also 15 used in the '5 -- prior '533 and the '484. So I'm 16 quoting from -- or highlighting what's cons- -- I'm -- 17 it's consistent with what I previously argued on the 18 prior, and both of those are built on Lisogurski and 19 knowledge of a POSITA. 20 BY MR. CHRISTOPHER: 21 Q. We'll say it this way: Go back to Paragraph 22 115. We talked about this a moment ago. You agree that 23 the claims of the '533 patent did not recite the phrase 24 "relative to an initial light intensity." Correct? 25 A. But then I go on in that Paragraph. But the

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1 identical limitation is met by the same embodiment of
2 Lisogurski in the prior '484. So I'm -- I'm referencing
3 Lisogurski as the underpinning for both of those, what
4 I -- prior disclosure -- or my prior depos- --
5 declarations and -- with which the board agreed with.
6 I'm also agreeing with what they agreed with what I said.
7 **Q. Understood. You got ahead of me a little bit.**
8 **If the '533 patent didn't have the phrase**
9 **"relative to an initial light intensity" in any of the**
10 **claims, you would agree that the prior decision for the**
11 **'533 patent didn't address a claim that recites "relative**
12 **to a initial light intensity." Correct?**
13 A. I would go back at this point and look at my
14 prior declaration, which I can't do because I did not
15 print it out and Adobe has crashed. However, again, I'm
16 highlighting what Lisogurski teaches, and it certainly
17 teaches increasing the light intensity.
18 And it may have not showed up in the prior '533
19 arguments, but it certainly, through the '484, is met, as
20 I described, and Lisogurski is used for both the '484,
21 prior '484, the prior '533, and here. And Lisogurski
22 indeed does teach that increasing the light intensity.
23 **Q. Well, let me -- let me try asking it this way:**
24 **If the phrase "relative to an initial light intensity" in**
25 **Element [1.a] were addressed in the prior '533 decision,**

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1 **you would have cited that here in your declaration for**
2 **Element [1.a]. Correct?**
3 MR. KIM: Objection, form.
4 THE WITNESS: All this is -- is what I'm citing
5 fundamentally is Lisogurski in the prior art. And
6 Lisogurski and knowledge of a POSITA was what was used in
7 the prior. And so what I'm point -- what I'm
8 fundamentally using is Lisogurski and knowledge of a
9 POSITA and also highlighting how those things showed up
10 as well in the prior. But Lisogurski is what's teaching
11 it as is described further in Paragraph 116.
12 BY MR. CHRISTOPHER:
13 **Q. He's not answering my question. The prior '533**
14 **decision that you reviewed and that you cite in your**
15 **declaration as support for your opinions didn't address**
16 **the claim phrase "relative to an initial light**
17 **intensity." Correct?**
18 A. As I state in Paragraph 115, but identical
19 limitations are indeed met by the same embodiment of
20 Lisogurski, which were used in the '484.
21 **Q. So the answer to my prior question is yes, the**
22 **prior '533 decision did not address the phrase "relative**
23 **to an initial light intensity." Correct?**
24 A. Lisogurski and knowledge of a POSITA is what I
25 used in both my opinions of '533 and '484. Didn't

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1 address the "relative to light intensity" part of '533,
2 but I did in '484, and so I'm highlighting how Lisogurski
3 is used in those prior, or not, and how its used in the
4 current.
5 **Q. So to be clear, the prior '533 declaration that**
6 **you authored did not address the claim requirement,**
7 **quote, "relative to an initial light intensity."**
8 **Correct?**
9 A. As I described in Paragraph --
10 MR. KIM: Objection, form.
11 THE WITNESS: As I described in Paragraph 115,
12 I didn't address it in the '533 prior, I did address it
13 in the '484. But everything is built on Lisogurski and
14 knowledge of a POSITA, which is what I'm describing here.
15 MR. CHRISTOPHER: Well, why don't we go off and
16 take our lunch break.
17 (Whereupon, at the hour of 10:02 a.m., a
18 luncheon recess was taken.)
19 * * *
20 ///
21 ///
22 ///
23 ///
24 ///
25 ///

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1 HELD VIA VIDEOCONFERENCE
2 FRIDAY, APRIL 17, 2026
3 10:38 A.M. - 2:29 P.M.
4 * * *
5 BRIAN W. ANTHONY,
6 HAVING PREVIOUSLY BEEN DULY ADMINISTERED AN OATH,
7 WAS EXAMINED AND TESTIFIED AS FOLLOWS:
8
9 MR. CHRISTOPHER: All right. Back on the
10 record.
11
12 EXAMINATION (resumed)
13 BY MR. CHRISTOPHER:
14 **Q. Welcome back, Dr. Anthony. Did you discuss the**
15 **substance of your testimony with anyone during our lunch**
16 **break?**
17 A. No.
18 **Q. Okay. So before the lunch break, we were**
19 **discussing your declaration for the '304 patent in**
20 **IPR2025-01251. And I'd like to now direct your attention**
21 **to Paragraph 133 of that declaration.**
22 **If you have the PDF, it's Page 76 of the PDF.**
23 A. I'm there.
24 **Q. Perfect. Okay. So in Paragraph 133, you**
25 **address Element [1.f] in Claim 1 of the '304 patent.**

Page 137 1 Correct? 2 A. Yes. And then in the next Paragraph, 3 Paragraph 134, you wrote (as read): 4 "This limitation includes language 5 that was already determined unpatentable 6 by the board in the '533-IPR ('generate 7 an output signal') and new language that 8 was not previously considered 9 ('representing at least in part a 10 non-evasive measurement on blood 11 contained within the sample')." 12 Do you see that? 13 A. Yes. 14 Q. And so you agree that the phrase "representing 15 at least in part a non-invasive measurement on blood 16 contained within the sample" in Element [1.f] was not 17 considered during the prior '533-IPR. Correct? 18 Are you currently reviewing a document? 19 A. I'm looking back at the '533 just to confirm 20 that -- the figures. 21 So yeah, they say here the -- generate an 22 output signal was addressed in the '533-IPR. The -- 23 representing at least in part a non-invasive measurement 24 on blood contained within the sample. It's new here. 25 Q. Okay. And if we turn now to Paragraph 136, in	Page 139 1 27. 2 As Lisogurski teaches, these absorption levels 3 in the tissue are used by the detector 140 to 4 non-invasively measure the oxygen saturation of a 5 patient's blood to perform pulse oximetry, referencing 6 the Figures 1, 3, and then the Column 3 through 4, and 7 Columns 10 and 17. 8 The process detection signal is an output 9 signal generated by the detector. As modified in the 10 prior discussion and motivations to modify, it 11 represents, at least in part, a non-invasive measurement 12 on blood contained within the subject's tissue. 13 MR. CHRISTOPHER: All right. Move to strike as 14 nonresponsive. 15 BY MR. CHRISTOPHER: 16 Q. The question was: Neither of the prior 17 decisions, the '533 or the '484, address the additional 18 requirement representing, at least in part, a 19 non-invasive measurement on blood contained within the 20 sample in Element [1.f]. Correct? 21 MR. KIM: Objection, form. 22 THE WITNESS: I did answer that previously. I 23 said, I'm not referring to the prior declarations here, 24 but I'm highlighting how Lisogurski meets the limitation 25 and knowledge of the POSITA.
Page 138 1 Paragraph 136, you address the additional resuscitation 2 of the output signal representing, at least in part, a 3 non-invasive measurement on blood within the sample. 4 Correct? 5 A. Yes. 6 Q. And you don't cite the prior '484-IPR decision 7 here in Paragraph 136. Correct? 8 A. I'm describing it throughout, how Lisogurski 9 discloses knowledge of a POSITA. But here, I'm not 10 referring back to a prior, I'm -- I'm explaining how 11 Lisogurski meets the limitation. 12 Q. So to recap, neither of the prior decisions, 13 the '533 or the '484, address the requirements in 14 Element [1.f] of the '304 patent, representing at least 15 in part, a non-invasive measurement on blood contained 16 within the sample. Correct? 17 MR. KIM: Objection, form. 18 THE WITNESS: As I described in -- in 136, I'm 19 not referring back to the prior declarations. I'm 20 highlighting how Lisogurski discloses that there's a 21 detection signal generated by detector 140, and may be 22 processed by front-end circuitry 150. And from the 23 process signal, physiological parameters may be 24 determined, e.g., based on the absorption of the Red and 25 IR wavelength. That's Lisogurski Column 11, 13 through	Page 140 1 BY MR. CHRISTOPHER: 2 Q. So -- so you agree, neither of the prior 3 declarations expressly address this additional 4 requirement in Element [1.f]. Correct? 5 MR. KIM: Same objection. 6 THE WITNESS: I highlight here how Lisogurski 7 meets the limitation and I did not reference the prior 8 declarations, but I'm explaining here how Lisogurski is 9 meeting it and knowledge of a POSITA. 10 BY MR. CHRISTOPHER: 11 Q. Okay. If you could turn now to Paragraph 143 12 in your declaration for the '304 patent. 13 A. I'm sorry. What Paragraph? 14 Q. Paragraph 143. Let me know when you're there. 15 A. Yes. 16 Q. Here, you address Element [1.h] of the 17 '304 patent. Correct? 18 A. Yes. 19 Q. And Element [1.h] requires (as read): 20 "Capture light while the semiconductor 21 sources are off and convert the captured 22 light into a first signal." 23 Do you see that? 24 A. Yes. 25 Q. What does it mean to a person of ordinary skill

Page 141 1 in the art to convert the captured light into a first 2 signal? 3 A. So, for example, as I described on page -- 4 Paragraph 145, on Page 81, or Page 84 of the PDF, I'm not 5 sure which is which -- 81 or -- Paragraph 145, (as read): 6 "Lisogurski detector receives and 7 captures ambient light during 'off' 8 period when the LEDs are off and converts 9 the captured light into or generate a 10 'dark signal' by measuring the current 11 when the LEDs are off." 12 Highlighting where Lisogurski describes that. 13 Thus, the differences between the -- the terms 14 that were used in the -- the '484, which would "generate 15 a first signal" as opposed to "convert the captured light 16 into a first signal" don't change my analysis that 17 Lisogurski discloses this. But it's the signal that is 18 being acquired during the -- the period of time when the 19 sources are off. 20 Q. Let's go to Paragraph 145 of your declaration. 21 At the top, this is your PDF Page 83. Let me know when 22 you're at 145. 23 A. Yep. 24 Q. Okay. The first sentence you wrote (as 25 read):	Page 143 1 Lisogurski's detector receives and captures ambient light 2 during the off periods, when the LEDs are off, converts 3 that captured light into a -- or generates a dark signal 4 by measuring the current when the LEDs are off. 5 Q. So we agree that they're not identical, 6 Element [1.h] in the '304 patent and Claim 1 in the 7 '484 patent. Correct? 8 A. Well, as I described here, is they slightly use 9 different terms of phrase, but they cover substantially 10 the same concept. 11 Q. Wouldn't a person of ordinary skill in the art 12 know that it's possible to generate a first signal 13 responsive to light without performing any conversion on 14 the light? 15 A. I'm sorry, can you repeat that question? 16 Q. Yeah. A person of skill in the art would 17 understand that it's possible to generate a first signal 18 responsive to light received while the light emitting 19 diodes are off without actually performing any conversion 20 on the light. Correct? 21 A. Well, as I say, again, the -- it's -- both are 22 capturing the similar -- the same concept, you know, 23 your -- an LED, a semiconductor detector converts photons 24 to electrons. Light is being received and converted or 25 generating a signal. It's, again, the same -- same
Page 142 1 "The '304 patent" -- strike that. 2 You didn't say the word "the." 3 Let's start over (as read): 4 "304 patent element [1.h] is 5 substantially similar to the 6 corresponding limitation in the 7 '484 patent on which I previously 8 opined." 9 Do you see that? 10 A. Yes. 11 Q. And so you agree that Element [1.h] is not 12 identical to the corresponding limitation in the 13 '484 patent. Correct? 14 A. Well, they describe further in that Paragraph, 15 either a slightly different use of phrase, the main 16 difference being the two limitations. '484 uses 17 "generate a first signal," as opposed to '304, "use of 18 convert to capture light into a first signal." 19 And then the '484, "used a light received," as 20 opposed to '304's use of "captured light." The 21 limitations use, indeed, slightly different language, as 22 I say here. It covers substantially the same concept and 23 the disclosure from Lisogurski relied upon previously in 24 the '484 that I opined on in my prior declaration, and 25 the board agreed with, and I agreed with them,	Page 144 1 concept. 2 Q. Well, I don't think that quite answers the 3 question, though, which is: It's -- it's possible to 4 generate a signal responsive to light being received 5 without actually converting the light. Correct? 6 A. Well, with -- without a doubt Lisogurski 7 describes the detector that captures light during an off 8 period, measures the current when the LEDs are off and 9 generating a signal that corresponds to that. 10 So it's capturing -- it's clearly disclosing 11 the captured light while the semiconductor sources are 12 off and converting that captured light into a first 13 signal. 14 MR. CHRISTOPHER: Move to strike as 15 nonresponsive. 16 BY MR. CHRISTOPHER: 17 Q. My question's not about Lisogurski. It's about 18 the claim language in the '304 patent and the claim 19 language in the '484 patent. 20 And the question is: Would a person of skill 21 in the art understand that it's possible to generate a 22 first signal responsive to light received without 23 converting the received light? 24 A. In forming my opinions, I didn't need to opine 25 upon how a POSITA, or looking at that word, "convert" or

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1 "generate," would consider them in isolation. But what
2 I'm highlighting is, indeed, Lisogurski teaches the
3 concept of capturing light and generating a signal when
4 the signals are -- when the lights are off.
5 MR. KIM: Sorry, I was on mute. I just
6 objected on the form and I also disagree that the witness
7 was being nonresponsive.
8 Sorry about that.
9 BY MR. CHRISTOPHER:
10 **Q. Is it your opinion that Element [1.h] in the**
11 **'304 patent has the exact same scope with the phrase**
12 **"generate a first signal responsive to light received**
13 **while the light-emitting diodes are off" in the Claim 1**
14 **of the '484 patent?**
15 MR. KIM: Objection, form.
16 THE WITNESS: I wasn't opining and didn't need
17 to opine in my -- forming my opinions as to whether they
18 entailed exactly the same, but, indeed, POSITA reading
19 Lisogurski in view of the knowledge a POSITA would
20 understand, that it does disclose capturing light while
21 the semiconductor sources are off and converting that
22 captured light into a first signal.
23 BY MR. CHRISTOPHER:
24 **Q. So your opinion is Lisogurski meets both**
25 **claims, but you don't have any opinions on whether**

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1 **there's a difference in scope between Element [1.h] in**
2 **the '304 patent and Claim 1 of the '484 patent. Correct?**
3 MR. KIM: Objection, form.
4 THE WITNESS: Again, my -- in forming my
5 opinions here, it's highlighting how Lisogurski and
6 knowledge of a POSITA indeed meets the limitation here of
7 capturing light while the semiconductor sources are off
8 and converting the captured light into a first signal.
9 BY MR. CHRISTOPHER:
10 **Q. So the answer to the prior question is yes.**
11 **Correct?**
12 MR. KIM: Objection, form.
13 THE WITNESS: Can you repeat the question,
14 please?
15 BY MR. CHRISTOPHER:
16 **Q. Your opinion is that Lisogurski meets both**
17 **claims, the '304 and '484, but you haven't formed any**
18 **opinions on the difference in scope between [1.h] in the**
19 **'304 patent and Claim 1 of the '484 patent. Correct?**
20 MR. KIM: Objection, form.
21 THE WITNESS: In forming my opinions, I didn't
22 need to draw the Venn diagrams of -- of the extent of
23 what is meant by one or the other, but they certainly
24 are using slightly different language, as I say, but they
25 cover -- they substantially -- substantially same

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1 concept, so there's a significant area of overlap in the
2 concept that they're explaining, as I write here in
3 Paragraph 145.
4 Indeed, Lisogurski -- the detector receives and
5 captures ambient light during off periods when the LEDs
6 are off, converts the captured light into a dark signal
7 by measuring the current when the LEDs are off. So
8 Lisogurski certainly teaches Element [1.h].
9 BY MR. CHRISTOPHER:
10 **Q. Can you turn to Paragraph 146 in your**
11 **declaration. Let me know when you're there. This is 85**
12 **of the PDF.**
13 A. Yes, I'm there.
14 **Q. So starting at Paragraph 146, you address**
15 **Element [1.i] in Claim 1 of the '304 patent. Correct?**
16 A. Yes.
17 **Q. And just as a general matter, I notice that the**
18 **language you've quoted in Paragraph 146 has different**
19 **colors.**
20 **Do you see that, the text?**
21 A. Yes.
22 **Q. And then the -- the last clause (as read):**
23 **"The captured light, including at**
24 **least a part of the at least a portion of**
25 **the analysis output beam reflected or**

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1 **transmitted from the sample" is in blue.**
2 **Do you see that?**
3 A. Yes.
4 **Q. Does the blue text indicate that that language**
5 **is new relative to the prior board decisions?**
6 A. So as I point out on Page 63 -- or 66 depending
7 which number you use, but at the bottom of Paragraph --
8 below Paragraph 112 (as read):
9 "For readability, color-coding has
10 been used to clarify the mapping of
11 certain claim language to prior art."
12 **Q. Sure. So does -- in your declaration for the**
13 **'304 patent, what does blue text represent, if anything?**
14 A. Well, for example, the blue in 146, I talk
15 about the captured light, "including at least a part of
16 the at least a portion of the analysis output beam
17 reflected or transmitted from the sample."
18 And then in 148, language that similarly
19 addresses that through the Lisogurski, the blue text in
20 148 (as read):
21 "Capture a portion of the optical
22 beam, red signal, IR signal, reflected
23 from the tissue."
24 So I'm using the color-coding to clarify
25 mappings, as I said, to the prior art.

Page 149 1 Q. So if we look at Paragraph 147 of your 2 declaration, you see first part of the sentence reads (as 3 read): 4 "This limitation includes language 5 similar to that which was already 6 determined unpatentable by the board in 7 the 484-IPR." 8 Do you see that? 9 A. Yes. 10 Q. And then you have a parentheses with some -- 11 some green text and some red text. 12 Do you see that? 13 A. Yes. 14 Q. And then, about halfway through that sentence, 15 you wrote (as read): 16 "And new language that was not 17 previously considered." 18 And in blue text (as read): 19 "The captured light, including at 20 least a part of the at least a portion of 21 the analysis output beam reflected or 22 transmitted from the sample." 23 Do you see that? 24 A. Yes. 25 Q. And so the text in blue, "the captured light	Page 151 1 A. Yes. 2 Q. And if you scroll down to Paragraph 224. Let 3 me know when you're there. 4 A. Yes. 5 Q. Okay. Paragraph 224 you address -- there's 6 some text in purple on the first line. 7 Do you see that? 8 A. Yes. 9 Q. So Paragraph 224 of your declaration is 10 addressing the phrase "generate by modulating" in 11 Element [19.b] of the '304 patent. Correct? 12 A. As I highlighted my footnote on Page 63, I've 13 used the color-coding to map claims to prior art, and 14 Lisogurski, in that Paragraph 224, the purple piece, is 15 the multiple LEDs operating in continuous modulation, 16 so -- but Lisogurski discloses (as read): 17 "Multiple LEDs operating in continuous 18 modulation, driven by the light drive 19 signal for the light source's on and off 20 periods to produce outputs of different 21 intensities." 22 Q. Understood. So in Paragraph 224, you don't 23 cite either of your prior declarations for the '533 or 24 the '484 patent. Correct? 25 A. Again, throughout, I'm highlighting Lisogurski
Page 150 1 including a part of the at least a portion of the 2 analysis output beam reflected or transmitted from the 3 sample," was not previously considered by the board in 4 the 484-IPR. Correct? 5 A. As I highlight here, yes, that's that language 6 but, the blue, again, is referencing back to the text, my 7 subtitle below -- my footnote below Paragraph 112. It's 8 mapping claim language to prior art. And yes, it happens 9 in this case, as well, to correspond to this not 10 previously considered language. 11 Q. Turn to Paragraph 212 -- excuse me, I got them 12 backwards. 221, please. '304 declaration. 13 A. 221 you said? 14 Q. 221. 15 A. Okay. 16 Q. You there? 17 A. Yes. 18 Q. Okay. Starting at Paragraph 221, you address 19 Element [19.b] in Independent Claim 19 of the 20 '304 patent. Correct? 21 A. Yes. 22 Q. Okay. And I'll note again there's some colored 23 text here in Paragraph 221. 24 Do you see the purple text, "generate by" 25 modulating -- "modulating" -- excuse me?	Page 152 1 and knowledge of POSITA. Here I'm -- I'm describing how 2 Lisogurski did not use the prior declarations in that 3 Paragraph. 4 Q. And the phrase in Claim [19.b] "generate by 5 modulating" did not appear in any of the claims that were 6 subject to the prior '533 and '484 decisions. Correct? 7 Are you reviewing the -- the patents? 8 A. Yes. 9 Q. Let me -- let me withdraw that and ask it 10 perhaps a simpler way. If the prior '484 or '533 11 decisions address the language "generate by modulating," 12 would it be fair to assume you would have cited those 13 decisions or your declarations here in Paragraph 224? 14 MR. KIM: Objection, form. 15 THE WITNESS: In general, I pointed back where 16 decisions had previously been opined upon by me in the 17 prior and declarations -- or decisions had been made. I 18 refer to them. May I have made a situation where I 19 didn't do that? Possibly. If it -- in general, I tried 20 to refer to those, but I may not have done it for 21 everything. 22 BY MR. CHRISTOPHER: 23 Q. All right. If you can please turn to the 24 '304 patent itself. This is Exhibit 1001 in 25 IPR2025-01254. Let me know when you have it and I'm

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1 going -- when you do, I'm going to direct your attention
2 to the claims.
3 A. Okay. The '304, you said?
4 Q. Yeah. And I'll start by directing your
5 attention to claim -- Dependent Claim 4. Let me know
6 when you're -- when you're there.
7 A. Okay. The one that reads, "The measurement
8 system of Claim 1"?
9 Q. Yes. So Dependent Claim 4 reads (as read):
10 "The measurement system of Claim 1
11 wherein the receiver comprises a
12 plurality of detectors arranged along a
13 first arc and wherein the plurality of
14 semiconductor sources are arranged along
15 a second arc."
16 Do you see that?
17 A. Yes.
18 Q. And then Dependent Claim 15 of the '304 patent.
19 Let me know when you're there.
20 A. 15, yes.
21 Q. Dependent Claim 15 similarly recites (as read):
22 "A plurality of detectors arranged
23 along a first arc and wherein the
24 plurality of semiconductor sources are
25 arranged along a second arc that is

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1 offset from the first arc."
2 Do you see that?
3 A. Yes.
4 Q. And then, finally, if you can turn to Dependent
5 Claim 21 about the '304 patent, let me know when you're
6 there.
7 A. Yes.
8 Q. Dependent Claim 21 also requires (as read):
9 "A plurality of detectors arranged
10 along a first arc and wherein the
11 plurality of semiconductor sources are
12 arranged along a second arc that is
13 offset from the first arc."
14 Do you see that?
15 A. Yes.
16 Q. And would it be understandable to you if we
17 refer to those limitations in Claims 4, 15, and 21 of the
18 '304 patent as the "arc limitations"?
19 A. Sure.
20 Q. Just trying to come up with some shorthand so
21 we don't have to read it every time.
22 Now, you would agree that none of the claims in
23 the -- that were considered in the prior '533 decision
24 recited detectors or emitters arranged along an arc.
25 Correct?

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1 Just for the record, are you reviewing the
2 claims of the '533 patent?
3 A. I'm reviewing my declaration where I talk about
4 the claims, the arc -- the arc Claims 4, 15, and 21,
5 which is where I combine Lisogurski and LeBoeuf in
6 reviewing what I discuss there.
7 Okay. I've familiarized myself with my -- that
8 section of the declaration. Can you please reask the
9 question?
10 Q. You would agree that none of the claims that
11 were at issue in the '533 decisions recited "detectors or
12 emitters arranged along an arc." Correct?
13 A. Well, as I describe here, I'm highlighting how
14 Lisogurski, in view of LeBoeuf, meets the limitations.
15 I'm not citing back to the '484 or the '533 in those --
16 in my discussion here. I do highlight, in the motivation
17 to combine, for example, that LeBoeuf was substantially
18 similar to a Valencell patent that was considered in the
19 '484.
20 But in my discussion of the -- Claim 4, I
21 describe the -- how Lisogurski, in view of LeBoeuf, teach
22 the -- the first arc and second arc and the motivations
23 to combine or starting back at Paragraph 261 through 267.
24 Q. I appreciate that, but I don't think it
25 answered the question, which is: None of the claims from

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1 the '533 patent that were issued in the prior decision
2 recited the word "arc." Correct.
3 Are you reviewing another document?
4 A. I'm reviewing the -- the '533. You asked about
5 "arc" in '533.
6 So an arc, in forming my opinions here, I was
7 not referencing just '533 by itself. I was just talking
8 about -- or sorry -- Lisogurski by itself, but Lisogurski
9 and LeBoeuf, in the teaching of an arc and the motivation
10 to combine. But LeBoeuf's teaching of an arc arrangement
11 would have been motivated to apply LeBoeuf's teaching to
12 Lisogurski and I'm addressing it in the -- the '304 here.
13 But no, I was not addressing it in the -- the prior '533.
14 Q. So the answer is, yes, none of the claims in
15 the '533 patent recite an arc. Correct?
16 A. Right. My opinions here are for the '304 and
17 how Lisogurski, in combination with LeBoeuf, and
18 knowledge of a POSITA, do teach the arc limitations of
19 the '304.
20 Q. Is there a reason you're not answering the
21 question?
22 The -- none of the claims in the '533 patent
23 recite the word "arc." Correct?
24 A. I agreed with you and then I went on to explain
25 how I did not address it. In the '533, "arc" is not

Page 157 1 expressed there. But indeed, Lisogurski, in combination 2 with LeBoeuf, there's a motivation to combine, as I 3 describe. And in -- in combination, meet the arc 4 limitations in '304. 5 Q. Now, none of the claims in the '484 patent that 6 were subject to the prior decision recite an arc. 7 Correct? 8 Are you reviewing the '484 patent? 9 A. I am. 10 Again, I was not addressing, in the '48 -- 11 prior '484, the '533, issues with the -- associated with 12 arc. But, again, what I do and do highlight here is how 13 Lisogurski and LeBoeuf, for example, that teach the 14 benefit and the reason they combine in -- in the -- and 15 teach concentric arcs, to increase detection of scattered 16 light. 17 Q. So you agree that neither of your prior 18 declarations, the '533 and the '484, relied on the 19 LeBoeuf reference. Correct? 20 Just to be clear, you're reviewing your 21 declarations again to answer this? 22 A. Well, I'm highlighting, for example, I -- as I 23 already called out, that LeBoeuf is substantially similar 24 with Valencell '093. This is at the Page 136 or 139. 25 And that was considered during the '484. But, you know,	Page 159 1 MR. CHRISTOPHER: No, he's not. 2 BY MR. CHRISTOPHER: 3 Q. Dr. Anthony, just -- we're wasting a lot of 4 time here. I'm asking: Simple "yes" or "no," did your 5 prior declarations, the '484 and the '533, did they rely 6 on the LeBoeuf reference? "Yes" or "no"? 7 MR. KIM: Objection, form. 8 THE WITNESS: So as I've answered, I 9 incorporated the '4 -- prior '484 and the '533, where I 10 was not talking about an arc or LeBoeuf. But, indeed, I 11 do talk about it in the '304, in combination with 12 Lisogurski with LeBoeuf, how a POSITA would be motivated 13 to combine those and, indeed, teaches the arc 14 limitations. 15 MR. CHRISTOPHER: Okay. I'm going to move to 16 strike as nonresponsive. I think they speak for 17 themselves. 18 BY MR. CHRISTOPHER: 19 Q. Let's look at Paragraph -- 20 MR. KIM: I disagree on the responsiveness, but 21 we can move on. 22 BY MR. CHRISTOPHER: 23 Q. Let's turn to Paragraph 276 of your declaration 24 from the '304 patent. 25 Let me know when you're there.
Page 158 1 I'm -- in those prior, I was not referencing LeBoeuf. 2 But, indeed, my declaration of the '304 3 incorporates those, plus also explains quite clearly why 4 a POSITA would have been motivated to combine Lisogurski 5 and LeBoeuf and how the combination teaches the -- the 6 arc limitations. 7 Q. Okay. Well, let's -- let's try the question 8 again. 9 "Yes" or "no," did your prior declarations for 10 the '484 and '533 patents rely upon the LeBoeuf 11 reference? "Yes" or "no"? 12 A. My prior declarations are part of the '304. I 13 did not use LeBoeuf in those prior declarations. I used 14 it in my '304. I explained why a POSITA would have been 15 motivated to combine Lisogurski and LeBoeuf and that how 16 that combination indeed teaches the arc arrangement. 17 Q. So my question is a "yes" or "no" question. 18 Do you understand that? 19 MR. KIM: Counsel, just to be clear, he's -- 20 he's just answered your question. 21 MR. CHRISTOPHER: He -- he's -- Counsel, he 22 didn't answer the questions. 23 MR. KIM: He did. He's providing further 24 context to his -- to his answer, but he's answering your 25 question.	Page 160 1 A. 276? Yes. 2 Q. 276. So 276, you refer back to your discussion 3 for independent Claim 1. 4 Do you see that? 5 A. Yes. 6 Q. And then in Paragraph 277, you refer back to 7 your discussion for Element [1.d]. 8 Do you see that? 9 A. Yes. 10 Q. And then in Paragraph 278, you write (as read): 11 "LeBoeuf discloses a plurality of 12 detectors arranged along a first arc." 13 And then there's a parenthesis. And then you 14 wrote (as read): 15 "(And wherein the plurality of 16 semiconductor sources are arranged 17 along" -- 18 Oh, sorry. It's cut off. Let me withdraw 19 that. I'll reask a clean question. Sorry about that. 20 Let's start over. 21 In Paragraph 278, you wrote (as read): 22 "LeBoeuf discloses a plurality of 23 detectors arranged along a first arc' -- 24 there's a parenthesis. 25 And then you wrote, (as read):

Page 161 1 "And wherein the plurality of 2 semiconductor sources are arranged along 3 a second arc." 4 Do you see that? 5 A. Yes. 6 Q. And so I think we covered this, but you're 7 relying on LeBoeuf as teaching detectors and emitters in 8 an arc. Correct? 9 A. I'm relying on the combination of Lisogurski 10 and LeBoeuf in the teachings. 11 Q. And you would agree that Lisogurski by itself 12 does not expressly disclose detectors arranged along an 13 arc. Correct? 14 MR. KIM: Objection, form. 15 THE WITNESS: Well, as I describe in, I think, 16 prior answers and also, pointing back to the motivation 17 to combine, LeBoeuf teaches an arc arrangement. 18 Lisogurski teaches a plurality of emitters and detectors, 19 an array. Together, they teach the -- the arc 20 limitations. 21 So I'm not relying in forming my opinions here 22 on Lisogurski by itself, but the combination of 23 Lisogurski and LeBoeuf. 24 BY MR. CHRISTOPHER: 25 Q. Right. Because Lisogurski doesn't expressly	Page 163 1 MR. CHRISTOPHER: Move to strike, 2 nonresponsive. 3 BY MR. CHRISTOPHER: 4 Q. Lisogurski doesn't expressly disclose emitters 5 arranged along an arc. Correct? 6 MR. KIM: Objection, form. Also, disagree on 7 the responsiveness. 8 THE WITNESS: My opinions here are in the 9 context of the combination of Lisogurski and LeBoeuf. 10 BY MR. CHRISTOPHER: 11 Q. And when you refer to the combination, you're 12 relying on a combination because Lisogurski by itself 13 doesn't expressly disclose emitters arranged along an 14 arc. Correct? 15 MR. KIM: Same objection. 16 THE WITNESS: When going back to my motivations 17 to combine, I describe why Lisogurski in -- is -- and 18 LeBoeuf are in the same field and why LeBoeuf would 19 solve, working together, pertinent problems, having a 20 circular arc to address -- to absorb more of the light 21 that's scattered through the absorption. And in forming 22 my opinions here, I was not, as you point out, relying 23 just on Lisogurski, but Lisogurski, in combination with 24 LeBoeuf. 25 ///
Page 162 1 disclose detectors arranged along an arc. Correct? 2 MR. KIM: Objection, form. 3 THE WITNESS: Again, my opinions are 4 demonstrating how Lisogurski, in combination with 5 LeBoeuf, meet the limitation. I was not relying on just 6 Lisogurski. Lisogurski and LeBoeuf. 7 BY MR. CHRISTOPHER: 8 Q. Likewise, Lisogurski doesn't expressly disclose 9 emitters arranged along an arc. Correct? 10 MR. KIM: Objection, form. 11 THE WITNESS: Well, as I explained, when 12 talking about Claim 15, for example, in Paragraph 294, 13 Lisogurski and LeBoeuf, together, teach the -- the arc 14 limitation of having both detectors along a first arc and 15 a source that was along a second arc. That was offset 16 from the first. 17 BY MR. CHRISTOPHER: 18 Q. Lisogurski doesn't expressly disclose emitters 19 arranged along an arc. Correct? 20 MR. KIM: Objection, form. 21 THE WITNESS: In forming my opinions here of 22 obviousness, I pointed to why a POSITA would be motivated 23 to combine Lisogurski and LeBoeuf, solving similar 24 problems, similar area, and how the combination teaches 25 the limitation.	Page 164 1 BY MR. CHRISTOPHER: 2 Q. I'm going to show you the Zoom chat. What's 3 been submitted as Exhibit 1026 in three of the 4 proceedings, IPR2025-021 -- let me start over. 5 2025-01251, IPR2025-01252, and IPR2025-01254. 6 Let me know when you have a copy of Exhibit 1026 open. 7 (Exhibit 1026 in 2025-01251, 8 IPR2025-01252, and IPR2025-01254 was 9 previously marked.) 10 THE WITNESS: This is the LeBoeuf patent? 11 BY MR. CHRISTOPHER: 12 Q. Right. My -- and you recognize Exhibit 1026 as 13 the LeBoeuf reference? 14 A. Yes. 15 Q. Okay. I take it you've reviewed the LeBoeuf 16 reference. Correct? 17 A. Yes. 18 Q. Did you consider LeBoeuf in its entirety when 19 forming your opinions? 20 A. Well, I considered the combination of 21 Lisogurski and LeBoeuf, the teachings thereof. 22 Q. Not quite my question. 23 Did you read LeBoeuf cover to cover? 24 A. Yes. 25 Q. Okay. And did you consider all of its

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1 teachings, all of LeBoeuf's teachings in forming your
2 opinions?
3 A. I considered LeBoeuf in combination with
4 Lisogurski. So all of the teachings, both.
5 Q. Okay. You considered all of the teachings of
6 both Lisogurski and LeBoeuf. Is that correct?
7 A. I considered what is taught in the combination,
8 the -- what is taught in LeBoeuf, in combination with
9 what's taught in Lisogurski.
10 Q. So you only considered the portions of LeBoeuf
11 that you rely on in the combination with Lisogurski. Is
12 that right?
13 MR. KIM: Objection, form.
14 THE WITNESS: That's not what I said. You
15 asked whether I considered LeBoeuf and Lisogurski, and I
16 said yes, but in combination with Lisogurski.
17 BY MR. CHRISTOPHER:
18 Q. I don't think it was that clear, but okay.
19 Let's turn to Paragraph 273 of your
20 declaration. Let me know when you're there.
21 A. 273, yes.
22 Q. So in the first sentence, you write (as read):
23 "LeBoeuf discloses light-guiding ear
24 bud 30."
25 Do you see that?

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1 A. Yes.
2 Q. And you're referring to an embodiment of
3 LeBoeuf, which is shown in Figures 8A and 8B. Correct?
4 A. 8A, 8B, 8C, yep.
5 Q. So let's turn to Paragraph 278 of your
6 declaration. Let me know when you're there.
7 A. 278?
8 Q. Correct. 278.
9 A. Yep. Okay.
10 Q. And in Paragraph 278, you opine that (as read):
11 "LeBoeuf discloses a plurality of
12 detectors arranged along a first arc."
13 Do you see that?
14 A. Yes.
15 Q. And you've got that in orange text.
16 Do you see that?
17 A. Yes.
18 Q. And then you go on to refer -- this is in green
19 text (as read):
20 "The plurality of semiconductor
21 sources are arranged along a second arc."
22 Do you see that?
23 A. Yes.
24 Q. And then underneath Paragraph 278, you've got
25 an annotated version of Figure 8B from LeBoeuf with some

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1 orange and green annotations.
2 Do you see those?
3 A. Yes.
4 Q. And so the orange -- strike that.
5 You've shown the first arc in LeBoeuf using
6 orange. Correct?
7 A. Yes.
8 Q. And you've shown the second arc, the emitters,
9 in green. Correct?
10 A. Yep.
11 Q. And in Figure 8B, there are four detectors
12 emitters 24. Correct?
13 A. Yes.
14 Q. And there are four detectors 26 shown in 8B.
15 Correct?
16 A. Yes.
17 Q. Now, Figure 8B that we're looking at here in
18 Paragraph 278 of you declaration, that's a
19 cross-sectional view of LeBoeuf's device. Correct?
20 A. It's -- if you look at 8B -- 8B and 8C, it's
21 the front face, if you will, of the -- that would --
22 where the emitters and detectors are exposed. On the
23 surface of the back plane.
24 Q. So --
25 A. So, yes, it's a cross -- it's a cross-section

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1 through that -- that lane of 8 -- what's shown in
2 orthogonal view in 8C.
3 Q. Right. And if you can pull up just your copy
4 of LeBoeuf, because I'd like to ask you some questions
5 about 8A and 8B together, so it probably makes sense to
6 have the reference in front of you.
7 Let me know when you have it.
8 A. Okay. I refer to it on Page 131 of my deck.
9 Q. I'm sorry. Where are you?
10 A. Page 131 or 134 depending which numbering you
11 use.
12 Q. Oh.
13 A. Of my declaration.
14 Q. Sure. You can -- we can use that. I just want
15 to kind of do what we did with Lisogurski and talk a
16 little bit about what's shown in these figures so we get
17 our terminology down.
18 Reference Number 50, for example, in Figure 8A
19 that's pointing to a base. Correct?
20 A. Called a base, yes.
21 Q. And each of the detectors 26 and the
22 emitters 24 are positioned on the base 50. Correct?
23 A. Yes. In that figure.
24 Q. And Reference Number 16 is pointing to an
25 earbud housing. Correct?

Page 169 1 A. 16? Earbud housing. 2 Q. Right. And you have this actually annotated in 3 Figure 8A. Reference Number 18 is a cover. Correct? 4 A. 18. A cover. Yep. 5 Q. And then you see in the middle of Figure 8B and 6 in the middle of Figure 8A, there's a Reference 7 Number 22? 8 A. Yes. 9 Q. That's pointing to a speaker. Correct? 10 A. Speaker 22. 11 Q. Right. And in Figure 8A, you see the reference 12 number towards the top, 16a? 13 A. Yes. 14 Q. And 16a is a light-blocking region. Correct? 15 A. Well, as described, for example, in 16 Paragraph 124, LeBoeuf -- a bottom portion 16a of the 17 earbud housing 16 includes the light-blocking region that 18 blocks light from passing therethrough. 19 Q. Right. And so the purpose of the 20 light-blocking region 16a is to prevent the detectors 21 from being saturated by the emitters. Correct? 22 MR. KIM: Objection, form. 23 THE WITNESS: Well, as described in 24 Paragraph 124, for example, is the bottom portion 16a of 25 the earbud housing, includes 16, includes a	Page 171 1 Q. So -- so I'm sorry. I didn't mean to cut you 2 off. Did you have more to say? 3 A. Go ahead. 4 Q. So you agree the purpose of the bottom portion 5 16a is -- at least one purpose is to prevent the emitters 6 from saturating the detectors. Correct? 7 A. Well, again, I was not opining on a particular 8 embodiment that is of LeBoeuf by itself, but does 9 anything in particular other than what's described here. 10 I mean, I can -- LeBoeuf describes what it's being used 11 for in this particular embodiment, to reduce the risk of 12 inspection light interrogating and saturating the optical 13 detectors. So yes. 14 Q. What do you mean you were not opining on a 15 particular embodiment of LeBoeuf? 16 A. My arguments are the combination of the 17 teachings of Lisogurski and LeBoeuf, and I point to a 18 particular embodiment here, but it's in combination that 19 I'm considering the teachings, not LeBoeuf by itself. 20 Q. And if we go back to Figures 8A and 8B of 21 LeBoeuf, specifically 8B, the cross-sectional view, we 22 see that the earbud housing 16 has a circular shape. 23 Correct? 24 A. Yes. 25 Q. And, likewise, the cover 18 is shown as having
Page 170 1 light-blocking region that blocks light from passing 2 therethrough. This light-blocking region 16a may be 3 black painted region, an optically opaque region, or a 4 material or a structure that blocks light transmission. 5 The illustrated configuration of earbud housing 16 and 6 bottom portion 16a may help combine inspection -- confine 7 inspection light 111 generated by the optical emitters 8 within the light-guiding layer guiding this light towards 9 the ear region through the end portion of the earbud. 10 BY MR. CHRISTOPHER: 11 Q. Are you just reading from Paragraph 124? 12 A. Correct. You asked about what the role that 13 LeBoeuf was describing around 16a, and so that's a good 14 description of what it's being used for. 15 Q. Well, I'm reading -- what about the first 16 sentence? (As read): 17 "In the illustrated embodiment of 18 Figs. 8A through 8B to reduce the risk of 19 the inspection light 111 interrogating 20 and saturating the optical detectors. 21 The bottom portion of 16a of the earbud 22 housing includes a light-blocking 23 region." 24 Do you see that? 25 A. Yes.	Page 172 1 a circular shape in 8B. Correct? 2 A. I'm sorry. Repeat that? 3 Q. Sure. In Figure 8B the housing -- strike that. 4 In Figure 8B, the cover 18 is shown as having a 5 circular shape. Correct? 6 A. 18 has a circular shape, yes. 7 Q. And then if we look at Figure 8A, based on the 8 circular shape we see in Figure 8B, the cover 18 is 9 cylindrical. Correct? 10 A. It's got a cylindrical tendency to it, yeah. 11 Q. Sure. And, likewise, the earbud housing 16, 12 that would also have a generally cylindrical shape. 13 Correct? 14 A. Yes. Just to -- when we get a chance, finish 15 this line of, it'd be great to get just a quick bio 16 break. 17 MR. CHRISTOPHER: Sure. Why don't we go off 18 the record right now. 19 (Recess.) 20 MR. CHRISTOPHER: All right. Back on the 21 record. 22 BY MR. CHRISTOPHER: 23 Q. Welcome back. 24 Did you discuss your testimony with anyone 25 during our break?

Page 173 1 A. No. 2 Q. Okay. Before our short break, we were talking 3 about Figures 8A and 8B of LeBoeuf. 4 Would you agree that the shape of the cover 18 5 in LeBoeuf is configured such that the device can be 6 placed within a person's ear? 7 A. Eight is configured to be an earbud, yes. 8 Q. And so the cylindrical -- well, generally 9 cylindrical shape of the cover 18 is dictated by the fact 10 that this is an earbud. Right? 11 A. This particular embodiment in LeBoeuf is an 12 earbud and so would be configured to fit into an ear. 13 Q. Okay. And let's look at Figure 8A 14 specifically. The light emitted by the emitters 24 is 15 shown as a dashed line labeled 111. 16 Do you see that? 17 A. Yes. 18 Q. And in the embodiment shown in Figure 8A, the 19 light 111 that is emitted from the emitters 24 can pass 20 through the earbud housing 16. Correct? 21 A. What's shown there it seems to be dotted lines 22 going through the thing labeled 16. Yes. 23 Q. And light from the emitters 24 exits the device 24 through the end portion that is labeled 18f. Correct? 25 A. 18f at the end portion. And then also I	Page 175 1 BY MR. CHRISTOPHER: 2 Q. Yeah. So in LeBoeuf, the embodiment shown in 3 Figure 8A, the cover 18 specifically was spaced between 4 the cover 18 and the earbud housing 16 that acts as a 5 light guide that directs light to the detectors 26. 6 Correct? 7 MR. KIM: Same objection. 8 THE WITNESS: Well, as described, for example, 9 in Paragraph 123, cover 18 -- 123 of LeBoeuf -- (as 10 read): 11 "The cover 18 includes at least one 12 aperture through which staff and speaker. 13 The cover 18 includes a cladding material 14 21 on the outer surface 18a, except that 15 the end portion in the illustrative -- in 16 the embodiment, there's no cladding 17 material on the cover intersurface 18b. 18 The housing 16b is in contact with the 19 cover surface as a cladding layer to 20 define the light-guiding region 19. The 21 cover 18 with the illustrative cladding 22 material says to the light guide that 23 delivers light from the optical emitters 24 24 into an ear canal, the subject through 25 the end portion 18f. Cover 18 also
Page 174 1 highlight in 8C -- for example, 8C is a little bit 2 different because 8C has the -- 16 maybe at least 3 partially reflective of the scattered light within the 4 cavity defined by the earbud housing. So to compare 8A 5 and 8C, in one situation the light is going through and 6 the other one is not. 7 Q. And we'll talk about 8C in a minute or two. 8 Just focusing on Figures 8A and 8B. The 9 detectors receive light that's reflected back from a 10 person's tissue. Correct? 11 A. Well, detector receives whatever light is 12 incident upon that, and so there may be light coming from 13 the tissue. There may be light coming from other -- 14 other surfaces. So, for example, you know we use the 15 cladding material, for example, that light comes from the 16 material -- or from the human back to the cladding, to 17 then bounce -- be focused in to the detectors, so it's 18 not directly and -- but yes, whatever light is upon it, 19 it'll generate electrons from those photons. 20 Q. Understood. So in Figure 8A, the cover 18 21 collects light and delivers it to the optical 22 detectors 26. Correct? 23 MR. KIM: Objection, form. 24 THE WITNESS: Can you repeat the question, 25 please?	Page 176 1 collects light from the end portion 18f. 2 Delivers a collective light to the 3 optical detectors 26" -- 4 THE COURT REPORTER: And I'm sorry. Wait one 5 second. You're reading too fast, so let's go back -- 6 THE WITNESS: My apologies. 7 THE COURT REPORTER: Thank you. No problem. 8 Let's go back to "optical emitters through the 9 end portion 18f." 10 THE WITNESS: Well, I'm not sure where I'm 11 exactly going back to, but I'll start back far enough (as 12 read): 13 "The cover 18 with the illustrative 14 cladding material 18c serves as a light 15 guide that delivers light from the 16 optical emitters 24 into the ear canal 17 with subject through cover end portion 18 18f. Cover 18 also collects light 19 through end portion 18f, delivers a 20 collective light through the detectors 21 26. Variation configurations and 22 arrangements of optical emitters and 23 detectors may be utilized in accordance 24 with embodiment of the present 25 invention."

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1 So what's described there is a mechanism to use
2 the housing and cladding material to direct light.
3 And, again, as I point out, the teachings of
4 Lisogurski and LeBoeuf in combination include the use of
5 that cladding material in order to direct light to a
6 detector.
7 BY MR. CHRISTOPHER:
8 **Q. LeBoeuf also discloses that a lens can be used**
9 **to focus light onto the detector. Correct?**
10 If you're looking for somewhere in LeBoeuf, I
11 would -- I would direct you to Paragraph 97 of LeBoeuf,
12 where LeBoeuf teaches, (as read):
13 "In some embodiments, the light
14 transmissive material in the light
15 guiding region 19 may include a lens
16 (e.g., lens 18L illustrated in 6,
17 Figure 6). The lens 18L is an optical
18 communication with the optical emitter 24
19 and/or the optical detectors 26. For
20 example, a lens 18L may be configured to
21 focus light emitted by the optical
22 emitter 24 onto one or more portions of
23 an ear, and/or to focus collected light
24 on the light detectors 26."
25 Do you see that?

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1 A. Yes.
2 **Q. And so LeBoeuf teaches that one option to**
3 **direct light onto the detectors is to use a lens.**
4 **Correct?**
5 A. And, also, teaches -- yes. And, also, teaches
6 a cladding material can be used as well and...
7 **Q. Sure. So you mentioned Figure 8C a couple of**
8 **times.**
9 **Figure 8C is a different embodiment relative to**
10 **Figures 8A and 8B. Correct?**
11 A. So in Paragraph 125, in some embodiments, for
12 example, as illustrated in Figure 8C, the earbud housing
13 may be at least -- 16, may be at least partially
14 reflective to scatter light within the cavity, defined by
15 the earbud housing 16.
16 In such case, the optical energy may exit the
17 earbud through apertures 34A and B in the housing 16, and
18 cover 18. An advantage of this configuration is that
19 light can be focused on a particular region of the ear or
20 a particular physiological activity may be located.
21 This configuration may reduce unwanted optical
22 signals from regions that may not be relevant to the
23 physiological activity of interest. 8C shows
24 apertures 34 A and B positioned towards the tympanic
25 membrane. The apertures may be located at one or other

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1 locations along the earbud, et cetera.
2 So it's slightly different embodiment, yes.
3 **Q. Different embodiment. Correct?**
4 A. As I said, it's a slightly different embodiment
5 that has the earbud housing 16 being partially reflective
6 to the scatter.
7 As you pointed out, when comparing 8A with the
8 dotted lines of the light going through 16 versus 8C,
9 where they are not.
10 **Q. Okay. And if we look at Figure 8C, we see in**
11 **this side view two detectors 26. Correct?**
12 A. In 8C?
13 **Q. Yes.**
14 A. Yeah. We see two detectors, yes.
15 **Q. And -- and you also see, within earbud**
16 **housing 16, there are two emitters 24. Correct?**
17 A. Yes, in that cross-sectional view.
18 **Q. Yeah. And then, you know, one difference**
19 **relative to the -- the prior embodiment in Figures 8A and**
20 **B is that the earbud housing is reflective such that**
21 **light from the emitters 24 does not pass through the**
22 **earbud housing 16. Correct?**
23 A. As I just read in the -- there, 16 is described
24 as being, at least partially reflective, scatter light
25 within the cavity.

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1 **Q. Okay.**
2 A. Similar -- serving a similar role to the
3 cladding material on the outer side to keep light in a
4 particular region.
5 **Q. Now, can you turn to Figures 9A and 9B of**
6 **LeBoeuf. This is on Page 11 of the PDF, if you're**
7 **looking at the electronic version.**
8 A. Yep.
9 **Q. Okay. Did you consider the embodiment shown in**
10 **9A and 9B in forming your opinions?**
11 A. So LeBoeuf teaches multiple embodiments and the
12 embodiment that I used in my declaration is the
13 embodiments of -- of 8.
14 **Q. But did you consider what's shown in Figures 9A**
15 **and 9B when you formed your opinions?**
16 A. I considered the teachings of LeBoeuf and --
17 and Lisogurski together.
18 **Q. Sure. So in Figure 9B, let's start there,**
19 **there are four emitters 24. Correct?**
20 A. I'm sorry. What was the question about
21 Figure 9?
22 **Q. Figure 9B, are you there?**
23 A. Yes.
24 **Q. There's four emitters 24. Correct?**
25 A. Twenty-four are the emitters, yes.

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1 Q. And then in Figure 9A, we see one detector 26
2 at the bottom.
3 Do you see that?
4 A. Yes.
5 Q. Now, if you could turn to Paragraph 128 of
6 LeBoeuf.
7 A. Okay.
8 Q. Now, roughly halfway down on that -- on that
9 Paragraph that you see on the -- in the page, where 128
10 starts, you see where it reads (as read):
11 "When inspection light 111 generated
12 by the optical emitters 24 is scattered
13 or by an optical scatter region, this
14 light may form a more diffuse optical
15 beam 111A that is more uniform across the
16 earbud 30 than the inspection light 111
17 generated by the optical emitters 24."
18 Do you see that?
19 A. Yes.
20 Q. And according to Lisogurski, the optical 111A
21 is more uniform than the inspection light 111. Correct?
22 A. I'm sorry. You said Lisogurski or LeBoeuf?
23 Q. I may have said Lisogurski. If I did, I meant
24 LeBoeuf.
25 A. Okay. Just, can you read it -- what's the

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1 question?
2 Q. Yeah, let's try it again.
3 LeBoeuf teaches that the optical beam 111A is
4 more uniform in Figures 9A and 9B than the inspection
5 light 111, for example, in Figures 8A and 8B. Correct?
6 MR. KIM: Objection, form.
7 THE WITNESS: Well, I'm not sure -- it's not
8 necessarily comparing. It's describing that embodiment
9 of 9A and 9B is more uniform across the earbud than
10 inspection light generated by the optical emitters 24.
11 It's not saying in comparison to anything other than
12 itself.
13 BY MR. CHRISTOPHER:
14 Q. Would you agree that the optical beam 111A
15 that's shown in Figure 9A is more uniform than the
16 inspection light 111 that exits the device in Figure 8A?
17 MR. KIM: Objection, form.
18 THE WITNESS: I wasn't opining upon the
19 comparison of 9A and 9B and 8A. I'm considering the
20 teachings of -- and I'm not wholesale copying one
21 embodiment or the other. But I'm highlighting the
22 teachings of Lisogurski in view of LeBoeuf. And the
23 teachings of a concentric arc, the teachings of the --
24 the cladding material, the reflective surface.
25 Yeah. In forming my opinions, I didn't need to

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1 opine around what is 9 doing versus 8 in LeBoeuf by
2 itself.
3 BY MR. CHRISTOPHER:
4 Q. So you don't have any opinions as to whether
5 the optical beam 111A in Figure 9A is more uniform than
6 the inspection light 111 exiting the device in Figure 8A.
7 Correct?
8 MR. KIM: Objection, form.
9 THE WITNESS: I didn't need to opine -- opine
10 upon such a comparison in forming my opinions. What
11 LeBoeuf teaches in combination with Lisogurski is, as I
12 described, meets the limitations.
13 BY MR. CHRISTOPHER:
14 Q. Does Lisogurski teach that the measurements
15 that could be obtained from the embodiment in Figures 8A
16 and 8B are more accurate than any of the other
17 embodiments disclosed in LeBoeuf -- let me start over,
18 because I think I said Lisogurski. Withdrawn.
19 Does LeBoeuf teach that the embodiment shown in
20 Figures 8A and 8B result in more accurate measurements
21 relative -- relative to any other embodiment disclosed in
22 LeBoeuf?
23 MR. KIM: Objection, form.
24 THE WITNESS: Can you repeat the question,
25 please?

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1 MR. CHRISTOPHER: Sure.
2 BY MR. CHRISTOPHER:
3 Q. Does LeBoeuf teach that the embodiment shown in
4 Figures 8A and 8B results in more accurate measurements
5 relative to any other embodiments disclosed in LeBoeuf?
6 MR. KIM: Same objection.
7 THE WITNESS: So, again, I'm just prefacing, I
8 was not opining upon LeBoeuf by itself. I was opining
9 upon what LeBoeuf teaches in combination with Lisogurski.
10 And LeBoeuf, and POSITA, if they -- opining for a moment
11 just on how a POSITA would interpret LeBoeuf in
12 isolation, which is not what I was doing, LeBoeuf is
13 teaching various design embodiments that would have
14 different manufacturing considerations, sensitivity
15 considerations, and is silent, necessarily, on comparing
16 what exactly is the right combination.
17 Because its answer is, POSITA reading it in
18 isolation, which is not what I was doing, would know that
19 there are design trade-offs that would lead to different
20 performance. And it could be uniformity, it could be
21 sensitivity, it could be cost.
22 BY MR. CHRISTOPHER:
23 Q. So LeBoeuf is silent as to the relative
24 performance of the various embodiments. Correct?
25 MR. KIM: Objection, form.

Page 185 1 THE WITNESS: Again, I wasn't opining about 2 LeBoeuf by itself. It's talking about the various -- 3 the -- the teachings of LeBoeuf are demonstrated in 4 various -- in various embodiments. And what I was 5 opining on is the teachings of LeBoeuf, in combination 6 with Lisogurski, Lisogurski, in combination with LeBoeuf, 7 and what a POSITA would understand was taught, including 8 the concentric circles, the -- and using of reflective 9 surfaces in the combination. 10 BY MR. CHRISTOPHER: 11 Q. You haven't opined in your declaration that, 12 for example, the embodiment shown in Figures 8A and 8B of 13 LeBoeuf, would result in more accurate measurements 14 relative to any other embodiment in LeBoeuf. Correct? 15 MR. KIM: Objection, form. 16 THE WITNESS: Again, in forming my opinions, 17 that was not necessary to do so. I took the -- the 18 teachings of LeBoeuf as a POSITA would understand them, 19 in view of Lisogurski, and opined on how the combination 20 teaches limitations, both the arc limitations and 21 reflective surface limitations. 22 It wasn't necessary to opine upon the 23 performance characteristics of the different embodiments. 24 Again, highlighting that if a POSITA were to do that, or 25 if I were to do that, there's multiple axis along which	Page 187 1 Do you see that? 2 A. I -- without looking the numbers up, I'm going 3 to trust you that is indeed the emitter and detector and 4 not the other way around, but yes. 5 Q. Sure. I'm not trying to trick you. And I'll 6 represent to you 26 prime -- you might be wondering what 7 that is -- that in the specification is optical noise 8 detector. 9 You with me? 10 A. Sure. 11 Q. So we only see one emitter in Figure 22B. 12 Correct? 13 A. Well, there's a cross-sectional view, so, you 14 know, this figure is silent on whether or not there's 15 others in the depth of the -- in the page. 16 Q. So just looking at these figures by themselves, 17 you would agree that they don't show emitters or 18 detectors arranged along an arc. Correct? 19 A. Well, as I highlight in my discussion, 20 motivation to combine and certainly in the teachings of 21 8A and 8B, LeBoeuf does teach arrangements in an arc. It 22 doesn't teach that every embodiment has to use an arc, 23 but it certainly teaches the use of an arc and the 24 benefits of doing so. 25 And, you know, POSITA reading Lisogurski in
Page 186 1 that include cost, manufacturability, performance, 2 battery life, comfort, customer preferences. 3 And so -- but LeBoeuf is highlighting the 4 various embodiments that, in view of the teachings. But, 5 again, I was not opining upon LeBoeuf by itself. 6 BY MR. CHRISTOPHER: 7 Q. Fair enough. Let's look at, now, Figures 22A 8 and 22B of LeBoeuf. Let me know when you're there. 9 A. Yes. 10 Q. All right. Did you review these Figures 22A 11 and 22B in the course of forming your opinions? 12 A. I reviewed and -- and considered the teachings 13 of Lisogurski in combination with LeBoeuf and these are 14 example embodiments. 15 Q. Sure. And so the embodiments shown in 16 Figures 22A and 22B is designed to be placed on a finger. 17 Correct? 18 A. That appears to be the case, yes. There's a 19 finger schematic there. 20 Q. Understood. And if we look at Figure 22B, you 21 can see there's an emitter 24. 22 Do you see that? 23 A. Yes. 24 Q. And then we have a optical detector 26. 25 Correct?	Page 188 1 view of LeBoeuf would understand that the combination 2 disclosed both the arc arrangement and the reflective 3 surface uses. 4 Q. Wasn't quite my question so I'll ask it this 5 way: The only embodiment in LeBoeuf that illustrates 6 emitters and detectors arranged along an arc is the 7 earbud embodiment. Correct? 8 MR. KIM: Objection, form. 9 THE WITNESS: Well, I mean, certainly LeBoeuf 10 teaches things arranged along an arc, as I highlight in 11 8A. It's silent, for example, on the Figure 22b. And 12 again, you know, LeBoeuf teaches both an arc arrangement 13 and reflective surface arrangement, and POSITA -- also in 14 view of whether also a POSITA would know in terms of like 15 Mendelson, you know, there's very good POSITA knowledge, 16 and the combination of Lisogurski and LeBoeuf is to the 17 benefit array along an arc, and the combination to -- 18 teaches the limitation. 19 BY MR. CHRISTOPHER: 20 Q. Well, would you at least agree with me that the 21 only embodiment you've relied on from LeBoeuf that is 22 showing an arc would be the one shown in Figures 8A and 23 8B. Correct? 24 A. Well, it's my understanding that a patent can 25 teach the -- the -- have the various embodiments. They

Page 189 1 use the teachings in a number of different ways, and in 2 Lisogurski, one of the teachings is certainly of an arc 3 that is taught in 8A and 8B and 8C. It's certainly 4 taught by Lisogurski -- sorry -- LeBoeuf -- Lisogurski in 5 combination with LeBoeuf. But further knowledge of a 6 POSITA, for example, with Mendelson would know to arrange 7 things in an arc. 8 Q. You said Figure 8C of LeBoeuf discloses an arc? 9 A. Well, 8C is a cross-section of an arc 10 arrangement, as well, of 8A and 8B. 11 Q. How do you know that? 12 A. Well, certainly 8B is teaching it, and 8B is a 13 cross-section of 8A, 8C. The presumptive difference 14 between 8A and 8C in isolation is the additional 15 reflective scattering material 16. But clearly, even if 16 you were to look at 8B by itself, LeBoeuf clearly teaches 17 it, but again, as I describe, combination of LeBoeuf and 18 with Lisogurski and further view of Mendelson, but also 19 has a similar arrangement of photodetectors arranged 20 about the center. The combination and further 21 corroborated as I describe and the motivation to combine, 22 LeBoeuf teaches it, combination teaches it, and a POSITA 23 would understand that it meets the limitations. 24 Q. Turn to Paragraph 262 of your declaration to 25 the '304 patent.	Page 191 1 sentence. 2 Q. And then -- 3 A. But I highlighted the figures -- I'm 4 highlighting and showing the figures over there in 5 overview of LeBoeuf, which talks about the arrangement of 6 the optical emitters and detectors back in Paragraph 216. 7 Q. And in the second sentence you say -- at the 8 end, there's two citations of Lisogurski, and then you 9 cite LeBoeuf Paragraph 6 and 10. 10 Do you see that? 11 A. Yes. 12 Q. Okay. Let's look at Paragraph 6 of LeBoeuf. 13 Let me know when you've got Paragraph 6 in 14 front of you. 15 A. Okay. 16 Q. Paragraph 6 of LeBoeuf does not disclose the 17 arranging emitters and detectors along offset concentric 18 arcs increases detection of scattered light. Correct? 19 A. Well, I -- I talk about the motivation here. 20 We're looking at one particular Paragraph. And then I'm 21 highlighting both in the overview of LeBoeuf in 260, 22 the -- pointing to the figures and what they describe, 23 pointing to in 262 the configuration of light source and 24 detector made -- any configuration of Lisogurski teaching 25 may be used, and further in 263 describing the --
Page 190 1 A. 262? 2 Q. 262. 3 A. I'm there. 4 Q. In the first sentence, you wrote (as read): 5 "With respect to LeBoeuf's teaching of 6 an arc arrangement, a person of ordinary 7 skill in the art would have been 8 motivated to apply LeBoeuf's teachings to 9 Lisogurski's sensor to include a 10 plurality of optical emitters and 11 detectors arranged along an offset 12 concentric arcs to increase detection of 13 scattered light, thus improving accuracy 14 of physiological measurements." 15 Do you see that? 16 A. Yes. 17 Q. And you don't cite LeBoeuf in that first 18 sentence. Correct? 19 A. Well, I go both Lisogurski and LeBoeuf, 20 disclose monitoring devices and highlight Lisogurski and 21 LeBoeuf in their sections there. 22 Q. Right. You got ahead of me. I was going to go 23 to that second sentence next. But in the first sentence 24 you don't cite LeBoeuf. Correct? 25 A. I don't have a cite after the end of that first	Page 192 1 well-known in the art that light is scattered and 2 absorbed, and then further highlighting Mendelson to -- 3 and the arrangement of Mendelson similarly photodetectors 4 arranged in an arc about a center. 5 So I'm highlighting all of this together how 6 LeBoeuf in -- Lisogurski in view of LeBoeuf, further 7 supported by other references, teach the benefit of using 8 an arc or improving single capture. 9 Q. I'm going to move to strike as nonresponsive. 10 The text of Lisogurski -- strike that. 11 The text of LeBoeuf does not disclose that 12 arrangements emitters and detectors increases the 13 detection of scattered light. Correct? 14 MR. KIM: Objection, form. And also disagree 15 on the responsiveness. 16 BY MR. CHRISTOPHER: 17 Q. Are you reviewing LeBoeuf? 18 A. I'm looking at LeBoeuf. 19 Okay. I mean, LeBoeuf by itself again teaches 20 of using emitters and detectors, and the detectors -- a 21 POSITA reading LeBoeuf by itself, which is not what I was 22 doing, understand multiple detectors, more signal, 23 improving your signal to noise. Scattered light may be 24 captured by the optical detectors. So it's teaching the 25 optical detectors, and it also teaches the benefit of

Page 193 1 having multiple openings; getting more light in, light 2 out. Detecting one or more optical wavelengths. 3 Detector providing suitable noise reference. 4 So it's talking extensively about the multiple 5 detectors at different locations, the benefit of getting 6 your -- getting an op-- getting a signal. But again, I 7 was not opining on LeBoeuf by itself. LeBoeuf certainly 8 in the figures and in the -- the text highlight some -- 9 show emitters and detectors arranged about an arc. 10 And what I opined about is a combination of 11 Lisogurski and LeBoeuf further bolstered by other 12 literature such as Mendelson, and a POSITA would be 13 familiar with that as well. So POSITA reading these two 14 and the knowledge of a POSITA would understand the -- 15 what is disclosed in terms of the benefit of using an 16 array as is disclosed. 17 Q. So focusing just on LeBoeuf by itself, you 18 agree the text does not explicitly say that arranging the 19 emitters and detectors in an arc increases the detection 20 of scattered light. Correct? 21 MR. KIM: Objection, form. 22 THE WITNESS: Well, POSITA, again, if they -- 23 you know, I was not opining upon LeBoeuf by itself. But 24 LeBoeuf talks extensively about capturing scattered 25 light, you know, having cladding surfaces, reflective	Page 195 1 Can you point me to any text in the LeBoeuf 2 reference that explicitly says that arranging the 3 emitters and the detectors in an arc would increase the 4 detection of scattered light. 5 Is there anywhere where it says that in the 6 text of LeBoeuf? 7 MR. KIM: Objection, form. 8 THE WITNESS: A patent -- the teachings of the 9 patent are embodied both in the text and the figures, and 10 I was not opining LeBoeuf by itself. LeBoeuf is not 11 calling out explicitly by itself in isolation, which is 12 not what I did, that a -- the signal-to-noise impact of 13 an arc arrangement, but a POSITA reading Lisogurski, in 14 view of LeBoeuf, in view of their POSITA knowledge, also 15 represented Mendelson would understand what the 16 combination is teaching and would be motivated to combine 17 accordingly. 18 BY MR. CHRISTOPHER: 19 Q. LeBoeuf by itself is not calling out the 20 signal-to-noise impact of arc arrangements. Correct? 21 MR. KIM: Objection, form. 22 THE WITNESS: Again, I was not opining about 23 LeBoeuf by itself. POSITA reading Lisogurski in view of 24 LeBoeuf and in view of the knowledge of a POSITA, the -- 25 the figure calls out an array and calls out the
Page 194 1 surfaces that guide light. And again, I was not opining 2 upon LeBoeuf by itself. It certainly teaches multiple 3 detectors arranged in an array. Talks about the issues 4 of getting good signal, directing light to the -- to the 5 detectors. 6 And then, as I described, you know, why a 7 POSITA reading Lisogurski and LeBoeuf in combination 8 would understand what is being taught, it would recognize 9 in Paragraph 263 a arranged set of detectors would be -- 10 linear would be insufficient to capture the scattered 11 life. Mendelson, for example, further teaches the 12 benefit of having things about an arc, about a center. 13 Person of ordinary skill would have recognized LeBoeuf's 14 detector arrangement enhances the light from the 15 biological tissue detected, improving the signal to 16 noise, resulting increase of the noise ratio. And, 17 accordingly, a person of ordinary skill would have been 18 motivated to modify Lisogurski with LeBoeuf teaching as 19 in the figures he arranged spatially separate detectors 20 and light sources on one or more arcs. 21 MR. CHRISTOPHER: Move to strike -- 22 THE WITNESS: With a reasonable chance of 23 success. 24 MR. CHRISTOPHER: Sorry. Move to strike as 25 nonresponsive.	Page 196 1 importance of a circular -- an arc arrangement and called 2 out the benefit of good signal to noise, so a POSITA 3 reading LeBoeuf but in combination with Lisogurski would 4 absolutely understand what is being taught even if 5 LeBoeuf by itself is not explicitly writing out in the 6 text the use of a arc arrangement. 7 BY MR. CHRISTOPHER: 8 Q. Okay. If you could turn to Paragraph 263 of 9 your declaration for the '304 patent. 10 A. 263? 11 Q. Yeah. And I want to ask you about -- it's the 12 last sentence that bridges onto the next page. 13 You see where you wrote (as read): 14 "Accordingly, a person of ordinary 15 skill in the art would have also 16 recognized that a linear or closely 17 grouped arrangement of detectors would be 18 insufficient to capture much of the 19 angularly scattered light." 20 Do you see that? 21 A. Yes. 22 Q. What do you mean by a "linearly grouped 23 arrangement of detectors?" I think I may have misquoted. 24 Let me reask this: What do you mean by a 25 "linear-grouped arrangement of detectors"?

Page 197 1 A. So I reference there U.S. Patent 6,801,799 2 simply put that into -- that's Exhibit 1045? 3 Q. Yeah. Let's talk about Exhibit 1045. This is 4 the Mendelson reference. I'm going to put it into the 5 Zoom chat. 6 And this was marked as Exhibit 1045, I believe, 7 only in IPR2025-01251. 8 Do you recognize Exhibit 1045 as Mendelson? 9 A. Yes. 10 Q. All right. And let's just -- just turn back to 11 your declaration for a moment, Paragraph 263. You cite 12 Mendelson at Column 4, Lines 14 through 65. 13 Do you see that? 14 A. Yes. 15 Q. All right. And if you could turn back to 16 Mendelson, Column 4, you see starting around, looks like 17 around Line 6, Mendelson states (as read): 18 "The total amount of back scattered 19 light that can be detected by a 20 reflecting sensor is directly 21 proportional to the number of 22 photodetectors placed around the LEDs." 23 Do you see that? 24 A. Yes. 25 Q. And so here Mendelson is teaching that you	Page 199 1 4, and it appears to be a 1988 publication by Mendelson. 2 Do you see that? 3 A. Yes. 4 Q. Did you review a copy of that publication in 5 the course of forming your opinions? 6 A. I believe I've reviewed that document in the 7 past. I don't recall the last time I reviewed it. But, 8 you know, I'm highlighting this -- the '799 Mendelson 9 patent, which is also pointing to these other 10 applications. 11 Q. Did you review that 1988 publication in 12 connection with your declaration for this matter? 13 A. Over the last -- in preparation for the 14 declaration -- of the deposition, no. I don't recall 15 whether I reviewed that as part of the forming of my 16 declaration. 17 Q. Okay. And then you see 5, underneath, and it's 18 another Mendelson publication that appears to be from 19 1991. 20 Do you see that? 21 A. Yes. 22 Q. Same -- same question. Did you review a copy 23 of the 1991 Mendelson publication in the course of 24 preparing your declaration? 25 A. I don't remember. I can look, though, if I
Page 198 1 could increase the amount of back scattered lights that's 2 detected simply by increasing the number of 3 photodetectors. Correct? 4 A. Placed around the LED. 5 Q. Sure. So if a person of skill in the art 6 wanted to increase the amount of back scattered light 7 that reaches the sensor, one option for the person of 8 skill in the art would be to increase the number of 9 photodetectors. Correct? 10 MR. KIM: Objection, form. 11 THE WITNESS: Well, I'll opine here today, I 12 mean, a POSITA would increase the number of detectors 13 where the light is to be expected and the light to be 14 expected around a photo detect -- for a source is going 15 to be, roughly, in the round region around it, further 16 modified by any kind of structures that guide a light to 17 earbuds. 18 BY MR. CHRISTOPHER: 19 Q. Okay. And then if you can turn, in Mendelson, 20 Column 4, it looks like starting around Line 13 or 14, 21 it's one of those with the numbers in between the lines, 22 you see there the sentence reads (as read): 23 "Another approach"? 24 A. Yes. 25 Q. Then it cites two provocations. There's one,	Page 200 1 cited that. But it certainly referenced in the 2 Mendelson -- the '799 patent. 3 Q. So if you look up a couple of lines, Mendelson 4 says (as read): 5 "Another approach is based on the use 6 of a sensor having 6-footer diodes 7 arranged symmetrically around the LEDs. 8 It is disclose" -- 9 A. Wait. Which -- which line were you reading? 10 Sorry. 11 Q. It's like so line -- it's one of those where 12 it's in between. So it's either Line 13 or 14. "Another 13 approach." 14 Do you see that sentence? 15 A. Yes. Yes. 16 Q. All right. It says (as read): 17 "Another approach is based on the use 18 of a sensor having 6-footer diodes 19 arranged symmetrically around the LEDs." 20 Do you see that? 21 A. Yes. 22 Q. And so Mendelson doesn't show us a picture of 23 what that arrangement looks like. Correct? 24 A. Well, Mendelson, in Figure, shows, you know, 25 around a center. And also, on the cover page, 16 -- or

Page 201 1 cover page of Mendelson, shows arrangements of detectors 2 about the center. 3 Q. Right. But in the passage we just read in 4 Column 4, they're referring to the 1988 and 1991 5 publications. Correct? 6 A. Yes. 7 Q. And we don't have a picture in Mendelson of 8 what those two publications look like. Correct? 9 A. I'd be surprised if they were too dissimilar 10 from what is shown in Figure 7 and the cover page, but we 11 are -- we don't have figures from exactly those 12 publications. 13 Q. And then if you go down -- and sticking in 14 Column 4, to Line 23, Mendelson writes (as read): 15 "Yet another prototype reflective 16 sensor is based on eight dual wavelength 17 LEDs in a single photo diode." 18 Do you see that? 19 A. Yes. 20 Q. And if this sensor only has a single photo 21 diode, you'd agree that the sensor cannot have a 22 plurality of detectors arranged along an arc. Correct? 23 MR. KIM: Objection, form. 24 THE WITNESS: Well, it's based on 90-degree 25 intervals. That's the arc around a circle -- around a	Page 203 1 single photo diode, there wouldn't be a plurality, two or 2 more detectors, arranged along the arc. Correct? 3 MR. KIM: Objection, form. 4 THE WITNESS: Well, here, in this particular 5 embodiment, the emitters are arranged about the arc. And 6 the other arrangement is the detectors who are arranged 7 around the arc. So Mendelson is teaching both of those 8 possible arc arrangements. 9 And then it goes on (as read): 10 "Further," in like Line 59, "radially 11 symmetric photodetector of arrays can 12 help to maximize the detection of back 13 scattered light from the skin, minimize 14 differences from local tissue and 15 homogeneity. Even in animal studies can 16 confirm this configuration. Cannot 17 completely without any errors, but it's 18 beneficial in improving the signal 19 choice." 20 So yeah, this is knowledge of a POSITA and, you 21 know, the combination is Lisogurski and LeBoeuf. And 22 here, I cite Mendelson is further corroboration of the 23 knowledge of a POSITA, in reading combination and 24 teaching the benefit of arrayed -- of arc arranged 25 emitters and detectors.
Page 202 1 circle. So it's a -- it's -- or you can draw an arc 2 through those four equally radially distant 3 photodetectors. So it's the arc of a circle. 4 BY MR. CHRISTOPHER: 5 Q. Well, but as we just read in Line 24, it says 6 that there's a single photo diode. 7 Do you see that? 8 A. Line 20 -- I'm sorry. I'm at -- 9 Q. I believe it's Line 24. Do you see where it 10 says "a single photo diode"? 11 A. Line 24. 12 Q. And I'm going to double-check I'm not giving 13 you the wrong number. 14 A. Six discrete photo diodes. 15 Q. No. I'm looking at the wrong number. It's 16 Line 36? Sorry. Something in my eyeline. Let's start 17 over. 18 In Line 36, in Column 4, do you see where 19 Mendelson states (as read): 20 "Yet another prototype reflecting 21 sensor is based on eight" -- "eight dual 22 wavelength LEDs in a single photo diode." 23 Do you see that? 24 A. Yes. 25 Q. And so in this example, because there's only a	Page 204 1 MR. CHRISTOPHER: Move to strike as 2 nonresponsive. 3 BY MR. CHRISTOPHER: 4 Q. I was just asking about one example in 5 Mendelson. 6 We can go back to LeBoeuf, Figures 8A and 8B. 7 Figure 8B, specifically. 8 Let me know when you're ready. 9 A. I'm sorry. Where are we -- where are we going 10 back to now? 11 Q. LeBoeuf, Figure 8B, please. 12 A. 8B, LeBoeuf. Okay. 13 Q. And I want to focus just on the detectors 26 to 14 start. The detectors are positioned between the cover 18 15 in the earbud housing 16. Correct? 16 A. So the optical emitters, and looking at my 17 Page 131 -- or 134, where I've highlighted in colors, the 18 8A, B, and C from LeBoeuf. We have the optical emitters 19 in green, about an arc center. And we have the -- the 20 optical detectors in yellow about an arc, a larger 21 circle. And 16 is the -- the housing between. 22 Q. Right. So focusing just on the detectors 26, 23 they're positioned between the cover 18 and the earbud 24 housing 16. Correct? 25 A. Between 16 and 18, yes.

Page 205 1 Q. And given that both the cover 18 and the earbud 2 housing are circular, the space between the earbud 3 housing 16 and the cover 18 also has a circular shape. 4 Correct? 5 A. Yes. 6 Q. Is there any way to arrange the detectors 26 7 between the cover 18 and the earbud housing 16 that is 8 not along an arc? 9 A. Well, yes. A particular embodiment they made 10 certain geometry considerations and this is a plan, sort 11 of cross-section. A POSITA looking at the teachings -- 12 and, again, this is not something that I did in isolation 13 with LeBoeuf. But they can choose, for example, to have, 14 instead of a singular base, they can have a perpendicular 15 base that comes out and arrange them along the length of 16 what is currently the -- of what is 16, you know, as one 17 possible. And that could be a linear arrangement. 18 But, again, that's not, you know, sitting here 19 on the spot now, making something up. But, you know, it 20 could be any number of ways that a POSITA would -- but 21 clearly, if a POSITA viewing LeBoeuf in view -- 22 Lisogurski, in view of LeBoeuf, understands what's being 23 taught in the benefit of having these -- these 24 arrangements to improve signal and -- and in a particular 25 design.	Page 207 1 coming out of the page. 2 But, again, making up something on the spot 3 that a POSITA could consider as part of their design 4 space, but that's -- was not necessary in forming my 5 opinions. 6 BY MR. CHRISTOPHER: 7 Q. Well, would you agree that the arc 8 configuration of the detectors is dictated by the 9 geometry of the housing 18 -- excuse me -- the cover 18 10 and the earbud housing 16? 11 MR. KIM: Objection, form. 12 THE WITNESS: Again, I was not opining upon 13 LeBoeuf by itself. The layout of a device is dictated by 14 the considerations that you make. So it's not that we 15 make the device and now, figure out how to jam things in. 16 I'm co-designing the everything. And you -- if you want 17 to change one aspect, you end up changing other aspects. 18 So particular embodiment is designed to bring 19 things in the geometrical way, an optical way, an 20 electrical way, and the embodiment here is demonstrating 21 a circular arc arrangement, as I opined that, you know, 22 POSITA reading Lisogurski in view of LeBoeuf would 23 understand and the benefit of doing so. 24 MR. CHRISTOPHER: Why don't we -- why don't we 25 go off for a short break.
Page 206 1 Q. I don't think that quite answered it. 2 If we assume that we don't change anything else 3 about LeBoeuf, other than the arrangement of the 4 detectors 26 and we assume that we would still like the 5 detectors 26 to be between the cover 18 and the earbud 6 housing 16, is there any way in which those detectors 26 7 could be arranged in which they are not in an arc? 8 MR. KIM: Objection, form. 9 THE WITNESS: But in some sense, you're asking, 10 I have a car and now, I want to move the engine into the 11 back, and I need to change other things. So there's a 12 particular embodiment that practices certain aspects of 13 the teachings. 14 And so it's -- it's not a matter of how, "Well, 15 hey, can I just suddenly do something very different," 16 but doing something different depends on other -- other 17 factors as one point. I was not considering LeBoeuf by 18 itself. I didn't need to opine around whether I could 19 rearrange emitters and detectors in the embodiment, but 20 the embodiment, clearly, is teaching a concentric arc 21 arrangement. 22 Putting me on the spot here today, yes, I can 23 imagine various ways where I could -- without a really 24 good design, choose to put the emitters along the -- 25 coming out of the page, if you will, or the detectors	Page 208 1 (Recess.) 2 MR. CHRISTOPHER: All right. Back on the 3 record. 4 BY MR. CHRISTOPHER: 5 Q. Dr. Anthony, if you could turn to Paragraph 55 6 of your declaration for the '304 patent. 7 Let me know when you're there. 8 A. 55, yes. 9 Q. 55. And in 55, you note that (as read): 10 "The board construed the phrase 'to 11 identify an object' to mean 'to recognize 12 or establish an object as being a 13 particular thing'" in the IPR for the 14 '484 patent. Correct? 15 A. Yes. 16 Q. Okay. And we talked about this earlier. You 17 submitted a declaration in the proceeding for the 18 '484 patent. Correct? 19 A. Yes. 20 Q. And you understand that the board's claim 21 construction phrase 'to identify an object' issued after 22 you had executed your declaration for the '484 patent. 23 Correct? 24 A. The -- the board's decision came after my 25 declaration, yes.

Page 209 1 Q. Right. And for purposes of the '304 patent, 2 you state here in Paragraph 55 that you've been 3 instructed to adopt the board's construction from the 4 '484 patent IPR in rendering your opinions. Correct? 5 A. Yes. 6 Q. Okay. 7 A. Which is also consistent with the plain and 8 ordinary meaning of the term. 9 Q. All right. You knew where I was going with my 10 next question. 11 How is the claim construction consistent with 12 the plain and ordinary meaning? 13 MR. KIM: Objection, form. 14 BY MR. CHRISTOPHER: 15 Q. Are you reviewing your declarations? 16 A. I -- at the end of that I see -- I would say, 17 "See my discussion in Section IX.C.3.[12.b]." 18 Q. Do you need me to repeat the question or are 19 you still reading? 20 A. I'm still -- I went up to Section IX.C.3 and 21 reviewing what I wrote there, say "See my discussion." I 22 want to make sure that I'm reviewing my declaration 23 before I respond. 24 Okay. So can you repeat the question now? 25 I've refamiliarized myself with that section of the	Page 211 1 claim construction and the plain and ordinary meaning for 2 that term, "identify an object"? 3 MR. KIM: Objection, form. 4 THE WITNESS: The -- the "to identify an 5 object," to recognize or establish an object as being a 6 particular thing is certainly consistent with the plain 7 and ordinary meaning, and a POSITA reading would -- in 8 the context would understand that the arc as I 9 disclosed -- as I described meets that limitation. 10 THE COURT REPORTER: I'm sorry, may we go off 11 the record. 12 MR. CHRISTOPHER: Sure. 13 (Recess.) 14 MR. CHRISTOPHER: All right. Back on the 15 record. 16 BY MR. CHRISTOPHER: 17 Q. Prior to our short break, we were discussing 18 claim construction from the prior '484 decision for the 19 term "to detect an object." You understand that under 20 the board's claim construction, the term "to identify an 21 object" has a different meaning then the term "to detect 22 an object." Correct? 23 A. Sorry. Can you repeat that question? 24 Q. It may be easier if I just show you the 25 decision, so I'm going to show you. This is
Page 210 1 declaration. 2 Q. Sure. And I'm using your words. In 3 Paragraph 55 of your declaration for the '304 patent, how 4 is the board's claim construction of the phrase "to 5 identify an object" consistent with the plain and 6 ordinary meaning? 7 A. Well, again, meaning a POSITA reading the '484 8 would -- you know, would read "identify an object" would 9 understand it to, at least, mean to recognize or 10 establish an object as being a particular thing, which 11 is, as I say, consistent with the plain and ordinary 12 meaning a POSITA reading the '484 and also the -- the 13 '304. So I guess I'm... 14 Q. I guess are you opining that there is a 15 difference between the board's claim construction for "to 16 identify an object" and the plain and ordinary meaning of 17 that term? 18 MR. KIM: Objection, form. 19 THE WITNESS: Well, insofar that there's any 20 difference between the board's construction and the plain 21 and ordinary meaning, the arc meets the -- that 22 limitation to identify an object, though it's consistent 23 with the plain and ordinary meaning as I described. 24 BY MR. CHRISTOPHER: 25 Q. It's possible there is a difference between the	Page 212 1 Exhibit 1015, which I believe has been submitted in all 2 of the proceedings. 3 (Exhibit 1015 in each of the proceedings 4 was previously marked.) 5 BY MR. CHRISTOPHER: 6 Q. And I'll represent to you this is the first 7 final written decision for the '484 patent? 8 Let me know when you have that opened. 9 A. Yeah. 10 Q. Turn to Page 10, please. 11 Let me know when you're there. 12 A. Yes. 13 Q. Do you see the Paragraph that starts with the 14 word "therefore"? 15 A. Yes. 16 Q. The board states here -- this is Page 10 of 17 Exhibit 1015 (as read): 18 "We decline to adopt petitioner's 19 proposal to construe the terms 'identify 20 an object' and 'detect an object' to have 21 the same meaning. Instead, we construe 22 these terms consistent with the 23 dictionary definitions of 'identify' and 24 'detect'; i.e., we construe 'to identify 25 an object' to mean to recognize or

Page 213 1 establish an objection as being a 2 particular thing, and we construe 'to 3 detect an object' to mean to discover or 4 notice the existence or presence of 5 something." 6 Do you see that? 7 A. Yes. 8 Q. Did you review this portion of the board's 9 decision when forming your opinions? 10 A. As I highlight here, this is -- this is the 11 final written decision of the '484, yes. 12 Q. Okay. And you understand that under the 13 board's claim construction, the term "to identify an 14 object" has a different meaning than "to detect an 15 object." Correct? 16 A. So as written there, we construe "to identify 17 an object" to mean recognize or establish, and construe 18 "to detect" to mean discover or notice the existence or 19 presence. 20 Q. Right. So different meanings for the phrase 21 "identify an object" and "detect an object." Correct? 22 A. As is highlighted there, yes. 23 Q. And you would agree that under the board's 24 claim construction, to discover or notice the existence 25 or presence of something is not identifying an object.	Page 215 1 with plain and ordinary meaning. Adopted the board's 2 construction, which is also consistent with plain and 3 ordinary meaning. Okay. 4 And reask the question then? 5 Q. Yeah. I'm not asking about '304 patent or your 6 declaration. I'm asking about the claim construction. 7 This is in Exhibit 1015, the prior board decision, 8 Page 10. And we talked about this a few minutes ago. 9 This is the claim construction you applied in 10 forming your opinions for the '304 patent. Correct? 11 A. Yes. 12 Q. And you understand that under the board's claim 13 construction, there is a difference between "to identify 14 an object" and "to detect an object." Correct? 15 A. As highlighted there in the board's, yes. 16 Q. And the board's construction for "to detect an 17 object" was to "discover or notice the existence or 18 presence of something." Correct? 19 A. To detect, yes. 20 Q. And my question was: Under the board's claim 21 construction, discovering or noticing the existence or 22 presence of something is not identifying an object. 23 Correct? 24 MR. KIM: Objection, form and scope. 25 THE WITNESS: The board's decision here is
Page 214 1 Correct? 2 MR. KIM: Objection, form. 3 BY MR. CHRISTOPHER: 4 Q. Are you reviewing something other than the 5 board's decision? 6 A. I'm just looking -- I'm making sure I'm reading 7 the claim of the -- of the '304. Configure for selection 8 or identification of an object. 9 Well, here in [12.b], I'm just for a moment 10 looking at Paragraph 352 of my declaration. The element 11 is (as read): 12 "The measurement system is at least in 13 part configured for selection or 14 identification of an object." 15 Identify or -- so select or identify. And then 16 I go on -- let's see. 17 Q. To be clear, my question is just about the 18 claim construction. I want to make sure you understand 19 the claim construction from the board's prior decision. 20 So if you could turn back to Page 10 from 21 Exhibit 1015. 22 Let me know when you're back there. 23 A. And just to review it, make sure what I say up 24 in the other section's on it. 25 Okay. So the "identify an object" consistent	Page 216 1 "identify to recognize or establish and construe to 2 detect, discover, or noticed"; and the claim language, 3 though, in the '304 is "configured for selection or 4 identification." 5 BY MR. CHRISTOPHER: 6 Q. Yeah, that's not my question. 7 My question is: Would discovering or noticing 8 the existence or presence of something qualify as 9 identifying an object under the board's claim 10 construction? 11 A. Sorry. Say that again? 12 Q. Would discovering or noticing the existence or 13 presence of something qualify as identifying an object 14 under the board's claim construction? 15 A. Under the board's claim and highlighted there 16 is detecting of an object. 17 Q. And detecting an object is not identifying an 18 object. Correct? 19 MR. KIM: Objection, form and scope. 20 THE WITNESS: In that board's decision there, 21 yes. 22 BY MR. CHRISTOPHER: 23 Q. Okay. Now, now we can turn to Claim 12 of the 24 '304 patent. If you could go to Exhibit 1001 from 25 IPR2025-01251, for the record.

Page 217 1 I'd like to direct you to 12 -- Claim 12. 2 A. Sorry, we're going -- the '304 patent. Yes? 3 Q. Yes. '304 patent, please. 4 And when you get there, I'll direct your 5 attention to Line 27. 6 A. Okay. 7 Q. Rather Line 128, do you see where it says 8 "identification of an object" in Claim 12 of the 9 '304 patent? 10 A. (As read): 11 "Wherein the measurement system is at 12 least in part configured for selection or 13 identification of an object." 14 Q. Right. And I just want to confirm, did you 15 apply the board's claim construction for the term "to 16 identify an object" for the phrase "identification of an 17 object" in Claim 12 of the '304 patent? 18 A. Yes, I did. And as I described, it's 19 consistent with the board's -- Lisogurski teaches 20 identifying an object, the blood constituent 21 oxyhemoglobin. Lisogurski's calculation or measurement 22 of the amount of oxyhemoglobin exists in blood 23 including -- includes distinguishing and identifying the 24 oxyhemoglobin blood constituents. And this is consistent 25 with my opinions regarding the '484. And then going	Page 219 1 A. 356? 2 Q. 356, please. 3 A. Yeah, okay. 4 Q. And I would like to ask you about a portion 5 that's on, it looks like Page 183. There's a sentence 6 that starts with the word "second." 7 Do you see that? 8 A. Yes. 9 Q. All right. And you wrote (as read): 10 "Second, Lisogurski's disclosure 11 identifying an object as recited in '484, 12 Claims 3, 8, meets selection or 13 identification of an object. As recited 14 in '304, [12.b], because selection is 15 recited as an alternative to 16 identification. And thus, [12.b] is met 17 by Lisogurski's identification alone." 18 Do you see that? 19 A. Yes. 20 Q. And so your opinion is that Lisogurski meets 21 the identification of an object portion of Element [12.b] 22 in the '304 patent. Correct? 23 A. Well, certainly, Lisogurski was identifying 24 that it's hemoglobin. And also, it's selecting the 25 wavelengths such that it's -- would be -- meet the
Page 218 1 on... 2 Q. I think that answered it. 3 If you can turn to Dependent Claim 26 of the 4 '304 patent. 5 Let me know when you're there. 6 A. Twenty-six? 7 Q. Yeah, Claim -- Dependent Claim 26. 8 A. Yeah. 9 Q. You see it's around Line 34 or 33 where it says 10 "identification of an object"? 11 A. (As read): 12 "In part, configure for selection or 13 identification of an object." 14 Q. And I just want to confirm, did you apply the 15 board's claim construction from the '484 patent for the 16 phrase "identify an object" in Claim 26 of the 17 '304 patent? 18 A. So it's consistent with my discussion of -- 19 what was it -- 12. 20 Q. You applied the same claim construction for 21 Dependent Claims 12 and 26. Correct? 22 A. Yes. 23 Q. Okay. That's all I was trying to do. 24 If we could turn back to your declaration for 25 the '304 patent. Paragraph 356.	Page 220 1 selection or -- or alternative as well, but certainly, as 2 I highlight here, Lisogurski's meeting the limitation. 3 Q. You didn't offer an opinion in your declaration 4 that Lisogurski meets the selection of an object option 5 in Element [12.b]. Correct? 6 MR. KIM: Objection, form. 7 THE WITNESS: Well, I mean, as I highlight 8 there, right, back in Paragraph 355, the board found that 9 I agree that the Lisogurski sensor calculates an amount 10 of blood constituents in a tissue sample. And Lisogurski 11 teaches identifying an object; i.e., an object -- the 12 blood constituent oxyhemoglobin. 13 And Lisogurski discloses, identifying an object 14 by measuring the light intensity and the amount of light 15 by the tissue to calculate any number of physiological 16 parameters, including the amount of blood constituents. 17 So the board, Lisogurski discloses an amount of 18 measuring oxygen saturation to use as different 19 wavelengths, to distinguish hemoglobin from oxygen. 20 Lisogurski teaches identifying an object; i.e., the blood 21 constituent oxyhemoglobin. 22 I'm agreeing with that as well, and 23 highlighting both the -- the -- the final written 24 decision in Lisogurski. In other words, Lisogurski's 25 calculation of measurement in the amount of oxyhemoglobin

Page 221 1 distinguishes and identifies the oxyhemoglobin blood 2 constituent, which is consistent with my opinions, and go 3 on and, indeed, Lisogurski is meeting the identification. 4 I could also argue, and I didn't here, but the 5 selection, it would also identi- -- I think, meet the 6 selection criteria, but it only needs to meet one. It 7 certainly meets the identification. 8 BY MR. CHRISTOPHER: 9 Q. You got -- you got to my point at the end. You 10 haven't opined in your declaration that Lisogurski meets 11 the selecting or selection portion of Claim 12 in the 12 '304 patent. Correct? 13 MR. KIM: Objection, form. 14 THE WITNESS: Lisogurski certainly meets the -- 15 the claim of selection or identification. And I didn't 16 need to opine extensively on both, it meets the one, you 17 know, but, you know, sitting here today, I think there's 18 also a strong-arm agreement for meeting the selection 19 because Configure 2 select preferentially the 20 oxyhemoglobin with the wavelengths and everything to -- 21 to make that selection, but it's certainly identifying 22 it. 23 BY MR. CHRISTOPHER: 24 Q. Wait. You didn't offer that opinion that 25 Lisogurski teaches selection in your declaration, you're	Page 223 1 on selection for Lisogurski in your declaration. 2 Correct? 3 MR. KIM: Objection, form. 4 THE WITNESS: Again, Lisogurski meets the 5 limitation, certainly through the identification, which 6 is what I opined on. And in discussion here today, I'm 7 also highlighting that I think there's a strong argument 8 by which it could have met it through the selection. But 9 indeed, in my declaration, I was opining upon the 10 identification. 11 MR. CHRISTOPHER: So I'm going to move to 12 strike as nonresponsive. 13 BY MR. CHRISTOPHER: 14 Q. "Yes" or "no," did you -- 15 MR. KIM: I disagree with the objection. 16 MR. CHRISTOPHER: Well, let me finish my 17 question. 18 BY MR. CHRISTOPHER: 19 Q. "Yes" or "no," did you opine in your 20 declaration that Lisogurski meets selection of an object, 21 as recited in the '304 patent? "Yes" or "no"? 22 MR. KIM: Objection to form. 23 THE WITNESS: I have answered your question. 24 I'll answer it again. 25 Lisogurski, as opined in the declaration,
Page 222 1 offering that opinion now for the first time in the 2 deposition. Correct? 3 MR. KIM: Objection, form. 4 THE WITNESS: You've been asking about this and 5 I'm just responding to your questions with respect to 6 what I've opined here. And indeed, Lisogurski meets the 7 limitation of selection or identification. I opined here 8 that it meets, through the -- the identification, but I 9 think it could. And I was not opining upon that in my 10 declaration, but it certainly -- I think an argument 11 could be made as well for the selection. 12 BY MR. CHRISTOPHER: 13 Q. Yeah. So just so the record is clear, you 14 didn't opine on selection -- Lisogurski meeting selection 15 in your declaration. Correct? 16 MR. KIM: Same objection. 17 THE WITNESS: Again, in Lisogurski's meeting 18 the limitation, at least of the identification, and it 19 may be meeting it as -- with the selection as well, I was 20 not opining upon that part in the declaration. But in 21 our conversation here today, I'm also recognizing that it 22 could arguably have met this via the selection process. 23 But certainly, it is with the identification process. 24 BY MR. CHRISTOPHER: 25 Q. Right. So the answer is, yes, you didn't opine	Page 224 1 certainly meets it through the identification. But as 2 we've discussed, also, I think there's a strong argument 3 by which it could meet the selection criteria. But it 4 meets the limitation of the selection or identification. 5 In the declaration, I opined about the identification, 6 yes. 7 MR. CHRISTOPHER: Move to strike as 8 nonresponsive. 9 BY MR. CHRISTOPHER: 10 Q. "Yes" or "no," did you opine in your 11 declaration that Lisogurski meets selection of an object, 12 as recited in the '304 patent? 13 MR. KIM: Same objection to the form and also 14 to the motion to strike. 15 THE WITNESS: Again, as I described, Lisogurski 16 meets the limitation. The limitation includes selection 17 or identification. As I've said several times, I opine 18 in the identification around identification. 19 But as a part of our discussion here, you asked 20 me to further elaborate. And in my elaboration, I'm also 21 highlighting that selection, I believe, would also be a 22 valid way by which it meets the limitation. But in my 23 declaration, indeed, I was talking about identification. 24 MR. CHRISTOPHER: I'm going to move to strike, 25 again, as nonresponsive. And I'm going to -- I'm going

Page 225 1 to try it one more time. 2 BY MR. CHRISTOPHER: 3 Q. "Yes" or "no," did you opine in your 4 declaration that Lisogurski meets selection of an object. 5 As recited in Claim 12 of the '304 patent? "Yes" or 6 "no"? 7 MR. KIM: Same objection to the form. And 8 also, to the motion to strike. 9 THE WITNESS: And as I've answered previously, 10 Lisogurski meets the limitation, which includes the 11 selection or identification. In my declaration, I opined 12 upon the identification. And in our discussion, you've 13 asked me to describe how Lisogurski interacts here. 14 And I've also recognized that I think there's 15 an argument to be made for how it also would meet through 16 the selection. It does not need to meet for both. In my 17 declaration, I opined about the identification, but I 18 think it also can meet through the selection criteria. 19 MR. CHRISTOPHER: All right. Move to strike, 20 again, as nonresponsive. 21 BY MR. CHRISTOPHER: 22 Q. Let's look at 356 of your '304 declaration. 23 Again, this is very last sentence. You cite 24 paragraphs 210 through 223 of your declaration for the 25 '484 patent?	Page 227 1 declaration. Correct? 2 MR. KIM: Objection, form. 3 THE WITNESS: I'm confirming if I made any 4 constructions in the '484. So I'm just going to open the 5 '484. 6 BY MR. CHRISTOPHER: 7 Q. Sure. 8 A. Okay. So the -- I was not offering 9 constructions around detection in the '484. 10 Q. Sorry. When you say "detection," detection of 11 an object? 12 A. Correct. 13 Q. Okay. Can you turn to the '790 patent. This 14 was something I put in the chat earlier today. I can -- 15 I can resend it if you need it. Let me know. 16 A. The patent or my declaration? 17 Q. The patent first, please. 18 A. Okay. 19 Q. Okay. And if I could direct your attention to 20 Claim 7. This is in Column 87. 21 A. Yes. 22 Q. All right. Claim 7, the very last clause 23 states (as read): 24 "Wherein the wearable device is at 25 least, in part, configured to identify an
Page 226 1 A. I'm sorry. Which paragraph did you say? 2 Q. 356, please. And I'm -- 3 A. The paragraph that we were just -- that we were 4 just -- 5 Q. Yeah, yeah. So sticking with Paragraph 356 and 6 I'm just asking you about the very last sentence in that 7 paragraph. 8 Do you see at the end of that sentence, you 9 cite paragraphs 210 through 223 of your declaration for 10 the '484 patent? 11 A. Yes. 12 Q. Okay. Now, as we discussed earlier, the 13 board's claim construction for identifying object had not 14 issued at the time that you authored your declaration for 15 the '484 patent. Correct? 16 A. Correct. 17 Q. Now, that means you didn't address the board's 18 claim construction for the phrase to identify an object 19 in your declaration for the '484 patent. Correct? 20 MR. KIM: Objection, form. 21 THE WITNESS: I'm looking at my prior '484. 22 BY MR. CHRISTOPHER: 23 Q. Well, just as a matter of logic, you couldn't 24 have addressed the claim construction in a declaration 25 that didn't exist at the time you authored the	Page 228 1 object." 2 Do you see that? 3 A. Yes. 4 Q. And I just want to confirm, did you apply the 5 board's claim construction for -- to identify an object 6 from the '484 patent IPR in forming your opinions of 7 Claim 7 of the '304 patent -- excuse me -- '970 patent? 8 A. Nine -- '790, you mean? 9 Q. Let -- let me restart I'll withdraw. 10 Did you apply the board's claim construction 11 for the term "to identify an object" from the '484 patent 12 IPR for the phrase "to identify an object" in Claim 7 of 13 the '790 patent? 14 A. I'm looking at my '790 declaration. So as I 15 described in Paragraph 56, in the '484 final patent 16 written decision, I understand the board construed 17 "identify an object" to mean recognize or establish an 18 object as being a particular thing. For the purposes of 19 this declaration, meaning on the '790, I have instructed 20 to adopt the board's construction, and for the reasons 21 below, the prior art discloses this limitation under the 22 board's construction, which is also consistent with the 23 plain and ordinary meaning of the term. So yes. 24 Q. Okay. Can you turn back to the '304 patent for 25 me. This is Exhibit 1001 in IPR2025-01251 for the

Page 229 1 record. 2 A. Okay. 3 Q. And if you could turn for me to Column 18, 4 starting at Line 52. 5 A. Sorry. 304, you said? 6 Q. Yeah, 304, please. 7 A. Column what again? 8 Q. Column 18. And I'll direct your attention to 9 Line 52, which is towards the bottom of the column. 10 A. Column 18, Line 52. Okay. 11 Q. All right. And here the specification states 12 (as read): 13 "One approach to non-invasive 14 monitoring of blood constituents or blood 15 analytes is to use near-infrared 16 spectroscopy such as absorption 17 spectroscopy or near-infrared diffuse 18 reflection or transmission spectroscopy." 19 Do you see that? 20 A. I'm sorry. No. You said column? 21 Q. It could very well be that I have the wrong 22 cite in the outline. Yeah, it's completely the wrong 23 column. So not Column 18. Column 4. Column 4, Line 52. 24 Let me know when you're there. 25 A. Okay.	Page 231 1 BY MR. CHRISTOPHER: 2 Q. So an example of a blood analyte would be a -- 3 glucose. Correct? 4 A. That's one example. 5 Q. Is glucose a blood constituent? 6 A. Well, I think a POSITA reading this would 7 understand it's the monitoring -- monitoring of the 8 things that are in the blood: Constituents, analytes. 9 Didn't need to opine upon the exact differences between 10 the two, but monitoring stuff that is in the blood that 11 can preferentially be detected with light. 12 Q. So I'm going to go back to my question from a 13 moment ago: Would a person of skill in the art 14 understand that there is a difference between a blood 15 constituent and a blood analyte? 16 MR. KIM: Objection, form and scope. 17 THE WITNESS: Again, I think a POSITA reading 18 this would understand the general context. It's 19 measuring the -- monitoring -- basically monitoring the 20 stuff that's in the blood, various constituents that make 21 up blood or the chemicals that are in blood. But it's -- 22 a POSITA reading in context would understand it's 23 measuring things in the blood, optically. 24 BY MR. CHRISTOPHER: 25 Q. Okay. Can you tell me the difference between a
Page 230 1 Q. All right. Starting at Line 52 of the 2 specification reads (as read): 3 "One approach to non-invasive 4 monitoring of blood constituents or blood 5 analytes is to use near-infrared 6 spectroscopy." 7 Do you see that? 8 A. Yes. 9 Q. Can you give me an example of a blood 10 constituent? 11 A. Oxygenated, deoxygenated blood. 12 Q. What about blood analytes? Can you give me an 13 example of a blood analyte? 14 A. Constituents are blood analytes. Components of 15 blood. I mean, the various sort of -- there are many 16 components of blood. 17 Q. And I think you touched on my next question 18 where I'm going with this: Is there a difference between 19 blood constituents and blood analytes, or are those terms 20 synonymous to a person of skill in the art? 21 MR. KIM: Objection, form and scope. 22 THE WITNESS: Well, for example, you know, as I 23 opined upon in '304 in highlight Marbach, for example. 24 Marbach emphasizes combined analysis of multiple signals, 25 enables accurate quantification of analytes like glucose.	Page 232 1 blood constituent and a blood analyte? 2 MR. KIM: Same objection. 3 THE WITNESS: In forming my opinions, I didn't 4 need to construe a bounding line between blood 5 constituents or blood analytes. It's the stuff that's in 6 the blood that can be non-invasively monitored with 7 optical techniques. 8 BY MR. CHRISTOPHER: 9 Q. I understand you, you know, didn't -- may not 10 have done this in forming your opinions, and I'm just 11 asking you today: Do you know if there's a difference 12 between blood constituents and blood analytes? 13 MR. KIM: Objection, form and scope. 14 THE WITNESS: Again, I didn't need to construe 15 a definition of blood constituents or analytes in forming 16 my opinions, and sitting here today, it's, as I'm 17 describing, it's the stuff that's in the blood that could 18 be measured optically. 19 BY MR. CHRISTOPHER: 20 Q. If you could turn to -- 21 A. And, I guess, I would also highlight for a 22 moment just further in column -- in the context of 23 '304 patent. Beyond the problem of other blood 24 constituents or analytes having overlapping spectral 25 features, it may be difficult to observe glucose spectral

Page 233 1 signatures and its constituents of water, adipose, 2 collagen, elastins. So certainly other -- other stuff in 3 the blood. 4 Q. Can you turn to Column 35 of the '304 patent? 5 A. I'm sorry, which column? 6 Q. Column 35, please. 7 A. Thirty-five of the '304? 8 Q. Yes. And I'll direct your attention to 9 Line 17. 10 A. Okay. 11 Q. You see in the first sentence in that Paragraph 12 it reads (as read): 13 "In addition, and it may be 14 advantageous to use pattern-matching 15 algorithms and other software and 16 mathematical methods to identify the 17 blood constituents of interest." 18 Do you see that? 19 A. Yes. 20 Q. And then when you scroll down, starting at 21 Line 27, the specification reads (as read): 22 "One of the issues in measuring a 23 particular blood constituent is the 24 interfering and overlapping signal from 25 other blood constituents. The selection	Page 235 1 intensity, improve signal to noise, mathematical 2 modeling. I believe I opine upon this in the, you 3 know... 4 BY MR. CHRISTOPHER: 5 Q. Yeah, that's not my question at all. Maybe 6 simplify the question: In order to select a constituent 7 of interest, one first must identify that constituent of 8 interest. Correct? 9 MR. KIM: Objection, form. 10 THE WITNESS: Well, what's being described here 11 is selection. I'm not sure why you're asking about 12 detection. It's the selection of constituents may be 13 improved using a number of techniques. Again, I was not 14 opining about that sentence in isolation, but -- I'm not 15 sure I fully understand your -- your question. 16 BY MR. CHRISTOPHER: 17 Q. Well, the sentence is describing selecting a 18 constituent of interest. Correct? 19 A. Correct. 20 Q. And my question is: In order to select a 21 constituent of interest in blood, you first have to 22 identify the constituent as being the one you're 23 interested in. Correct? 24 MR. KIM: Objection, form. 25 THE WITNESS: Well, where does it say that?
Page 234 1 of the constituent of interest may be 2 improved using a number of techniques." 3 Do you see that? 4 A. Yes. 5 Q. Would you agree that in order to select a 6 particular blood constituent of interest, one first needs 7 to recognize or establish that a blood constituent is the 8 constituent of interest? 9 MR. KIM: Objection, form. 10 THE WITNESS: I'm confused. Can -- can you 11 reask the question? 12 BY MR. CHRISTOPHER: 13 Q. Right. So in Line 29 it refers to "selection 14 of the constituent of interest." 15 Do you see that? 16 A. Yes. 17 Q. And so in order to select a constituent of 18 interest, one would first need to recognize or establish 19 that the constituent is the constituent of interest. 20 Correct? 21 MR. KIM: Objection, form. 22 THE WITNESS: Well, that section in particular 23 is talking about the -- improving something, improving 24 the selection. So you can have ways to improve the 25 selection that's described: Higher light level,	Page 236 1 It's just saying selection of the constituent of interest 2 may be improved using a number of techniques. So 3 you're -- you're -- 4 BY MR. CHRISTOPHER: 5 Q. I'm asking you -- 6 A. -- asking about a previous step of something? 7 Q. I'm asking you as a person of ordinary skill in 8 the art. You would understand that in order to select a 9 constituent of interest, inherent in that is you must 10 identify the constituent as being the one you're 11 interested in. Correct? 12 MR. KIM: Objection, form. 13 THE WITNESS: Just got the spinning wheel on 14 Adobe. 15 BY MR. CHRISTOPHER: 16 Q. I'm sorry. Are you reviewing the document 17 right now? 18 A. I had to go to paper. I'm getting the spinning 19 wheel of death on Adobe. 20 Q. Okay. We were looking at the discussion in 21 Column 35 of the '304 patent. 22 And I could repeat the question if you'd like. 23 A. Go ahead. 24 Q. My question was: In order to select a blood 25 constituent of interest, one would need to first identify

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1 the constituent as being the constituent of interest.
2 Correct?
3 MR. KIM: Objection, form.
4 THE WITNESS: I'm going -- so that selection --
5 discussion around selection shows up, for example, in
6 Claim 12. I'm going to go to my declaration paper.
7 Sorry. Can -- sorry. Thank you.
8 It was just a cleaning crew coming in.
9 BY MR. CHRISTOPHER:
10 Q. So you're looking at your declaration for the
11 '304 patent?
12 A. '304, and then I'm going back and making sure.
13 I think the first discussion around selection from
14 constituents -- let's see -- is in Claim 12.
15 Q. Yeah, I'll withdraw it and ask it in a even
16 similar way, just in terms of plain English.
17 Throughout the deposition today, I've put a
18 number of exhibits in our Zoom chat. Correct?
19 A. Yes.
20 Q. And they show up as little PDF icons in the
21 chat. Right?
22 A. Yes.
23 Q. Okay. If I asked you to select the
24 '304 patent, you would have to identify the PDF as
25 corresponding to the '304 patent to be able to select it.

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1 Correct?
2 MR. KIM: Objection, form.
3 THE WITNESS: Well, I mean, I think in the
4 context of the -- the discussion here, you have potential
5 blood constituents, for example, in that first sentence
6 that interfere and overlap, and so there's a fuzziness
7 associated with detection or selection. So it's not so
8 clear that there is a clear detection before a selection.
9 But you can improve selection and potentially detection.
10 It's not so you do it one thing, then the next, but you
11 can improve selection by a number of techniques, select
12 preferentially the -- the hemoglobin by increasing the
13 light at that wavelength, for example. You haven't
14 pre-detected it, but you're trying to improve the
15 selectivity. So it's not the -- the metaphor -- or is it
16 analogy, I'm not sure -- of PDFs is not -- in the context
17 of the '304 is not exactly the same.
18 BY MR. CHRISTOPHER:
19 Q. You mentioned a fuzziness and it's not being
20 clear whether detection occurs before selection. But as
21 we discussed earlier --
22 A. You preferentially select.
23 Sorry.
24 Q. I'm going to say, we discussed earlier under
25 the claim construction, there's a difference between

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1 detection and identification. Correct?
2 A. We're not talking -- we're talking selection
3 and you're asking about detection and selection. No
4 indication --
5 Q. That's not what I'm asking. I'm asking, in
6 order to select a blood constituent of interest, you must
7 identify the blood constituent of interest in order to
8 make the selection. Correct?
9 MR. KIM: Objection, form.
10 THE WITNESS: So, again, in the context of what
11 is written there in that Paragraph, in isolation, one of
12 the issues of measuring a particular blood constituent is
13 the interfering and overlapping signal from other blood
14 constituents.
15 So the selection of the constituent of interest
16 may be improved using a number of techniques. And you
17 can improve the signal-to-noise ratio, you can apply
18 algorithms. You can, for example, increase the number of
19 wavelengths and the wavelength range to improve the
20 ability to discriminate one signal from the next -- from
21 another.
22 So it's not in that -- what's described there
23 is not necessarily a predetection step. It's -- it's
24 using techniques to preferentially select a constituent
25 and improve that ability to select it amongst other

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1 things, which could turn into detection, but here, it's
2 not necessarily a detect and select phenomenon.
3 BY MR. CHRISTOPHER:
4 Q. Do you have any opinion, sitting here today, as
5 to whether or not it is required to identify a blood
6 constituent of interest in order to select a blood
7 constituent of interest?
8 MR. KIM: Objection, form.
9 THE WITNESS: So, again, I mean, I -- I
10 answered it. That sentence is in the context of a
11 Paragraph that talks about the interfering and
12 overlapping signal from other blood constituents, right.
13 And so, it's talking about preferentially
14 selecting constituents amongst a noisy set of
15 constituents. So you're not pre-detecting, you're
16 improving the selectivity.
17 So no, you don't have to necessarily detect
18 before you select. You're doing things to improve the
19 selectivity of overlapping a number of techniques to
20 improve the selectivity of the constituents.
21 And mathematical modeling, algorithms to make
22 sense of the data, adding more wavelengths, using more
23 sampling wavelengths to further discriminate one signal
24 from the other.
25 So you're not -- you're not deducting, you're

Page 241 1 improving the selectivity. 2 BY MR. CHRISTOPHER: 3 Q. I think this is getting entirely confused with 4 that, you focusing on that passage. So let's focus on, 5 for instance, Claim 12 of the '304 patent. 6 A. Okay. 7 Q. In Claim 12, it talks about selection or 8 identification of an object. Correct? 9 A. Okay. So now, let's talk about Claim 12, 10 great. 11 Q. Right. And I've been trying to ask you: In 12 order to select an object, would it be required to first 13 identify the object? 14 A. Well, you've been asking me about that sentence 15 in that paragraph and I've been trying to explain -- 16 Q. No, I haven't. 17 A. -- how I'm interpreting that. And so now, I'm 18 going to read for a second my declaration around 19 Claim 12. 20 Q. What are you reading from your declaration? 21 A. We're highlighting now Claim 12 -- 22 Q. Right. Right. And I'm asking you: As a 23 person of ordinary skill in the art, reading Claim 12, 24 would you understand that it is required to identify an 25 object in order to select an object or do you not have an	Page 243 1 need to first identify the object? 2 MR. KIM: Objection, form. 3 THE WITNESS: In the context of the patent, 4 it's talking about selection or identification and 5 selection can be done -- can be improved or -- selection 6 is partial -- a function of the wavelengths you use and 7 the -- the signal-to-noise ratio, and a threshold that 8 you choose to potentially identify. 9 But, no, you don't have -- you don't have to 10 pre -- it's not selection then identify. It's select or 11 identify. And they're coupled to the various signals 12 you're -- or wavelengths you're going to select and use 13 in the -- the -- the light intensity, for example. 14 BY MR. CHRISTOPHER: 15 Q. So let me ask you this, and I want to be 16 specific here. I'm not talking about identification. 17 Now, I'm going to change gears and talk about detection. 18 Would a person of skill in the art understand 19 that in order to select an object, one must first detect 20 the object? 21 MR. KIM: Objection, form. 22 THE WITNESS: Well, let me -- let me 23 potentially use another analogy, since you're using PDF 24 analogies. 25 ///
Page 242 1 opinion on that? 2 MR. KIM: Objection, form. 3 BY MR. CHRISTOPHER: 4 Q. Still reviewing your declaration? 5 A. Yes. 6 Q. Are you still reviewing? Because we've been 7 going on about four minutes now? 8 A. Yes. 9 So in 12, for example, the first 12A, wherein 10 the measurement system is configured to perform pattern 11 identification or classification wherein the measurement 12 system is configured to apply a threshold function to a 13 comparison. And that threshold is a function of how well 14 it's potentially identified or classified. 15 And so the selection can be improved in that 16 classification identification, through the -- that 17 improved the signal-to-noise ratio were applying 18 progression signal processing methodologies or 19 multivariate technologies. 20 So now that I've got my head re-wrapped around 21 how I'm discussing this, can you reask the question 22 again? 23 Q. Yeah. My question is: When a person of 24 ordinary skill in the art understand, in the context of 25 Claim 12, that in order to select an object, one would	Page 244 1 BY MR. CHRISTOPHER: 2 Q. Okay. 3 A. The way that a aircraft is -- a unique aircraft 4 is found, right, you have a tar -- you have a radar 5 signature that has been configured with the frequency in 6 a pattern that you're looking for. So you're not 7 detecting it first, but you're selecting it first, you're 8 selecting the thing you're preferentially looking for. 9 So detection -- so you can select before you 10 detect in that example. So in the context of -- you're 11 not necessarily having to detect in order to do the 12 select, in the context of the patent. 13 Q. Okay. So to recap, in your view, there's no 14 requirement that an object be either identified or 15 detected in order to select the object. Is that correct? 16 MR. KIM: Objection, form. 17 THE WITNESS: I'm sorry. I -- I'm now -- I 18 need you to reask that. 19 BY MR. CHRISTOPHER: 20 Q. Yeah. And I'll -- let's do it in pieces. And 21 I'm not trying to put words in your mouth. 22 I think you testified that a person of skill in 23 the art would understand that identification is not 24 required in order to select an object. Right? 25 MR. KIM: Objection, form.

Page 245 1 THE WITNESS: So, again, I'm not opining, in 2 isolation, selection, or identification. In the context 3 of the patent, [12.b], which talks about selection or 4 identification of an object, and I describe in [12.b], my 5 discussion in Paragraph 352, Lisogurski, in view of Tran. 6 I can -- I think I'm getting hung up on sort of 7 the general -- the more general question you're asking 8 about PDF selection. And -- but in the context of the 9 patent, Lisogurski in view of Tran, meets the limitation 10 as I describe in those paragraphs 352 through 356. 11 BY MR. CHRISTOPHER: 12 Q. All right. You know what, we'll just move on. 13 It sounds like you don't have any opinions on the -- I'm 14 just going to give you one more opportunity. 15 You don't have any opinions on the difference 16 between identification of an objection and selection of 17 an objection. Correct? 18 MR. KIM: Objection, form. 19 THE WITNESS: Again, as I've explained, you can 20 select what object you're going to be preferentially 21 monitoring by considering wavelength. Lisogurski 22 identifies an object by measuring the light intensity, so 23 the amount of hemoglobin. So it's -- it's -- Lisogurski 24 is teaching, identifying an object, the blood 25 constituents oxyhemoglobin.	Page 247 1 Q. And so the language "applying regression signal 2 processing methodologies or multivariate techniques" is 3 new and was not addressed in the prior IPR decisions. 4 Correct? 5 A. That is correct. 6 Q. Okay. And then if you scroll down to 7 Paragraph 358, please, pages down. Let me know when 8 you're there. 9 A. Yes. 10 Q. All right. In the very first sentence, you 11 wrote (as read): 12 "Further, a person of ordinary skill 13 in the art would have found it obvious to 14 use multivariate techniques to implement 15 Lisogurski's improvement of 16 signal-to-noise ratios because 17 multivariate techniques are commonly used 18 methods to clean up and improve the 19 accuracy of data." 20 Do you see that? 21 A. Yes. 22 Q. And you haven't opined, in Paragraph 358, that 23 Lisogurski expressly discloses using multivariate 24 techniques. Correct? 25 A. This is Lisogurski in combination with Tran or
Page 246 1 MR. CHRISTOPHER: Okay. I'm going to move to 2 strike as nonresponsive. 3 I think we've got about 25 minutes. Let's take 4 a short break and then we'll wrap up. Five minutes. 5 (Recess.) 6 MR. CHRISTOPHER: All right. Back on the 7 record. 8 BY MR. CHRISTOPHER: 9 Q. All right. Welcome back, Dr. Anthony. 10 Did you discuss your testimony during our 11 break? 12 A. No. 13 Q. Okay. And if you could turn to Paragraph 353 14 of your declaration for the '304 patent? 15 A. Okay. 16 Q. Do you see where you wrote, about halfway 17 through (as read): 18 "New language that was not previously 19 considered (improve a signal-to-noise 20 ratio of the selection or identification 21 by applying regression signal proceeding 22 methodologies or multivariate 23 techniques)." 24 Do you see that? 25 A. Yes.	Page 248 1 Lisogurski in combination with -- with both. 2 Q. Right. And my -- and my question is focusing 3 on Paragraph 358. 4 You don't cite any explicit disclosure of 5 multivariate techniques from Lisogurski's in this 6 paragraph. Correct? 7 A. In going back, and my motivations to combine 8 Lisogurski or -- or Lisogurski, LeBoeuf with Tran. 9 Q. Well, hold on. My question is about 10 Paragraph 358. 11 Do you understand that? 12 A. Correct. But it's the section that I'm talking 13 about the combination of Lisogurski with Tran or 14 Lisogurski with LeBoeuf and Tran. 15 Q. No. My question is Paragraph 358. 16 In Paragraph 358, you do not cite an explicit 17 disclosure from Lisogurski to multivariate techniques. 18 Correct? 19 A. In the section, I talk about Lisogurski, 20 knowledge of a POSITA in combination with Tran. But 21 here, I'm -- when I'm discussing Lisogurski, I point, for 22 example, to a corroborative preference that a POSITA 23 would be familiar with, when improving signal-to-noise 24 ratio, U.S. Patent No. 5,360,004, for example. 25 Also, Marbach as another example. Purdy and

Page 249 1 others with the knowledge of techniques, algorithmic 2 techniques to improve signal to noise. 3 Q. All right. 4 MR. CHRISTOPHER: I'm going to move to strike 5 as nonresponsive. This is a -- this is just wasting 6 time. 7 BY MR. CHRISTOPHER: 8 Q. You don't cite an explicit disclosure from 9 Lisogurski multivariate techniques in Paragraph 358. 10 Correct? 11 A. What I described in 358 is a POSITA would have 12 been -- found it obvious to use multivariate techniques 13 to Lisogurski's improvements of signal-to-noise ratios. 14 Because a POSITA's knowledge, at the time, included the 15 benefit of using multivariate techniques. 16 And as I described in my -- Lisogurski itself 17 saying multivariate techniques, no. But what I'm opining 18 about is knowledge of a POSITA in context of Lisogurski, 19 in combination with LeBoeuf and/or Tran. 20 Q. And I need you to just focus on my question so 21 we can get through this a lot quicker. 22 Can you turn to Claim 26 of the '304 patent. 23 A. Your audio dropped out for a moment, I'm sorry. 24 Q. Can you turn to Claim 26 of the '304 patent? 25 A. Claim 26. Okay.	Page 251 1 Q. It's in chat. 2 A. Thank you. 3 Tran, okay. Tran, yes. 4 Q. Okay. Can you turn to Column 22 starting at 5 Line 33? 6 A. Column 22. 7 Q. All right. Starting at Line 23, it reads -- 8 A. So is it 23 or 33? 9 Q. Column 22, Line 33 -- 23. 23. 10 And it reads (as read): 11 "In one embodiment, data-driven 12 analyzers may be used to track the 13 patient's habits." 14 Do you see that? 15 A. Yes. 16 Q. And then it says (as read): 17 "These data-driven analyzers may 18 incorporate a number of models." 19 Do you see that? 20 A. Yes. 21 Q. And further down it says, "Regression models." 22 Do you see that? 23 A. Yes. 24 Q. And the data-driven analyzers described here in 25 Tran are for tracking a patient's habit. Correct?
Page 250 1 Q. And this is the second wherein clause. Do you 2 see where it reads (as read): 3 "Wherein the wearable device is at 4 least in part configured for selection or 5 identification of an object and wherein 6 the wearable device is configured to 7 improve a signal-to-noise ratio of the 8 selection or identification." 9 Do you see that? 10 A. Yes. 11 Q. And when Claim 26 refers to "improve a 12 signal-to-noise ratio," it's referring to the 13 signal-to-noise ratio of the selection or identification. 14 Correct? 15 A. (As read): 16 "Wherein the wearable device is 17 configured to improve a signal-to-noise 18 ratio of the selection or the 19 identification by applying regression 20 signal processing methodology or 21 multivariate techniques," yes. 22 Q. Look at Exhibit -- this is 1027, the Tran 23 reference. 24 Let me know when you have that. 25 A. Dangerous to go back to PDF here, but we'll --	Page 252 1 "Habits" plural. 2 I'm sorry. Are you reviewing something? 3 A. I'm looking at the Trans. Making sure I'm 4 oriented with respect to the Tran reference. 5 Q. I'll just reask my question more specifically. 6 The data-driven analyzers that we were looking at in 7 Column 22 starting at Line 33, it states, "May be used to 8 track the patient's habits." Correct? 9 A. Well, it is -- in that Paragraph, in isolation, 10 it's using data-driven techniques to -- to do some 11 processing. But, you know, I'm not considering Tran by 12 itself. I'm considering Tran and the algorithmic 13 approach that it teaches and the benefit of the knowledge 14 of a POSITA in reading Lisogurski and Tran or Lisogurski, 15 LeBoeuf, and Tran, and these techniques POSITA would know 16 how to apply them to improve signal-to-noise ratio. 17 Q. And in Column -- actually, I'm going to move to 18 strike that as nonresponsive. I was just asking you what 19 Tran reads. 20 Let's go to Column 54, starting at Line 35. 21 A. Column 54 you said? 22 Q. Yeah. Column 54, starting at Line 35. 23 You see where it reads (as read): 24 "In one embodiment, data-driven 25 analyzers may be used to track the

Page 253 1 patient's risk of stroke or heart 2 attack." 3 A. Yes. 4 Q. All right. And then the next sentence, do you 5 see where it says, "Regression methods"? 6 A. These data-driven analyzers may incorporate a 7 number of models, such as parametric statistical methods, 8 nonparametric statistical models, clustering models, 9 nearest neighbor models, regression methods, and 10 engineered artificial neural networks. 11 Q. So you see regression models. Right? 12 A. Yes. 13 Q. Okay. Tran does not expressly disclose 14 applying regression models to improve the signal-to-noise 15 ratio of identifying a blood constituent. Correct? 16 MR. KIM: Objection, form. 17 THE WITNESS: Again, I was not opining about 18 Tran by itself. If you'll excuse me, I'll go back to my 19 declaration where I talked about the motivation to 20 combine Lisogurski with Tran. 21 BY MR. CHRISTOPHER: 22 Q. I'm just asking about Tran. 23 A. Right. But I was not opining about Tran in 24 isolation, so I feel I need to respond to how I 25 considered Tran, and Tran I considered in combination,	Page 255 1 the signal-to-noise ratio of identifying a blood 2 constituent. Correct? 3 MR. KIM: Objection, form. 4 THE WITNESS: Correct. I did not opine about 5 Tran by itself in anything that it does by itself. I 6 always considered Tran in combination with Lisogurski or 7 Lisogurski and LeBoeuf. 8 BY MR. CHRISTOPHER: 9 Q. Okay. Can you turn to your declaration for the 10 '475 patent. And when you do, I would like to direct you 11 to the claim construction section and in particular 12 Paragraph 55. 13 A. So you said '457? 14 Q. '457, which is the IPR2025-01254. 15 A. Yes. 16 Q. And I'd like to direct to you Paragraph 55, 17 please. 18 A. Okay. 19 Q. And in Paragraph 55, you write (as read): 20 "I have been instructed that the 21 challenge claims of the '475 patent are 22 to be given their ordinary and customary 23 meaning as understood by one of ordinary 24 skill in the art." 25 Do you see that?
Page 254 1 not by itself. 2 Q. And I'm asking you: Having reviewed Tran and 3 offered opinions on it, Tran by itself does not disclose 4 applying regression methods to improve the 5 signal-to-noise ratio for identifying a blood 6 constituent. Correct? 7 MR. KIM: Objection, form. 8 THE WITNESS: I never opined or offered 9 opinions on Tran by itself. I offered opinions on Tran 10 in combination with Lisogurski or Lisogurski and LeBoeuf. 11 BY MR. CHRISTOPHER: 12 Q. So you have no opinion that Tran by itself 13 discloses applying regression methods to improve the 14 signal-to-noise ratio of identifying a blood constituent. 15 Correct? 16 MR. KIM: Objection, form. 17 THE WITNESS: I opined on the combination of 18 Lisogurski with Tran as a highlight in the declaration 19 that a POSITA would have been motivated to combine and 20 use the teachings of algorithmic improvements for 21 improving measurements. 22 BY MR. CHRISTOPHER: 23 Q. Okay. And please focus on my question. My 24 question is: You haven't offered an opinion that Tran by 25 itself discloses supplying regression methods to improve	Page 256 1 A. Yes. 2 Q. And did you apply -- and then under Paragraph 3 55, you discuss a number of claim constructions for 4 certain terms in the '475 patent. Correct? 5 A. Meaning in subsequent paragraphs, 6 paragraphs 56, 57? 7 Q. Yes. 8 Okay. And other than the terms listed in 9 paragraphs 56 through 66, did you apply the plain and 10 ordinary meaning of each term in forming your opinions 11 for the '475 patent? 12 A. So I'm just making sure I'm familiar with my 13 declaration, that section, so can you please reask the 14 question now? 15 Q. Yeah. Other than the terms that are discussed 16 in paragraphs 56 through 66 of your declaration -- sorry, 17 65 of your declaration for the '475 patent, did you apply 18 the plain and ordinary meaning of each term in forming 19 your opinions? 20 A. Yeah. I mean, plain and ordinary meaning, 21 these are the -- these are the claim constructions; some 22 of which are also -- it says plain and ordinary meaning. 23 You know, these are the constructions that I used. 24 Q. Okay. And are you aware that the '475 patent 25 is involved in a district court litigation matter?

Page 257 1 A. No. 2 Q. Okay. Well, I'll represent to you that the 3 patent is involved in an ongoing district court 4 litigation matter, and are you aware that the district 5 court has issued a claim construction order construing 6 certain terms in the '475 patent in March of 2026? 7 A. Not that I recall. 8 Q. Okay. And I've mentioned March 2026, which is 9 after you executed your declarations. Correct? 10 A. Correct. 11 Q. All right. And you haven't reviewed that claim 12 construction order from the district court pertaining to 13 the '475 patent? 14 A. Not that I recall. 15 Q. Okay. Can you turn to Claim 1 of the 16 '475 patent? 17 A. Claim 1? 18 Q. Yes. Claim 1, please. 19 A. Okay. 20 Q. Okay. The first clause of Claim 1 recites one 21 or more biosensors. 22 Do you see that? 23 A. Yes. 24 Q. The next clause recites a light source. 25 Do you see that?	Page 259 1 THE WITNESS: Well, they're separate claims. 2 They're separate claims of the invention, but, you know, 3 for example, a biosensor would have a light source, 4 likely have lenses that would also -- so a light source 5 and a lens can be part of the biosensor but also be -- 6 yeah. So it's -- I mean, if I'm understanding what your 7 question is. I mean, a light source can be part of the 8 biosensor and still meet the -- the claim. 9 BY MR. CHRISTOPHER: 10 Q. What about the lenses? 11 A. Similarly. 12 Q. What about the detection system? 13 A. The detection system could be part of the 14 biosensor, certainly part of the biosensor. The 15 biosensor includes a detection system. 16 Q. But even when they're included within the 17 biosensor in this hypothetical, the light source, the one 18 or more lenses, and the detection system would be 19 separate components. Correct? 20 MR. KIM: Objection, form. 21 THE WITNESS: Well, again, opining on -- this 22 is, you know, discussion goes back, you know, POSITA, you 23 know, Lisogurski, for example, teaches that these 24 components can be separated or combined, and, you know, 25 here I don't -- in this -- the '475, you know, I mean,
Page 258 1 A. Yes. 2 Q. The next clause recites one or more lenses. 3 Do you see that? 4 A. Yes. 5 Q. And then the next clause recites a detection 6 system. 7 Do you see that clause? 8 A. Yes. 9 Q. Would you agree that the one or more 10 biosensors, the light source, the one or more lenses, and 11 the detection system are separate and distinct 12 components? 13 MR. KIM: Objection, form. 14 THE WITNESS: So can you reask the question 15 again? 16 BY MR. CHRISTOPHER: 17 Q. Yes. We just walked through four clauses in -- 18 A. Yes. 19 Q. -- Claim 1 of the '475 patent. 20 And my question is: Would a person of skill in 21 the art understand that those components -- the one or 22 more biosensors, the light source, the one or more 23 lenses, and the detection systems -- are separate 24 components of the invention? 25 MR. KIM: Objection, form.	Page 260 1 the biosensor would include a light source and still 2 be -- you can call it a light -- a biosensor. Lenses 3 could be part of the light source and/or part of the 4 biosensor. Detection system is part of the biosensor, so 5 they're not as discrete elements. When you buy 6 integrated circuits, those are discrete things, but when 7 you talk about a light source, that could certainly be 8 part of the biosensor or the lens. 9 BY MR. CHRISTOPHER: 10 Q. Can you turn to Independent Claim 8 of the 11 '475 patent? 12 A. Okay. 13 Q. And do you see where it says "a processor 14 configured to" in Claim 8? 15 A. Yes. 16 Q. And then underneath that clause, there are four 17 Roman numerals. 18 Do you see those? 19 A. Yes. 20 Q. Each of the four Roman numerals are a function 21 that the processor is configured to perform in Claim 8. 22 Right? 23 A. So each of those -- the process configured to 24 do each of those four things, yes. 25 Q. Yes. That was my question.

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1 A. All right. And as I described in my
2 declaration of Lisogurski -- Lisogurski describes, you
3 know, knowledge of a POSITA would certainly disclose all
4 of those elements.
5 MR. CHRISTOPHER: So I think we're at a good
6 stopping point for today. We'll pick it back up tomorrow
7 morning, but thank you for your time today.
8 THE WITNESS: Okay.
9 (Whereupon, at the hour of 2:29 p.m., the
10 proceedings adjourned.)
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1
2 STATE OF CALIFORNIA)
) ss.
3 COUNTY OF LOS ANGELES)
4
5 I, CHERYL ASADA, CSR No. 13496, certify: That
6 the foregoing proceedings were taken at the time and
7 place herein set forth; at which time the witness was
8 duly sworn; and that the transcript is a true record of
9 the testimony so given.
10 The dismantling, unsealing, or unbinding of the
11 original transcript will render the reporter's
12 certificate null and void.
13 I further certify that I am not financially
14 interested in the action, and I am not related to any of
15 the parties in this case.
16 Witness review, correction, and signature was
17 (X) by Code () Requested () Not requested.
18
19
20 Dated this 20TH day of APRIL, 2026.
21
22 
23 _____
24 CHERYL ASADA, CSR 13496
25

Page 263

1 DECLARATION UNDER PENALTY OF PERJURY
2 Case Name: Samsung Electronics Co.
vs. Omni Medsci, Inc.
3 Date of Deposition: 04/17/2026
4 Job No.: 10188949
5
6 I, BRIAN W. ANTHONY, hereby certify
7 under penalty of perjury under the laws of the State of
8 _____ that the foregoing is true and correct.
9 Executed this _____ day of
10 _____, 2026, at _____.
11
12
13 _____
14 BRIAN W. ANTHONY
15
16 NOTARIZATION (If Required)
17 State of _____
18 County of _____
19 Subscribed and sworn to (or affirmed) before me on
20 this _____ day of _____, 20____,
21 by _____, proved to me on the
22 basis of satisfactory evidence to be the person
23 who appeared before me.
24 Signature: _____ (Seal)
25

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1 DEPOSITION ERRATA SHEET
Case Name: Samsung Electronics Co.
vs. Omni Medsci, Inc.
Name of Witness: Brian W. Anthony
Date of Deposition: 04/17/2026
Job No.: 10188949
4 Reason Codes: 1. To clarify the record.
2. To conform to the facts.
3. To correct transcription errors.
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6 Page _____ Line _____ Reason _____
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18 Page ____ Line ____ Reason ____
19 From ____ to ____
20 Page ____ Line ____ Reason ____
21 From ____ to ____
22 ____ Subject to the above changes, I certify that the
transcript is true and correct
23 ____ No changes have been made. I certify that the
transcript is true and correct.
24
25 _____
BRIAN W. ANTHONY

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