

EXHIBIT 36

Transcript of Alexander David Glew, Ph.D.
Conducted on March 2, 2021

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1 IN THE UNITED STATES DISTRICT COURT

2 FOR THE WESTERN DISTRICT OF TEXAS - WACO DIVISION

3 ----- x

4 DEMARAY LLC, :

5 Plaintiff, :

6 v. : Civil Action No.

7 INTEL CORPORATION, : 6:20-cv-00634-ADA

8 Defendant. :

9 ----- x

10 AND ALL RELATED ACTIONS. :

11 ----- x

12

13 Videotaped Deposition of ALEXANDER DAVID GLEW, PH.D.

14 Conducted Virtually

15 Tuesday, March 2, 2021

16 10:02 a.m. PST

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20 Job No.: 356406

21 Pages: 1 - 306

22 Reported By: Rhonda Norberg, CSR No. 9265, CCRR No. 185

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1 Videotaped Deposition of ALEXANDER DAVID GLEW, PH.D.,

2 conducted virtually.

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9 Pursuant to notice, before Rhonda Norberg,

10 Certified Shorthand Reporter No. 9265, CCRR No. 185

11 in and for the State of California.

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19 JEREMY DINEEN, VIDEOGRAPHER

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| <p style="text-align: center;">I N D E X</p> <p>WITNESS: ALEXANDER DAVID GLEW, PH.D.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">EXAMINATION</th> <th style="text-align: right;">PAGE</th> </tr> </thead> <tbody> <tr> <td>BY MR. OU</td> <td style="text-align: right;">8</td> </tr> <tr> <td>BY MR. OU (CONTINUED)</td> <td style="text-align: right;">124</td> </tr> <tr> <td>BY MR. WELLS</td> <td style="text-align: right;">287</td> </tr> <tr> <td>BY MR. OU (FURTHER)</td> <td style="text-align: right;">290</td> </tr> </tbody> </table> <p style="text-align: center;">EXHIBITS</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">EXHIBIT NO.</th> <th style="text-align: left;">DESCRIPTION</th> <th style="text-align: right;">PAGE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Declaration of Alexander D. Glew</td> <td style="text-align: right;">23</td> </tr> <tr> <td>2</td> <td>Curriculum Vitae</td> <td style="text-align: right;">56</td> </tr> <tr> <td>3</td> <td>Plaintiff Demaray LLC's Disclosure of Extrinsic Evidence</td> <td style="text-align: right;">56</td> </tr> <tr> <td>4</td> <td>Defendants' Identification of Extrinsic Evidence</td> <td style="text-align: right;">70</td> </tr> <tr> <td>5</td> <td>Request for Filing a Divisional Application</td> <td style="text-align: right;">132</td> </tr> <tr> <td>6</td> <td>"Sparc-le 20 Accessory" Sheet</td> <td style="text-align: right;">163</td> </tr> <tr> <td>7</td> <td>Advanced Energy White Paper</td> <td style="text-align: right;">164</td> </tr> <tr> <td>8</td> <td>Artisan Technology Group Information</td> <td style="text-align: right;">208</td> </tr> <tr> <td>9</td> <td>Applied Materials Update</td> <td style="text-align: right;">221</td> </tr> </tbody> </table> | EXAMINATION | PAGE | BY MR. OU | 8 | BY MR. OU (CONTINUED) | 124 | BY MR. WELLS | 287 | BY MR. OU (FURTHER) | 290 | EXHIBIT NO. | DESCRIPTION | PAGE | 1 | Declaration of Alexander D. Glew | 23 | 2 | Curriculum Vitae | 56 | 3 | Plaintiff Demaray LLC's Disclosure of Extrinsic Evidence | 56 | 4 | Defendants' Identification of Extrinsic Evidence | 70 | 5 | Request for Filing a Divisional Application | 132 | 6 | "Sparc-le 20 Accessory" Sheet | 163 | 7 | Advanced Energy White Paper | 164 | 8 | Artisan Technology Group Information | 208 | 9 | Applied Materials Update | 221 | <p style="text-align: center;">P R O C E E D I N G S</p> <p>THE VIDEOGRAPHER: Here begins Disk Number 1 in the videotaped deposition of Alexander D. Glew, Ph.D., in the U.S. District Court for the Western District of Texas, Waco Division, matters of Demaray LLC v. Intel Corporation, Case Number 6:20-cv-00634-ADA, and Demaray LLC v. Samsung Electronics, et al., Case Number 6:20-cv-00636-ADA.</p> <p>Today's date is March 2nd, 2021. The time on the video monitor is 10:03 a.m. Pacific. The videographer today is Jeremy Dineen representing Planet Depos. This video deposition is taking place remotely.</p> <p>Would counsel please voice-identify themselves and state whom they represent.</p> <p>MR. OU: Good morning. Philip Ou from Paul Hastings on behalf of Intel and Samsung, and with me from, also, Paul Hastings are Joseph Rumpler and Alex Rhim.</p> <p>MR. WELLS: Maclain Wells of Irell & Manella on behalf of Demaray LLC.</p> <p>MS. SPECHT: Claire Specht from WilmerHale on behalf of Intel Corporation.</p> <p>MR. DORMAN: Christian Dorman from</p> |
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Transcript of Alexander David Glew, Ph.D.
Conducted on March 2, 2021

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| <p style="text-align: right;">9</p> <p>1 94040.</p> <p>2 Q And, Dr. Glew, you understand that you're</p> <p>3 under oath today?</p> <p>4 A Yes, I do.</p> <p>5 Q Okay. Have you had your deposition taken</p> <p>6 before?</p> <p>7 A Yes, I have.</p> <p>8 Q Approximately how many times?</p> <p>9 A Approximately 50 times.</p> <p>10 Q Did you say 50, meaning 5-0?</p> <p>11 A Yes, approximately 5-0.</p> <p>12 Q And have you ever testified in a trial</p> <p>13 before a jury?</p> <p>14 I'm sorry, Dr. Glew. I didn't hear your</p> <p>15 audio.</p> <p>16 Your answer?</p> <p>17 A Yes, I have.</p> <p>18 Q Okay. And how many times have you</p> <p>19 testified at a trial in front of a jury?</p> <p>20 A Less than ten, I think. Probably eight,</p> <p>21 roughly.</p> <p>22 Q Okay. It's fair to say that you're</p> <p>23 familiar with the deposition process and the ground</p> <p>24 rules that, usually, the participants understand in</p> <p>25 depositions?</p> | <p style="text-align: right;">11</p> <p>1 it.</p> <p>2 Q Okay. Great.</p> <p>3 And is there any reason why you can't give</p> <p>4 complete and truthful answers to our questions</p> <p>5 today?</p> <p>6 A Not that I know of, no.</p> <p>7 Q Okay. When was the last time you had your</p> <p>8 deposition taken?</p> <p>9 A I had a couple last year. I want to say</p> <p>10 fall, late fall, maybe.</p> <p>11 Q Okay. And have you ever had your</p> <p>12 deposition taken -- sorry. Let me strike that</p> <p>13 question.</p> <p>14 Have all of your depositions been in the</p> <p>15 context of patent litigation or depositions</p> <p>16 involving patents, for example, before the PTAB?</p> <p>17 A No.</p> <p>18 Q Okay. Without getting -- I don't need the</p> <p>19 details, but outside of the patent context, what</p> <p>20 other types of cases have you provided expert</p> <p>21 testimony in?</p> <p>22 A I provided expert -- now, are you talking</p> <p>23 about just depositions or at trial?</p> <p>24 Q Depositions.</p> <p>25 A Okay. I provided testimony regarding other</p> |
| <p style="text-align: right;">10</p> <p>1 A I would say generally, yes.</p> <p>2 Q Okay. Well, let me just go over a couple</p> <p>3 of them since we are doing a deposition by video</p> <p>4 Zoom.</p> <p>5 I'm going to do my best not to talk over</p> <p>6 you; so if you can do your best to listen to my</p> <p>7 question, let me finish my question, I'll also do my</p> <p>8 best to let you finish your answer.</p> <p>9 Is that understood?</p> <p>10 A Yes, I understand.</p> <p>11 Q And if you need to take a break, just let</p> <p>12 me know. I just ask that any pending question, you</p> <p>13 answer it before we take a break.</p> <p>14 Is that okay?</p> <p>15 A That's fine, yes.</p> <p>16 Q Okay. And if I ask a question and you</p> <p>17 don't ask me to clarify the question, can we assume</p> <p>18 that you understood my question?</p> <p>19 A I understand that's the normal practice.</p> <p>20 Q Okay. And so if you don't understand my</p> <p>21 question, will you ask me to clarify? Or otherwise,</p> <p>22 we can assume that you understood my question?</p> <p>23 A If I think I understand your question, I</p> <p>24 will probably not ask you to clarify it. If I don't</p> <p>25 understand your question, I will ask you to clarify</p> | <p style="text-align: right;">12</p> <p>1 technology matters. For example, semiconductor</p> <p>2 fabrication facility issues relating to, for</p> <p>3 example, fires or accidents, as well as breach of</p> <p>4 contract on semiconductor equipment.</p> <p>5 Most of it's been semiconductor or tech</p> <p>6 related, not always patents.</p> <p>7 Q Understood. Thanks for that clarification.</p> <p>8 In terms of semiconductor fabrication</p> <p>9 issues, does that require you to actually go onsite</p> <p>10 to either a client or the other side's fab and</p> <p>11 inspect things?</p> <p>12 Is that part of your consulting services</p> <p>13 that you've done in the past?</p> <p>14 A I have inspected fabs, yes.</p> <p>15 Q Okay. And fair to say just from your</p> <p>16 experience working in the industry you have general</p> <p>17 familiarity as to how fabs operate?</p> <p>18 A I would say generally, yes, based on my</p> <p>19 experience.</p> <p>20 Q Okay. I want to ask you about your</p> <p>21 preparation for your deposition. I don't want to</p> <p>22 get into the substance of discussions you've had</p> <p>23 with -- with counsel.</p> <p>24 Can you generally describe what you did</p> <p>25 to -- to prepare for your deposition today?</p> |

Conducted on March 2, 2021

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| <p>13</p> <p>1 A I read my declaration and the patents and 2 some of the related documents in my declaration. 3 Q Okay. Did you speak with anyone in 4 preparation for your deposition? 5 A Yes. 6 MR. WELLS: I'll caution the witness not to 7 divulge the contents of any attorney/client 8 communications, but he can answer. 9 MR. OU: I think you answered yes. 10 Q Who did you speak with, Dr. Glew, to 11 prepare for your deposition? 12 A I spoke with Mr. Wells. 13 Q Anyone else? 14 A No, not that I recall. 15 Q Okay. How about to prepare your 16 declaration that you submitted? 17 Did you speak with anyone to prepare your 18 claim construction declaration? 19 A Yes, I -- I had discussions with other 20 people also. 21 Q Who did you speak with to prepare your 22 claim construction declaration? 23 MR. WELLS: I'll caution the witness not to 24 divulge the contents of any communications, but he 25 can identify the persons with whom he's worked in</p> | <p>15</p> <p>1 for the deposition, did you speak to any of the 2 other named inventors for the patents-in-suit? 3 A No, I did not speak with the named 4 inventors of the patent-in-suit. 5 Q Okay. Other than speaking with Mr. Wells 6 and his colleague, Mr. Huynh, you didn't speak with 7 anyone else in preparation for your declaration or 8 for today's deposition; is that right? 9 A That is correct that I spoke with those two 10 regarding my declaration and preparation for the 11 deposition. 12 Q Can you generally describe how you first 13 got involved with these cases? 14 MR. WELLS: Again, I'll caution the witness 15 not to divulge the contents of any communications 16 with attorneys, but you can generally answer the 17 question. 18 THE WITNESS: The law firm contacted me and 19 asked me about the cases or the patents. 20 BY MR. OU: 21 Q And -- and approximately when was that 22 reach-out? 23 A In the last -- I -- my recollection off the 24 top of my head is the latter half of last year. 25 Q Okay. And was it Mr. Wells or someone else</p> |
| <p>14</p> <p>1 preparing his declaration. 2 THE WITNESS: I believe I spoke with 3 Darish Huynh, Esquire, a colleague of Mr. Wells. 4 BY MR. OU: 5 Q Anyone else? 6 A Not that I recall off the top of my head. 7 Q Okay. So you didn't speak with 8 Dr. Ernest Demaray, who is a principal of Demaray 9 LLC and one of the named inventors on the 10 patents-in-suit? 11 A No, I did not. 12 Q Okay. Do you know Dr. Demaray? 13 A No, I do not. 14 Q Okay. You've never spoken with him before? 15 A I don't recall speaking with him. I don't 16 think he was -- interviewed me when this matter 17 started, but I don't recall speaking with him, no. 18 Q Okay. So to -- let me just make sure I got 19 that right. 20 In preparing your declaration or for your 21 deposition, you did not have a conversation with 22 Dr. Demaray; is that right? 23 A No, I do not recall speaking with 24 Dr. Demaray. 25 Q In preparing your declaration or your --</p> | <p>16</p> <p>1 at Irell & Manella? 2 A My recollection is that it was Mr. Wells. 3 Q And so I understand that you -- you've 4 submitted a claim construction declaration in 5 support of Demaray's claim construction positions, 6 right? 7 A Yes, I have submitted a declaration on the 8 claim construction issues. 9 Q Is your scope of engagement with Demaray 10 LLC limited to claim construction issues? 11 MR. WELLS: Objection; scope. 12 THE WITNESS: They will determine what the 13 scope of my work is. Thus far I have worked on the 14 claim construction issues and some IPRs. 15 BY MR. OU: 16 Q Okay. Anything else other than claim 17 construction issues and IPRs? 18 MR. WELLS: Objection; asked and answered. 19 THE WITNESS: Not thus far. 20 MR. OU: Okay. And I understand you're 21 here to testify about your claim construction 22 declaration, and that's what I'm going to be asking 23 about, but let me just make sure I understand the 24 scope of your -- of your representation and work. 25 Q Other than working on your claim</p> |

Conducted on March 2, 2021

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| <p style="text-align: right;">17</p> <p>1 construction declaration and some IPRs, have you 2 done any other work for Demaray LLC that relates to 3 the patents-in-suit? 4 MR. WELLS: Objection; vague, asked and 5 answered. 6 THE WITNESS: I did look at material on 7 computers provided by the defendants. I'm not sure 8 how to characterize the scope of that work. 9 MR. OU: Okay. My -- my understanding is 10 you -- you've reviewed some process recipe 11 information, some BKMs, or best known documents, 12 provided by Applied Materials. 13 Q Is that right? 14 MR. WELLS: Objection; scope. 15 THE WITNESS: I have two computers. I 16 believe one is for Applied Materials and I think one 17 was for Samsung. 18 BY MR. OU: 19 Q Okay. You -- does your review of that 20 information inform in any way your claim 21 construction positions that you've provided in this 22 case? 23 A Excuse me. Let me see. 24 One is -- one is an Intel computer. I'm 25 sorry. One is -- yes. Okay.</p> | <p style="text-align: right;">19</p> <p>1 MR. WELLS: Objection; asked and answered, 2 scope. 3 THE WITNESS: I looked at the material. I 4 would characterize it as collected data or 5 information. I don't recall that I cited to it as 6 relying on it in my claim construction. If you 7 could point me to where I cite to documents 8 therefrom, I'd be happy to discuss that. 9 MR. OU: I -- I'm not saying that you -- 10 you did. I was just asking whether or not you 11 considered those materials in -- in forming your 12 claim construction positions. It sounds like your 13 answer is no. 14 Q Is that -- do I understand your testimony 15 correct? 16 MR. WELLS: Objection; asked and answered, 17 beyond the scope. 18 THE WITNESS: I did not rely on them for my 19 report. I'm not -- I don't -- I haven't really 20 analyzed the information yet. As I said, I've 21 basically collected data and it's just sort of 22 waiting for an analysis and eventual conclusions 23 regarding whether it's meaningful or relevant to any 24 of the points of inquiry. 25 Yeah, I did not -- I don't recall relying</p> |
| <p style="text-align: right;">18</p> <p>1 Go on. Sorry? 2 Q Yeah, let me reask my question. 3 Does -- does -- does your review and 4 analysis of those technical materials of Applied, 5 Intel, and Samsung inform your claim construction 6 positions that you have provided in this case or 7 these cases? 8 MR. WELLS: Objection; scope. 9 THE WITNESS: I've reviewed the material. 10 I wouldn't characterize it that I've analyzed the 11 material yet. It's just sort of data at this point 12 waiting for -- waiting for analysis at some -- with 13 respect to a question or two that might be posed to 14 me. 15 I don't recall citing it in my declaration 16 that I relied on it for that. If you could point me 17 to where I did -- but I don't recall it being a -- I 18 don't recall relying on it for my declaration on 19 claim construction. 20 BY MR. OU: 21 Q Okay. So you -- you did not consider the 22 materials that you reviewed on those computers from 23 Applied, Intel, and Samsung informing your claim 24 construction position that you've provided in these 25 cases?</p> | <p style="text-align: right;">20</p> <p>1 on it for my declaration. 2 MR. OU: Okay. I want to talk about the 3 preparation of your declaration. 4 Q When did you begin preparing it? And just 5 for a data point, I believe it was submitted to the 6 court on February 16th. 7 A What do you mean by "preparing"? Do you 8 mean preparing as in reading materials for it, or do 9 you mean preparing in another context? 10 Q Sure. 11 Let's start with when did you begin reading 12 materials to prepare for your claim construction 13 declaration? 14 A Early on when I started in the case, I was 15 provided with the patents and other documents and 16 file history, so I reviewed the patents, I would 17 say, almost immediately when I started on the case, 18 so that would have been a number of months ago. 19 File history over time has relevance to 20 specific issues; other documents, more recently as 21 they were provided to me. So it's sort of extended 22 out over a period of time, the reading of the 23 materials for it. 24 Q Okay. Fair enough. 25 And in terms of the actual drafting of your</p> |

Conducted on March 2, 2021

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| <p style="text-align: right;">21</p> <p>1 declaration, did you draft a declaration yourself or 2 did you draft it in -- working with your counsel at 3 Irell? 4 A I drafted a declaration. I did a review 5 with counselors at Irell. 6 Q Okay. But this is not a situation where 7 the lawyers draft it first and then you provided 8 your input and edited it? 9 A The declaration is my draft. I've drafted 10 enough documents I have sort of a -- I would say 11 kind of a template for things, background and all 12 that stuff that's largely already written, and -- 13 Q Okay. Fair enough. I -- it does look very 14 specific. I like that you put your picture on the 15 first page of the -- I've never seen that in a 16 declaration before, so that's refreshing to see. 17 A Well, I write both legal and nonlegal 18 documents so sometimes I perhaps make my documents 19 look a little less -- more engineering-like, less 20 legal. But -- 21 Q Got it. Makes sense. 22 Dr. Glew, as I was asking you a question, 23 it looked like you were flipping through some 24 documents in front of you. I just want to make 25 sure -- do you have certain documents in hardcopy</p> | <p style="text-align: right;">23</p> <p>1 Lawrence, could -- could you publish 2 Exhibit 1 in the chat and we can mark that as 3 Exhibit 1? 4 Dr. Glew, I know you have a copy in front 5 of you as well. You're welcome to download the 6 electronic copy one if you need to. 7 (Exhibit No. 1 was marked for 8 identification by the 9 videoconference technician; 10 attached hereto.) 11 THE VIDEOCONFERENCE TECHNICIAN: Exhibit 1 12 is now in the chat for everyone to open. 13 MR. OU: So, Dr. Glew, we've marked as 14 Exhibit 1 -- this is the declaration that you 15 submitted in support of Demaray's claim construction 16 positions dated February 16th, 2021. 17 Q Do you recognize this document? 18 A Hang on. Let me -- I mean, I recognize the 19 document I had printed. I'm trying to figure out 20 where to download this thing to so I can find it 21 without losing it. 22 Q Yeah. And just for logistics, Dr. Glew, it 23 might be easier if you like open a folder on -- on 24 your desktop and just, you know, whenever we publish 25 an exhibit, just, you know, drag it in or save it</p> |
| <p style="text-align: right;">22</p> <p>1 with you? 2 A Yes. 3 I have the declaration and both patents. 4 Q Okay. Any other documents? 5 A No. 6 Not hardcopy. 7 Q And the -- the hardcopy documents that you 8 have, any notes on them, or are they clean copies? 9 A They're clean copies I printed this 10 morning. 11 Q Okay. Very good. 12 Well, if -- if there are other documents 13 that I'm going to show you throughout the day, if 14 you need a -- if you need a hardcopy and you need to 15 print them, you're more than welcome to. Just, you 16 know, make sure that we're aware of what you have in 17 front of you that's not shown on the screen. 18 Is that okay? 19 A Yeah, that's fine. 20 Q Okay. 21 A Yeah, I have a high-speed printer outside 22 my office so I can print. 23 MR. OU: Okay. Since you have your 24 declaration in front of you, let's first mark that 25 as Exhibit 1.</p> | <p style="text-align: right;">24</p> <p>1 there so that if we have to refer back to it, you 2 can just go to it in the -- in the folder. That 3 usually works best. 4 A All right. 5 Okay. This looks familiar, yes. 6 Q Okay. Let me -- let me just start over 7 for -- for the record. 8 So, Dr. Glew, we've marked as Exhibit 1 -- 9 this is your February 16, 2021 declaration submitted 10 in support of Demaray's claim construction 11 positions. 12 Do you recognize this document? 13 A Yes. 14 Q Okay. And is -- is this a declaration that 15 you submitted? 16 A Yes, it is. 17 Q And is it correct that the totality of your 18 claim construction positions thus far are contained 19 in this declaration? 20 MR. WELLS: Objection; vague and ambiguous. 21 THE WITNESS: This is a summary of the 22 opinions I had at the time I wrote it. 23 MR. OU: Okay. Let me -- let me, maybe, 24 ask the question this way first. 25 Q Is there anything in your declaration that</p> |

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| 25 | <p>1 you're intending to either correct or supplement</p> <p>2 today on the record?</p> <p>3 A I'm not intending to correct anything at</p> <p>4 this point in time.</p> <p>5 As for supplementing, this is, you know, a</p> <p>6 document of limited length so I could certainly</p> <p>7 elaborate a bit on a few of the points, but I don't</p> <p>8 have plans at this point to augment an opinion.</p> <p>9 Q Okay. Yeah, and -- and that's fine if</p> <p>10 you're, you know, providing more context of -- of</p> <p>11 your opinions. I just want to make sure that</p> <p>12 there's no changed opinions or corrections in this</p> <p>13 document that we should be aware of and -- and</p> <p>14 discuss at the outset.</p> <p>15 Is that fair?</p> <p>16 A I-- I guess that's fair. I don't have any</p> <p>17 terms that I'm going to be changing -- I don't have</p> <p>18 in mind any changes or augmentation of claim term</p> <p>19 definitions at this point in time.</p> <p>20 Q And no other corrections that you need to</p> <p>21 make on the record right now to the declaration you</p> <p>22 submitted?</p> <p>23 A As I sit here now, off the top of my head,</p> <p>24 I don't know of any corrections that I would like to</p> <p>25 make.</p> | 27 |
| 26 | <p>1 Q Okay. Can you turn with me to Paragraph 8?</p> <p>2 Let me know when you're there.</p> <p>3 A I'm there.</p> <p>4 Q Okay. And before we get started, just a</p> <p>5 little bit of nomenclature.</p> <p>6 If I refer to the patents-in-suit, will you</p> <p>7 understand that I'm referring to the two asserted</p> <p>8 patents, U.S. Patent Number 7,544,276 and U.S.</p> <p>9 Patent Number 7,381,657?</p> <p>10 A Yes, I can assume that.</p> <p>11 Q And then I might refer to one specific</p> <p>12 patent shorthand by the last three numbers, and</p> <p>13 you'll understand what I'm referring to?</p> <p>14 A Yes.</p> <p>15 I may do the same.</p> <p>16 Q Okay. Great.</p> <p>17 And one other point of clarification. I</p> <p>18 might refer to Dr. Ernest Demaray, the individual</p> <p>19 and the inventor. If I refer to him, I'll refer to</p> <p>20 him as Dr. Demaray. If I just say "Demaray," I'll</p> <p>21 be referring to the entity, Demaray LLC.</p> <p>22 Does that make sense?</p> <p>23 A Yes.</p> <p>24 Q Okay. So looking at Paragraph 8, I wanted</p> <p>25 to ask you -- in the first sentence, you said "In</p> | 28 |
| | <p>1 forming my opinions, I have considered the</p> <p>2 specifications of the patents at issue, including</p> <p>3 the respective abstract figures in the claim</p> <p>4 language as would have been understood by a person</p> <p>5 of ordinary skill in the art, or a POSITA."</p> <p>6 And then the next sentence, you say "I have</p> <p>7 also reviewed the file histories and other materials</p> <p>8 cited in this report."</p> <p>9 A Yes.</p> <p>10 Q And I wanted to clarify with you, were you</p> <p>11 intending to draw a distinction between what you</p> <p>12 considered and what you reviewed?</p> <p>13 MR. WELLS: Objection; vague and ambiguous.</p> <p>14 THE WITNESS: No, I was not exactly</p> <p>15 distinguishing in an explicit way.</p> <p>16 When it comes to the two -- the -- the file</p> <p>17 histories, I would have reviewed the file histories</p> <p>18 with more attention to the relevant areas. They</p> <p>19 tend to be very -- very long.</p> <p>20 BY MR. OU:</p> <p>21 Q Okay. So is it your testimony that you --</p> <p>22 in forming your claim construction opinions, you</p> <p>23 considered the -- the patents, the specifications,</p> <p>24 as well as the relevant portions of the file</p> <p>25 histories and other materials in this report?</p> | |
| | <p>1 I just want to understand what is the scope</p> <p>2 of materials that you actually considered.</p> <p>3 MR. WELLS: Objection; misstates testimony.</p> <p>4 THE WITNESS: I considered the documents</p> <p>5 that I've cited to. I would have spent more time on</p> <p>6 ones that are more relevant and less times on ones</p> <p>7 that are -- that I spend less time discussing,</p> <p>8 probably. Obviously, the patents are front and</p> <p>9 center.</p> <p>10 Certain portions of the file history are,</p> <p>11 you know, very important, potentially. Other things</p> <p>12 like, you know, the -- how much money the</p> <p>13 patentee -- the patent applicant owes the file</p> <p>14 hist- -- the patent office isn't really useful or</p> <p>15 relevant to my analysis.</p> <p>16 BY MR. OU:</p> <p>17 Q When -- when you refer to the file</p> <p>18 histories of the '276 patent and the '657 patent,</p> <p>19 are you including the file history of the parent</p> <p>20 application?</p> <p>21 Is that something that you reviewed as</p> <p>22 well?</p> <p>23 A Hmm.</p> <p>24 I don't recall off the top of my head</p> <p>25 citing to the parent file history. If you want to</p> | |

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| 29 | <p>1 direct me toward a portion of my declaration where I</p> <p>2 did, I'd be happy to review that.</p> <p>3 Q Okay. I am -- I'm just -- I'm trying to</p> <p>4 understand, you know, what was the extent of your</p> <p>5 review of the file history.</p> <p>6 And so in Paragraph 8, it says that you</p> <p>7 reviewed the file histories of just the asserted</p> <p>8 patents, and it sounds like you're not sure if you</p> <p>9 reviewed the file history of the parent sitting here</p> <p>10 today.</p> <p>11 MR. WELLS: Objection; misstates testimony.</p> <p>12 THE WITNESS: My recollection as I sit here</p> <p>13 today is that I cited to the file histories of the</p> <p>14 patents-in-suit. I don't recall citing to the</p> <p>15 parent file history.</p> <p>16 MR. OU: Right.</p> <p>17 And so, Doctor, my question is a little</p> <p>18 different.</p> <p>19 Q It's did you review the parent file history</p> <p>20 or the file history of the parent applications for</p> <p>21 the patents-in-suit in forming your claim</p> <p>22 construction opinions?</p> <p>23 A As I sit here -- sit here today, I don't</p> <p>24 recall reviewing the parent application or citing to</p> <p>25 it.</p> | 31 | <p>1 skill in the art would understand the claim terms to</p> <p>2 mean, did you review any of the prior art cited in</p> <p>3 the file history to understand what art the</p> <p>4 applicants were trying to overcome in its responses</p> <p>5 to rejections from the patent office?</p> <p>6 MR. WELLS: Objection; asked and answered.</p> <p>7 THE WITNESS: I reviewed prior art in the</p> <p>8 context of the IPR work I did. I don't believe I</p> <p>9 cited to prior art or used that in my analysis of</p> <p>10 the claim terms.</p> <p>11 If you can point me to somewhere in the</p> <p>12 declaration where I cited to prior art, I'd be happy</p> <p>13 to review that.</p> <p>14 MR. OU: Well, I didn't see it in your</p> <p>15 declaration, and so that's why I was asking the</p> <p>16 question. So I'll ask it again just to make sure</p> <p>17 that I understand your testimony correctly.</p> <p>18 Q In preparing and forming your claim</p> <p>19 construction positions that you submitted in these</p> <p>20 cases, did you review or analyze any of the cited</p> <p>21 prior art in the file histories of the</p> <p>22 patents-in-suit or its parents?</p> <p>23 MR. WELLS: Objection; asked and answered.</p> <p>24 THE WITNESS: I reviewed prior art in the</p> <p>25 context of the work I did for the IPRs and discussed</p> |
| 30 | <p>1 Q Okay. In forming your claim construction</p> <p>2 positions and opinions, did you review any of the</p> <p>3 prior art that was before the PTO during the</p> <p>4 prosecution of the patents-in-suit, meaning</p> <p>5 specifically the art that the applicants were trying</p> <p>6 to overcome during prosecution?</p> <p>7 A In the context of the -- this declaration?</p> <p>8 Q Are you asking me to clarify my question,</p> <p>9 Dr. Glew? I wasn't sure.</p> <p>10 A Yes, please. Yes.</p> <p>11 Q Okay. Sure.</p> <p>12 In the context of preparing your claim</p> <p>13 construction declaration and forming your opinions</p> <p>14 as to what a person of ordinary skill in the art</p> <p>15 would understand the relevant claim terms to mean,</p> <p>16 did you review any of the cited prior art in the</p> <p>17 file history of the patents-in-suit?</p> <p>18 And specifically the art that the</p> <p>19 applicants sought to overcome during prosecution.</p> <p>20 A I reviewed material of that nature, prior</p> <p>21 art, in the context of the IPR work I did. I did</p> <p>22 not cite to it generally in my declaration on claim</p> <p>23 construction.</p> <p>24 Q Okay. So in -- in forming your claim</p> <p>25 construction opinions as to what one of ordinary</p> | 32 | <p>1 it in the IPR responses. I -- however, I did not</p> <p>2 cite to that -- to the prior art, to the best of my</p> <p>3 recollection, in my declaration that is before me</p> <p>4 now.</p> <p>5 MR. OU: Okay. My -- my answer was a</p> <p>6 little -- my question was a little different.</p> <p>7 Q My question was, did you review any of the</p> <p>8 prior art or consider any of that prior art in</p> <p>9 forming your claim construction positions that you</p> <p>10 put forward in your declaration?</p> <p>11 MR. WELLS: Objection; asked and answered</p> <p>12 twice now.</p> <p>13 THE WITNESS: I reviewed prior art in the</p> <p>14 context of my work on IPR responses. I did not rely</p> <p>15 upon prior art, to the best of my recollection, in</p> <p>16 the claim construction declaration that I wrote that</p> <p>17 is before me now.</p> <p>18 BY MR. OU:</p> <p>19 Q When you say you didn't rely on the prior</p> <p>20 art, are you drawing the distinction between relying</p> <p>21 on the prior art or -- and considering the prior</p> <p>22 art?</p> <p>23 MR. WELLS: Objection; vague and ambiguous.</p> <p>24 THE WITNESS: As I stated, you know, I saw</p> <p>25 prior art and read it in the context of the IPR. I</p> |

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| 33 | <p>1 did not rely on it for the declaration on claim 2 construction. I didn't find it necessary for the 3 opinions I was giving. 4 BY MR. OU: 5 Q Why is it that you did not find the -- the 6 prior art that was overcome in the file history 7 necessary for the claim construction positions that 8 you're rendering? 9 MR. WELLS: Objection; vague and ambiguous. 10 THE WITNESS: Well, we would have to look 11 at each claim term to answer that question, and as 12 we go to a claim term, I can go through my reasoning 13 of why I gave what opinion I gave on that claim 14 term. 15 BY MR. OU: 16 Q Okay. But sitting here today, for each of 17 the claim terms that you provided an opinion on, you 18 didn't believe that the prior art cited in the file 19 histories was relevant to forming your opinions as 20 to what a particular claim term meant? 21 MR. WELLS: Objection; vague and ambiguous. 22 THE WITNESS: I think it would be a better 23 representation of what I believed to say that it 24 wasn't necessary to cite to prior art in the 25 opinions I gave. It wasn't necessary as support to</p> | 35 | <p>1 and look at what I had reviewed and had not 2 reviewed. 3 MR. OU: Okay. Yeah, and -- and -- and 4 that's part of the -- the issue, Dr. Glew. 5 Q I'm asking you in forming your opinions in 6 the claim construction, which is what you're here to 7 testify about, did you review and consider any -- 8 any of the cited prior art? 9 MR. WELLS: Objection; asked and answered 10 four times. 11 THE WITNESS: Just to be clear, I did 12 review prior art in the context of the IPRs. 13 However, in the context of the claim 14 construction declaration before me today, I did not 15 rely on prior art in supporting the opinions I gave. 16 I'd be happy to go through any specific claim term 17 or opinion I gave on that and shed more light on it. 18 MR. OU: Yeah, I'm going to ask it one more 19 time, Dr. Glew. So I'm going to ask you to try to 20 really pay attention to the questions I'm asking. 21 Q In the context of your claim construction 22 declaration, did you review and consider any of the 23 prior art cited in the file history, yes or no? 24 MR. WELLS: Objection; asked and answered 25 five times.</p> |
| 34 | <p>1 the opinions I gave in this declaration. 2 MR. OU: Right. 3 Q And so my -- my question was -- and it 4 sounds like the answer is no, but just tell me if 5 I'm wrong, is in forming your claim construction 6 opinions, did you review the prior art cited in the 7 file histories? 8 MR. WELLS: Objection; asked and answered 9 and misstates testimony. 10 THE WITNESS: Just to be clear, I did 11 review the prior art in the context of the IPRs. 12 However, in the context of the declaration 13 on claim construction before me today, I did not 14 rely on the prior art. I didn't find it necessary 15 to support the opinions that I gave. 16 BY MR. OU: 17 Q Now, when you say that you -- you reviewed 18 the prior art in the context of the IPRs, are you 19 saying that you reviewed all of the cited prior art 20 that was overcome by the applicants in the file 21 history or you reviewed just prior art that was 22 submitted as a part of the IPRs? 23 MR. WELLS: Objection; scope. 24 THE WITNESS: I haven't prepared for 25 testimony on the IPRs today. I'd have to go back</p> | 36 | <p>1 MR. OU: And, Maclain, if you can keep your 2 speaking objections just to asked and answered 3 or your objections, I'd appreciate it. I don't need 4 you to give a running tally of the questions I'm 5 asking. They're different questions. 6 MR. WELLS: They're not different 7 questions. You've asked him the same question, he's 8 given you his answer. You -- my objection stands. 9 MR. OU: So, Doctor, I'm going to ask the 10 question again just so that we have a clean record 11 and you have my question in hand. I'm not asking 12 you whether or not you relied on prior art in 13 supporting your claim construction positions. Okay? 14 Q I'm asking you, in the context of preparing 15 your claim construction declaration, did you review 16 and consider the prior art that's cited in the file 17 history, yes or no? 18 MR. WELLS: Objection; asked and answered 19 repeatedly. 20 THE WITNESS: Could you repeat the last 21 portion of that question, or the entire question, 22 your -- your -- 23 MR. OU: Sure. Yeah, and I'll give you the 24 full context so you understand what I'm not asking 25 you. Okay? I'm not asking you whether or not you</p> |

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| <p style="text-align: right;">37</p> <p>1 relied on any of the prior art in support of your 2 claim construction positions. 3 Q I'm asking you in the context of preparing 4 your claim construction declaration, did you review 5 and consider the prior art that's cited in the file 6 history, yes or no? 7 MR. WELLS: Objection; asked and answered 8 repeatedly. 9 THE WITNESS: I reviewed and considered the 10 prior art in the context of the IPR responses that I 11 gave. I didn't rely on or feel it necessary to rely 12 on the prior art in the opinions that I gave in the 13 claim construction declaration before me now. 14 BY MR. OU: 15 Q Okay. So you did not review and consider 16 the prior art in the context of your claim 17 construction declaration; do I have that right? 18 MR. WELLS: Objection; misstates testimony. 19 THE WITNESS: I reviewed and analyzed prior 20 art in the context of the IPRs. 21 In the context of the claim construction 22 declaration before me now, I did not feel it was 23 necessary to use or rely on the prior art. 24 BY MR. OU: 25 Q But is it your testimony that you did</p> | <p style="text-align: right;">39</p> <p>1 somebody just joined at a (510) number. Can we 2 identify who that is? 3 MR. OU: That's -- that's my cell phone 4 number. 5 MR. WELLS: Oh, okay. Sorry. 6 MR. OU: Dr. Glew, about 20 minutes ago, I 7 had asked you whether or not you had reviewed the 8 file history of the parent application to the 9 patents-in-suit, and I just wanted to clarify your 10 testimony that you gave. 11 Q To the best that you can recall, did you 12 review and consider the file history of the parent 13 application to the patents-in-suit? 14 MR. WELLS: Objection; asked and answered. 15 THE WITNESS: As I sit here now, I recall 16 reviewing the file histories of the two patents. I 17 don't recall the parent application. I would have 18 to go back and double-check on that. I don't recall 19 citing to it in the declaration. 20 BY MR. OU: 21 Q Okay. And in forming your claim 22 construction positions, did you review any 23 declarations from the named inventors of the 24 patents-in-suit? 25 A There was commentary back and forth between</p> |
| <p style="text-align: right;">38</p> <p>1 review and consider the prior art in the file 2 history in forming your claim construction positions 3 in this case? 4 MR. WELLS: Objection; misstates testimony, 5 asked and answered. 6 THE WITNESS: Could you repeat the 7 question? 8 MR. OU: Yeah. 9 Q Is it your testimony that you did review 10 and consider the prior art in the file histories in 11 forming your claim construction positions in this 12 case? 13 MR. WELLS: Objection; misstates testimony, 14 asked and answered. 15 THE WITNESS: I reviewed the file history 16 and prior art in the -- excuse me. 17 I reviewed the prior art in the context of 18 the IPR responses I gave. I didn't feel it was 19 necessary to rely on or use the prior art in the 20 claim construction opinions I gave in the 21 declaration that's before me today. 22 MR. OU: Dr. Glew, I apologize. I was -- 23 my audio got disconnected, so -- let me just review 24 your last answer. 25 MR. WELLS: And, Phil, it looks like</p> | <p style="text-align: right;">40</p> <p>1 the patent office and the inventors in the file 2 histories. I don't recall a declaration -- a recent 3 declaration that I relied on in writing my 4 declaration on claim construction. 5 Q So I'm -- I'm not talking about back -- 6 back and forth between the patent office and the 7 inventors of the patents-in-suit in, for example, 8 like office actions or interviews. 9 Are you generally familiar with the patent 10 prosecution process? 11 A Generally. 12 I did file one patent myself. 13 Q There you go. 14 So I'm -- so I'm not -- I'm not talking 15 about office actions or -- or interviews. 16 I'm -- I'm asking whether or not -- in 17 forming your claim construction positions, whether 18 or not there were any declarations from any of the 19 named inventors that you also reviewed and 20 considered. 21 MR. WELLS: Objection; vague and ambiguous. 22 MR. OU: And, Dr. Glew, just because your 23 counsel made a "vague and ambiguous" question [sic], 24 I just want to make sure that you understand my 25 question. Okay?</p> |

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| 41 | <p>1 I'm not talking about any office actions or</p> <p>2 interview summaries or interviews with the PTO and</p> <p>3 the named inventors; I'm asking you whether or</p> <p>4 not -- in forming your claim construction positions</p> <p>5 in this case, whether you reviewed any sworn</p> <p>6 declarations from any of the named inventors.</p> <p>7 Q Do you understand what I'm asking you?</p> <p>8 MR. WELLS: Objection -- sorry. Objection;</p> <p>9 vague and ambiguous.</p> <p>10 Are you talking about declarations that are</p> <p>11 part of the file history or some separate</p> <p>12 declaration? That's -- that's why I objected.</p> <p>13 MR. OU: Either. Just any declarations</p> <p>14 from the named inventors.</p> <p>15 THE WITNESS: I relied on --</p> <p>16 BY MR. OU:</p> <p>17 Q So, Dr. Glew --</p> <p>18 A I relied on --</p> <p>19 Q Yeah, Dr. Glew -- sorry. Let me just reask</p> <p>20 my question so that I've got a clean record.</p> <p>21 In forming your opinions in -- in forming</p> <p>22 your claim construction positions in this case, did</p> <p>23 you review and consider any declarations from any of</p> <p>24 the named inventors?</p> <p>25 MR. WELLS: Objection; vague and ambiguous.</p> | 43 | <p>1 the file history.</p> <p>2 BY MR. OU:</p> <p>3 Q Okay. But can you tell me anything about</p> <p>4 the declaration that you think that you're recalling</p> <p>5 that you reviewed as part of the file history?</p> <p>6 MR. WELLS: Objection; vague and ambiguous.</p> <p>7 THE WITNESS: Without looking at the</p> <p>8 relevant portion of the file history, I can't, off</p> <p>9 the top of my head, recall the different -- the</p> <p>10 statements that were potentially from responses to</p> <p>11 office actions or declarations in the file history.</p> <p>12 I'd have to see the document.</p> <p>13 MR. OU: Okay. Understood; and I'm not</p> <p>14 trying to, you know, make this a memory test. I'm</p> <p>15 just wondering whether or not you have any</p> <p>16 recollection of reviewing a -- a declaration</p> <p>17 submitted in the -- in the prosecution of the</p> <p>18 patents-in-suit by any of the named inventors.</p> <p>19 MR. WELLS: Objection --</p> <p>20 BY MR. OU:</p> <p>21 Q Do you have any recollection of reviewing</p> <p>22 such a declaration?</p> <p>23 MR. WELLS: Objection; asked and answered.</p> <p>24 THE WITNESS: It is kind of a memory test.</p> <p>25 Off the top of my head, I don't recall</p> |
| 42 | <p>1 THE WITNESS: I relied on statements and</p> <p>2 any declarations that would have existed in the file</p> <p>3 history. I did not -- I don't recall relying on any</p> <p>4 recent declarations by the named inventors.</p> <p>5 BY MR. OU:</p> <p>6 Q Okay. Which, if any, declarations in the</p> <p>7 file history did you review and consider in forming</p> <p>8 your claim construction positions?</p> <p>9 A Well, I don't recall all of them off the</p> <p>10 top of my head. Anything that I explicitly relied</p> <p>11 on in the file history is in my declaration.</p> <p>12 You know, off the top of my head, whether</p> <p>13 it's a response to an office action or a -- or a</p> <p>14 declaration is not as clear to me without looking</p> <p>15 at -- at the document itself.</p> <p>16 Q So sitting here today, do you even know</p> <p>17 whether or not there is a declaration from any of</p> <p>18 the named inventors in the file history that you</p> <p>19 considered?</p> <p>20 MR. WELLS: Objection; vague and ambiguous.</p> <p>21 THE WITNESS: My -- my general recollection</p> <p>22 is that there was a declaration or two in the file</p> <p>23 history. You know, whether it's a declaration in</p> <p>24 the file history or a response to an office action,</p> <p>25 it's, you know, just something I reviewed as part of</p> | 44 | <p>1 whether the statements in the file history were made</p> <p>2 in the context of responding to an office action or</p> <p>3 rejection or whether that was a declaration. That's</p> <p>4 starting to be a little more detailed than I'm going</p> <p>5 to remember without the document in front of me.</p> <p>6 MR. OU: Okay. Fair enough.</p> <p>7 Let me direct you back to your declaration.</p> <p>8 We were looking at Paragraph 8, and the last</p> <p>9 sentence, and from -- as I understand your</p> <p>10 testimony, it is the things that you considered in</p> <p>11 forming your claim construction positions are the</p> <p>12 patents-in-suit, at least portions of the file</p> <p>13 histories of the patents-in-suit, and then you also</p> <p>14 referenced other materials cited in this report.</p> <p>15 Q Do you see that?</p> <p>16 A Yes.</p> <p>17 Q Okay. Are there -- is -- is the totality</p> <p>18 of the materials that you considered just the ones</p> <p>19 that are cited in this report or are there others?</p> <p>20 MR. WELLS: Objection; vague and ambiguous.</p> <p>21 THE WITNESS: What I -- it's sort of</p> <p>22 boilerplate language I use frequently, which is --</p> <p>23 and the materials cited in this report. Obviously,</p> <p>24 if I cited to a document in this report, I used it.</p> <p>25 It's common practice sometimes with longer</p> |

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| 45 | <p>1 reports to have a list of documents reviewed, but</p> <p>2 sometimes things don't make it into the list of</p> <p>3 documents reviewed. But if I'm discussing a</p> <p>4 document, obviously, I read the document.</p> <p>5 MR. OU: Sure.</p> <p>6 Q And -- and you didn't include like a -- a</p> <p>7 separate list of materials considered in your</p> <p>8 declaration, right?</p> <p>9 A No.</p> <p>10 This was a rather short one.</p> <p>11 Q Okay. Let me give you more context of what</p> <p>12 I'm trying to understand.</p> <p>13 In the next paragraph, in the first</p> <p>14 sentence, you state "I have also relied on my</p> <p>15 personal knowledge and professional experience in</p> <p>16 designing and developing equipment for semiconductor</p> <p>17 manufacturing and on the documents and information</p> <p>18 referenced in this report."</p> <p>19 Do you see that?</p> <p>20 A Yes.</p> <p>21 Q So -- so tell me if I'm understanding that</p> <p>22 sentence correctly.</p> <p>23 You, obviously, have personal and</p> <p>24 professional experience that you think is relevant</p> <p>25 to forming your claim construction positions, and so</p> | 47 | <p>1 technical papers, and articles or commercially</p> <p>2 available systems -- and -- and setting aside what</p> <p>3 you've -- what you've specifically cited to in your</p> <p>4 declaration, are there any of those materials that</p> <p>5 you've considered in forming your claim construction</p> <p>6 positions?</p> <p>7 A I think it would be fair to say that in</p> <p>8 this paragraph, I'm describing that I'm aware of</p> <p>9 systems in literature over a period of time and have</p> <p>10 experience personally and professionally.</p> <p>11 I didn't necessarily cite to this stuff,</p> <p>12 rely on it explicitly in the declaration; but I'm</p> <p>13 generally aware of information that would have</p> <p>14 existed at the time.</p> <p>15 Q And that information that you would have</p> <p>16 been generally available -- or, I'm sorry. Let me</p> <p>17 re- -- start over.</p> <p>18 The information that you would have been</p> <p>19 generally aware of, that's all information that you</p> <p>20 considered in forming your claim construction</p> <p>21 positions?</p> <p>22 MR. WELLS: Objection; vague and ambiguous.</p> <p>23 THE WITNESS: I think it's fair to say that</p> <p>24 my personal knowledge and professional experience</p> <p>25 comes into play in the opinions that I give. You</p> |
| 46 | <p>1 you relied on that as well as the documents and</p> <p>2 information cited in -- in the report; is that</p> <p>3 right?</p> <p>4 A These are things I also relied upon, yes.</p> <p>5 Q Okay. And then going to the next sentence,</p> <p>6 you say "I am also aware of information generally</p> <p>7 available to and relied upon by persons of ordinary</p> <p>8 skill in the art at the relevant time, including,</p> <p>9 for example, textbooks, manuals, technical papers</p> <p>10 and articles, as well as commercially available</p> <p>11 systems."</p> <p>12 That's what you stated in the next</p> <p>13 sentence, right?</p> <p>14 A Yes.</p> <p>15 Q And so what I'm trying to understand is,</p> <p>16 are there -- is there information that you say was</p> <p>17 generally available to a person of ordinary skill in</p> <p>18 the art such as textbooks, manuals, technical</p> <p>19 papers, articles, commercially available systems,</p> <p>20 that you specifically considered in forming your</p> <p>21 claim construction positions?</p> <p>22 A Could you repeat that last clause? That --</p> <p>23 Q -- that you considered in forming your</p> <p>24 claim construction positions.</p> <p>25 So are there any textbooks, manuals,</p> | 48 | <p>1 know, over decades of practice, I've read and seen a</p> <p>2 lot of material; some of it, you know, at the time</p> <p>3 of the invention.</p> <p>4 These would all come into play in my</p> <p>5 general knowledge in the area. I didn't explicitly</p> <p>6 rely on them in the declaration, but they are part</p> <p>7 of my experience.</p> <p>8 MR. OU: Okay. And -- and, Dr. Glew,</p> <p>9 I'm -- I'm going to preface the next question as I'm</p> <p>10 not intending to try to ask about your opinions that</p> <p>11 you gave in the context of the IPRs.</p> <p>12 But you have already told me that you did</p> <p>13 review an amount of material in preparing your</p> <p>14 positions in those IPRs.</p> <p>15 Q Is that right?</p> <p>16 A I'm sorry. You're -- you said something</p> <p>17 material?</p> <p>18 Q Right.</p> <p>19 I believe earlier you testified that</p> <p>20 there's material that you reviewed and considered in</p> <p>21 forming your opinions in the IPRs; is that right?</p> <p>22 A Yes.</p> <p>23 MR. WELLS: Objection; scope.</p> <p>24 THE WITNESS: Oh, sorry. I reviewed</p> <p>25 material in the context of the IPRs.</p> |

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| <p>1 BY MR. OU: 2 Q And -- and so did you separate out in your 3 mind the material that you reviewed in the context 4 of the IPRs when you were forming your opinions as 5 to claim construction in this case? 6 MR. WELLS: Objection; vague and ambiguous 7 and scope. 8 THE WITNESS: When I perform a claim 9 construction analysis, I certainly focus principally 10 on the patent itself and the file history. 11 MR. OU: I'm sorry, Dr. Glew. 12 Q Is that -- was that your answer to the 13 question? I wasn't sure if you were done or you 14 were thinking still. 15 A Yeah, I was trying to recall the rest of 16 the question. 17 Q Yeah, so let -- let me try to flesh this 18 out for you a little bit. Okay? 19 In your declaration, you've noted that 20 there are materials such as textbooks, manuals, 21 technical papers and articles, commercially 22 available systems that would have been generally 23 available to a person of ordinary skill in the art, 24 right? 25 A Yes, that's generally what I said in</p> | <p>1 (Mr. Ou and Mr. Wells speak 2 simultaneously.) 3 MR. OU: Yeah, let me finish, Maclain. 4 You either considered them or you -- or you 5 separated them out and you didn't consider them. 6 I'm just trying to understand which one it is. 7 Q Does my question make sense? 8 MR. WELLS: Go ahead. I didn't mean to 9 interrupt you. Go ahead. Sorry. 10 Are you done, Phil? 11 MR. OU: Yes, I'm done. 12 MR. WELLS: Objection; asked and answered 13 repeatedly. You're asking the witness whether he 14 forgot information? He said he didn't rely upon the 15 IPR materials. It's not cited in his declaration. 16 He's made it clear. 17 MR. OU: I'm not saying "rely," I'm asking 18 him did he consider it. 19 So, Dr. Glew, let me ask the question again 20 so hopefully you can understand my question and try 21 to answer it so we can move on. 22 Q My question is, the textbooks, manuals, 23 technical papers, articles, and commercially 24 available systems that you may have reviewed in 25 terms -- in preparing your IPR positions, did you</p> |
| 50 | 52 |
| <p>1 Paragraph 9. 2 Q And -- and is it fair to say that there's 3 some amount of that type of material, whether 4 textbooks, manuals, technical papers, articles, or 5 commercially available systems, that you would have 6 reviewed in the context of forming your opinions in 7 the IPRs? 8 MR. WELLS: Objection; scope. 9 And, Counsel, if we're going -- if you're 10 going to start asking him questions on the IPRs and 11 his processes there, we can go to the court. This 12 is not a proxy for an IPR deposition. 13 MR. OU: Maclain, I'm not intending to ask 14 him about his IPR opinions. I'm trying to 15 understand what materials he relied on or considered 16 in forming his declaration. He doesn't have a list 17 of materials considered, so I'm trying to 18 understand -- 19 And maybe this will help you, Dr. Glew. 20 I'm trying to understand whether or not materials 21 that you reviewed in the context of IPRs, you also 22 considered in forming your claim construction 23 positions. You either did that or you completely 24 separated them out. 25 ///</p> | <p>1 consider those materials in forming your claim 2 construction positions in this case? 3 MR. WELLS: Objection. First, it -- you're 4 misstating what's said in the declaration; and 5 second, regarding your -- the second part of your 6 question, asked and answered repeatedly. 7 THE WITNESS: I reviewed certain materials 8 in the context of the IPRs. I did not rely on those 9 materials -- for example, prior art -- in my opinion 10 in the declaration on claim construction that is 11 before me today. 12 With respect to my personal knowledge and 13 professional experience that I discuss in 14 Paragraph 9 of this declaration on claim 15 construction, I have written that, you know -- 16 I'm -- I relied on that, and I further have written 17 that I'm aware of other information that was 18 generally available to me at the time of the 19 invention; textbooks, manuals, papers. 20 I'm aware in that I know they exist and I 21 have, in the past, reviewed them. I didn't 22 necessarily -- 23 MR. OU: Okay. 24 THE WITNESS: -- explicitly rely on them in 25 this declaration.</p> |

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14 (53 to 56)

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| 53 | <p>1 BY MR. OU:</p> <p>2 Q Did you consider any textbooks, manuals,</p> <p>3 technical papers, articles, or commercially</p> <p>4 available systems other than what is specifically</p> <p>5 cited to in your declaration in forming your claim</p> <p>6 construction positions?</p> <p>7 MR. WELLS: Objection; vague and ambiguous.</p> <p>8 THE WITNESS: I think it would be fair to</p> <p>9 say that information that I reviewed in the past,</p> <p>10 books, articles, pieces of equipment, color and</p> <p>11 inform my understanding of this industry and the</p> <p>12 issues before us now.</p> <p>13 I did not explicitly rely on a specific</p> <p>14 piece of art unless I mentioned it in this</p> <p>15 declaration.</p> <p>16 BY MR. OU:</p> <p>17 Q And -- and you also didn't intentionally</p> <p>18 exclude or forget any of that information that you</p> <p>19 previously considered or reviewed in forming your</p> <p>20 claim construction positions; is that fair?</p> <p>21 MR. WELLS: Objection; vague and ambiguous.</p> <p>22 THE WITNESS: I'm not sure what you mean by</p> <p>23 "exclude or forget information."</p> <p>24 MR. OU: Yeah, I was trying to use</p> <p>25 something that your -- a term your counsel used.</p> | 55 | <p>1 A Generally, yes.</p> <p>2 Q Okay. And I'm -- I'm not intending to ask</p> <p>3 you about legal processes. What I'm trying to</p> <p>4 understand is, are you familiar with, in the process</p> <p>5 of claim construction, the parties have to exchange</p> <p>6 the identification of -- of extrinsic evidence that</p> <p>7 they may rely on in support of their claim</p> <p>8 construction position?</p> <p>9 Are you familiar with that?</p> <p>10 A Generally, yes.</p> <p>11 Q Okay. In forming your claim construction</p> <p>12 positions, did you rely on the extrinsic evidence</p> <p>13 that Demaray LLC submitted during the claim</p> <p>14 construction process?</p> <p>15 MR. WELLS: Objection; vague, foundation.</p> <p>16 THE WITNESS: I relied on the materials --</p> <p>17 explicitly relied on materials that I've cited in</p> <p>18 the declaration. My understanding is that the</p> <p>19 analysis should focus first on intrinsic</p> <p>20 information, the patents, the file history.</p> <p>21 Extrinsic is secondary.</p> <p>22 MR. OU: Okay. Maybe we can make this a</p> <p>23 little easier.</p> <p>24 Lawrence, could you -- could you pull up</p> <p>25 the document that's marked as Exhibit 2?</p> |
| 54 | <p>1 Let me try to frame it one more time for you, and</p> <p>2 then we can move on, so, hopefully, you can</p> <p>3 understand my question.</p> <p>4 Q Did you limit what you considered in</p> <p>5 preparing your claim construction positions in this</p> <p>6 case to solely the documents that are explicitly</p> <p>7 cited to or referenced in your declaration?</p> <p>8 Meaning you ignored other materials that</p> <p>9 you may have reviewed in the past, whether for the</p> <p>10 IPRs or for some other context?</p> <p>11 MR. WELLS: Objection; vague and ambiguous.</p> <p>12 THE WITNESS: I did not explicitly ignore</p> <p>13 or forget information I'm aware of. I relied on</p> <p>14 information that was sufficient to support my</p> <p>15 position in this declaration on claim construction.</p> <p>16 There may be other support.</p> <p>17 It wasn't necessary that I rely on or</p> <p>18 mention everything I've seen in a 30-plus year</p> <p>19 career, but that I have sufficient bases for the</p> <p>20 opinions that I gave.</p> <p>21 BY MR. OU:</p> <p>22 Q Dr. Glew, are you familiar with a term</p> <p>23 that's referred to as "extrinsic evidence"?</p> <p>24 Extrinsic as opposed to intrinsic -- intrinsic</p> <p>25 evidence?</p> | 56 | <p>1 THE VIDEOCONFERENCE TECHNICIAN: Just one</p> <p>2 moment.</p> <p>3 (Exhibit No. 2 was marked for</p> <p>4 identification by the</p> <p>5 videoconference technician;</p> <p>6 attached hereto.)</p> <p>7 THE VIDEOCONFERENCE TECHNICIAN: Putting it</p> <p>8 in the chat now.</p> <p>9 MR. OU: Dr. Glew, let me know when you</p> <p>10 have Exhibit 2 open.</p> <p>11 THE WITNESS: I'm seeing my CV.</p> <p>12 MR. OU: You know what? I'm sorry.</p> <p>13 THE WITNESS: I'm seeing my CV. I have</p> <p>14 that open, yes.</p> <p>15 MR. OU: I apologize. I went out of order.</p> <p>16 Let me just --</p> <p>17 Q So Exhibit 2 is your CV; is that right?</p> <p>18 A That's what I have as Exhibit 2, yes.</p> <p>19 MR. OU: Okay. Lawrence, could you pull up</p> <p>20 Exhibit 3, please, put it in the chat?</p> <p>21 (Exhibit No. 3 was marked for</p> <p>22 identification by the</p> <p>23 videoconference technician;</p> <p>24 attached hereto.)</p> <p>25 THE VIDEOCONFERENCE TECHNICIAN: Exhibit 3</p> |

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15 (57 to 60)

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| 57 | <p>1 is now in the chat.</p> <p>2 MR. OU: Okay. Let me know when you have</p> <p>3 that, Dr. Glew.</p> <p>4 THE WITNESS: Okay. I have Exhibit 3.</p> <p>5 MR. OU: Okay. For the record, Exhibit 3</p> <p>6 is a document titled "Plaintiff Demaray LLC's</p> <p>7 Disclosure of Extrinsic Evidence," and it's dated</p> <p>8 January 15th, 2021.</p> <p>9 Q Dr. Glew, have you ever seen this document</p> <p>10 before?</p> <p>11 A I've seen the dictionary definitions cited</p> <p>12 in it. As for this particular document, I don't</p> <p>13 recall.</p> <p>14 Q Okay. But -- but these dictionary</p> <p>15 definitions are -- are definitions that you -- you</p> <p>16 do recall seeing before in preparing your claim</p> <p>17 construction positions?</p> <p>18 A I recall seeing dictionary definitions,</p> <p>19 yes.</p> <p>20 Q Okay. And then did you consider these</p> <p>21 claim -- these dictionary definitions in forming</p> <p>22 your claim construction opinions?</p> <p>23 MR. WELLS: Objection; vague and ambiguous,</p> <p>24 compound.</p> <p>25 MR. OU: Let me go one by one, Dr. Glew,</p> | 59 | <p>1 the proposed construction that's proffered by</p> <p>2 Demaray in this document?</p> <p>3 MR. WELLS: Objection; vague and ambiguous</p> <p>4 and misstates testimony.</p> <p>5 THE WITNESS: I think these dictionary</p> <p>6 definitions further support the claim construction</p> <p>7 opinions that I've offered.</p> <p>8 MR. OU: Okay. Okay. Let me just go one</p> <p>9 by one.</p> <p>10 The next term that there's a dictionary</p> <p>11 definition is "Pulsed DC power."</p> <p>12 Do you see that at the bottom of Page 3.</p> <p>13 A Yes.</p> <p>14 Q And then there's -- it says "Plain and</p> <p>15 ordinary meaning," and then there's also a claim</p> <p>16 construction provided, right?</p> <p>17 A Yes.</p> <p>18 Q And then in the last column, under</p> <p>19 "Extrinsic Evidence," it cites to expert testimony</p> <p>20 from you as well as a dictionary definition for</p> <p>21 "pulsed," right?</p> <p>22 MR. WELLS: Objection; misstates the</p> <p>23 document. There's several definitions.</p> <p>24 THE WITNESS: I'm sorry. We're at the</p> <p>25 bottom of Page 3, extending on to Page 4?</p> |
| 58 | <p>1 actually, so that we can have a cleaner record.</p> <p>2 So if you'll go down to Page 3, let me know</p> <p>3 when you're there.</p> <p>4 Q Do you see the first term is "Substrate"?</p> <p>5 A I'm sorry. I'm on the wrong page.</p> <p>6 Yes.</p> <p>7 Q Okay. And then next to the term</p> <p>8 "Substrate," it says under "Proposed constructions,"</p> <p>9 "Plain and ordinary meaning," and there's a proposed</p> <p>10 construction, right?</p> <p>11 A Yes.</p> <p>12 Q And then in the next column, under</p> <p>13 "Extrinsic Evidence," it identifies expert testimony</p> <p>14 from you as well as a dictionary definition of</p> <p>15 "substrate," right?</p> <p>16 A Yes.</p> <p>17 Q And so my question is, in forming your</p> <p>18 claim construction positions on -- on the term</p> <p>19 "substrate," did you consider this dictionary</p> <p>20 definition that's cited to in Exhibit 3 for</p> <p>21 substrate?</p> <p>22 A Yes, I considered the dictionary</p> <p>23 definitions.</p> <p>24 They were consistent with my understanding.</p> <p>25 Q Okay. And in your opinion, they support</p> | 60 | <p>1 MR. OU: Yeah. Let me rephrase my</p> <p>2 question.</p> <p>3 At the bottom of Page 3, going into Page 4,</p> <p>4 for the term "Pulsed DC power" under "Extrinsic</p> <p>5 Evidence," it cites to expert testimony from you as</p> <p>6 well as a reference to a dictionary definitions of</p> <p>7 "pulsed."</p> <p>8 Q It looks like there's one, two, three,</p> <p>9 four -- five of them listed here; is that right?</p> <p>10 A Yes, and there is a "Pulsed as defined in</p> <p>11 the Modern Dictionary of Electronics" with some</p> <p>12 definitions for that, yes.</p> <p>13 Q And did you consider the dictionary</p> <p>14 definitions of "pulsed" in forming your opinions as</p> <p>15 to claim construction for the "pulsed DC power"</p> <p>16 term?</p> <p>17 MR. WELLS: Objection; vague and ambiguous.</p> <p>18 THE WITNESS: Yes, I considered the</p> <p>19 dictionary definitions.</p> <p>20 BY MR. OU:</p> <p>21 Q Okay. And in your opinion, the dictionary</p> <p>22 definitions provide additional support for the claim</p> <p>23 construction position that's proffered in this</p> <p>24 document by the plaintiff?</p> <p>25 A I believe that the dictionary definitions</p> |

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| 61 | <p>1 further support their claim construction terms, yes.</p> <p>2 Q Okay. And then the next term is "narrow</p> <p>3 band rejection filter."</p> <p>4 Do you see that at the bottom of Page 4?</p> <p>5 A Yes, I see that, in the first column.</p> <p>6 Q And then the second column again says</p> <p>7 "Plain and ordinary meaning," and then offers a</p> <p>8 proposed construction, right?</p> <p>9 A Yes.</p> <p>10 Q And then in the third column, "Extrinsic</p> <p>11 evidence," it cites to expert testimony from you,</p> <p>12 and then there's also a dictionary definition of the</p> <p>13 term "narrow band"; is that right?</p> <p>14 A Yes.</p> <p>15 Q Did you consider the dictionary definition</p> <p>16 of "narrow band" that's cited in this document in</p> <p>17 forming your claim construction positions as to what</p> <p>18 a person of ordinary skill would understand "narrow</p> <p>19 band rejection filter" to mean?</p> <p>20 A Yes.</p> <p>21 MR. WELLS: Objection; vague and ambiguous.</p> <p>22 In addition, I'd like the record to reflect</p> <p>23 that these are not our final claim constructions</p> <p>24 that were brought forth in that process, Phil, so I</p> <p>25 want to make sure that's clear on the record.</p> | 63 | <p>1 the dictionary definition in this document is</p> <p>2 something that you considered in forming your</p> <p>3 opinions as to what a person of ordinary skill in</p> <p>4 the art would understand "narrow band rejection</p> <p>5 filter" to mean.</p> <p>6 A I considered these. I think that they are</p> <p>7 generally consistent. As a person of skill in the</p> <p>8 art, I filter material that I read in a different</p> <p>9 way than a layperson would.</p> <p>10 When I see things like involving signals</p> <p>11 over a range, a narrow range, I understand that</p> <p>12 nothing -- that filters aren't perfect, that they</p> <p>13 have a falloff response, meaning maybe a -- maybe</p> <p>14 when you're talking about a range, it would refer to</p> <p>15 a 3-decibel or a 6-decibel drop-off per octave, so</p> <p>16 nothing is -- nothing is all or nothing in this</p> <p>17 signal processing world.</p> <p>18 It has to do with, as a person of skill in</p> <p>19 the art would understand, the normal behavior of</p> <p>20 electrical circuits.</p> <p>21 Q Dr. Glew, in your opinion, would a person</p> <p>22 of ordinary skill in the art understand "narrow band</p> <p>23 rejection filter" to mean filter that passes all of</p> <p>24 the frequencies of the power supply except within a</p> <p>25 narrow band?</p> |
| 62 | <p>1 THE WITNESS: I considered these. I think</p> <p>2 they generally support the claim constructions.</p> <p>3 There are a number of different definitions in some</p> <p>4 of these, but they're generally consistent.</p> <p>5 BY MR. OU:</p> <p>6 Q And -- and in your opinion, does the --</p> <p>7 does the definition of "narrow band" in the</p> <p>8 extrinsic evidence from the dictionary -- does that</p> <p>9 support the claim construction offered in this</p> <p>10 document by the patentee for a narrow band rejection</p> <p>11 filter?</p> <p>12 MR. WELLS: Objection; scope.</p> <p>13 Again, the definitions that are offered in</p> <p>14 this document do not reflect the ones that were</p> <p>15 actually ultimately agreed to by the parties and</p> <p>16 briefed, and for which Dr. Glew has addressed in his</p> <p>17 declaration, so outside the scope of the deposition.</p> <p>18 THE WITNESS: I would say that they are</p> <p>19 generally consistent. As a person of ordinary skill</p> <p>20 in the art, I put on my filter, per se, when I read</p> <p>21 these things, and sort of have a -- I would say a</p> <p>22 little more subtle understanding of what I think the</p> <p>23 dictionary definitions are saying.</p> <p>24 BY MR. OU:</p> <p>25 Q So, Dr. Glew, my question is whether or not</p> | 64 | <p>1 MR. WELLS: Objection; vague and ambiguous</p> <p>2 and misstates the document.</p> <p>3 Again, for the record, this does not</p> <p>4 reflect the plaintiff's final claim constructions</p> <p>5 arrived at and addressed in both the briefing and in</p> <p>6 their initial -- in Dr. Glew's declaration, so this</p> <p>7 is outside the scope.</p> <p>8 MR. OU: And -- and, Maclain, I've let you</p> <p>9 do it several times. If you do that again, I am</p> <p>10 going to call the court. You're not allowed to</p> <p>11 coach the witness. You're allowed to make</p> <p>12 objections on the record.</p> <p>13 If you want to redirect the witness, you</p> <p>14 can. You can ask him about the claim construction</p> <p>15 positions and the differences when it's your turn.</p> <p>16 But it's completely improper to coach the witness</p> <p>17 and provide clues or other information as to the</p> <p>18 questions that I'm asking.</p> <p>19 So please refrain from doing that; and if</p> <p>20 you do it again, I will call the court. Okay?</p> <p>21 MR. WELLS: And for the record, Phil, to</p> <p>22 respond, you put a document before him that is from</p> <p>23 a meet -- the meet-and-confer process that he did</p> <p>24 not opine upon and are asking him misleading</p> <p>25 questions without giving him the full context.</p> |

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17 (65 to 68)

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| <p style="text-align: right;">65</p> <p>1 You're not asking him about his declaration 2 or the actual briefing and claim construction, so I 3 think the objection is appropriate, I think your 4 question is inappropriate, and I think your 5 questioning on this document is inappropriate. 6 MR. OU: Okay. Well, I'm going to ask my 7 question because he's offered opinions as to what a 8 POSITA would understand certain terms to mean and 9 I'm going to ask my question again. 10 Q So, Dr. Glew, in your opinion would a 11 person of ordinary skill in the art understand the 12 term "narrow band rejection filter" to mean filter 13 that passes all the frequencies of the power supply 14 except within a narrow band? 15 MR. WELLS: And, again, for the record, 16 you're asking him about a document from the 17 meet-and-confer process that does not reflect the 18 actual claim construction positions addressed in his 19 declaration or by Demaray in its brief. 20 MR. OU: Fine. I'm asking him about his 21 opinion. 22 Go ahead, Dr. Glew. Can you please answer 23 the question? 24 Let me ask -- let me ask the question one 25 more time so that I can have a clean record.</p> | <p style="text-align: right;">67</p> <p>1 As I said, you know, filters have falloff 2 specifications. One might say that it's 3 DBs per 3 octave, meaning that every time the frequency 4 doubles, the power level drops by 3 DB, or that's a 5 power factor of 2. Not that it goes to zero, but 6 that it drops off 3 DB. 7 Alternatively, one might define the filter 8 as a 6-decibel-per-octave falloff. So this is what 9 one of skill in the art understands. 10 What we have here before us is sort of a 11 layperson's kind of very vague, general definition. 12 It's not sufficient to define the claim term, it's 13 kind of -- vaguely goes in the right direction, but 14 it's not -- it's not how electronics really work. 15 It's not a perfect mathematical equation, it's an 16 actual working circuit. 17 As I wrote in Paragraph 55 of my report, a 18 bandwidth is usually defined as the point at which 19 the level of attenuation drops by a certain ratio, 20 not that it is 0; thus, the definition that all 21 signals outside the stated filter bandwidth are 22 removed is not what one of skill in the art would 23 understand. 24 So the definition here points in that 25 direction, but it does so in sort of a layman's way,</p> |
| <p style="text-align: right;">66</p> <p>1 Maclain, and if you can just say -- you 2 know, you -- you repeat your objection. Your 3 speaking objections are muddying our record here; so 4 let me just ask my question please, and you can 5 state your objection. 6 Q Dr. Glew, my question for you is, in your 7 opinion, would a person of ordinary skill in the art 8 understand the term "narrow band rejection filter" 9 to mean a filter that passes all of the frequencies 10 of the power supply except within a narrow band? 11 MR. WELLS: And, again, for the record, 12 this document reflects meet-and-confers, not the 13 actual briefing or positions taken by Demaray or 14 addressed by Dr. Glew in his declaration, so it's 15 vague and ambiguous and misleading. 16 THE WITNESS: As I've said before, as a 17 person of skill in the art, I put on my filter in my 18 brain when I read these things. 19 Electronic circuits are not perfect, so one 20 would understand that a narrow band filter would -- 21 would pass, largely, most of the -- of the -- or 22 restrict, depending on what we're talking about, in 23 a certain range, not perfectly; and outside of that 24 range, it would also imperfectly pass or -- or 25 filter out frequencies.</p> | <p style="text-align: right;">68</p> <p>1 which isn't sufficient to really inform what a 2 person of -- or define what a person of skill in the 3 art understands out of it. 4 BY MR. OU: 5 Q Your -- your primary problem with this 6 potential construction of narrow band rejection 7 filter that we're looking at, Exhibit 3 -- I 8 understand it's not your client's position in its 9 briefs, but your -- your problem is that it's not 10 describing -- it's describing an ideal or perfect 11 filter and that's inconsistent with what a, you 12 know -- a filter that is -- you know, in real-life 13 practice would actually reflect; is that fair? 14 MR. WELLS: Objection; misstates testimony 15 and vague. 16 THE WITNESS: I would say that is part of 17 my objection. 18 Yeah, I described it in certain detail in 19 Paragraph 55 in my report. Signals in real life 20 passing through real filter circuitry do not 21 resemble a perfect mathematical filter, all or 22 nothing. 23 It's -- the falloff and attenuation rate 24 are usually given in octaves of frequency multiplied 25 by 2 or by half used to describe the falloff rate.</p> |

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18 (69 to 72)

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| 69 | <p>1 So, yeah, Paragraph 55 in my report describes --</p> <p>2 that's part of the problem, and then we also have to</p> <p>3 be clear on what's -- whether we are talking about</p> <p>4 rejection or passing of -- of signals too.</p> <p>5 THE VIDEOCONFERENCE TECHNICIAN: I'm sorry.</p> <p>6 MR. OU: Dr. Glew --</p> <p>7 THE VIDEOCONFERENCE TECHNICIAN: I don't</p> <p>8 know if it's just me or is anybody else getting</p> <p>9 extreme distortion from Dr. Glew's audio?</p> <p>10 MR. OU: Yeah. Thanks, Lawrence. I was</p> <p>11 too. I wanted to let him know.</p> <p>12 He's finished the question. And we've been</p> <p>13 going on for over an hour. Do you want to take a</p> <p>14 quick break and then maybe check the audio</p> <p>15 connection?</p> <p>16 Does that work for everyone?</p> <p>17 THE VIDEOGRAPHER: We are going off the</p> <p>18 record at 11:31.</p> <p>19 (A recess was taken from 11:31 a.m.</p> <p>20 to 11:44 a.m.)</p> <p>21 THE VIDEOGRAPHER: We are back on the</p> <p>22 record at 11:44.</p> <p>23 BY MR. OU:</p> <p>24 Q Dr. Glew, did you speak with your counsel</p> <p>25 during the break?</p> | 71 | <p>1 document we're going to mark as Exhibit 4 is --</p> <p>2 THE WITNESS: Did you want me to mark this</p> <p>3 as Exhibit 4?</p> <p>4 MR. OU: Yeah.</p> <p>5 Hold on one second. I think I've got these</p> <p>6 a little bit out of order. Give me a second, let me</p> <p>7 make sure we've got this right.</p> <p>8 Right. Okay. I apologize. Lawrence, it's</p> <p>9 actually -- it's a document in your files that's</p> <p>10 Exhibit 4.</p> <p>11 THE VIDEOCONFERENCE TECHNICIAN: Okay.</p> <p>12 Exhibit 4 is in the chat now.</p> <p>13 MR. OU: Yes, that's it.</p> <p>14 THE WITNESS: All right. So I'm going to</p> <p>15 abandon the last document labeled Exhibit 3?</p> <p>16 MR. OU: Yes, please.</p> <p>17 THE WITNESS: All right. I did not save</p> <p>18 it.</p> <p>19 So this one is called -- just so we're</p> <p>20 clear, Exhibit 4, "Defendants' Identification of</p> <p>21 Extrinsic Evidence."</p> <p>22 MR. OU: Correct.</p> <p>23 THE WITNESS: Okay.</p> <p>24 MR. OU: So we'll mark as Exhibit 4 the</p> <p>25 document titled "Defendants' Identification of</p> |
| 70 | <p>1 A No, I did not.</p> <p>2 MR. OU: Lawrence, could we pull up the</p> <p>3 document that you have that's marked as exhibit --</p> <p>4 it's going to say Exhibit 3 in your files, but we're</p> <p>5 going to mark it as Exhibit 4. It should be</p> <p>6 Defendants' 115.21, "Disclosure of Extrinsic</p> <p>7 Evidence."</p> <p>8 THE VIDEOCONFERENCE TECHNICIAN: Yes.</p> <p>9 Putting it in the chat now.</p> <p>10 (Exhibit No. 4 was marked for</p> <p>11 identification by the</p> <p>12 videoconference technician;</p> <p>13 attached hereto.)</p> <p>14 MR. OU: Dr. Glew, if you want to save this</p> <p>15 in your files and rename it as Exhibit 4 so we don't</p> <p>16 get confused later, go ahead. Let me know when you</p> <p>17 have that document that's in the chat.</p> <p>18 THE WITNESS: So this is labeled Exhibit 3?</p> <p>19 MR. OU: Yeah. I went out of order.</p> <p>20 THE WITNESS: Okay.</p> <p>21 MR. OU: So we're going to mark it on the</p> <p>22 record as Exhibit 4.</p> <p>23 THE WITNESS: All right. I'll call it</p> <p>24 Exhibit 4 here.</p> <p>25 MR. OU: So, for the record, the next</p> | 72 | <p>1 Extrinsic Evidence" dated January 15th, 2021.</p> <p>2 Dr. Glew, after you've had a chance to open</p> <p>3 it, can you please take a look and let me know if</p> <p>4 this is a document that you have ever seen before.</p> <p>5 THE WITNESS: I don't recall seeing this</p> <p>6 document.</p> <p>7 MR. OU: Okay. Just -- just so you</p> <p>8 understand, we had previously looked at the</p> <p>9 extrinsic evidence that Demaray had submitted in</p> <p>10 this case. This is the defendants' submission of</p> <p>11 extrinsic evidence.</p> <p>12 I'll represent that for -- that to you. It</p> <p>13 sounds like as we're sitting here today you don't</p> <p>14 have any recollection of reviewing this document in</p> <p>15 preparing your claim construction declaration.</p> <p>16 Q Is that right?</p> <p>17 MR. WELLS: Objection; misstates the</p> <p>18 document. Defendants haven't actually submitted</p> <p>19 this evidence.</p> <p>20 MR. OU: Okay. Let me rephrase my</p> <p>21 question.</p> <p>22 I'll represent to you that this is the</p> <p>23 document that the defendants exchanged with the</p> <p>24 plaintiff that discloses their identification of</p> <p>25 extrinsic evidence.</p> |

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| 73 | <p>1 Q To the best that you can recall, have you 2 ever seen this document? 3 MR. WELLS: Objection; asked and answered. 4 THE WITNESS: I don't recall seeing this 5 document off the top of my head. 6 BY MR. OU: 7 Q Okay. Your counsel did not provide it to 8 you to review in preparing your claim construction 9 positions? 10 MR. WELLS: Objection; vague and ambiguous, 11 asked and answered. 12 THE WITNESS: Off the top of my head, I 13 don't recall seeing this document. 14 BY MR. OU: 15 Q Okay. And I'm not going to go one by one 16 through each of the identifications of extrinsic 17 evidence; but do you see that in this document, 18 there is a table and it identifies for each -- for 19 certain listed claim terms there is extrinsic 20 evidence in -- in the next column? 21 Do you see that? 22 A Generally, yes. 23 Q Okay. Did you review the extrinsic 24 evidence that's cited in this document in preparing 25 your claim construction opinions in this case?</p> | 75 | <p>1 of ordinary skill in the art at the relevant time, 2 including, for example, textbooks, manuals, 3 technical papers, and articles, as well as 4 commercially available systems." 5 Q Do you see that in your declaration, 6 Dr. Glew? 7 A Yes. 8 Q What are the types of commercially 9 available systems that a person of ordinary skill at 10 the time of the invention would have been familiar 11 with? 12 A It might be power supplies, it might be PVD 13 machines or related technologies to that. 14 Q Okay. Power supplies and PVD systems. 15 Anything else specific that comes to mind 16 in terms of commercially available systems that a 17 person of ordinary skill would have been familiar 18 with at the time? 19 A Well, there are different aspects of 20 equipment. Equipment is -- capital equipment, so 21 there are lots of components in there. One might be 22 aware of the de- -- more details of a piece of 23 equipment. 24 Q Would you agree that the -- the 25 patents-in-suit are -- are directed to PVD reactors</p> |
| 74 | <p>1 MR. WELLS: Objection; compound and vague. 2 THE WITNESS: I don't recall seeing this 3 document so I did not specifically -- I don't 4 specifically recall reviewing the art cited as 5 extrinsic evidence. 6 I am familiar with some of these 7 references. 8 MR. OU: Fair enough. 9 Q There are certain references here that you 10 may have reviewed; but is it correct that you were 11 not, for example, provided a complete set of the 12 extrinsic evidence identified in this document for 13 your review in preparing your claim construction 14 positions? 15 MR. WELLS: Objection; foundation. 16 THE WITNESS: I don't recall seeing this 17 document and I do not believe I was provided with 18 the documents listed in the table. I am familiar 19 with some of the documents in the table, but I don't 20 think I have a complete listing of these documents. 21 MR. OU: Okay. Fair enough. 22 Let me go back to your declaration at 23 Exhibit 1 in Paragraph 9. In Paragraph 9, the last 24 sentence, you wrote "I am also aware of information 25 generally available to and relied upon by a person</p> | 76 | <p>1 or systems and particular hardware components or 2 configurations of those hardware components at a 3 very general level? 4 Would you agree with that? 5 MR. WELLS: Objection; misstates the 6 documents. 7 THE WITNESS: Not exactly, no. 8 BY MR. OU: 9 Q In your own words, how would you describe 10 generally what the patents are directed to? 11 A Well, the '276 patent, which I have before 12 me now, cites in Claim 1 a reactor, and it gives a 13 description of an apparatus. 14 The '657 patent describes in Claim 1 a 15 method of depositing a film. So whereas one patent 16 is very specific to hardware, the other is more 17 specific to method. 18 Q Okay. Let's -- let's talk about the '276 19 patent. 20 In Claim 1, you said it's a -- it's a 21 reactor claim, right? 22 A Generally, yes, it's about a reactor. 23 Q Okay. That reactor claim requires a pulsed 24 DC power supply -- right? -- that's providing -- 25 sorry. Let me restate my question.</p> |

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| 77 | <p>1 The '276 patent is a reactor claim that has</p> <p>2 certain specific hardware components, right?</p> <p>3 A The '276 patent, Claim 1, for example,</p> <p>4 relates to the reactor, which has, yes, certain</p> <p>5 claim elements that require specific hardware</p> <p>6 configurations.</p> <p>7 Q And those include a pulsed DC power supply</p> <p>8 that's coupled to a target area, right?</p> <p>9 A Yes, that is --</p> <p>10 MR. WELLS: Objection -- objection;</p> <p>11 incomplete recitation of the limitation.</p> <p>12 THE WITNESS: That is the opening portion</p> <p>13 of the third claim element. It requires -- there's</p> <p>14 five main lines in that claim, and that's part of</p> <p>15 the third line.</p> <p>16 MR. OU: Okay. Dr. Glew, just -- just so</p> <p>17 you understand, I'm not trying to just kind of</p> <p>18 recite each claim limitation.</p> <p>19 Q You would agree that the -- Claim 1 of the</p> <p>20 reactor -- Claim 1 of the '276 patent is a reactor</p> <p>21 claim that has certain hardware components, correct?</p> <p>22 A I would say generally --</p> <p>23 MR. WELLS: Objection; vague.</p> <p>24 THE WITNESS: -- it's an apparatus and it</p> <p>25 has certain claim limitations requiring specific</p> | 79 |
| 78 | <p>1 hardware or specific physical manifestations of</p> <p>2 things, yes.</p> <p>3 BY MR. OU:</p> <p>4 Q Okay. And those include a pulsed DC power</p> <p>5 supply, right?</p> <p>6 MR. WELLS: Objection; misstates the</p> <p>7 document.</p> <p>8 THE WITNESS: Well, the claim element is --</p> <p>9 it does require a pulsed DC power supply coupled to</p> <p>10 the target area, the pulsed DC power supply</p> <p>11 providing alternating negative and positive voltages</p> <p>12 to the target. So it does require that.</p> <p>13 BY MR. OU:</p> <p>14 Q Okay. And it also requires an RF bias</p> <p>15 power supply coupled to the substrate, right?</p> <p>16 A Yes, that is the fourth claim element.</p> <p>17 Q And it also requires a narrow band</p> <p>18 rejection filter that rejects at a frequency of the</p> <p>19 RF bias power supply coupled between the pulsed DC</p> <p>20 power supply and the targeted area, right?</p> <p>21 A Yes, that is the fifth claim element.</p> <p>22 Q Okay. If we go to Paragraph 22 of your</p> <p>23 declaration --</p> <p>24 Let me know when you're there, Dr. Glew.</p> <p>25 A Okay. I'm at Paragraph 22.</p> | 80 |
| 77 | <p>1 Q Okay. And then the third sentence says</p> <p>2 "Figure 1-A below represents a schematic</p> <p>3 representation of an example reactor apparatus</p> <p>4 according to the Demaray patents," and then there is</p> <p>5 an image of Figure 1 that's annotated, right?</p> <p>6 A Yes, Figure 1-A is annotated from the</p> <p>7 patent.</p> <p>8 Q Okay. At the time of the alleged</p> <p>9 invention, were there any commercially available</p> <p>10 systems that had each of the hardware components</p> <p>11 that are in this schematic representation that --</p> <p>12 recited at Paragraph 22?</p> <p>13 MR. WELLS: Objection; scope.</p> <p>14 Counsel, you're going to validity issues.</p> <p>15 This is a claim construction deposition.</p> <p>16 MR. OU: I'm asking him about -- he's</p> <p>17 already opined that a person of ordinary skill would</p> <p>18 have knowledge about commercially available systems,</p> <p>19 so I'm asking him about what commercially available</p> <p>20 systems a person of ordinary skill would have known</p> <p>21 at the time.</p> <p>22 MR. WELLS: He's answered that question.</p> <p>23 BY MR. OU:</p> <p>24 Q Can you answer my question?</p> <p>25 MR. WELLS: Go ahead. I'm not going to cut</p> | 80 |
| 78 | <p>1 you off. Go ahead, finish. Are you done?</p> <p>2 MR. OU: Go ahead. I'm done.</p> <p>3 MR. WELLS: He answered that question, and</p> <p>4 now you're asking him about validity issues. If it</p> <p>5 keeps going, we can go to the court on this. This</p> <p>6 is a claim construction deposition.</p> <p>7 MR. OU: Okay. Well, I don't think he</p> <p>8 answered my question, or at least I'm going to check</p> <p>9 the transcript. So let me ask the question again.</p> <p>10 Give me a second.</p> <p>11 Q Dr. Glew, you -- you previously testified</p> <p>12 that a person of ordinary skill in the art at the</p> <p>13 time of the invention would have general familiarity</p> <p>14 with commercially available systems, right?</p> <p>15 A I would say generally, yes, that's what</p> <p>16 I've described in Paragraph 9 of my declaration.</p> <p>17 Q Okay. At the time of the invention, would</p> <p>18 a person of ordinary skill in the art have an</p> <p>19 understanding of commercially available systems that</p> <p>20 meet or have each of the hardware components that</p> <p>21 are shown in Figure 1-A of your declaration after</p> <p>22 Paragraph 22?</p> <p>23 MR. WELLS: Objection regarding scope.</p> <p>24 You're going to validity issues. This is</p> <p>25 outside the scope of this deposition.</p> | 80 |

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| <p>1 THE WITNESS: Could you repeat the 2 question? 3 MR. OU: Sure. 4 Q At the time of the invention, would a 5 person of ordinary skill in the art have an 6 understanding of commercially available systems that 7 have each of the hardware components that are shown 8 in Figure 1 of your declaration at Paragraph 22? 9 MR. WELLS: Objection to scope. 10 Again, you're asking about validity issues, 11 not claim construction. 12 THE WITNESS: A person of skill in the art 13 would have general knowledge of commercial systems 14 available at the time. 15 BY MR. OU: 16 Q Okay. And do you consider yourself a 17 person of ordinary skill in the art at the time of 18 the invention? 19 A Yes. 20 Q Okay. What commercially available systems 21 were you aware of as a person of ordinary skill in 22 the art at the time of the invention? 23 MR. WELLS: Objection; asked and answered. 24 THE WITNESS: By which systems, are you 25 referring to anything in specific?</p> | 81 | <p>1 MR. WELLS: Objection; vague and ambiguous. 2 THE WITNESS: One would have some knowledge 3 of the systems. Other knowledge might be 4 proprietary. 5 BY MR. OU: 6 Q Okay. In terms of the -- the some 7 knowledge, for example, would a person of ordinary 8 skill in the art at the time of the invention have 9 an understanding as to whether or not a PVD system 10 sold by one of the companies you just listed, for 11 example, provide an RF bias to the substrate? 12 Is that the level of information a person 13 of ordinary skill in the art would understand or 14 know at the time? 15 MR. WELLS: Objection; vague and ambiguous 16 and incomplete hypothetical. 17 THE WITNESS: In terms of information that 18 wasn't proprietary, one of skill in the art at the 19 time would be aware of advertisements for the 20 equipment, publications in journal articles or 21 industry magazines describing the latest and 22 greatest benefits of a particular tool. 23 Something like a biasing of a substrate 24 could be one of those things that was advertised and 25 publicly known as opposed to proprietary. It would</p> | 83 |
| <p>1 MR. OU: Sure. 2 Q What commercially available systems used 3 for reactive magnetron sputtering were you aware of 4 at the time of the invention? 5 MR. WELLS: Objection; vague and ambiguous, 6 scope. 7 THE WITNESS: I haven't gone back and tried 8 to prepare an answer on this. I didn't specifically 9 list commercially available systems in my 10 declaration. 11 Off the top of my head, as I sit here now, 12 I think of, for example, Applied Materials made 13 systems, the Endura system, Veeco made systems, 14 Varian made systems. There were manufacturers of 15 PVD systems in Japan, in Europe also. 16 But, you know, things that were of 17 comparable technology, those three come to mind off 18 the top of my head. 19 BY MR. OU: 20 Q Okay. Would a -- would a person of 21 ordinary skill in the art at the time of the 22 invention have an understanding of the hardware 23 configurations of those commercially available 24 systems such as the Endura system that you just 25 mentioned, sold by Applied Materials?</p> | 82 | <p>1 depend on the individual piece of equipment in the 2 individual case. 3 I would have to go back and examine, you 4 know, a specific -- specific piece of equipment and 5 the documents available at the time to give an 6 assessment of what was publicly known versus what 7 was held confidential and private. 8 BY MR. OU: 9 Q Okay. What -- would you agree that a 10 person of ordinary skill in the art at the time of 11 the invention would at least be familiar with the 12 types of publicly available journals or marketing 13 materials describing PVD systems at the time of the 14 invention? 15 A I think that one of skill in the art would 16 be aware of advertisements and journal articles on 17 the equipment, yes, generally. 18 Q So let's just say, for example, one of the 19 companies in Japan that was manufacturing and 20 selling PVD equipment, they released marketing 21 materials that described the PVD system that 22 provided DC power to the target and an RF bias to 23 the substrate. 24 Someone -- a person of ordinary skill in 25 the art would be familiar with that type of</p> | 84 |

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22 (85 to 88)

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| 85 | <p>1 marketing publication; would you agree? 2 MR. WELLS: Objection; scope and incomplete 3 hypothetical. 4 Counsel, again, you're asking for validity 5 issues and knowledge of a person of skill in the art 6 regarding alleged prior art, or whatnot. This is 7 all relating to validity issues and not claim 8 construction. If it keeps going, we can call the 9 court. 10 MR. OU: Okay. I-- I-- I disagree, 11 Maclain. This is all within what a person of 12 ordinary skill in the art would understand these 13 claims to mean and certain claim terms to mean. 14 So if you want to call the court and get a 15 resolution on your objections so that we can move 16 forward with the deposition, I'm happy to explain to 17 the court the purpose of our questions and how they 18 relate to claim construction. 19 Do you want to do that? 20 MR. WELLS: You've got to explain to me. 21 How -- how do -- how do these questions relate to 22 claim construction? You're asking whether a person 23 of skill in the art would be -- know about a 24 specific commercial hypothetical marketing 25 piece (audio disruption). Why --</p> | 87 | <p>1 (Mr. Ou and Mr. Wells speak 2 simultaneously.) 3 MR. WELLS: This is a claim construction 4 discovery -- claim construction deposition and you 5 are asking about validity issues. You can ask your 6 question -- 7 MR. OU: No, I'm not. 8 MR. WELLS: -- and I'll make my objections. 9 That's inappropriate; and if it continues, 10 we'll have to go to the court. I've given you 11 reasonable leeway, but you're going beyond that 12 bound. 13 Go ahead and ask your question, and I will 14 object, and then we'll decide whether we need to go 15 to the court. 16 MR. OU: Okay. 17 Q So, Dr. Glew, my question was, let's say 18 one of the companies in Japan that was manufacturing 19 and selling PVD equipment that you previously 20 identified, they released marketing material to 21 describe the PVD system that provided DC power to a 22 target and RF to the substrate. 23 Would someone -- a person of ordinary skill 24 in the art be familiar with that type of marketing 25 publication?</p> |
| 86 | <p>1 MR. OU: Yeah, because Dr. Glew -- 2 MR. WELLS: What does that have to do with 3 any of the opinions that Dr. Glew has offered in 4 this matter? 5 MR. OU: Because he's said at Paragraph 9 6 "I'm also aware of information generally available 7 to a person of ordinary skill in the art, including 8 commercially available systems," and I'm trying to 9 understand what is -- what are the bounds of the 10 commercially available systems that a person of 11 ordinary skill in the art would be aware of. 12 So, Dr. Glew, let me ask my question again. 13 And, Maclain, if that answer is not 14 satisfactory to you, I'm happy to call the court and 15 get the court's resolution because the speaking 16 objections are really bogging down my examination 17 and, you know, I don't want to have to go to the 18 court and ask for a second day of Dr. Glew because 19 we've had to deal with these speaking objections, 20 so I -- I'd rather get resolution of it sooner than 21 later. 22 If you want to have a running objection, 23 you're happy to make that; but I can't have you to 24 continue to disrupt my examination with these long 25 speaking objections.</p> | 88 | <p>1 MR. WELLS: Objection regarding scope and 2 incomplete hypothetical. 3 THE WITNESS: My general understanding of a 4 person of skill in the art is that they would have 5 knowledge of publicly available information. 6 BY MR. OU: 7 Q And that would include marketing material 8 that described PVD systems that accompany -- like 9 Applied Materials was selling, right? 10 MR. WELLS: Objection; scope and incomplete 11 hypothetical. 12 THE WITNESS: My general understanding of a 13 person of skill in the art is that they would be 14 aware of publicly available information in the field 15 to the extent the information was publicly 16 available, then that would fall in the arena of 17 information that a person of skill in the art would 18 be familiar with. 19 BY MR. OU: 20 Q And is it your testimony that a person of 21 ordinary skill in the art in the field would only be 22 familiar with information that's publicly available? 23 MR. WELLS: Objection; vague and ambiguous, 24 misstates testimony. 25 THE WITNESS: A person of skill in the art</p> |

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23 (89 to 92)

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| 89 | <p>1 wouldn't necessarily be aware of proprietary 2 information from other companies. Information that 3 is trade secret and confidential isn't necessarily 4 within the knowledge of a person of skill in the 5 art. 6 BY MR. OU: 7 Q The knowledge of a person of ordinary skill 8 in the art isn't -- isn't limited to just publicly 9 available information? 10 MR. WELLS: Objection; calls for a legal 11 conclusion, scope, and vague. 12 THE WITNESS: I think you're perhaps not 13 understanding my answer. 14 Information that is confidential or 15 proprietary to one company isn't necessarily known 16 by other people, including a person of skill in the 17 art. 18 BY MR. OU: 19 Q It -- it would depend on the circumstances; 20 is that fair? 21 MR. WELLS: Objection; vague, calls for a 22 legal conclusion, and scope. 23 MR. OU: Let -- let -- let me reask my 24 question, or ask it a different way. 25 Q At Paragraph 9 of your declaration, you</p> | 91 | <p>1 the public domain. Most professionals and persons 2 of skill in the art have some trade secret 3 knowledge, potentially -- well, I don't say most do, 4 but some do. 5 So trade secret knowledge isn't necessarily 6 the kind of information that a person -- that a 7 person of skill in the art knows. A person of skill 8 in the art may have trade secret knowledge, but 9 another person of skill in the art may not have that 10 same trade secret knowledge, so it's not reasonable 11 to assume that trade secret knowledge is part of the 12 knowledge set of any POSITA. 13 MR. OU: Okay. Understood. It's -- again, 14 it goes to the type of information. 15 Q If we're talking about trade secret 16 information, that level of confidentiality, those 17 are things that you would not consider a POSITA to 18 know at the time of the invention; is that right? 19 MR. WELLS: Objection; scope, calls for a 20 legal conclusion. 21 This goes to validity issues. 22 THE WITNESS: I'm not an attorney, but my 23 general impression is that two people in the field 24 who are both POSITAs may have different trade secret 25 knowledge, confidential information, and they</p> |
| 90 | <p>1 state that you have relied on your personal 2 knowledge and professional experience in designing 3 and developing equipment for semiconductor 4 manufacturing; is that right? 5 A Yes. 6 Q Okay. That personal knowledge and 7 professional experience likely includes information 8 that was not publicly available and perhaps 9 confidential to a company, but that's still 10 information that you as a person of ordinary skill 11 in the art would have had available to you; is that 12 fair? 13 MR. WELLS: Objection; calls for a legal 14 conclusion, scope, and misstates the document. 15 THE WITNESS: Not exactly, no. 16 MR. OU: Okay. 17 THE WITNESS: I'm going to turn my lights 18 on. One second. 19 MR. OU: Dr. Glew, your answer to my last 20 question was "Not exactly, no"; and I want to give 21 you the opportunity to explain why my question or 22 statement -- why you did not agree with it. 23 MR. WELLS: Objection; scope, scope, calls 24 for a legal conclusion. 25 THE WITNESS: Trade secrets aren't within</p> | 92 | <p>1 wouldn't be expected to know what was happening 2 internal to another company if it was confidential. 3 It wouldn't be public knowledge. 4 BY MR. OU: 5 Q You agree that there's a difference between 6 information that's confidential and information 7 that's considered trade secrets, right? 8 MR. WELLS: Objection; scope, calls for a 9 legal conclusion. 10 THE WITNESS: Trade secrets, yes, generally 11 are things that aren't patented, but they are held 12 tightly. Confidential information is information 13 that is, you know, held within one company. 14 So either way, trade secrets and 15 confidential information from one company aren't 16 necessarily known by a person at another company or 17 in the general public. It wouldn't be confidential 18 if it was -- if the public knew it. 19 BY MR. OU: 20 Q Is it your testimony that the knowledge of 21 a person of ordinary skill in the art is limited 22 solely to what is publicly available? 23 MR. WELLS: Objection; calls for a legal 24 conclusion, outside the scope. 25 THE WITNESS: All I'm saying is that a</p> |

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| 93 | <p>1 person who has confidential knowledge from one 2 company has knowledge that other people don't have. 3 A person of ordinary skill in the art's 4 knowledge includes the skill and the expertise in 5 that field, but it wouldn't include, necessarily, 6 confidential information from another company or 7 entity. 8 BY MR. OU: 9 Q Okay. You would agree that a person of 10 ordinary skill in the art's knowledge would at least 11 include the skills and the expertise in that 12 particular field, right? 13 A Yes, a person of ordinary skill in the art 14 should have the skills and expertise in that field. 15 Q So, for example, a person of ordinary skill 16 in the art in the field of PVD systems would have 17 some level of expertise and knowledge about PVD 18 systems, right? 19 A A person of skill in the art in that field 20 should have the skills and capability in that field, 21 yes. 22 Q And those skills -- skills and 23 capabilities, those would not be limited to just 24 information that is publicly known and available, 25 you would agree, right?</p> | 95 |
| 94 | <p>1 MR. WELLS: Objection; scope, calls for a 2 legal conclusion. 3 THE WITNESS: Your question is a bit 4 confusing. I'm not sure that skills and publicly 5 available information are even in the same category. 6 BY MR. OU: 7 Q Okay. What about expertise? I believe you 8 said that a person of ordinary skill in the art 9 would have expertise in that particular field, 10 right? 11 MR. WELLS: Objection; misstates testimony. 12 THE WITNESS: (Audio disruption) talk about 13 a person of ordinary skill in the art, I describe 14 that the person would have at least one to two years 15 of relevant work experience, they would have at 16 least a general understanding of sputtering methods 17 and systems, as well as sputtering deposition of 18 thin films on substrate. 19 So that is the definition of POSITA that 20 I've -- I've ascribed in this matter. 21 BY MR. OU: 22 Q Okay. You're looking at Paragraph 16 of 23 your declaration; is that right, Dr. Glew? 24 A Yes, it's Paragraph 16 of my declaration. 25 Q And you agree that the relevant timeframe</p> | 96 |
| | <p>1 for a POSITA -- let me just start over and -- and 2 make sure the court reporter has this. 3 If I -- going forward, if I say POSITA, 4 meaning P-O-S-I-T-A, will you understand I'm saying 5 that shorthand for a person of ordinary skill in the 6 art? 7 A I will understand that, yes. 8 Q Okay. Great. 9 You agree that the relevant timeframe for a 10 POSITA is between 2001 and 2002; is that right? 11 A I think that's generally the relevant 12 timeframe in this matter, yes. 13 Q Okay. And -- and it's your belief that you 14 qualify as a POSITA at the time of the invention, 15 right? 16 A Yes. 17 Q Okay. And in Paragraph 16, you've stated 18 that a POSITA at the time of the invention would 19 have an undergraduate degree in electrical 20 engineering or material science; is that right? 21 A Yes. 22 MR. WELLS: Objection; misstates the 23 document. 24 THE WITNESS: Or a related field and -- and 25 some other experience too, yes.</p> | |

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25 (97 to 100)

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| 97 | <p>1 "relate" is -- needs clarification here in my 2 answer. 3 You know, there are companies that made 4 vacuum equipment and they were -- actually had a 5 very strong expertise in PVD. PVD requires a fairly 6 good vacuum, you know, it's a relatively deep vacuum 7 for processing. 8 There's people that -- you know, you 9 wouldn't say that they made PVD tools, but they made 10 the vacuum equipment that go in it, and there were 11 other people that made flow controllers, the gas 12 control or the power supplies that went into PVD 13 equipment. 14 You know, all of these people would have 15 significant experience in PVD. The equipment 16 companies don't make a lot of their own stuff. They 17 basically piece together large subsystems and rely 18 upon the expertise of multiple suppliers, and 19 they -- they design the chamber itself, but not many 20 of the things that go into it. 21 So I'd say all of these things relate to 22 PVD. 23 MR. OU: Okay. And -- and so I -- I think 24 I understand your testimony. 25 Q You -- a person doesn't necessarily have to</p> | 99 | <p>1 of thin films on substrates? 2 MR. WELLS: Objection; incomplete 3 hypothetical. 4 THE WITNESS: Can you repeat the question? 5 MR. OU: Yes. 6 Q Is it fair to say that if somebody worked 7 at a PVD equipment company, meaning a company that 8 manufactures PVD equipment like Applied Materials, 9 that person would at least have a general 10 understanding of sputtering methods and systems as 11 well as sputtering deposition of thin films on 12 substrates? 13 MR. WELLS: Objection; incomplete 14 hypothetical. 15 THE WITNESS: (Audio disruption) services. 16 BY MR. OU: 17 Q I'm sorry. What was that? 18 A Are you including people in janitorial 19 services in Applied Materials? 20 Q No. 21 So tell me what -- what are the type of -- 22 you worked at Applied Materials, right? 23 A Yes, I -- 24 Q You worked there from 1987 to 1997? 25 A Yes.</p> |
| 98 | <p>1 have worked at a company that manufactures PVD 2 equipment or uses the PVD equipment, it could also 3 be someone that works at a company that designs and 4 manufactures certain components that go into PVD 5 equipment; is that fair? 6 A Yes. 7 The component suppliers actually have quite 8 a bit of expertise; and as an engineer, I always -- 9 and the other engineers relied on the expertise of 10 these suppliers in integrating all of these 11 components to create a subsystem or a reactor. 12 Q Okay. And then you -- the final part of 13 your, kind of, opinion as to what qualifies as a 14 POSITA is that a POSITA would have had at least a 15 general understanding of sputtering methods and 16 systems as well as sputtering deposition of thin 17 films on substrates; is that right? 18 A Yes, that's one of the sentences in 19 Paragraph 16 from my declaration. 20 Q And is it fair to say that, for example, if 21 someone worked at a PVD equipment manufacturing 22 company, a company that manufactures PVD equipment 23 such as Applied Materials, that person should have 24 at least a general understanding of sputtering 25 methods and systems as well as sputtering deposition</p> | 100 | <p>1 Q And would you say that there are at least 2 some employees of Applied Materials that would have 3 general understanding of sputtering methods and 4 systems as well as sputtering deposition of thin 5 films on substrates? 6 A I would say that generally the people in 7 technical capacities did, yes, or many of them did. 8 Q Does that include yourself? 9 A Yes. 10 Q And can you just generally describe where 11 your general understanding of sputtering methods and 12 systems as well as sputtering deposition of thin 13 films on substrates comes from at the time of the 14 invention? 15 MR. WELLS: Objection; vague and ambiguous. 16 THE WITNESS: Well, I worked at Applied 17 Materials. It was the largest manufacturer of PVD 18 equipment in the world, I think, at the time. They 19 went back and forth with another company or two. 20 But as an equipment engineer and then as a 21 core technologist, one of 15 corporate experts in 22 the company, I worked with all of the divisions, so 23 I had knowledge of the CVD group and what they did, 24 the etching group, PVD group, so forth and so on, 25 the different divisions within the company.</p> |

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26 (101 to 104)

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| <p style="text-align: right;">101</p> <p>1 I had a strong expertise in micro 2 contamination, meaning how particles and 3 contamination get into the process chamber. I had a 4 strong expertise in fluid delivery. I was the core 5 technologist for ultra-high-purity systems. So high 6 vacuum systems are high-purity systems. 7 You have to make sure that what comes into 8 the process chamber is extremely clean. You can't 9 get little particles and chemical species that are 10 undesired in the process chamber, contamination. 11 Particles cause 90 percent of wafer loss, so that's 12 a major concern. 13 I also had some expertise in other areas, 14 but generally along -- things along those lines, as 15 well as any training and education I had in that 16 area. 17 MR. OU: So thanks -- thanks for that 18 explanation, Dr. Glew. 19 Q When you sat on the corporate engineering 20 and technology council, I think you said that that 21 would have involved working with all the different 22 groups at Applied Materials, different technologies, 23 including CVD, PVD, and others, right? 24 A Yes. 25 Q So you would have been familiar, as a</p> | <p style="text-align: right;">103</p> <p>1 timeframe? 2 A Well, 1997, early '97, was when I left 3 Applied Materials. 4 But the time preceding up to that, Applied 5 had what they called the Endura system, so I 6 worked -- worked with the equipment engineers who 7 developed and improved the Endura system. 8 Q Are you familiar with a system called 9 Vectra or Vectra IMP? 10 A In a general sense, the ionized metal 11 plasma. I'm not sure if that was at that time -- 12 you know, I haven't, for the purposes of today, 13 tried to recount the history of all PVD tools, and 14 I'm not sure -- 15 Q Okay. I was just trying to -- 16 A I'm not sure when -- when I became 17 knowledgeable or aware of that equipment, off the 18 top of my head, when it came out. 19 Q Okay. Sitting here today, you don't have a 20 recollection of the Vectra IMP Applied Materials PVD 21 system? 22 A That's not what I said. 23 Q Sorry. 24 Can -- can -- can you restate what your 25 testimony was? I may have misunderstood it.</p> |
| <p style="text-align: right;">102</p> <p>1 person of ordinary skill, of the different product 2 offerings from Applied Materials at that time when 3 you were in that role; is that right? 4 MR. WELLS: Objection; vague and ambiguous 5 and misstates testimony. 6 THE WITNESS: At the time, I would have 7 been generally available with the product offerings 8 and the products at Applied Materials. I haven't 9 specifically, for the purposes of today, attempted 10 to recount all that detail. 11 BY MR. OU: 12 Q Your experience in working, for example, 13 with the PVD group, PVD technology at Applied 14 Materials, that experience is part of what, you 15 know, you believe qualifies you as a person of 16 ordinary skill in the art; is that fair? 17 MR. WELLS: Objection; misstates testimony 18 and vague. 19 THE WITNESS: I believe that my work at 20 Applied Materials, including that with the PVD 21 group, would be a portion of what makes me a person 22 of skill in the art. 23 BY MR. OU: 24 Q What commercially available PVD systems 25 were you working on at Applied Materials in the 1997</p> | <p style="text-align: right;">104</p> <p>1 A I don't recall off the top of my head what 2 year the Vectra IMP system came out. I would have 3 to review documents for that. I don't believe 4 I've opined on the Vectra IMP system in my 5 declaration. 6 If I have, I'd be -- and you can direct me 7 to that portion of my declaration, I'd be happy to 8 review it. 9 Q Okay. Yeah, no, I'm just trying to 10 understand whether or not it's a commercially 11 available system that you would have been aware of 12 as a person of ordinary skill in the art in the 2001 13 timeframe. 14 MR. WELLS: Objection; asked and answered, 15 outside of the scope. 16 BY MR. OU: 17 Q Do you need me to restate my question, 18 Dr. Glew? 19 A I wasn't aware there was a question 20 pending. 21 Q Okay. I apologize. 22 Is the Vectra IMP system from Applied 23 Materials a commercially available system that you 24 would have been aware of as a person of ordinary 25 skill in the art in the 2001 timeframe?</p> |

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| <p>105</p> <p>1 MR. WELLS: Outside the scope, asked and 2 answered.</p> <p>3 THE WITNESS: I haven't specifically 4 reviewed the product release time of -- of the 5 Vectra IMP by Applied. Off the top of my head, I 6 don't recall what year it came out over the last 30 7 years of my career.</p> <p>8 I don't recall opining on the release date 9 of that product in my declaration. If you can 10 direct me towards that specific product in my 11 declaration, I'd be happy to review it.</p> <p>12 BY MR. OU:</p> <p>13 Q So what commercially available systems do 14 you recall existed in the 2001 timeframe in terms of 15 PVD systems from Applied Materials?</p> <p>16 A Well, they had --</p> <p>17 MR. WELLS: Outside of the scope.</p> <p>18 THE WITNESS: I'm sorry.</p> <p>19 MR. WELLS: Objection; outside of the 20 scope.</p> <p>21 Go ahead.</p> <p>22 THE WITNESS: They had what they would call 23 the Endura system. That was the system. It was the 24 mainframe with two low blocks. There were a number 25 of different chambers that were available on most of</p> | <p>107</p> <p>1 A It would be fair to say that I had 2 familiarity with the different PVD offerings at -- 3 at the time. I haven't specifically reviewed all of 4 the offerings from 15 years ago or 20 years ago for 5 the purposes of today's declaration, and I don't 6 believe I've offered opinions on what was available 7 at Applied Materials 20 years ago in my declaration.</p> <p>8 If you care to direct me toward a portion 9 of my declaration where I've covered this, I'd be 10 happy to review it; but I don't recall describing 11 the product offerings 20 years ago at Applied 12 Materials.</p> <p>13 Q 20 years ago, did Applied Materials offer 14 commercially available systems that a person -- 15 person of ordinary skill in the art would be aware 16 of that provided DC power to the target?</p> <p>17 MR. WELLS: Objection; vague and ambiguous, 18 outside of scope, and incomplete hypothetical.</p> <p>19 In addition, it calls for a legal 20 conclusion.</p> <p>21 THE WITNESS: I don't believe I've opined 22 on Applied's product offerings from 20 years ago in 23 my declaration.</p> <p>24 If you can direct me to a portion of my 25 declaration where I have, I'll be happy to review</p> |
| <p>106</p> <p>1 the mainframes.</p> <p>2 Whether it was a CVD and etch or a PVD 3 tool, one could pick different reactors or chambers, 4 as we would call them, to put on the Endura. My 5 recollection, it was roughly -- there were nine 6 positions one could mount chambers, so there were a 7 lot of different variations on the tools that went 8 out the door and what was sold.</p> <p>9 BY MR. OU:</p> <p>10 Q Okay. Dr. Glew, when you were working at 11 Applied Materials in the 1996/1997 timeframe, were 12 you involved at all in preparing or publishing 13 marketing material about Applied's PVD offerings?</p> <p>14 A I was in a technical capacity. Not to say 15 that there may not -- there may have been one or two 16 occasions where somebody asked me to check something 17 or look at it, but I don't really -- it was not my 18 duty to prepare marketing material.</p> <p>19 I was a core technologist, one of 15 20 corporate technical experts, so I was definitely in 21 the technical domain, not the marketing or sales 22 domain.</p> <p>23 Q And so in that role, is it fair to say that 24 you had familiarity with the different PVD offerings 25 by Applied Materials?</p> | <p>108</p> <p>1 it.</p> <p>2 MR. OU: Dr. Glew, I'm -- I'm asking you 3 whether or not a person of ordinary skill in the art 4 at the time of the invention would have been aware 5 of commercially available systems offered by Applied 6 Materials that provided DC power to a target.</p> <p>7 Q Can you answer that question?</p> <p>8 MR. WELLS: Objection; scope, vague and 9 ambiguous.</p> <p>10 THE WITNESS: I would say that I have not 11 prepared a breakdown of Applied's product offerings 12 from 20 years ago today, and I haven't opined on it 13 in my declaration.</p> <p>14 I would further say, though, that one of 15 skill in the art would generally be aware of power 16 supplies connected to targets; but I have not, you 17 know, done a prior art analysis and a timing 18 analysis for the purposes of the claim construction.</p> <p>19 MR. OU: Okay. Maybe it will be easier if 20 I ask you questions more general, not necessarily 21 specific to Applied Materials' product offerings.</p> <p>22 Q Is that okay?</p> <p>23 A You're -- you're welcome to ask me general 24 questions. I'll just have to understand the -- the 25 context of the question.</p> |

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| <p>109</p> <p>1 Q Okay. Well, let me just try to wrap up 2 that last question. 3 Sitting here today, do you have any 4 recollection of Applied Materials offering 5 commercially available systems in PVD in the 2001 6 timeframe that provided DC power to the target? 7 MR. WELLS: Objection; scope. 8 THE WITNESS: You asked specifically again 9 about Applied Materials, not general? 10 MR. OU: Yeah, Applied Materials. 11 Q To the best that you can recall, in 2001, 12 was Applied Materials offering PVD systems that 13 provided DC power to the target? 14 MR. WELLS: Objection; scope. 15 THE WITNESS: I haven't performed an 16 analysis of what Applied's product offerings were 20 17 years ago versus 24 years ago or versus 18 years 18 ago. I couldn't give you a year-by-year breakdown 19 of what was offered when. 20 Generally I can say that I think one of 21 skill in the art would be aware of power -- DC power 22 supplies in PVD systems. 23 BY MR. OU: 24 Q In 2001, DC power supplies in PVD systems 25 was not new, right?</p> | <p>111</p> <p>1 THE WITNESS: I've opined in Paragraph 9 of 2 my declaration that a POSITA would have -- would be 3 generally available of commercially available 4 systems. 5 I did not opine that a person of skill in 6 the art would memorize commercially available 7 systems from 20 years ago or 22 or 24 years ago. 8 BY MR. OU: 9 Q Okay. Sitting here today, can you tell me 10 whether or not a POSITA at the time of the invention 11 in 2001 would have an understanding as to whether 12 there were commercially available PVD systems that 13 provided DC power to the target? 14 A What I opined is that a person of skill in 15 the art would be aware of generally available 16 systems at the time. 17 If you're asking me for detailed knowledge 18 about when specific pieces of technology became 19 available, that isn't the subject of this 20 declaration. 21 Q Okay. As an expert in this field, can you 22 tell me here, sitting here today as you are under 23 oath and you're supposed to answer my questions, 24 whether or not a POSITA at the time of the invention 25 in 2001 would have an understanding as to whether</p> |
| <p>110</p> <p>1 MR. WELLS: Objection; scope. 2 Counsel, again, you're going to invalidity 3 issues. We've been patient on this; but if you keep 4 going down this road, we're going to have to stop. 5 You can answer this question. 6 But I'm telling you that this is clearly 7 off topic. 8 THE WITNESS: Can you direct me to where in 9 my declaration I've opined on when DC power supplies 10 in PVD systems became available? 11 MR. OU: I'm not asking you about that, 12 Dr. Glew. 13 Q I'm asking you about your opinions as to 14 what a POSITA would have understood and known at the 15 time of the invention; and I believe you stated that 16 such a person would have a general understanding of 17 sputtering methods and systems, right? 18 A A POSITA at that time would have a general 19 understanding of sputtering methods and systems. 20 Q And a POSITA at that time would have an 21 understanding of the commercially available PVD 22 sputtering systems, right? 23 MR. WELLS: Objection; vague and ambiguous 24 and misstates the testimony -- or misstates the 25 document.</p> | <p>112</p> <p>1 there were commercially available PVD systems that 2 provided DC power to the target? 3 Do you know one way or the other, sitting 4 here today? 5 MR. WELLS: Objection; scope. 6 You can answer to the extent you know. 7 THE WITNESS: It's my -- it's my 8 understanding, without having opined on this in my 9 declaration or prepared for this today, that there 10 were DC power systems -- power supplies attached to 11 sputtering tools. 12 I can't, you know, tell you exactly what 13 the configuration was 20 years ago versus 22 years 14 ago versus 18 years ago. That's an inquiry of prior 15 art and validity analysis that I haven't yet 16 performed. 17 BY MR. OU: 18 Q But based on your personal experience and 19 professional experience in designing and developing 20 equipment for semiconductor manufacturing, you would 21 agree that a person of ordinary skill in the art in 22 2001 would have known that there were commercially 23 available systems, PVD systems, that provided DC 24 power to the target, right? 25 MR. WELLS: Outside of scope.</p> |

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| <p>1 But, again, to the extent you know, you can 2 answer.</p> <p>3 THE WITNESS: I haven't opined on this or 4 performed -- in my declaration on claim construction 5 or performed a detailed timing analysis of specific 6 power supply configurations year by year.</p> <p>7 My general understanding is that a person 8 of skill in the art would be aware of DC power 9 supplies on sputtering systems at the time of the 10 invention. I can't go into a lot of specifics on 11 the particular configuration at the time without 12 conducting that analysis.</p> <p>13 BY MR. OU:</p> <p>14 Q And based on your personal experience and 15 professional experience in designing and developing 16 equipment for semiconductor manufacturing, you would 17 agree that a person of ordinary skill in the art in 18 2001 would have known that there were commercially 19 available PVD systems that provided RF bias to the 20 substrate, right?</p> <p>21 MR. WELLS: Objection; outside of scope.</p> <p>22 To the extent you have knowledge, you can 23 answer.</p> <p>24 THE WITNESS: I haven't reviewed the art on 25 a year-by-year basis to understand when specific</p> | 113 | <p>1 systems available in the '90s, but I couldn't put 2 much more detail on it without reviewing the 3 timeframe and which years they became available.</p> <p>4 MR. OU: Yeah, I'm not asking you for any 5 specific detail. I'm just asking your general 6 recollection.</p> <p>7 Q You would agree that in the 1990s, there 8 were commercially available PVD systems that 9 provided DC power to a target and RF bias to the 10 substrate, right?</p> <p>11 MR. WELLS: Objection; scope, asked and 12 answered, and misstates his testimony.</p> <p>13 THE WITNESS: I had answered questions, I 14 believe, separately about DC power supplies and 15 separately about RF bias to a substrate.</p> <p>16 You're asking me, as I understand, were 17 they combined? Is that the question?</p> <p>18 MR. OU: Correct.</p> <p>19 MR. WELLS: Objection; scope.</p> <p>20 THE WITNESS: You know, I -- I reviewed 21 material along these lines for the purposes of the 22 IPR declarations I wrote, but I didn't prepare for 23 an examination on the material in the IPR for 24 today's declaration, which is on the claim 25 construction, so I can't really give detailed</p> | 115 |
| <p>1 configurations became available. Just because I'm 2 aware of something now doesn't mean I recall whether 3 it came out 20 years ago, 25 years ago, or 15 years 4 ago off the top of my head.</p> <p>5 My general recollection is that RF systems 6 were -- RF bias systems were likely available around 7 the time of the invention.</p> <p>8 MR. OU: Okay. Since you're having trouble 9 pinpointing the year, which -- well, let me ask it 10 more broadly and hopefully this will better help 11 your recollection.</p> <p>12 Q In the 1990s, so that would have included 13 the seven years you worked at Applied Materials in 14 that decade, plus the three years that you were 15 getting your Ph.D. at Stanford, were you generally 16 aware of commercially available PVD systems that 17 provided DC power to the target and RF bias to the 18 substrate?</p> <p>19 MR. WELLS: Objection; vague and ambiguous, 20 outside of -- outside the scope of the report.</p> <p>21 THE WITNESS: I haven't prepared on that 22 specific topic for today's declaration, and it was 23 not something I opined on in my declaration.</p> <p>24 My general recollection without having any 25 documents in front of me is that there were RF bias</p> | 114 | <p>1 year-by-year or couple-year ranges of when specific 2 technologies were combined in the context of this 3 declaration and my preparation for this declaration.</p> <p>4 BY MR. OU:</p> <p>5 Q Okay. Dr. Glew, but based on your 30-plus 6 years of experience in this field and your 7 professional experience in designing and developing 8 equipment for semiconductor manufacturing, sitting 9 here today, do you have a recollection as to whether 10 or not in the 1990s when you were working at Applied 11 Materials and then working on your Ph.D. -- whether 12 or not there were commercially available systems 13 that provided DC power to the target and RF bias to 14 the substrate?</p> <p>15 MR. WELLS: Objection; outside of scope and 16 incomplete hypothetical, as well as being vague. 17 Counsel, he's answering your questions. 18 Now you're probing on, clearly, validity issues. 19 We've given you a lot of leeway here, but how does 20 this relate to claim construction?</p> <p>21 MR. OU: Dr. Glew, can you answer my 22 question?</p> <p>23 And then, Counsel, we can have a sidebar 24 off the record. If you want to, we can call the 25 court --</p> | 116 |

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| <p>1 MR. WELLS: Well, before he answers --</p> <p>2 BY MR. OU:</p> <p>3 Q Can you answer the question, Dr. Glew?</p> <p>4 MR. WELLS: -- how this relates to claim</p> <p>5 construction.</p> <p>6 We've given you leeway, but you're asking</p> <p>7 something that's clearly going to validity issues</p> <p>8 relating to the IPRs.</p> <p>9 MR. OU: No, I'm not. I'm asking him about</p> <p>10 what a person of ordinary skill in the art would</p> <p>11 understand in terms of available commercial systems.</p> <p>12 I've explained this to you numerous times. The fact</p> <p>13 that you think that it relates to IPRs or validity</p> <p>14 issues, that's -- that's your opinion.</p> <p>15 I'm asking him about what a person of</p> <p>16 ordinary skill in the art would understand in terms</p> <p>17 of commercially available systems, which he's</p> <p>18 discussed in his report without providing additional</p> <p>19 detail.</p> <p>20 I can explore with him his recollection of</p> <p>21 what are those commercially available systems that a</p> <p>22 POSITA would know and understand. So I'm happy to</p> <p>23 explain that to the court --</p> <p>24 (Mr. Ou and Mr. Wells speak</p> <p>25 simultaneously.)</p> | 117 | <p>1 He's stated for the purposes of his</p> <p>2 declaration that he didn't do an analysis of a</p> <p>3 year-by-year disclosure and that the only analysis</p> <p>4 he has relating to this issue relates to the IPRs,</p> <p>5 which he didn't prepare on, and you keep probing it.</p> <p>6 So I think it's pretty clear that you're</p> <p>7 going well beyond claim construction; and if it</p> <p>8 continues, we'll go to the court.</p> <p>9 Ask your questions if you're going to ask,</p> <p>10 and then we'll see if we need to go to the court.</p> <p>11 MR. OU: Okay. I'm going to ask my</p> <p>12 question again and then let's take a break and then</p> <p>13 we'll call the court. Okay?</p> <p>14 Q Dr. Glew, based on your 30-plus years of</p> <p>15 experience in the field and your professional</p> <p>16 experience in designing and developing equipment for</p> <p>17 semiconductor manufacturing, sitting here today, do</p> <p>18 you have a recollection as to whether or not in the</p> <p>19 1990s when you were working at Applied Materials and</p> <p>20 working on -- then working on your Ph.D. -- whether</p> <p>21 or not there were commercially available systems</p> <p>22 that provided DC power to the target and RF bias to</p> <p>23 the substrate?</p> <p>24 MR. WELLS: Objection; scope.</p> <p>25 You can answer to the extent you know.</p> | 119 |
| <p>1 MR. WELLS: Go ahead. I didn't mean to cut</p> <p>2 you off. Go ahead.</p> <p>3 MR. OU: No, that's okay.</p> <p>4 I'm happy to go to the court and get</p> <p>5 clarification; but, you know, your -- your</p> <p>6 objections and, you know, suggestions that Dr. Glew,</p> <p>7 you know, cannot answer these questions because you</p> <p>8 think that they relate to validity or the IPRs, it's</p> <p>9 inappropriate.</p> <p>10 I have the -- the right to ask him</p> <p>11 questions about what he has opined on. He's stated</p> <p>12 that a person of ordinary skill in the art would</p> <p>13 have information about commercially available</p> <p>14 systems.</p> <p>15 He himself has said that -- has said that</p> <p>16 he is a person of ordinary skill in the art, and he</p> <p>17 should answer my questions as to what he recalls as</p> <p>18 opposed to trying to limit what his testimony will</p> <p>19 be to what's written in his declaration, so --</p> <p>20 MR. WELLS: And I think -- and now I'm</p> <p>21 going to respond.</p> <p>22 MR. OU: Go ahead.</p> <p>23 MR. WELLS: -- you are going beyond the</p> <p>24 scope of claim construction. You're asking about --</p> <p>25 about validity issues in the IPRs.</p> | 118 | <p>1 THE WITNESS: The audio faded in and out a</p> <p>2 couple of times. I'm sorry, but I'll have to hear</p> <p>3 the question again.</p> <p>4 MR. OU: That's okay, Dr. Glew. Let me try</p> <p>5 again.</p> <p>6 Q Based on your 30-plus years of experience</p> <p>7 in this field and your professional experience in</p> <p>8 designing and developing equipment for semiconductor</p> <p>9 manufacturing, sitting here today, do you have a</p> <p>10 recollection as to whether or not in the 1990s, when</p> <p>11 you were working at Applied Materials and then</p> <p>12 working on your Ph.D. -- whether or not there were</p> <p>13 commercially available systems that provided DC</p> <p>14 power to the target and RF bias to the substrate?</p> <p>15 MR. WELLS: Objection; outside of scope.</p> <p>16 To the extent you have personal knowledge,</p> <p>17 you can answer.</p> <p>18 THE WITNESS: These technologies eventually</p> <p>19 were combined. I didn't, for the purposes of this</p> <p>20 declaration, prepare an analysis of when these</p> <p>21 technologies were released year by year.</p> <p>22 The documents in the IPR are relevant to</p> <p>23 this, but those aren't -- I didn't review those for</p> <p>24 today and they're not in front of me today.</p> <p>25 My general recollection, although</p> | 120 |

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31 (121 to 124)

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| 121 | <p>1 recollections are imperfect, is that there was 2 likely the combination of these two technologies in 3 the '90s, but I didn't review for that today and I 4 haven't prepared an analysis of a year-by-year 5 breakdown of technologies -- 6 BY MR. OU: 7 Q And so if it's likely that -- 8 A -- my declaration. 9 Q I apologize. I didn't mean to cut you off. 10 And so, Dr. Glew, in the -- if these 11 systems were commercially available sometime in the 12 1990s that had pulsed -- I'm sorry. Let me start 13 over. 14 Dr. Glew, so if these systems, these PVD 15 systems, that were commercially available sometime 16 in the 1990s that provided DC power to the target 17 and RF bias to the substrate -- would a person of 18 ordinary skill in the art in 2001 have knowledge of 19 such commercially available systems? 20 MR. WELLS: Objection; assumes facts not in 21 evidence and outside of scope, incomplete 22 hypothetical. 23 THE WITNESS: I can only answer in the 24 general sense that if the technology was 25 commercially available, then a POSITA should be</p> | 123 |
| 122 | <p>1 aware of it. 2 BY MR. OU: 3 Q Okay. So if -- let's assume that there 4 were commercially available PVD systems in the 1990s 5 that provided DC power to the target and RF bias to 6 the substrate. 7 You would agree that a person of ordinary 8 skill in the art in 2001 would have knowledge of 9 those commercially available systems, right? 10 MR. WELLS: Objection; outside of scope, 11 calls for a legal conclusion and incomplete 12 hypothetical. 13 THE WITNESS: This is a general question 14 outside the scope of my declaration, I believe. I 15 don't think I opined on this. 16 What I can say is that if there was a 17 technology available in the '90s, then a person of 18 skill in the art should be aware of it by 2001 or 19 '02. 20 MR. OU: Okay. Thank you. 21 Dr. Glew, it's almost 1:00 and I want to be 22 sensitive to everyone's time and lunch. Why don't 23 we go off the record, take a break, and then we can 24 talk about logistics for your lunch. Why don't we 25 go off the record.</p> | 124 |
| | <p>1 THE VIDEOGRAPHER: We are going off the 2 record at 12:59. 3 (A recess for lunch was taken from 4 12:59 p.m. to 1:47 p.m.) 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p> <p>1 P R O C E E D I N G S 2 3 THE VIDEOGRAPHER: We are back on the 4 record at 13:47. 5 C O N T I N U E D E X A M I N A T I O N 6 BY MR. OU: 7 Q Dr. Glew, welcome back. 8 Did you speak with your counsel during the 9 break about the substance of your testimony? 10 A I did not speak with him at all. 11 Q Okay. Would you agree that a POSITA at the 12 time of the invention would be generally familiar 13 with sputtering deposition of thin films on 14 substrates? 15 A I believe that a POSITA at the time of the 16 invention, as I described in Paragraph 16 of my 17 declaration, would have a general understanding 18 of -- of sputtering deposition on thin films on 19 substrates. 20 Q And a POSITA at the time would also be 21 familiar with reactive magnetron sputtering of -- to 22 deposit thin films on substrates, right? 23 A A POSITA at the time of the invention would 24 be generally familiar with the technologies that 25 existed at the time.</p> | |

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32 (125 to 128)

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| <p style="text-align: right;">125</p> <p>1 Q You said "would be generally familiar with 2 the technologies that existed at that time," and 3 would those technologies include reactive magnetron 4 sputtering to deposit thin films on substrates? 5 A I -- my understanding is that there was 6 some reactive magnetron sputtering at the time, 7 although I don't recall opining on exactly when it 8 became more commonplace in my declaration. 9 I have Paragraph 18 in my declaration where 10 I -- I describe, you know, magnetron sputtering 11 generally. 12 Q Reactive magnetron sputtering, that was 13 something that was known by a POSITA at the time of 14 the invention. 15 There's no dispute of that, right? 16 A I don't believe I've offered the opinion 17 that there is. 18 As I said, I believe that -- you know, I've 19 described tantalum nitride, you know, where the 20 nitrogen gas is used for sputtering, in Paragraph 18 21 of my declaration. 22 Q And that's citing to the patent, right? 23 In Paragraph 18, you're citing the '657 24 patent? 25 A I've cited, yes, to the '657 at a few</p> | <p style="text-align: right;">127</p> <p>1 though, he can answer. 2 BY MR. OU: 3 Q Can you answer the question, Dr. Glew? 4 Do you need me to read it back? 5 A No. I'm looking at the patent and the 6 references that I've cited within the patent, what 7 that disclosed. 8 Could you repeat the question? 9 Q Sure. 10 The reactive magnetron sputtering systems 11 that were commercially available at the time in 12 approximately 2001 that were used for deposition of 13 titanium nitride or tantalum nitride, to the best 14 that you can recall, would those commercially 15 available systems have provided DC power to the 16 target and RF bias to the substrate? 17 MR. WELLS: Objection; scope. 18 And, again, this is related to the IPRs and 19 validity issues, and is improper. 20 But to the extent the witness can answer, 21 he can answer. 22 THE WITNESS: The magnetron sputtering that 23 I've described in Paragraph 18 is -- does not 24 disclose RF sputtering. 25 I can't tell you off the top of my head</p> |
| <p style="text-align: right;">126</p> <p>1 locations. 2 Q Right. 3 And so you would agree that at the time of 4 the invention, a POSITA would be familiar with 5 reactive magnetron sputtering systems that were used 6 to deposit thin films such as tantalum nitride or 7 titanium nitride? 8 Would you agree? 9 A I would agree that they'd be familiar with 10 the systems that were available at the time. There 11 have been advances in the technology since then. 12 They wouldn't necessarily be -- they wouldn't be 13 familiar with those at the time; but they'd be 14 familiar with what was available at the time, yes. 15 Q Okay. And the reactive magnetron 16 sputtering systems that were commercially available 17 at that time to do titanium nitride and tantalum 18 nitride depositions, to the best that you can 19 recall, would those have included providing DC power 20 to the target and RF bias to the substrate? 21 MR. WELLS: Objection; scope. 22 Again, Counsel, you're going to issues 23 relating to -- invalidity issues in the IPR, and 24 this is improper. 25 To the extent the witness can answer,</p> | <p style="text-align: right;">128</p> <p>1 when RF and magnetron were combined. 2 BY MR. OU: 3 Q Sitting here today, you don't have a 4 recollection as to whether or not by 2001, there 5 were reactive magnetron sputtering systems that 6 used -- that provided pulsed DC power -- I'm sorry. 7 Let me start over. 8 Sitting here today, you don't have a 9 recollection as to whether or not by 2001, a person 10 of ordinary skill in the art would be familiar with 11 or would be aware of magnetron sputtering systems 12 that used or provided DC power to the target and RF 13 bias to the substrate? 14 MR. WELLS: Objection; outside of the 15 scope. 16 And this, again, relates to the IPRs and 17 validity issues and does not appear to relate to 18 claim construction and is improper. 19 To the extent you can answer on your 20 personal knowledge, you can answer. 21 THE WITNESS: I don't recall off the top of 22 my head when those three techniques were combined. 23 BY MR. OU: 24 Q And by "three techniques," you're referring 25 to reactive magnetron sputtering and then DC power</p> |

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| <p>129</p> <p>1 to the target and then RF bias to the substrate, 2 those three? 3 A Essentially, yes. 4 Q Okay. So I just want to make sure I have 5 your testimony clear. 6 Sitting here today, you don't know whether 7 or not a POSITA at the time of the invention would 8 be aware of any systems that used reactive magnetron 9 sputtering while providing DC power to the target 10 and RF bias to the substrate? 11 Do I have your testimony right? 12 MR. WELLS: Objection; vague and ambiguous 13 as well as outside of the scope. 14 THE WITNESS: Without any documents in 15 front of me, I do not recall off the top of my head 16 when those three techniques were combined. 17 MR. OU: Okay. Can we actually go off the 18 record for one second? My headset fell off so I'm 19 on speakerphone. I want to go grab a different one, 20 if you don't mind. 21 THE VIDEOGRAPHER: We are going off the 22 record at 13:56. 23 (A recess was taken from 1:56 p.m. 24 to 1:59 p.m.) 25 THE VIDEOGRAPHER: We are back on the</p> | <p>131</p> <p>1 have been combined within 10 or 15 years of 2001? 2 What did you mean by that? 3 A You know, whether it occurred in -- when 4 commercially available products came out, I don't 5 know if it was, you know, mid '90s or mid -- mid 6 2000s off the top of my head. 7 Q Okay. Just sitting here today, you don't 8 remember? 9 A Not off the top of my head, I don't recall 10 that, no -- 11 Q And so drawing on your personal experience 12 working at Applied Materials in the mid '90s, you 13 don't have any recollection of such systems being 14 offered by Applied Materials in the mid '90s; is 15 that fair? 16 MR. WELLS: Objection; scope. 17 THE WITNESS: I don't recall exactly 18 what -- you know, whether they came out while I was 19 working there or when I was -- or after I was 20 working there. 21 It's, you know, 20 -- roughly 20 years ago. 22 I just don't recall off the top of my head when 23 exactly it happened. 24 MR. OU: Lawrence, could you put into 25 the -- the chat an exhibit? It's U.S. Patent</p> |
| <p>130</p> <p>1 record at 13:59. 2 MR. OU: Dr. Glew, just to reorient 3 ourselves, I believe the last question that I asked 4 and your answer before we took the break was you had 5 indicated that without any documents in front of 6 you, you could not recall off the top of your head 7 whether there were commercially available systems 8 known to a POSITA in 2001 that would have used or 9 combined reactive magnetron sputtering with DC power 10 to the target and RF bias to the substrate. 11 Q Is that right? 12 MR. WELLS: Objection; misstates testimony. 13 THE WITNESS: I think generally that's 14 along the lines. Yes. Without any information in 15 front of me, I don't recall off the top of my head 16 when the multiple techniques were combined. 17 BY MR. OU: 18 Q Okay. No -- no recollection whatsoever? 19 MR. WELLS: Objection; asked and answered. 20 THE WITNESS: You know, in a 10- or 15-year 21 period, generally; but I couldn't tell you exactly. 22 BY MR. OU: 23 Q What exactly do you mean by that, "in a 10- 24 or 15- period"? 25 Are you saying that those techniques would</p> | <p>132</p> <p>1 Number -- the one ending in '276, please. 2 THE VIDEOCONFERENCE TECHNICIAN: '276? 3 MR. OU: Yeah. 7,544,276. 4 THE VIDEOCONFERENCE TECHNICIAN: Just one 5 moment. 6 (Exhibit No. 5 was marked for 7 identification by the 8 videoconference technician; 9 attached hereto.) 10 THE VIDEOCONFERENCE TECHNICIAN: It's 11 uploading in the chat now. 12 MR. OU: Okay. And I believe this is going 13 to be Exhibit 5, right? 14 THE VIDEOCONFERENCE TECHNICIAN: Yes, it 15 is. 16 MR. OU: Okay. 17 Dr. Glew, I think you have the 18 patents-in-suit in front of you, so we're going to 19 mark as Exhibit 5 the '276 patent. 20 Q Do you have it in front of you? 21 A Yes, I do. 22 Q Okay. And -- and you're familiar with the 23 '276 patent, right? 24 A Yes, generally. 25 Q Okay. Just generally, or --</p> |

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| <p style="text-align: right;">133</p> <p>1 A Yes, I'm familiar with the '276.</p> <p>2 Q Could you turn with me to Column 4 and</p> <p>3 Line 44, right below the detailed description?</p> <p>4 Are you there?</p> <p>5 A Not yet, no.</p> <p>6 Q Okay. Let me know when you're there.</p> <p>7 A Okay. I'm in the detailed description.</p> <p>8 Q Okay. In the first sentence of the</p> <p>9 detailed description, it says "Reactive DC magnetron</p> <p>10 sputtering of nitrides and carbides is a widely</p> <p>11 practiced technique."</p> <p>12 Do you see that?</p> <p>13 A Yes.</p> <p>14 Q Okay. Do you agree with that statement</p> <p>15 as -- as a person of ordinary skill in the art at</p> <p>16 the time of the invention?</p> <p>17 A I don't disagree with that first clause in</p> <p>18 the patent, no.</p> <p>19 Q You don't disagree with it, but do you</p> <p>20 agree with it, that it was a widely practiced</p> <p>21 technique?</p> <p>22 MR. WELLS: Objection; scope.</p> <p>23 THE WITNESS: Well, there's a modifier in</p> <p>24 that sentence that goes on to describe when it's not</p> <p>25 done. You know, there are some limitations to it.</p> | <p style="text-align: right;">135</p> <p>1 BY MR. OU:</p> <p>2 Q Okay. And so reactive DC magnetron</p> <p>3 sputtering of nitrides such as titanium nitride and</p> <p>4 tantalum nitride, those would be -- those would be</p> <p>5 techniques that were widely practiced and known to a</p> <p>6 POSITA at the time of the invention; would you</p> <p>7 agree?</p> <p>8 MR. WELLS: Objection; scope.</p> <p>9 THE WITNESS: "At the time of the -- the</p> <p>10 patentee represents that at the time of the</p> <p>11 invention, that reactive DC magnetron sputtering of</p> <p>12 nitrides and carbides was widely practiced."</p> <p>13 That -- that, I agree to.</p> <p>14 It's my understanding further that</p> <p>15 typically this would have been something along the</p> <p>16 lines of titanium nitride or tantalum nitride, what</p> <p>17 we call barrier layers that are conductive.</p> <p>18 MR. OU: All right.</p> <p>19 Q And -- and at the time of the invention,</p> <p>20 what would a person of ordinary skill in the art</p> <p>21 understand those widely practiced techniques to be</p> <p>22 in terms of depositing titanium nitride or tantalum</p> <p>23 nitride?</p> <p>24 A I'm not sure I follow your question.</p> <p>25 Q So the -- the -- the inventors wrote in the</p> |
| <p style="text-align: right;">134</p> <p>1 MR. OU: Okay. Let's -- let's take the</p> <p>2 full -- the full sentence in -- in context so that</p> <p>3 we're not, you know -- we're on the same page.</p> <p>4 Okay?</p> <p>5 Q So the -- can you read the full sentence</p> <p>6 just into the record, please?</p> <p>7 A "Reactive DC magnetron sputtering of</p> <p>8 nitrides and carbides is a widely practiced</p> <p>9 technique, but the reactive DC magnetron sputtering</p> <p>10 of nonconductive oxides is done rarely."</p> <p>11 Did you want me to continue reading?</p> <p>12 Q No. I apologize. I was just checking</p> <p>13 something.</p> <p>14 Okay. So let's -- let's -- let's break</p> <p>15 that down.</p> <p>16 Reactive DC magnetron sputtering of</p> <p>17 nitrides and carbide -- carbides -- just focusing on</p> <p>18 nitrides, what would a person of ordinary skill in</p> <p>19 the art understand those nitrides to be referring to</p> <p>20 at the time of the invention?</p> <p>21 A It could be --</p> <p>22 MR. WELLS: Objection; scope.</p> <p>23 THE WITNESS: -- could be titanium nitride,</p> <p>24 which is a conductor, tantalum nitride, which is a</p> <p>25 conductor.</p> | <p style="text-align: right;">136</p> <p>1 specification that reactive DC magnetron sputtering</p> <p>2 of nitrides, that was -- they were widely practiced</p> <p>3 techniques, and I'm asking you what a POSITA would</p> <p>4 understand those widely practiced techniques to be.</p> <p>5 MR. WELLS: Objection; vague and ambiguous</p> <p>6 and scope.</p> <p>7 THE WITNESS: He's -- the sentence, I</p> <p>8 think, just clearly says reactive DC magnetron</p> <p>9 sputtering of nitrides is a widely practiced</p> <p>10 technique.</p> <p>11 I'm not sure what your question is.</p> <p>12 BY MR. OU:</p> <p>13 Q Okay. Would a -- would a person of</p> <p>14 ordinary skill in the art at the time of the</p> <p>15 invention know whether or not reactive DC magnetron</p> <p>16 sputtering of nitrides at that time used DC power to</p> <p>17 the target and RF bias to the substrate?</p> <p>18 MR. WELLS: Objection; incomplete</p> <p>19 hypothetical and scope.</p> <p>20 THE WITNESS: Sorry. Let me ask on the</p> <p>21 question again -- did you say there was a bias on</p> <p>22 this?</p> <p>23 MR. OU: Right. A -- an RF bias to the</p> <p>24 substrate and DC power to the target.</p> <p>25 Q So would a person of ordinary skill in the</p> |

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| <p>1 art reading this statement from the inventors 2 understand that the widely practiced techniques of 3 reactive DC magnetron sputtering of nitrides -- 4 would they be using DC power to the target and RF 5 bias to the substrate? 6 MR. WELLS: Incomplete hypothetical, calls 7 for speculation, and outside the scope. 8 BY MR. OU: 9 Q Dr. Glew, do you have my question in mind 10 or do you need me to read it back? 11 A No, I have it. I'm reading the patent. 12 Q Okay. 13 A This sentence just discloses DC magnetron 14 sputtering. You -- it doesn't -- this sentence or 15 passage doesn't disclose a RF bias on the substrate. 16 Q Okay. But would a person of ordinary skill 17 in the art reading this sentence, based on that 18 person's knowledge of sputtering methods and systems 19 at the time of the invention -- would that person 20 understand the reactive DC magnetron sputtering 21 systems that were widely practiced techniques to 22 also include RF bias to the substrate? 23 MR. WELLS: Objection; scope, calls for 24 speculation, incomplete hypothetical. 25 THE WITNESS: That particular passage</p> | 137 | <p>1 it was problematic. 2 Q And when it refers to "reactive DC 3 magnetron sputtering," can you generally describe 4 what the DC element of that sputtering process is? 5 A Generally a DC on the target, you know, 6 with a -- with a magnet field -- magnetic field 7 around the target. 8 Q Okay. So -- so a person of ordinary skill 9 in the art, when -- when you see reactive DC 10 magnetron sputtering, the "DC" is referring to DC 11 power being provided to the target; is that fair? 12 A I think that's generally fair. 13 Q Okay. Now, is that a continuous DC that's 14 being provided to the target? 15 MR. WELLS: Objection; vague, incomplete 16 hypothetical. 17 THE WITNESS: I'm going to turn my lights 18 on. Excuse me. 19 BY MR. OU: 20 Q Do you need me to read back the question 21 again, Dr. Glew? 22 A No. 23 I'm looking at the patent. 24 Q Okay. 25 A The particular passage doesn't disclose</p> | 139 |
| <p>1 doesn't disclose RF bias. I don't know what -- you 2 know, one -- another person might have in their 3 head. 4 BY MR. OU: 5 Q Dr. Glew, I'm asking you whether or not, in 6 your opinion, a person of ordinary skill in the art 7 at the time of the invention reading this statement 8 would recognize that one of the widely practiced 9 techniques for reactive magnetron sputtering of 10 nitrides would include both DC power to the target 11 and RF bias to the substrate. 12 MR. WELLS: Objection; scope, incomplete 13 hypothetical, calls for speculation. 14 THE WITNESS: This passage only discloses 15 DC magnetron sputtering. It doesn't disclose RF, 16 necessarily, so I don't think that one would 17 necessarily read RF into it. 18 MR. OU: Okay. The next sentence or the 19 next part of the sentence says "but the reactive DC 20 magnetron sputtering of nonconducting oxides is done 21 rarely." 22 Q Do you see that? 23 A Yes, I do. 24 Q Do you agree with that statement as well? 25 A I think -- I think it's generally correct,</p> | 138 | <p>1 whether it's constant DC or pulsed. 2 Q So when you refer to "constant DC or 3 pulsed," can you explain what's the difference 4 between those two? 5 A A constant DC might be a 500-volt negative 6 charge or -- or the voltage potential held on a 7 target. A pulsed is one that would turn off, and it 8 wouldn't be constant. 9 Q What do you mean by "turn off"? 10 A Well, I understood that you were -- you 11 were using the term "pulsed" in the concept -- in 12 the way of -- and I know the term "pulsed" is at 13 issue in this patent case, so I'm trying to not 14 create more confusion. 15 I understood that you asked DC versus 16 pulsed meaning either the DC stayed on or the DC 17 turned on and off. 18 Q So in -- in practice, are there any DC 19 power supplies that never turn off? 20 MR. WELLS: Objection; vague, incomplete 21 hypothetical. 22 THE WITNESS: There are DC power supplies 23 that remain constant. 24 BY MR. OU: 25 Q Meaning they never shut off?</p> | 140 |

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| <p>1 MR. WELLS: Objection; vague.</p> <p>2 THE WITNESS: Your question is odd.</p> <p>3 They stay on during the process, and then</p> <p>4 step, and then they might be turned off when the</p> <p>5 process step is over. DC, direct current, just</p> <p>6 means that it will stay on at a specific voltage.</p> <p>7 Yeah.</p> <p>8 BY MR. OU:</p> <p>9 Q Okay. So in your opinion, a DC power</p> <p>10 supply or a constant DC power supply is one where</p> <p>11 the current will stay on during the process, it will</p> <p>12 never shut off whatsoever -- is that right? --</p> <p>13 during the process?</p> <p>14 MR. WELLS: Objection; incomplete</p> <p>15 hypothetical and misstates testimony.</p> <p>16 THE WITNESS: Well, your question was in</p> <p>17 the context of DC versus pulsed DC.</p> <p>18 A DC system might be set for a certain</p> <p>19 period of time to stay at a fixed voltage and then</p> <p>20 when the step is over or however long it was</p> <p>21 supposed to stay on, it turns off, typically, is how</p> <p>22 one would think in a general sense of a DC power</p> <p>23 supply as opposed to a pulsed power supply, which</p> <p>24 would turn on and off more rapidly.</p> <p>25 The term "pulsed" is at issue here, so I'm</p> | 141 | <p>1 hypothetical, calls for speculation.</p> <p>2 THE WITNESS: What it doesn't say is it</p> <p>3 doesn't say pulsed DC, so I'm distinguishing direct</p> <p>4 current, a fixed voltage, essentially, as different</p> <p>5 than a pulsing DC power supply.</p> <p>6 BY MR. OU:</p> <p>7 Q And how would you describe or explain a</p> <p>8 pulsing DC power supply?</p> <p>9 A A pulsed DC power supply, I've described in</p> <p>10 Paragraph 48 of my declaration.</p> <p>11 A POSITA would understand it as something</p> <p>12 that provides pulsing DC power. This is contrasted</p> <p>13 with something that is continuous. One of skill</p> <p>14 understands that the pulse is essentially what is</p> <p>15 different than constant.</p> <p>16 Q Okay. Earlier you made reference to a -- a</p> <p>17 pulsing DC power supply would turn on and off more</p> <p>18 rapidly.</p> <p>19 Did -- did I hear you correctly?</p> <p>20 A Well, essentially, yes.</p> <p>21 You know, the DC -- a fixed DC, direct</p> <p>22 current, is -- essentially stays on for a period of</p> <p>23 time, whereas a pulsing system will periodically</p> <p>24 cycle down, then power back up, provide a pulse of</p> <p>25 direct current as opposed to a constant direct</p> | 143 |
| <p>1 trying to not introduce more confusion.</p> <p>2 MR. OU: Okay. I'm actually trying to</p> <p>3 resolve the confusion because we both, I think,</p> <p>4 recognize that there is some -- at least you've</p> <p>5 provided opinions as to what a person of ordinary</p> <p>6 skill in the art would understand "pulsed DC power"</p> <p>7 to mean.</p> <p>8 Q Right? You've provided that opinion?</p> <p>9 A Yes, I provided that in the context of the</p> <p>10 '276 and '657 patent claims.</p> <p>11 I think you're asking about pulsed, though,</p> <p>12 in a very general sense or specifically in a prior</p> <p>13 art sense, so I'm not sure --</p> <p>14 Q I'm -- I'm asking what a person of ordinary</p> <p>15 skill in the art would understand in the context of</p> <p>16 these patents. So let me make sure I understand</p> <p>17 your testimony.</p> <p>18 The first sentence of the detailed</p> <p>19 description that describes reactive DC magnetron</p> <p>20 sputtering of nitrides, that's -- and carbides,</p> <p>21 that's a widely practiced technique, but -- but</p> <p>22 where nonconducting oxides is done rarely, is that</p> <p>23 DC power one that stays constant unless it is shut</p> <p>24 off?</p> <p>25 MR. WELLS: Objection; scope, incomplete</p> | 142 | <p>1 current.</p> <p>2 Q Okay. And what do you mean by it will</p> <p>3 periodically cycle down and then power back up?</p> <p>4 Do you mean that it will turn on and off at</p> <p>5 a particular frequency?</p> <p>6 MR. WELLS: Objection; misstates testimony.</p> <p>7 THE WITNESS: The frequency doesn't have to</p> <p>8 be fixed. It basically has the ability to provide a</p> <p>9 pulse of power.</p> <p>10 BY MR. OU:</p> <p>11 Q So what does it mean for it to be periodic?</p> <p>12 A What is the context for "periodic"?</p> <p>13 Q Well, you said -- you said that fixed DC,</p> <p>14 direct current, is essentially -- stays on for a</p> <p>15 period of time, whereas a pulsing system will</p> <p>16 periodically cycle down and power back up, provide a</p> <p>17 pulse of direct current as opposed to a constant</p> <p>18 direct current.</p> <p>19 That's what you said in response to my last</p> <p>20 question, right?</p> <p>21 A Sounds generally correct, yeah.</p> <p>22 Q Okay. So my question is, what did you mean</p> <p>23 by "it will periodically cycle down, then power back</p> <p>24 up"?</p> <p>25 A Well, a power supply, for example, might be</p> | 144 |

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| <p style="text-align: right;">145</p> <p>1 set to stay on for two minutes during a -- a process</p> <p>2 step. You know, processes may have half a dozen, a</p> <p>3 dozen steps, and one of those steps, the power</p> <p>4 supply is supposed to be on.</p> <p>5 So in that step, either it's just on or it</p> <p>6 may turn off after 20 seconds, then turn back on; it</p> <p>7 may turn on, you know, with a fixed period; it may</p> <p>8 turn on with a different period based upon other</p> <p>9 process requirements.</p> <p>10 Q Okay. But is it your -- would you agree</p> <p>11 that when it turns on or turns off, understanding</p> <p>12 that that time period can change, those would need</p> <p>13 to be set, meaning that the turning on and off is</p> <p>14 not happening randomly?</p> <p>15 MR. WELLS: Objection; vague.</p> <p>16 THE WITNESS: The turning on and off could</p> <p>17 be under machine control.</p> <p>18 For example, there's a couple ways to</p> <p>19 control power at fixed voltages. One could change</p> <p>20 the width of the pulse, pulse width modulation. One</p> <p>21 could change the frequency of the pulse and the</p> <p>22 width.</p> <p>23 There's -- if one is -- if one's goal is to</p> <p>24 have a fixed power and one has a fixed voltage,</p> <p>25 roughly, or tries to hold the voltage, then, you</p> | <p style="text-align: right;">147</p> <p>1 MR. OU: Yes, and that's a fair</p> <p>2 characterization from my perspective, so thanks,</p> <p>3 Maclain.</p> <p>4 All right. Are we ready to proceed?</p> <p>5 MR. WELLS: We are -- yeah.</p> <p>6 MR. OU: Okay. Dr. Glew, I think before we</p> <p>7 took the break, we were looking at the '276 patent</p> <p>8 and the first paragraph, the detailed description.</p> <p>9 Q Could you flip back there and let me know</p> <p>10 when you have that in front of you?</p> <p>11 A I have that in front of me.</p> <p>12 Q Okay. We were looking at the first</p> <p>13 sentence where it said "The reactive DC magnetron</p> <p>14 sputtering of nonconducting oxides is done rarely."</p> <p>15 And I think you said you agree with that</p> <p>16 statement -- right? -- as a person of ordinary skill</p> <p>17 in the art?</p> <p>18 A Yeah, I think that's fair.</p> <p>19 Q Can you provide some more context as to why</p> <p>20 a person of ordinary skill in the art would</p> <p>21 understand at the time that reactive DC magnetron</p> <p>22 sputtering of nonconducting oxides is done rarely?</p> <p>23 A It caused poisoning or -- or gunking up, if</p> <p>24 you will, of the target.</p> <p>25 Q And -- and what exactly caused that to</p> |
| <p style="text-align: right;">146</p> <p>1 know, there's only so many ways to control the</p> <p>2 power, so the machine can alter these -- the machine</p> <p>3 control can alter the nature of the pulses as</p> <p>4 necessary for process control.</p> <p>5 MR. OU: Okay. Dr. Glew, I apologize to</p> <p>6 interrupt.</p> <p>7 If we can go off the record. Maclain, my</p> <p>8 understanding is the court is available. So why</p> <p>9 don't we go off the record right now.</p> <p>10 THE VIDEOGRAPHER: We are going off the</p> <p>11 record at 14:27.</p> <p>12 (A recess was taken from 2:27 p.m.</p> <p>13 to 2:57 p.m.)</p> <p>14 THE VIDEOGRAPHER: We are back on the</p> <p>15 record at 14:57.</p> <p>16 MR. WELLS: So, Alex, we spoke with the</p> <p>17 court and the court gave us some guidance regarding</p> <p>18 the topics that are allowed and are not allowed.</p> <p>19 My objections need to be objections to form</p> <p>20 at this point forward; but if I -- I think that the</p> <p>21 question is objectionable as beyond the scope, then</p> <p>22 I can instruct you not to answer, at which point if</p> <p>23 there's a later dispute, that will be something the</p> <p>24 court will -- will address at that point in time.</p> <p>25 THE WITNESS: Okay.</p> | <p style="text-align: right;">148</p> <p>1 happen?</p> <p>2 A Nonconductive material would accumulate on</p> <p>3 the target. The same type of material that one is</p> <p>4 trying to deposit on the substrate actually forms on</p> <p>5 the target too, and when it gets thick enough, it</p> <p>6 becomes a problem.</p> <p>7 Q And so what was the solution to deal with</p> <p>8 that problem that the inventors disclosed in their</p> <p>9 patent?</p> <p>10 MR. WELLS: Objection to form.</p> <p>11 THE WITNESS: Well, they described certain</p> <p>12 things over the course of the specification; but in</p> <p>13 Claim 1, they claimed a specific set of limitations</p> <p>14 to help solve that problem.</p> <p>15 MR. OU: Okay. Let -- let me take a --</p> <p>16 direct you to the second sentence of the detailed</p> <p>17 description.</p> <p>18 Q Do you see it says "Films such as aluminum</p> <p>19 oxide are almost impossible to deposit by</p> <p>20 conventional reactive DC magnetron sputtering due to</p> <p>21 rapid formation of insulating oxide layers on the</p> <p>22 target surface"?</p> <p>23 A I see that, yes.</p> <p>24 Q Okay. What would a person of ordinary</p> <p>25 skill in the art understand those conventional</p> |

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| 149 | <p>1 reactive DC magnetron sputtering techniques to be?</p> <p>2 MR. WELLS: Objection to form.</p> <p>3 THE WITNESS: I understand that it would be</p> <p>4 something generally along the lines of a DC</p> <p>5 magnetron sputtering chamber with, you know, for</p> <p>6 example, oxygen in the gas content along with an</p> <p>7 aluminum target for aluminum oxide, the example in</p> <p>8 this sentence.</p> <p>9 BY MR. OU:</p> <p>10 Q So but what would -- what would be the</p> <p>11 conventional reactive DC magnetron sputtering?</p> <p>12 MR. WELLS: Objection to form.</p> <p>13 THE WITNESS: Do you -- do you mean what is</p> <p>14 a DC magnetron sputtering tool?</p> <p>15 MR. OU: Yeah. Let me -- let me be a</p> <p>16 little more precise.</p> <p>17 Q Would you agree that the inventors in this</p> <p>18 sentence were saying that -- were identifying</p> <p>19 conventional reactive DC magnetron sputtering</p> <p>20 techniques and saying that those conventional</p> <p>21 reactive DC magnetron sputtering techniques would</p> <p>22 not -- it would be almost impossible to use those to</p> <p>23 deposit films like aluminum oxide?</p> <p>24 Would you agree?</p> <p>25 MR. WELLS: Objection to form.</p> | 151 | <p>1 oxygen reacts with the, for example, aluminum target</p> <p>2 and creates a thick layer of aluminum oxide.</p> <p>3 Then it eventually can't sputter much and</p> <p>4 it will damage the power supply, as they represent.</p> <p>5 Q And so that DC source that's hooked up to</p> <p>6 the target, is that a continuous DC source or a</p> <p>7 pulsed DC source?</p> <p>8 MR. WELLS: Objection to form.</p> <p>9 THE WITNESS: It doesn't say pulsed, it</p> <p>10 says "DC."</p> <p>11 I understand that it is probably referring</p> <p>12 to your standard DC power supply.</p> <p>13 BY MR. OU:</p> <p>14 Q And when you say "standard DC power</p> <p>15 supply," can you describe what you're referring to?</p> <p>16 A I'm contrasting a standard DC power supply</p> <p>17 with a pulsed DC power supply that can switch on and</p> <p>18 off. Relatively quickly, it will.</p> <p>19 Q Dr. Glew, are you familiar with a -- a term</p> <p>20 called "arcing"?</p> <p>21 A Yes.</p> <p>22 Q Would you agree that arcing was a known</p> <p>23 problem as early as the '90s, perhaps even sooner --</p> <p>24 before that?</p> <p>25 MR. WELLS: Objection to form.</p> |
| 150 | <p>1 THE WITNESS: What they've said is that</p> <p>2 it's almost impossible to deposit by conventional DC</p> <p>3 magnetron sputtering.</p> <p>4 I'm not -- you know, that's what it says</p> <p>5 there. I'm not sure what your question is regarding</p> <p>6 what their statement is.</p> <p>7 BY MR. OU:</p> <p>8 Q Yeah. My question is what were they</p> <p>9 referring to as "conventional reactive DC magnetron</p> <p>10 sputtering"?</p> <p>11 MR. WELLS: Objection to form.</p> <p>12 THE WITNESS: I understand, you know, DC</p> <p>13 magnetron sputtering essentially to be a DC source</p> <p>14 hooked up to a target, magnets behind it would be</p> <p>15 typical, and then to make it reactive, one would</p> <p>16 have, for example, oxygen in -- in with the argon</p> <p>17 and one would have a reactive DC magnetron</p> <p>18 sputtering system.</p> <p>19 MR. OU: And -- sorry. I didn't mean to</p> <p>20 interrupt you.</p> <p>21 Q Were you done?</p> <p>22 A I was just -- yeah, that would, you know,</p> <p>23 produce a reactive material film, a thin layer on</p> <p>24 the substrate until the target itself got covered</p> <p>25 too much with the same, you know, material, the</p> | 152 | <p>1 THE WITNESS: The patent describes here at</p> <p>2 Column 4, Line 51, arcing. They describe that as</p> <p>3 one of the problems with the DC magnetron reactive</p> <p>4 sputtering, so the patent discloses that this was a</p> <p>5 problem.</p> <p>6 MR. OU: I want to go back to your earlier</p> <p>7 testimony where you're drawing the distinction</p> <p>8 between a standard DC power supply and a pulsed DC</p> <p>9 power supply.</p> <p>10 Q You agree that those are two different</p> <p>11 things, right?</p> <p>12 MR. WELLS: Objection to form.</p> <p>13 THE WITNESS: Well, a DC power supply can</p> <p>14 also be -- a standard DC power supply can also be</p> <p>15 modified by external circuit to pulse. The pulses</p> <p>16 can be done external to the power supply.</p> <p>17 BY MR. OU:</p> <p>18 Q By that, are you referencing, for example,</p> <p>19 a Sparc-le unit, which I think you discuss in your</p> <p>20 declaration?</p> <p>21 A That would be one -- that would be one way</p> <p>22 to do it. I mean that would be one aspect of</p> <p>23 pulsing.</p> <p>24 There's other aspects of pulsing too.</p> <p>25 Q So a standard DC power supply could be</p> |

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| <p style="text-align: right;">153</p> <p>1 modified with additional hardware such as a Sparc-1e 2 unit to, thus, basically convert it into a pulsed DC 3 power supply; is that right? 4 A That would be one way to do it, yes. 5 Q Okay. What is another way that it could be 6 done? 7 MR. WELLS: Objection to form. 8 THE WITNESS: Well, it's not as efficient, 9 maybe, as other methods; but one can simply have an 10 external circuit that helps to draw up the voltage 11 to ground -- or not to ground but, you know, 12 basically an external pulsing circuit. 13 BY MR. OU: 14 Q What do you mean by an "external pulsing 15 circuit"? 16 A Imagine that one had -- this is a 17 hypothetical question, so you're getting a 18 hypothetical answer. 19 Imagine one had a 500-volt setting on a DC 20 power supply and one had an external circuit that 21 just grounded it -- you know, had a heater that got 22 hot, essentially, and carried the current to ground. 23 You could potentially dump it to ground 24 that way or dump it -- you know, something like 25 that, you know, or to a bias voltage, dump it to</p> | <p style="text-align: right;">155</p> <p>1 THE WITNESS: What I said was that, you 2 know, in the context of these patents, it would have 3 to hit a positive voltage. 4 You know, how it does it is -- you know, 5 there's a lot of ways to create a circuit, but it 6 would have to -- in this -- in this -- for example, 7 this claim element, provide alternating negative and 8 positive voltages to the target, so it would have to 9 hit a positive voltage. 10 BY MR. OU: 11 Q What -- can you elaborate what you mean by 12 "it would have to hit a positive voltage"? 13 A The claim limitation requires that -- I'll 14 read the whole thing and then describe what I'm 15 talking about. 16 "A pulsed DC power supply coupled to the 17 target area, the pulsed DC power supply providing 18 alternating negative and positive voltages to the 19 target," so -- end quote. 20 So in this context, when it pulses, you 21 know -- and typically it might be set at minus, 22 let's say, you know, a few hundred volts. It would 23 have to go to some positive voltage. 24 The positive voltage is there on the 25 target -- or it provides the positive voltage to the</p> |
| <p style="text-align: right;">154</p> <p>1 250, whatever. There -- you know, there -- there 2 are a lot of ways to create circuits. 3 Q And so is it your testimony or your opinion 4 that a standard DC power supply with this type of 5 external circuit that would ground the voltage, that 6 would, in your view, be a pulsed DC power supply in 7 the context of these patents? 8 MR. WELLS: Objection to form. 9 THE WITNESS: Well, in the context of the 10 claims of these patents, they typically -- let me -- 11 for example, I'll look at Claim 1 of this one. 12 It requires, in the third claim element, at 13 Column 32, Line 44, all -- or 45, a -- the pulsed DC 14 power supply providing alternating negative and 15 positive voltages to the target, so it would have to 16 go from negative to positive, not just ground. 17 BY MR. OU: 18 Q And so a DC power supply that had some 19 external circuitry that grounded the voltage, for 20 example, when an arc is detected, that, in your 21 view, would not be what a person of ordinary skill 22 in the art would understand a pulsed DC power supply 23 to be in the context of these patents; is that fair? 24 A No. 25 MR. WELLS: Objection to form.</p> | <p style="text-align: right;">156</p> <p>1 target in order to attract the negative electrons. 2 The negative electrons are very light. They weigh 3 about 1/1800th of a single proton. 4 So it doesn't need to be positive, and it 5 doesn't need to be positive for very long, but it 6 does need to be positive to attract the electrons to 7 clean up the target that's been, you know, poisoned, 8 oxidized, made -- too thick of a nonconductive layer 9 on it, basically. 10 BY MR. OU: 11 Q Dr. Glew, were you -- when -- at the time 12 that you were working at Applied Materials and 13 working with the PVD team, do you have any 14 recollection as to the power supplies that Applied 15 Materials was using? 16 A Generally, yes, but it's been a long time. 17 Q Can you just tell me what you recall? 18 MR. WELLS: Objection to form. 19 THE WITNESS: I -- it's been a long time. 20 I generally recall that as a company, all 21 the divisions pretty much used ENI and Advanced 22 Energy. ENI was later bought by MKS. 23 BY MR. OU: 24 Q In the '90s, those were the two kind of 25 leading suppliers for power supplies in the</p> |

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| 157 | <p>1 semiconductor equipment manufacturing space; is that 2 fair?</p> <p>3 A It's my understanding they were the leaders 4 in that space and they were also the main providers 5 to suppliers to Applied Materials.</p> <p>6 Q Okay. And do you have any recollection as 7 to the specific power supplies from Advanced Energy 8 that you were working with in the mid '90s?</p> <p>9 A It's been a long time. I don't recall the 10 model numbers.</p> <p>11 Q Do you remember if any of those power 12 supplies were the pulsed DC power supplies that 13 you've been talking about, or were they the standard 14 DC power supplies?</p> <p>15 MR. WELLS: Objection to form.</p> <p>16 THE WITNESS: It's been a long time, you 17 know, 20-plus years. I don't remember them being 18 pulsed, but it's been a long time.</p> <p>19 BY MR. OU:</p> <p>20 Q So they would have been the standard DC 21 power supplies, then, that were used by Applied 22 Materials when you were working there in the mid 23 '90s?</p> <p>24 MR. WELLS: Objection to form.</p> <p>25 THE WITNESS: It's been a long time. I</p> | 159 | <p>1 ordinary skill in the art with respect to these 2 patents-in-suit would be familiar with the power 3 supplies that ENI and Advanced Energy were supplying 4 to manufacturers of PVD equipment?</p> <p>5 MR. WELLS: Objection to form. 6 And I instruct the witness not to answer. 7 BY MR. OU:</p> <p>8 Q Are you going to follow your counsel's 9 instruction?</p> <p>10 A Yes.</p> <p>11 Q If you can turn with me, Dr. Glew, to 12 Paragraph 9 of your -- of your declaration. 13 Are you there?</p> <p>14 A Yes.</p> <p>15 Q The -- the second sentence of Paragraph 9, 16 you wrote -- and I'm going to not read the whole 17 thing, but just to orient you -- "I'm also aware of 18 information generally available to and relied upon 19 by persons of ordinary skill in the art at the 20 relevant time, including, for example" -- and one of 21 the things that you include are manuals. 22 Is that right?</p> <p>23 A Yes.</p> <p>24 Q When you wrote this statement, what type of 25 manuals were you referring to?</p> |
| 158 | <p>1 haven't gone back and tried to recreate what was 2 being done then at Applied. I don't recall them 3 being pulsed, but that's just a general 4 recollection.</p> <p>5 I -- I really couldn't positively say one 6 way or the other. I just don't recall them being 7 pulsed.</p> <p>8 BY MR. OU:</p> <p>9 Q And to the extent that you know, were ENI 10 and Advanced Energy -- were they the primary power 11 supply suppliers to other equipment manufacturers 12 other than Applied Materials?</p> <p>13 MR. WELLS: Objection to form.</p> <p>14 THE WITNESS: My understanding is that ENI 15 and Advanced Energy were both large suppliers to the 16 semiconductor industry and to other equipment 17 companies. They both applied -- they both supplied 18 to Applied Materials.</p> <p>19 I think my general recollection -- again, 20 it's been a long time -- is that ENI had larger 21 market share than Applied Materials, but that 22 Advanced Energy was taking market share around that 23 time.</p> <p>24 BY MR. OU:</p> <p>25 Q Would you -- would you say that a person of</p> | 160 | <p>1 A Principally equipment and component 2 manuals.</p> <p>3 Q And by "component manuals," you mean 4 certain components that would be in PVD equipment?</p> <p>5 A Yes.</p> <p>6 Q Okay. And --</p> <p>7 A Sub- -- subcomponents or subsystems.</p> <p>8 Q So that could be, for example, like power 9 supply that's used in a PVD system, right?</p> <p>10 A It could be a power supply, a flow 11 controller, a -- a vacuum gauge, things like that, 12 yeah. Things that were attached to the chambers --</p> <p>13 Q Okay.</p> <p>14 A -- in some of the processing.</p> <p>15 Q Okay. And so would you agree, then, that a 16 person of ordinary skill in the art at the time of 17 the invention would have knowledge of manuals of 18 these types of components such as power supplies, 19 vacuum gauges, and -- and other things like that, 20 flow controllers?</p> <p>21 Is that fair?</p> <p>22 MR. WELLS: Objection to form.</p> <p>23 THE WITNESS: I think one of skill in the 24 art would generally be aware of the manuals for the 25 equipment.</p> |

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| <p style="text-align: right;">161</p> <p>1 BY MR. OU: 2 Q And by "equipment," you -- you're including 3 the overall equipment as well as the components of 4 the equipment, things like the power supplies, 5 vacuum gauges, flow controllers; is that right? 6 MR. WELLS: Objection to form. 7 THE WITNESS: Let me say one -- one of 8 skill in the art would generally be familiar with 9 the manuals for the process tool equipment and the 10 components contained there- -- therein, such as 11 valve -- or flow controllers, power supplies, 12 pressure vacuum gauges, things like that. 13 MR. OU: Got it. 14 Dr. Glew, earlier you had made reference, 15 or maybe it was me, to -- to a Sparc-le unit. 16 Q Do you recall us briefly discussing that? 17 A I recall you brought it up, yes. 18 Q Okay. Can you generally describe what a -- 19 what your understanding is of a -- is a Sparc-le 20 unit? 21 A My general understanding or summary of a 22 Sparc-le unit would be that it is a unit that forces 23 the power supply to provide a brief positive 24 voltage -- 25 Q And as a result of -- of providing that</p> | <p style="text-align: right;">163</p> <p>1 a set frequency? 2 Is that what you're saying? 3 MR. WELLS: Objection to form. 4 THE WITNESS: Essentially the -- the 5 positive voltage, the Sparc-le, whatever you want to 6 refer to it as, is initiated by machine control with 7 the apparent onset of arcing current avalanche, so, 8 yeah, it's not a necessarily fixed frequency. It 9 could -- it would be detected. 10 MR. OU: Give me a second. I'm going to 11 put a document in the chat, actually. Let me know 12 when you have it, Dr. Glew. 13 THE STENOGRAPHER: Will this be the next 14 exhibit in order? 15 MR. OU: Yes. 16 This is going to be Exhibit 6, right. 17 THE VIDEOCONFERENCE TECHNICIAN: Yes, this 18 is Exhibit 6. 19 (Exhibit No. 6 was marked for 20 identification by the 21 videoconference technician; 22 attached hereto.) 23 MR. OU: Okay. Great. 24 So, Dr. Glew, I've -- I've marked as 25 Exhibit 6 a document that has Bates number</p> |
| <p style="text-align: right;">162</p> <p>1 brief positive voltage, after that happens, does the 2 voltage then go back down to the constant negative 3 voltage that was -- it was previously set at? 4 A My understanding is generally that's how 5 people operated the equipment, yes, was to briefly 6 provide a positive voltage and then return it to its 7 negative setting, constant negative setting. 8 Q And the result of that combination of 9 constant DC power supply with a Sparc-le unit would 10 effectively create a -- a pulsed DC power supply 11 that would alternate between positive and negative 12 voltages at a frequency; would you agree? 13 MR. WELLS: Objection to form. 14 THE WITNESS: No, not necessarily. 15 BY MR. OU: 16 Q Can you explain why -- why you say "Not -- 17 no, not necessarily"? 18 A The Sparc-le could be initiated, the 19 positive -- the brief positive pulse could be 20 initiated by the onset of a current avalanche -- an 21 arc, so something along those lines could initiate 22 the positive pulse. 23 Q So if an arc is detected, the Sparc-le unit 24 could basically create a pulse to quench the arc, 25 and in that situation, it would not be happening at</p> | <p style="text-align: right;">164</p> <p>1 Defendants' PA_0003064, and it's titled "Sparc-le 20 2 Accessory." 3 Q Do you see that? 4 A Yes. 5 Q Okay. Are you -- have you seen this 6 document before? 7 A I'm not sure if I have. I'm generally 8 familiar with the subject matter, though. 9 MR. OU: Okay. Let me refer you to 10 Exhibit 7, which I just put in the chat, if you can 11 download that. Let me know when you have it. 12 (Exhibit No. 7 was marked for 13 identification by the 14 videoconference technician; 15 attached hereto.) 16 THE WITNESS: Okay. I have Document 7 up. 17 MR. OU: Okay. Exhibit 7, it starts with a 18 Bates number DEFTS-PA_0003057 -- or 3056, going to 19 3063. 20 Q Do you recognize this document, Dr. Glew? 21 A I recognize the name, Scholl. 22 Hang on a sec. 23 I don't recall reviewing it in the context 24 of the claim construction. 25 Q Maybe I can help you, Dr. Glew. It -- in</p> |

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| <p style="text-align: right;">165</p> <p>1 your declaration, at Paragraph 44, you've included a 2 Figure 5, an image of a Sparc-le waveform when arc 3 is triggered. 4 Do you see that? 5 A Yeah, where -- where are you? 6 Q Yeah, I'm in your declaration at 7 Paragraph 44. 8 A Got it. Okay. Yeah. Got it. 3058. 9 Okay. Yes. Okay. But, actually, 62 -- there we 10 go. Yes. Okay. Yeah. 11 Q So do you -- does that refresh your 12 recollection? 13 Is this white paper something that you 14 reviewed in preparing your declaration? 15 A Yes. 16 Like I said, I remember the name Scholl, I 17 just didn't remember the title of the paper. Okay. 18 Q Okay. And -- and did you review this 19 entire document in forming your claim construction 20 opinions? 21 A I looked at the document. Some parts were 22 more interesting than others. 23 Q Okay. At Paragraph 44 of your declaration, 24 the first sentence -- 25 A Yes.</p> | <p style="text-align: right;">167</p> <p>1 the pulsing frequency exceeds a critical frequency 2 that depend on target material, cathode current, and 3 reverse time." 4 And it goes on. That -- that's kind of a 5 synopsis of what it does. 6 Q And so you would agree that the patent 7 discloses preventing arcing through the use of a 8 pulse of DC power that alternates between negative 9 and positive potentials, right? 10 MR. WELLS: Objection to form. 11 THE WITNESS: What it describes or what it 12 claims is providing alternating negative and 13 positive voltages to the target, so essentially it's 14 along those lines. 15 BY MR. OU: 16 Q And so why does providing alternating 17 negative -- or how does providing alternating 18 negative and positive voltages prevent arcing? 19 A Well, the negative is required for the 20 actual sputtering, the deposition, in which case 21 certain ions are attracted to the target. 22 The positive part attracts negative things 23 to the target; and in that positive phase, it will, 24 one, reduce the charge accumulation, and two, reduce 25 material, potentially, or remove material. But</p> |
| <p style="text-align: right;">166</p> <p>1 Q -- you write "Arcing is a failure and an 2 unexpected result, and the use of one or more pulses 3 of DC power to prevent it upon detection can also 4 occur in real time." 5 Do you see that? 6 A Yes. 7 Q Okay. And I think in several other places 8 in your declaration, you describe the 9 patents-in-suit as disclosing a way to prevent 10 arcing; is that fair? 11 A I think it's part --partly, yeah. It's 12 meant to prevent arcing in these systems where 13 there's an insulating material that -- that develops 14 on the target, yes. 15 Q And how does the patent explain how using a 16 pulsed DC power supply can prevent arcing? 17 A Well, I've cited to a number of areas of 18 the patent throughout my declaration. 19 For example, in Paragraph -- let's see -- 20 43, I'm citing to -- at Paragraph 43, I cite to 530 21 through 39, starting at Line 33. I will read from 22 the patent. 23 "During the positive period, the insulating 24 layer on the surface of Target 12 is discharged and 25 arcng is prevented. To obtain Arc 3 deposition,</p> | <p style="text-align: right;">168</p> <p>1 those are kind of the two physical phenomenon going 2 on. 3 I'll add one sentence. You know, whereas 4 the -- the negative portion attracts positive 5 charge, the positive portion of the pulse attracts 6 negative charge, so the goal is to not let negative 7 or positive build up but to balance each other out. 8 Negative charges, electrons, are very small 9 and move very fast, so one doesn't need much 10 positive potential or for very long to very quickly 11 gather negative charges on the surface to counteract 12 positive accumulation. 13 Q And so that happens by alternating the 14 positive and negative voltages at a frequency; is 15 that right? 16 MR. WELLS: Objection to form. 17 THE WITNESS: Are you asking about a 18 particular instance? 19 BY MR. OU: 20 Q Well, I'm -- I'm asking you generally, or 21 within the context of -- of the patents, you would 22 agree that the patents, when they discuss pulsed DC 23 power, reference a frequency and the reverse time; 24 is that right? 25 MR. WELLS: Objection to form.</p> |

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| <p style="text-align: right;">169</p> <p>1 THE WITNESS: Some of the preferred 2 embodiments may mention frequency and reverse time. 3 The Claim 1 does not put a limitation of frequency 4 reverse time on the pulse. 5 BY MR. OU: 6 Q Is -- is there a place anywhere in the 7 patent specification that you can point me to that 8 has a discussion of pulsed DC that doesn't also 9 discuss having the frequency and the reverse time? 10 MR. WELLS: Objection to form. 11 THE WITNESS: Well, for example, looking at 12 Column 5, Line 49, it describes that the reverse 13 time can be set between 0 and 5 microseconds; so in 14 that case, it discloses, you know, no reverse time 15 setting, 0. That would be one example. 16 BY MR. OU: 17 Q So if -- if there's 0 reverse time, you 18 wouldn't have a pulse, though, right? 19 A I don't think I follow your question. 20 Q Well, I -- I asked you does the patent ever 21 disclose or discuss a pulsed DC -- I'm sorry. I'm 22 hearing an echo. 23 Okay. That's better. Let me start over. 24 I apologize. 25 I was asking you does the patent ever</p> | <p style="text-align: right;">171</p> <p>1 Basically that it would just provide the 2 positive pulse as quickly as it could. There 3 would -- there would be no delay of returning to 4 voltage. It would sort of be a fast -- fastest 5 response possible. 6 BY MR. OU: 7 Q So in -- in that situation, you would have 8 a reverse time and you would also have a frequency, 9 right? 10 MR. WELLS: Objection to form. 11 THE WITNESS: These are machines. They're 12 not perfect. It's still -- it can't instantaneously 13 reverse. It just reverses as quickly as it can, to 14 my understanding. 15 MR. OU: Right. 16 Q And so in that situation, you would have a 17 frequency and you would have a reverse time 18 associated with the pulses being generated, right? 19 MR. WELLS: Objection to form. 20 THE WITNESS: There's no specified reverse 21 time. The machine is just commanded to, you know, 22 provide the positive pulse and then get back as fast 23 as it can to negative. 24 That's how I understand this. This is -- 25 you know, that was one example. You were interested</p> |
| <p style="text-align: right;">170</p> <p>1 disclose or discuss pulsed DC power supply without 2 reference to a frequency and a reverse time; and as 3 I understood your question -- your response, it was 4 you were referring me to a reverse time scenario 5 where the reverse time is 0. 6 Is that right? 7 A Yes. 8 Q So if there's no reverse time -- if there's 9 0 reverse time, you don't have a pulse, though, 10 right? 11 MR. WELLS: Objection to form. 12 THE WITNESS: No, that's not my 13 understanding. 14 BY MR. OU: 15 Q Okay. Well, if the reverse time is set at 16 0, can you describe what the voltage output would be 17 of the pulsed DC power supply? 18 MR. WELLS: Objection to form. 19 Sorry. 20 THE WITNESS: I think generally it would 21 just mean as fast as it can. 22 BY MR. OU: 23 Q Do you mean it -- it would pulse as fast as 24 it -- as it can? 25 A No.</p> | <p style="text-align: right;">172</p> <p>1 in other things too, though. 2 MR. OU: Yeah. 3 Q My -- my question, again, was, can you 4 point me to one -- any part of the specification 5 that describes the pulsed DC power supply and 6 doesn't associate it with having a frequency and a 7 reverse time? 8 MR. WELLS: Objection to form. 9 THE WITNESS: Well, it uses the term 10 "frequency" in Column 5 at Line 35, and I don't 11 think the way that you're using the term "frequency" 12 and the way the patent uses it is necessarily the 13 same. 14 So the patent reads, at 535, "To obtain 15 arc-free deposition, the pulsing frequency exceeds a 16 critical frequency that depend on target material, 17 cathode current and reverse time." It goes on. 18 So basically it needs to be -- receive a 19 positive pulse on the target at least a certain 20 amount so that it doesn't build up this excessive 21 poison layer, insulating layer. 22 It doesn't necessarily mean that it's at a 23 fixed value. It's just saying that you have to 24 refresh the positive at least this often in order to 25 avoid arcing.</p> |

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| <p style="text-align: right;">173</p> <p>1 BY MR. OU: 2 Q And -- and by doing that, that will prevent 3 arcing, right? 4 A Yes. 5 The goal here is to prevent arcing, to 6 discharge the target voltage current accumulation on 7 the surface, or -- or charge accumulation on the 8 surface. 9 Q So -- and -- and to prevent arcing, in 10 order to do that, would -- you would agree that 11 there's going to be some frequency where you want to 12 be pulsing back and forth between positive and 13 negative which is higher than this critical 14 frequency, and also for a long enough period of time 15 in positive such that you have an arc-free 16 deposition, right? 17 MR. WELLS: Objection to form. 18 THE WITNESS: It basically says that you 19 must refresh this frequently, the positive voltage, 20 in order to avoid arcing. You can do it more often 21 too, it says. You know, during -- let's see. 22 It's -- it must exceed this -- this 23 frequency. By "frequency," it means how often, you 24 know, it was done. This isn't necessarily set it at 25 this value, it's -- so this is an example of</p> | <p style="text-align: right;">175</p> <p>1 MR. WELLS: Objection to form. 2 THE WITNESS: Could you repeat the 3 question? 4 MR. OU: Yeah. You -- you -- you made 5 reference to refresh -- refresh as needed, and -- 6 and I wanted to better understand what you meant by 7 refresh as needed -- 8 THE WITNESS: Yeah. 9 MR. OU: -- in order to have a desirable 10 scenario. So let me start over. 11 I think -- what you said was the most 12 desirable scenario is to refresh as needed to 13 maximize the deposition rate but minimize the 14 possibility of arcing because arcing can ruin the 15 product. 16 Q That -- that's what you said, right? 17 A Yes, there's -- 18 MR. WELLS: Objection to form. 19 THE WITNESS: As I said -- yeah, if you 20 read from my testimony, then I suppose that's fair. 21 MR. OU: Right. 22 And -- and so let me ask -- let me ask my 23 follow-up question. 24 Q In terms of "refresh as needed," did you 25 mean that you would basically decide what -- at what</p> |
| <p style="text-align: right;">174</p> <p>1 tradeoff with a lot of things. 2 The more often that one refreshes, though, 3 the slower the deposition, typically. It does stop 4 sputtering when it's in this positive potential. 5 MR. OU: Right. 6 Q So in order for a pulsed DC power supply to 7 prevent arcing, if you wanted to maximize your 8 arcing prevention, you would want to pulse back and 9 forth between positive, negative, as frequently as 10 possible and also have a long enough reverse time as 11 possible, but that would also have some tradeoffs in 12 that that would slow down your deposition rate. 13 Would you agree with that? 14 MR. WELLS: Objection to form. 15 THE WITNESS: Not exactly. 16 I -- I think the most desirable scenario -- 17 or a desirable scenario is to refresh as needed to 18 maximize the deposition rate but minimize the 19 possibility of arcing, because arcing can ruin the 20 product. 21 BY MR. OU: 22 Q Okay. When you say "refresh as needed," do 23 you mean basically determine a frequency and also 24 determine a reverse time that would maximize your 25 arc prevention as well as maximize your deposition?</p> | <p style="text-align: right;">176</p> <p>1 frequency the voltages would alternate between 2 positive and negative, and also at what reverse time 3 you would be in the positive voltage so that you can 4 accomplish these -- these different tradeoffs, 5 right? -- in terms of maximizing deposition rate as 6 well as minimizing the possibility of arcing? 7 MR. WELLS: Objection to form. 8 THE WITNESS: The -- the last example that 9 I was discussing talks about a critical frequency, 10 basically. It has to be pos- -- refreshed, 11 positive, you know, at least this often in order to 12 avoid arcing. 13 That was at Column 5, Line 35. It could be 14 done more often, you know. It depends upon the 15 system. 16 A single arc can be, you know, catastrophic 17 for the process, so one may decide that one wants to 18 pulse or refresh the positive charge -- positive 19 potential more often in order to remove or reduce 20 risks, with a slight tradeoff in deposition rate. 21 MR. OU: Right. 22 Q So -- so the different ways to do that, 23 in -- in order to minimize the likelihood of having 24 a -- an arc event or to maximize your ability to 25 prevent arcing, the -- the tradeoffs would be to</p> |

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| <p>177</p> <p>1 increase the frequency at which you're alternating 2 between positive and negative and also having a 3 longer reverse time in terms of how long you are in 4 the positive voltage, but the trade-off of that 5 would be that you're going to have, you know, a 6 potentially lower deposition rate; is -- is that 7 right? 8 MR. WELLS: Objection to form. 9 THE WITNESS: That generally goes in the 10 right direction, but there's some issues there. 11 You know, the reverse time, how long it 12 spends at 0 doesn't have to be set at all. The -- 13 you know, the specification describes that it can be 14 0, which just basically means go to this positive 15 voltage and immediately come back, Don't wait 16 around. 17 The reality is it is going to be at a 18 positive voltage for a finite period of time. It's 19 a machine. It's not instantaneous. But you're not 20 specifying the period of time that it is positive, 21 you're just taking what you get, so you don't even 22 have to set the reverse time. 23 There was -- that was described at 24 Column 5, Line 48 and 49. Quote, the reverse time 25 on this embodiment of Power Supply 14 can be</p> | <p>179</p> <p>1 as well as there's going to be a frequency? 2 Would you agree? 3 MR. WELLS: Objection to form. 4 THE WITNESS: I wouldn't agree that the 5 reverse time is set there. There's no setting at 6 all for the reverse time in that case. It's 0, it's 7 not set. 8 MR. OU: Yeah, I don't think in my last 9 question, Dr. Glew, I -- I made reference to set. I 10 was just -- I was saying that in -- in every 11 instance that pulsed DC power supply is discussed, 12 there is an associated frequency and there will be 13 an associated reverse time. 14 Q Is that right? 15 MR. WELLS: Objection to form. 16 THE WITNESS: As I said before, there's no 17 setting for the reverse time in the reference that I 18 just gave. 19 BY MR. OU: 20 Q Okay. But there is a reverse time, right? 21 A There isn't a defined reverse time. There 22 is a -- there is a time that it's -- that it's 23 reversing itself, but there's no setting for the 24 reverse time. 25 Q Okay. Is there a setting for the</p> |
| <p>178</p> <p>1 adjusted between 0 and 5 microseconds. 2 So it may try to dwell positive for 3 5 microseconds or it may not try to dwell at all and 4 you just get what you get, you know, maybe it's half 5 a microsecond, maybe it's something, you know, 6 pretty fast. But you just don't want to hang out 7 positive too long. 8 Q You agree that there will be a reverse 9 time, though, even in the disclosure that you're 10 pointing to at Column 5, Line 48 through 49? 11 That 0 isn't actually 0 seconds, it's just 12 as -- as quickly as possible? 13 Did I understand your testimony right? 14 MR. WELLS: Objection to form. 15 THE WITNESS: What it essentially means is 16 no setting. Don't set it. You know, it's just as 17 fast as the machine can go, as fast as the power 18 supply can get there. That's how I understand it. 19 So, yes, it is going to be a finite value. 20 It's not instantaneous. Nothing is. 21 MR. OU: Right. 22 Q And -- and so in every instance where the 23 pulsed DC power supply is being discussed in this 24 patent, you would agree that there is some reverse 25 time, even if it's, you know, a very finite number,</p> | <p>180</p> <p>1 frequency? 2 MR. WELLS: Objection to form. 3 THE WITNESS: Are you asking that 4 particular instance or in one of the other 30-plus 5 references to how to do this in the patent? 6 MR. OU: Sure. 7 Q Are there any disclosures in the 8 specification where there is not a frequency 9 associated with a pulsed DC power supply? 10 MR. WELLS: Objection to form. 11 THE WITNESS: Well, back to Column 5 at 12 Line 35 -- we discussed this previously -- it merely 13 describes that the -- the pulsing must be done more 14 often than a minimum value. It uses the term 15 "frequency," but I don't believe it's using the term 16 "frequency" in the same way you're using the term 17 "frequency." 18 I will read from 5-35. "To obtain arc-free 19 deposition, the pulsing frequency exceeds a critical 20 frequency that depends on target material, cathode 21 current, and reverse time. High-quality oxide films 22 can be made using reactive DC magnetron sputtering 23 in Apparatus 10." 24 So there's -- as long as it is greater than 25 the time that it takes to build up charge or -- and</p> |

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| <p style="text-align: right;">181</p> <p>1 thickness of the poison layer, that is sufficient. 2 There's nothing that precludes one from doing it any 3 amount of time that is more than -- more than that 4 critical period. 5 BY MR. OU: 6 Q As long as your frequency is higher than 7 the critical frequency, you will successfully 8 prevent the arcing? 9 MR. WELLS: Objection to form. 10 BY MR. OU: 11 Q Do you agree? 12 A If the -- the positive pulse occurs more 13 often than that critical frequency, then there will 14 not be arcing. This is something that, you know, if 15 we go back to the Sparc-1e circuit, what it does is 16 it basically measures the critical frequency. 17 It says, okay, we've exceeded the critical 18 frequency, we're starting to arc, and then it 19 initiates a positive pulse. 20 So, you know, the positive pulse 21 requirement, the critical period is dependent upon 22 the target material and a number of other factors; 23 the more worn a target is, the process one's 24 running, and so forth and so on. 25 So the critical frequency isn't necessarily</p> | <p style="text-align: right;">183</p> <p>1 MR. OU: Yes. 2 THE WITNESS: Okay. Yes. 3 MR. OU: Sorry. 4 Q During the break, did you have any 5 conversations with counsel? 6 A Yes. 7 Q You -- did you have any conversations about 8 the substance of your testimony? 9 A No. 10 Q Okay. What was the extent of your 11 conversation? 12 A Logistics, when this might end. 13 Q Gotcha. 14 Okay. Let me turn back to documents. 15 Dr. Glew, one other just logistical 16 question. I'm not sure if you have -- in front of 17 you, do you have one monitor or two monitors? 18 A I have two monitors. 19 Q Okay. Okay. I had just noticed you're 20 kind of -- eyes keep going off to the left or 21 right -- or to the right. 22 Are you -- do you have like one window 23 that's open that has the Zoom and the other with the 24 documents? 25 A Yes.</p> |
| <p style="text-align: right;">182</p> <p>1 constant and one doesn't have to stick at that 2 value, one can vary anything that's that value or 3 more to avoid -- or more often to avoid the -- the 4 arc effect. 5 I'm going to get my lights. 6 MR. WELLS: Hey, Phil, we've been going 7 over an hour, and I have to take a short break. Is 8 now a good time? 9 MR. OU: Yeah, no problem. Why don't we go 10 off the record. Do you want -- yeah, let's go off 11 the record. 12 THE VIDEOGRAPHER: We are going off the 13 record the 15:56. 14 (A recess was taken from 3:56 p.m. 15 to 4:08 p.m.) 16 THE VIDEOGRAPHER: We are back on the 17 record at 16:08. 18 MR. OU: Dr. Glew, welcome back. 19 Q Did you have any conversations with counsel 20 during the break? 21 Could you hear me okay, Dr. Glew? I think 22 you might be on mute, or at least I can't hear you. 23 MR. WELLS: Still can't hear you. 24 MR. OU: I still can't hear you. 25 THE WITNESS: Can you hear me now?</p> | <p style="text-align: right;">184</p> <p>1 I have Adobe on one window and people on 2 the other. 3 Q Gotcha. 4 And those are the only things that are open 5 on -- on your computer in terms of applications? 6 A Yes. 7 Q Okay. Got it. Makes sense now. 8 Let's see. Rhonda, or, actually, Maclain, 9 do you know, just because I lost it, is the last 10 exhibit I marked 7? Do -- do I have that right? 11 Okay. 12 Dr. Glew, could -- could you open up 13 Exhibit 7 for me? 14 A Exhibit 7. 15 Q And just to confirm, do you have Exhibit 7 16 as the white paper from Advanced Energy? 17 A Yes. 18 Q Okay. Great. 19 Can you turn with me to the second to 20 last -- the second to last page. 21 A Okay. I am on Page 3062. 22 Q Okay. Great. So am I. 23 And do you see -- 24 A 7 -- yeah, 7 of the document. 25 Q Right.</p> |

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| <p>1 Do you see at Figure 5 -- Figure 5 is 2 titled "Sparc-le Waveforms, Arc Triggered"? 3 A Yes. 4 Q Okay. And you -- you included this figure 5 in your declaration, right? 6 A Yes, that is on Page 11 of my declaration. 7 Q And can you describe to me, in your 8 opinion, what this figure is illustrating? 9 A It shows the triggering of the Sparc-le 10 circuit or function, shows that there's a positive 11 voltage, not so great, and sort of a soft shoulder 12 on the rise, then a return to the DC, roughly minus 13 600 volts. 14 Q Okay. And -- and so in this situation, 15 this diagram is showing there's an arc event, so an 16 arc is occurring, and then, effectively, it's 17 detected and then the Sparc-le unit is used to 18 quench the arc; is that right? 19 MR. WELLS: Objection to form. 20 THE WITNESS: That's, I think, effectively 21 what Figure 5 is showing, is the initiation of -- 22 well, it's showing the initiation of -- of a 23 Sparc-le waveform function, yes. 24 Presumably there was -- I mean, I don't 25 know if they actually had it hooked up to a reactor</p> | 185 | <p>1 waveform is essentially fixed, I think. 2 Q What do you mean by "the voltage waveform 3 is essentially fixed"? 4 A Reading from the document, it says at the 5 top right column in Page 3, Bates number 3058, 6 quote, the pulse width of some models is fixed at 5 7 or 10M. Maybe supposed to be micron, I'm not sure. 8 "In others, the pulse width can be adjusted from 1 9 to 20M. The voltage waveform for a fixed unit is 10 shown in Figure 4 on Page 7." 11 Then it goes on to describe Figure 5 as an 12 arc detect circuit. 13 Q Right. 14 So in Figure 4, where it says "Sparc-le 15 waveforms self-run mode," what do you understand 16 "self-run mode" to mean? 17 MR. WELLS: Objection to form. 18 THE WITNESS: In the bottom of Column 3 -- 19 in the bottom of the left column on Page 3, it 20 writes -- or gives, quote, periodically, left paren, 21 the rate can be varied from 2 to 50 kilohertz, close 22 paren. A signal is sent to the switch to close. 23 When the switch is closed, the circuit is changed. 24 So that's shown in Figure 3 on Page 6. The 25 tapped inductor becomes a transformer with a ratio</p> | 187 |
| <p>1 with an arc, but they may have just triggered the 2 Sparc-le function and recorded it on its 3 oscilloscope, something along those lines. 4 MR. OU: Right. 5 Q And so what's happening is -- is an arc 6 event is occurring and the voltage is rapidly 7 approaching 0 and then the Sparc-le is effectively 8 triggered to quench the arc; is that right? 9 MR. WELLS: Objection to form. 10 THE WITNESS: Well, the -- the arc or a 11 simulation of an arc is detected. 12 Again, I don't know if this was off a real 13 system or just a lab sim, but -- simulation. But, 14 yes, there's an event, an arc -- arc event or arc 15 event simulation, then the Sparc-le is triggered, 16 runs it up to somewhere 60, 80 volts positive, 17 something like that, and then brings it back down to 18 minus 600, and there's some ringing on the reset, 19 minus 600. 20 BY MR. OU: 21 Q All right. And then can you explain what 22 the difference is between what's shown in Figure 5 23 and what's shown in Figure 4 of this document? 24 A The document describes, on Page 3, on the 25 top right column, that Figure 4, the voltage</p> | 186 | <p>1 adjustable from 20 to 1 to 4 to 1. 2 Then it goes on to describe what I read. 3 "Note that the transformer polarity is such that the 4 voltage is reversed at the output so when the output 5 is pulsed, it's -- when the output switch is pulsed, 6 it's positive and varies from 5 to 25 percent of the 7 normal sputtering voltage. 8 "The pulse width in some models is fixed at 9 5 or 10M; in others, the pulse width can be 10 adjustable from 1 to 20M." The voltage waveform for 11 a fixed unit is shown in Figure 4 on Page 7. 12 BY MR. OU: 13 Q And so in this situation, the self-run 14 mode, would you agree that there's -- there's a set 15 frequency and a set reverse time that's going to be 16 used to prevent arcing in this self-run mode? 17 MR. WELLS: Objection to form. 18 THE WITNESS: I'm not sure if the pulse 19 width, the return time is adjustable or fixed in 20 this one yet. I think likely it's fixed. 21 BY MR. OU: 22 Q And so what's being shown in Figure 4 is 23 pulsing with a -- a frequency and a reverse time to 24 prevent arcing; would you agree? 25 MR. WELLS: Objection to form.</p> | 188 |

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| <p>189</p> <p>1 THE WITNESS: I don't think it says that 2 the frequency is fixed. I think it says that the 3 return time is fixed. 4 MR. OU: If you'll go back to Page 3. 5 THE WITNESS: I'm on Page 3. 6 MR. OU: So at the bottom in the -- in the 7 last -- the bottom paragraph on the left, the second 8 sentence, it states "The energy stored in the 9 magnetic field of the inductor acts to steady the 10 current into the plasma. Periodically, the rate can 11 be varied from 2 to 50 kilohertz, a signal is sent 12 to the switch to close." 13 Q What do you understand "periodically" to 14 mean? 15 MR. WELLS: Objection to form. 16 THE WITNESS: That once in a while, 17 somewhere in the rate between 2 to 50 kilohertz, the 18 Sparc-le is initiated. Basically the switch is 19 closed so that the inductor kicks in and the 20 Sparc-le function turns on. 21 BY MR. OU: 22 Q And -- and 2 to 50 kilohertz, that's a 23 range of -- a range of frequencies, right? 24 MR. WELLS: Objection to form. 25 THE WITNESS: It says that the rate can be</p> | <p>191</p> <p>1 It does say that the -- the pulse width is 2 fixed, I think, in Figure 4. It does not say that 3 the period is fixed. It does say, I think, the -- 4 yeah. 5 BY MR. OU: 6 Q But it does say that the -- sorry. I 7 didn't mean to talk over you. 8 A It does say, the top of Column 4, that 9 the -- the pulse width of some models is fixed at 5 10 or 10M, and others, the pulse width can be 11 adjustable from 1 to 20M. The voltage waveform for 12 a fixed unit is shown in Figure 4 on Page 7, so the 13 figure we're looking at, the width of the positive 14 pulse is fixed, but it doesn't say that the -- that 15 there's a fixed frequency, just that periodically, 16 this thing is triggered. 17 You know, it could -- it could do it when 18 it receives a signal from the tool, it could 19 potentially be set to a certain frequency if that's 20 what -- 21 (Mr. Ou and the witness speak 22 simultaneously.) 23 THE WITNESS: -- allows. 24 BY MR. OU: 25 Q If it does it when it receives a signal</p> |
| <p>190</p> <p>1 varied between 2 and 50 kilohertz, yes. 2 MR. OU: Right. And so there is a 3 frequency, it's just that you can change what the 4 frequency is. 5 Q You would agree, right? 6 MR. WELLS: Objection to form. 7 THE WITNESS: Well, it says periodically. 8 It doesn't -- doesn't say 2 kilohertz to 9 50 kilohertz exactly, it says 2 to 50 kilohertz, so 10 I'm not sure if that's like 1-2 to 50 kilohertz, 11 or -- that's kind of how I read it. 12 So over this large range of times, between 13 2 hertz, which is once every 500 milliseconds, 14 half -- twice a second, to 50,000 times a second, 15 the -- the Sparc-le signal can -- the positive 16 signal can be sent, and it's done periodically. 17 BY MR. OU: 18 Q And so by "periodically," would one of 19 ordinary skill in the art understand that to mean at 20 a frequency? 21 MR. WELLS: Object to form. 22 THE WITNESS: It could mean occasionally or 23 it could mean at a frequency, depending. You know, 24 there's a -- at times the signal is sent to the 25 load; in this case, the target, presumably.</p> | <p>192</p> <p>1 from a tool, are you referring to if an arc is 2 triggered or an arc is detected? 3 A No. 4 MR. WELLS: Objection to form. 5 THE WITNESS: No. 6 That -- that's what's shown in Figure 5, is 7 arc detection. 8 BY MR. OU: 9 Q Okay. You agree that what's shown in 10 Figure 5 is different from what's shown in Figure 4, 11 right? 12 A Yes. 13 I'm on Page 7, Bates number ending in 062. 14 And in Figure 5, it shows arc event at, you know -- 15 about 2-and-a-half microseconds in. However, on 16 Figure 4, it says Sparc-le triggered. 17 If we look 4 bars in, I guess, 18 4 microseconds in at minus 600 volts, there's a -- a 19 label and a -- a line drawn to it that says 20 "Sparc-le triggered." So something triggered this 21 to turn on. You know, it doesn't disclose what 22 triggered it. 23 Q It doesn't disclose what triggered it, but 24 doesn't Page 3 in the last paragraph tell you that 25 there is some -- that is happening periodically or</p> |

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| 193 | <p>1 at some frequency? Understanding that the frequency</p> <p>2 can be changed, but it is happening at some</p> <p>3 frequency?</p> <p>4 MR. WELLS: Objection to form.</p> <p>5 THE WITNESS: It says "periodically." It</p> <p>6 could be triggered once per process. It could be</p> <p>7 triggered based on an amount of deposition or some</p> <p>8 other parameter from the process tool, or it could</p> <p>9 be set to a frequency, yes.</p> <p>10 BY MR. OU:</p> <p>11 Q But there -- there is some set -- something</p> <p>12 that is being set that is causing the Sparc-le to be</p> <p>13 triggered in the instance of Figure 4, right?</p> <p>14 A Yes, Figure 4 shows that something</p> <p>15 triggered it. It doesn't necessarily -- it's not</p> <p>16 necessarily the same as Figure 5, where an arc event</p> <p>17 triggered it.</p> <p>18 Q Right.</p> <p>19 And -- and Figure 4 is effectively showing</p> <p>20 an implementation of the Sparc-le unit to prevent</p> <p>21 arcing, whereas Figure 5 is showing where an arc</p> <p>22 event is detected and then the Sparc-le unit is</p> <p>23 triggered to quench the arc; is that right?</p> <p>24 A Well, I would characterize it as an arc</p> <p>25 event is nascent, it hasn't really occurred yet, but</p> | 195 |
| 194 | <p>1 it's going to start if you don't address it.</p> <p>2 Obviously, there would be no point in</p> <p>3 letting it arc because then you would ruin the --</p> <p>4 the product in the -- in the PVD tool. So it</p> <p>5 doesn't let it arc, it -- it measures or figures out</p> <p>6 that an arc is about to happen and it's in its very</p> <p>7 early stage, and deals with it.</p> <p>8 It's not a full -- it's not a full arc.</p> <p>9 You know, it's got to not let the arc happen.</p> <p>10 Q Put it this way. Figure 5 is an instance</p> <p>11 where you're detecting the arc and then you're --</p> <p>12 the Sparc-le unit is -- is suppressing it, versus</p> <p>13 the Figure 4 is showing an implementation where,</p> <p>14 using some set parameters, you are attempting to</p> <p>15 prevent the arc; is that fair?</p> <p>16 MR. WELLS: Objection -- objection to form.</p> <p>17 THE WITNESS: I would characterize it</p> <p>18 something like Figure 4 is sort of an open-loop</p> <p>19 approach. You know, it's not measuring the current.</p> <p>20 Figure 5 is sort of a closed-loop approach</p> <p>21 where it's measuring the -- the voltage current</p> <p>22 change and preemptively squelching the event.</p> <p>23 BY MR. OU:</p> <p>24 Q Okay. And then turning back to the -- the</p> <p>25 patents-in-suit and their disclosure of using closed</p> | 196 |
| 195 | <p>1 DC power to prevent arcing, would you agree that the</p> <p>2 disclosures in the patent are consistent with what</p> <p>3 is being shown in Figure 4?</p> <p>4 MR. WELLS: Objection to form.</p> <p>5 THE WITNESS: Can you direct me to a</p> <p>6 specific claim or you want me to look at a specific</p> <p>7 embodiment?</p> <p>8 MR. OU: I -- I don't want you to look at a</p> <p>9 specific claim.</p> <p>10 Q I'm asking you in terms of the embodiments</p> <p>11 that are disclosed in the specification -- let me</p> <p>12 ask it this way.</p> <p>13 Do any of the embodiments disclosed in the</p> <p>14 specification disclose the type of, as you described</p> <p>15 it, closed-loop approach of Figure 5 that's shown in</p> <p>16 Exhibit 7 --</p> <p>17 MR. WELLS: Objection to form.</p> <p>18 BY MR. OU:</p> <p>19 Q -- where the arc --</p> <p>20 MR. WELLS: Sorry. Go ahead.</p> <p>21 BY MR. OU:</p> <p>22 Q Yeah, where the -- where the arc is --</p> <p>23 where there is an arc event, and then the arc event</p> <p>24 triggers a Sparc-le to suppress the arc, is that</p> <p>25 disclosed anywhere in -- in the specification?</p> | 196 |
| 196 | <p>1 MR. WELLS: Objection to form.</p> <p>2 THE WITNESS: Well, you know, it's the same</p> <p>3 section we discussed previously in the '657 at</p> <p>4 Column 5, starting around Line 36.</p> <p>5 There's a paragraph that describes that "To</p> <p>6 obtain arc-free deposition, the pulsing frequency</p> <p>7 exceeds a critical frequency that depend on target</p> <p>8 material, cathode current, and reverse time.</p> <p>9 High-quality oxide films can be made using reactive</p> <p>10 pulsed DC magnetron sputtering in Apparatus 10."</p> <p>11 So, you know, in that the positive pulse to</p> <p>12 frequency would depend upon different parameters,</p> <p>13 including cathode current, I think the disclosure</p> <p>14 admits that the need -- the periodic need of</p> <p>15 positive voltage applied to the target is variable.</p> <p>16 MR. OU: Dr. Glew, the disclosure that you</p> <p>17 just read says "To obtain arc-free deposition, the</p> <p>18 pulsing frequency must exceed a current -- a</p> <p>19 critical frequency."</p> <p>20 That's not the same, though, as what's</p> <p>21 shown in Figure 5 of Exhibit 7, where there is an</p> <p>22 arc event occurring and then only after is a -- is a</p> <p>23 Sparc-le triggered to then quench the arc, right?</p> <p>24 MR. WELLS: Objection to form.</p> <p>25 THE WITNESS: Well, it does describe that,</p> | 196 |

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| <p style="text-align: right;">197</p> <p>1 among other things, cathode current is one of the 2 variables. 3 BY MR. OU: 4 Q Yeah, but isn't that describing -- isn't 5 that describing what the critical frequency is going 6 to be? 7 It says "the critical frequency that 8 depends on target material, cathode current, and 9 reverse time," right? 10 MR. WELLS: Objection to form. 11 THE WITNESS: Column 5, Line 30, writes 12 "Target 12 functions as a cathode when power is 13 applied to it and is equivalently termed a cathode." 14 Lower down, as I just cited, it says, at 15 Column 5, Line 43 -- 41 to 43, "To obtain arc-free 16 deposition, the pulsing frequency exceeds a critical 17 frequency that depends on target material, cathode 18 current, and reverse time." 19 So the current through the cathode -- the 20 target changes the periodicity of need for positive 21 voltage. 22 I'm going to turn my lights on again. 23 BY MR. OU: 24 Q The -- the target material, cathode 25 current, and reverse time, those impact what the</p> | <p style="text-align: right;">199</p> <p>1 THE WITNESS: The patent describes at 2 Column 10, Line 54, the reverse pulsing time is 3 determined by the amount of arcing generated during 4 the process, end quote. 5 The patent also contemplates that the 6 reverse pulse time is a variable that is determined 7 by the behavior of the process chamber. 8 BY MR. OU: 9 Q Dr. Glew, you're reading from the '657 10 patent, Column 10, at Line 54 through 57; is that 11 right? 12 A Roughly, yes. 13 Q Okay. Right before that, starting at 14 Line 50, it says "The pulsing frequency range for 15 power supply can be from about up to -- up to about 16 250 kilohertz." 17 Do you see that? 18 A They're talking about, yes, the specific 19 system. 20 Q Right. 21 And then it says "The frequency 22 40 kilohertz is -- is approximately the lowest 23 frequency at which no arcing will occur during 24 deposition in, for example, the AKT1600-based 25 system," right?</p> |
| <p style="text-align: right;">198</p> <p>1 critical frequency would be such that the pulsing 2 frequency needs to exceed the critical frequency in 3 order to obtain arc-free deposition, right? 4 MR. WELLS: Objection to form. 5 THE WITNESS: The cathode current -- that 6 is, the current through the target -- determines the 7 periodicity of -- of positive voltage refresh; so as 8 this period changes, the need for the positive 9 voltage changes, but that is -- you know, the 10 current through the cathode is one of those 11 parameters that they're suggesting is important. 12 BY MR. OU: 13 Q So I -- I had originally asked you, 14 Dr. Glew, whether or not anywhere in the 15 specification of the patents-in-suit was there a 16 disclosure of the -- what is shown in Figure 5 of 17 Exhibit 7, where an arc event is occurring, it's 18 detected, and then the Sparc-le unit is triggered 19 such that the arcing is suppressed; and you pointed 20 me to this disclosure in the '276 patent at Lines 35 21 through 40. 22 Is there any other disclosure in the 23 specification that you believe is disclosing what's 24 shown in Figure 5 of Exhibit 7? 25 MR. WELLS: Objection to form.</p> | <p style="text-align: right;">200</p> <p>1 A In this embodiment, yes. 2 Q Right. 3 And then this precedes the statement that 4 you just read to me that says "The reverse pulsing 5 time is determined by the amount of arcing generated 6 during the process," right? 7 A It precedes where I read, yes. 8 Q So in the context of what was written 9 above, would you agree that what this is describing, 10 the specification for this particular embodiment is 11 that there is a minimum frequency at which you can 12 have no arcing occurring, and as part of that, you 13 would also need to determine how long the pulsing 14 time or the reverse time needs to be? 15 MR. WELLS: Objection to form. 16 THE WITNESS: Not exactly. 17 BY MR. OU: 18 Q Okay. This doesn't say in the disclosure 19 that you just pointed me to anything about detecting 20 an arc event happening and then thereafter quenching 21 the arc using some mechanism such as a Sparc-le 22 unit, right? It doesn't say that here? 23 MR. WELLS: I'm sorry, Phil -- Phil, was 24 the witness done with his prior answer? I don't 25 know that he's was.</p> |

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| <p>1 THE WITNESS: No.</p> <p>2 MR. OU: Okay. I apologize. I didn't mean</p> <p>3 to cut you off.</p> <p>4 THE WITNESS: I was pointing to the -- the</p> <p>5 reverse time, the dwell time of the positive pulse.</p> <p>6 And this basically says that the reverse time, the</p> <p>7 dwell time, the pulse width of the positive portion</p> <p>8 is going to depend upon the amount of arcing that</p> <p>9 occurs in the chamber.</p> <p>10 So when arcing occurs more often, then the</p> <p>11 pulse will need to be longer respectively. It does</p> <p>12 say that the frequency that -- will have to be at</p> <p>13 least 40 kilohertz, but it doesn't say it has to</p> <p>14 stay at 40 kilohertz.</p> <p>15 It just says, you know, there's a period of</p> <p>16 time over which enough charge will build up on the</p> <p>17 target that it will start arcing. Obviously, the</p> <p>18 more often one goes positive, the slower the</p> <p>19 deposition rate, so there's a balance there.</p> <p>20 BY MR. OU:</p> <p>21 Q So, Dr. Glew, in the situation -- if we go</p> <p>22 back to Exhibit 7 and look at Figure 5, the</p> <p>23 situation where there is an arc event and then the</p> <p>24 Sparc-le is triggered, in your opinion, this is --</p> <p>25 there is a pulse here, right?</p> | 201 | <p>1 repeating periodic event, then you would need more</p> <p>2 than one event. If you're using the term as just</p> <p>3 periodic events, you know, it must be done with a</p> <p>4 certain period of -- then it doesn't really have a</p> <p>5 meaning at that point.</p> <p>6 You know, you have a period between</p> <p>7 events -- you know, if you had two events, you</p> <p>8 would -- you know, they could vary, the time between</p> <p>9 a second event and a third event, and then the</p> <p>10 periods would be different, but you -- you would</p> <p>11 still need more than one event to understand the</p> <p>12 period of the events.</p> <p>13 MR. OU: Right.</p> <p>14 Q And so in this situation that we're talking</p> <p>15 about, a -- an arc event and then the Sparc-le</p> <p>16 trigger that is quenching it, you would need to have</p> <p>17 two of those events at a minimum to determine what</p> <p>18 the periodicity is or what the frequency is of that</p> <p>19 occurring, right?</p> <p>20 MR. WELLS: Objection to form.</p> <p>21 THE WITNESS: The period and the frequency</p> <p>22 aren't the same. Frequency is something that is --</p> <p>23 well, it depends -- the way you're using it, I</p> <p>24 understand. You're using "frequency" in a repeating</p> <p>25 sense, as in always the same period.</p> | 203 |
| <p>1 A By "a pulse," you mean a positive pulse?</p> <p>2 Yes.</p> <p>3 Q What would the frequency be of what is</p> <p>4 shown in Figure 5?</p> <p>5 MR. WELLS: Objection to form.</p> <p>6 THE WITNESS: Well, it only shows one</p> <p>7 pulse, so it would be difficult -- you can't really</p> <p>8 determine the frequency from one pulse.</p> <p>9 But if the behavior of the chamber is -- is</p> <p>10 repeatable, then at least for a certain period of</p> <p>11 time, the Sparc-le events, the positive pulses</p> <p>12 should occur on a fairly regular basis if -- if the</p> <p>13 charge accumulation is uniform and the poisoning</p> <p>14 layers are uniform in their -- are repeatable, but</p> <p>15 you really can't tell from just one pulse what the</p> <p>16 frequency is in -- in Figure 5 from Exhibit 7.</p> <p>17 BY MR. OU:</p> <p>18 Q You would agree that you need multiple</p> <p>19 pulses to determine what the frequency is at which a</p> <p>20 pulse occurs, right?</p> <p>21 MR. WELLS: Objection to form.</p> <p>22 THE WITNESS: I think that in order to find</p> <p>23 a frequency -- it depends on how you use the word</p> <p>24 "frequency."</p> <p>25 If you're using the term "frequency" as a</p> | 202 | <p>1 But periods can vary; and when -- when</p> <p>2 periods vary, then the frequency varies, the -- the</p> <p>3 number of times and the period between events</p> <p>4 varies. Still you would need more than one event</p> <p>5 to -- to measure that.</p> <p>6 You know, say, for example, one set of</p> <p>7 positive voltage -- one -- one time in a process,</p> <p>8 that would still be a pulse. May be -- may be</p> <p>9 difficult to ascribe a repeating frequency or a</p> <p>10 period between events to that, but it is still a</p> <p>11 pulse.</p> <p>12 BY MR. OU:</p> <p>13 Q What would -- what would be the -- what</p> <p>14 would be the frequency of that pulse in that</p> <p>15 situation that you just described?</p> <p>16 MR. WELLS: Objection to form.</p> <p>17 THE WITNESS: Well, one would -- at that</p> <p>18 point it would happen once per process step. If it</p> <p>19 was a -- say -- I mean, I don't think this is -- I</p> <p>20 think it's occurring typically more often than this.</p> <p>21 Obviously, you know, it said that it needs</p> <p>22 to occur 40,000 times a second, so we're -- we're</p> <p>23 very much in the hypothetical range at this point of</p> <p>24 your question.</p> <p>25 But if you had a one-minute process and it</p> | 204 |

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| <p style="text-align: right;">205</p> <p>1 occurred once, then it would be, you know, 1 cycle 2 per minute. But like I said, I think typically 3 they're occurring quite a bit more often than that. 4 BY MR. OU: 5 Q It's -- it's your opinion, at least based 6 on your experience in the industry, that these arc 7 events are happening quite a bit more than once per 8 minute? 9 MR. WELLS: Objection to form. 10 THE WITNESS: Well, you know, it -- it 11 depends. If one is very conservative in running a 12 process, then it doesn't happen at all. However, in 13 semiconductor manufacturing, people want to get more 14 wafer, more output, more productivity, so they 15 want -- they push the processes to the very edge of 16 breaking. 17 So if it's to the point where they're 18 trying to maximize the deposition rate, then they're 19 going to be pushing up against more arcing events. 20 So by -- by being able to increase the deposition 21 rate and minimize the amount of -- minimize the time 22 that is positive, they're going to be pushing -- 23 they're going to be seeing more events, more arcing 24 events. 25 So there's a tradeoff. You know, as the</p> | <p style="text-align: right;">207</p> <p>1 Do you see that? 2 A Yes. 3 Q Okay. On the left-hand side there, you see 4 there's a block that says "MDX Power Supply"? 5 A Yes. 6 Q Do you have any familiarity with the MDX 7 power supply? 8 A I don't recall it in any detail. I don't 9 recall the names of the power supplies we used back 10 then. I'm not sure when the MDX came out. 11 Q Do you have any recollection as to whether 12 or not the MDX power supply was a power supply from 13 Advanced Energy? 14 A Well, this is their -- this is their white 15 paper, so I presume it's theirs. 16 Q Right. 17 A I just don't -- I just don't recall the 18 names of the power supplies we used or the model 19 numbers from years ago. 20 Q Okay. So, for example, going back to your 21 time working at Applied Materials, you don't 22 remember if the Advanced Energy power supplies that 23 were being used for PVD were using the MDX power 24 supply? 25 A No, I don't recall that.</p> |
| <p style="text-align: right;">206</p> <p>1 patent describes, there's a balance between the two, 2 throughput or deposition rate and the amount of time 3 spent in the positive pulse mode. 4 BY MR. OU: 5 Q Okay. Going back to my original question, 6 is there anywhere else in the specification of the 7 patents-in-suit that you can point me to where the 8 patent is describing the scenario that is shown in 9 Figure 5 where there's an arc event that is detected 10 and then the Sparc-le is then triggered to quench 11 the arc? 12 MR. WELLS: Objection to form. 13 THE WITNESS: As I sit here now, I don't 14 have any other examples to discuss. I don't believe 15 I opined on this in my declaration exactly so I 16 don't know that I've previously examined it from 17 this particular perspective. 18 MR. OU: Fair enough. 19 Dr. Glew, if you can go back to Exhibit 7. 20 Q Do you still have it in front of you? 21 A Yes, I have 7. 22 Q Okay. If you go to Page 6, there's 23 Figure 2. 24 And do you see at Figure 2 it's titled or 25 labeled "Sparc-le Unit Simplified Schematic"?</p> | <p style="text-align: right;">208</p> <p>1 Q Do you have an understanding as to whether 2 or not that MDX power supply was a continuous DC 3 power supply or a pulsed DC power supply? 4 MR. WELLS: Objection to form. 5 THE WITNESS: I don't recall what the MDX 6 was, no. 7 MR. OU: Okay. So, Dr. Glew, I've put into 8 the chat the next exhibit. We're going to mark it 9 as Exhibit 8. 10 (Exhibit No. 8 was marked for 11 identification by the 12 videoconference technician; 13 attached hereto.) 14 MR. OU: Let me know when you have it. 15 It's a little larger in size so it may take a few 16 seconds to download. 17 THE WITNESS: This is a large document. 18 Okay. I have it. 19 MR. OU: Okay. Exhibit 8 is Bates number 20 DEFTS-PA_000006, and it goes all the way down to 21 ending in Bates number 250. 22 And if you'll look at the second page, 23 Dr. Glew, it says the "Advanced Energy MDX magnetron 24 drive." 25 Q Do you see that?</p> |

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| <p style="text-align: right;">209</p> <p>1 A Yes.</p> <p>2 Q Have you ever -- are you familiar with this</p> <p>3 document?</p> <p>4 A No.</p> <p>5 Q Okay. It's got a date of March 1993 at the</p> <p>6 bottom right-hand corner.</p> <p>7 Do you see that?</p> <p>8 A What page am I supposed to be on?</p> <p>9 Q I apologize. So if you go to the page that</p> <p>10 ends in 00007 -- it's the second page of the PDF.</p> <p>11 A Where is it supposed to say this?</p> <p>12 Oh, there it is. I see. March '93, yes.</p> <p>13 Q Okay. Does looking at this document --</p> <p>14 does this refresh your recollection in any way as to</p> <p>15 your familiarity with the Advanced Energy's MDX</p> <p>16 power supply?</p> <p>17 A Well, this says that it's a magnetron</p> <p>18 drive, which is something that drives magnets, not</p> <p>19 something that would drive a substrate, so I don't</p> <p>20 think -- I'm not sure -- I don't think this goes to</p> <p>21 the MDX drive -- MDX unit that we saw in the other</p> <p>22 document.</p> <p>23 You know, it says on Page 11, Bates Number</p> <p>24 11, "Congratulations on your purchase of AE's MDX</p> <p>25 magnetron drive." So, yeah, this is -- a magnet</p> | <p style="text-align: right;">211</p> <p>1 Q Okay. And -- but it -- it's referring to</p> <p>2 the DC power supply.</p> <p>3 Do you -- would you understand that this is</p> <p>4 discussing this MDX power supply being used to</p> <p>5 provide DC to the target?</p> <p>6 MR. WELLS: Objection to form.</p> <p>7 I instruct the witness not to answer.</p> <p>8 BY MR. OU:</p> <p>9 Q Are you going to follow your counsel's</p> <p>10 instruction?</p> <p>11 A Yes.</p> <p>12 MR. OU: Okay. Well, Counsel, I'd ask you</p> <p>13 to reconsider it because I previously asked the</p> <p>14 witness and he -- he indicated that he believed that</p> <p>15 this MDX power supply was to -- driving the magnet,</p> <p>16 and I'm wondering if he wants to now clarify his</p> <p>17 testimony now that he's taken a look at this other</p> <p>18 page of the document.</p> <p>19 So do you want me to ask the question again</p> <p>20 or do you want me to reask the question?</p> <p>21 MR. WELLS: Do you want me to respond on</p> <p>22 the record?</p> <p>23 MR. OU: Go ahead.</p> <p>24 MR. WELLS: He's indicated that he hasn't</p> <p>25 seen this document before, it's not part of his</p> |
| <p style="text-align: right;">210</p> <p>1 doesn't have a voltage or current rush, an arc</p> <p>2 event. The target has the arc event, so I'm not --</p> <p>3 it doesn't seem like it's the same thing.</p> <p>4 And, also, it says this has a built-in</p> <p>5 matching transformer, so this -- this doesn't seem</p> <p>6 like the same device. It may be the same family of</p> <p>7 products, but a different device.</p> <p>8 Q Okay. Can -- can you turn with me to the</p> <p>9 page that ends in 00028?</p> <p>10 A Okay.</p> <p>11 Q Okay. And at the top, it says what it is,</p> <p>12 and then it says "DC sputtering with RF bias,"</p> <p>13 right?</p> <p>14 A I see this.</p> <p>15 Q Okay. And, also, then the next line, it</p> <p>16 says "Warning. You must place an AC blocking filter</p> <p>17 in series with the output of the DC power supply if</p> <p>18 your system uses a DC power supply in combination</p> <p>19 with an AC power supply that has an output frequency</p> <p>20 greater than 50 kilohertz."</p> <p>21 Do you see that?</p> <p>22 A Yes, I see that.</p> <p>23 Q Okay.</p> <p>24 A And it's suggesting a low pass filter,</p> <p>25 basically, remove all AC, yes.</p> | <p style="text-align: right;">212</p> <p>1 opinions regarding claim construction. This</p> <p>2 document is prior art cited in the IPRs. You're</p> <p>3 requesting him to testify regarding IPR materials,</p> <p>4 and the court has already said that's improper.</p> <p>5 My objection and instruction stand.</p> <p>6 MR. OU: Okay. Well, this document was</p> <p>7 submitted as extrinsic evidence in support of our</p> <p>8 claim construction position, so I disagree with your</p> <p>9 characterization, but I'll let your objection -- you</p> <p>10 can make whatever objection you want.</p> <p>11 MR. WELLS: Objection to form.</p> <p>12 I instruct the witness not to answer.</p> <p>13 BY MR. OU:</p> <p>14 Q Dr. Glew, if you go to Page -- the page</p> <p>15 ending in 11 -- are you there?</p> <p>16 MR. WELLS: The Bates number ending in 11,</p> <p>17 or --</p> <p>18 MR. OU: I apologize. Yeah, the Bates</p> <p>19 number ending in 11.</p> <p>20 THE WITNESS: Yes.</p> <p>21 MR. OU: Okay. The -- the second to last</p> <p>22 paragraph states "The standard ARC-OUT</p> <p>23 arc-suppression circuitry provides outstanding</p> <p>24 suppression and quenching of arcs, cutting off the</p> <p>25 energy that feeds hot spots."</p> |

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 Conducted on March 2, 2021

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| <p style="text-align: right;">213</p> <p>1 Q Do you see that?</p> <p>2 A I see that, although without having read</p> <p>3 this 245-page document, I really can't make a lot of</p> <p>4 comments on it.</p> <p>5 Q Okay. I just want to ask, so you -- you</p> <p>6 don't dispute that this is a document that was</p> <p>7 produced by Advanced Energy and it's got a date of</p> <p>8 March 1993, right?</p> <p>9 A Let me turn my lights on.</p> <p>10 I have not reviewed this document before.</p> <p>11 I don't have any opinions on it.</p> <p>12 Q Okay. Let me ask you just more generally,</p> <p>13 putting aside this document, would a person of</p> <p>14 ordinary skill in the art at the time of the alleged</p> <p>15 invention in 2001 been familiar with power supplies</p> <p>16 that had arc-suppression circuitry that was -- that</p> <p>17 was designed to quench arcs?</p> <p>18 Is that something that a person of ordinary</p> <p>19 skill in the art would know in 2001?</p> <p>20 MR. WELLS: Objection to form.</p> <p>21 THE WITNESS: One of skill in the art would</p> <p>22 generally be familiar with what was publicly --</p> <p>23 certainly with what was, you know, publicly</p> <p>24 available in documents in the field.</p> <p>25 ///</p> | <p style="text-align: right;">215</p> <p>1 BY MR. OU:</p> <p>2 Q Okay. So sitting here today, you don't</p> <p>3 have an opinion one way or the other as to whether</p> <p>4 or not a person of ordinary skill in the art in 2001</p> <p>5 would be familiar with arc-suppression circuitry</p> <p>6 used in power supplies; is that right?</p> <p>7 MR. WELLS: Objection to form.</p> <p>8 THE WITNESS: Sitting here today with my</p> <p>9 declaration on claim construction, I haven't yet</p> <p>10 opined in this matter on suppression circuitry that</p> <p>11 one of skill in the art would be familiar with at</p> <p>12 the time of the invention in the patents-in-suit.</p> <p>13 BY MR. OU:</p> <p>14 Q And setting aside what's in your</p> <p>15 declaration on claim construction, just based on</p> <p>16 your 30-plus years of knowledge in this industry,</p> <p>17 you don't have any understanding as to the type of</p> <p>18 arc-suppression circuitry that was used in power</p> <p>19 supplies in the 1990s?</p> <p>20 MR. WELLS: Objection to form.</p> <p>21 THE WITNESS: That is something that I</p> <p>22 would review first to make the determination of what</p> <p>23 was in the art at the time.</p> <p>24 BY MR. OU:</p> <p>25 Q I'm just asking you based on your</p> |
| <p style="text-align: right;">214</p> <p>1 BY MR. OU:</p> <p>2 Q And -- and publicly available documents in</p> <p>3 the field in 2001, what, if any, arc-suppression</p> <p>4 circuitry would a person of ordinary skill in the</p> <p>5 art be familiar with at the time of the invention?</p> <p>6 MR. WELLS: Objection to form.</p> <p>7 THE WITNESS: Perhaps you can direct me to</p> <p>8 where I opined on that in my declaration on the</p> <p>9 claim terms.</p> <p>10 BY MR. OU:</p> <p>11 Q I'm asking you generally, Dr. Glew, about</p> <p>12 one -- what a person of ordinary skill in the art</p> <p>13 would be familiar with in terms of arc-suppression</p> <p>14 functionality in power supplies.</p> <p>15 MR. WELLS: Objection to form.</p> <p>16 MR. OU: Let me ask it a different way.</p> <p>17 Q Would a person of ordinary skill in the art</p> <p>18 in 2001 have any familiarity or understanding of</p> <p>19 arc-suppression circuitry in power supplies?</p> <p>20 MR. WELLS: Objection to form.</p> <p>21 THE WITNESS: I haven't prepared</p> <p>22 information on this topic for this declaration and</p> <p>23 this deposition. In order to make such an opinion,</p> <p>24 I would have to review the material that was</p> <p>25 available at that time.</p> | <p style="text-align: right;">216</p> <p>1 understanding today as an expert in this field and</p> <p>2 based on your 30-plus years of knowledge in the</p> <p>3 industry, do you have any understanding as to the</p> <p>4 type of arc-suppression circuitry that -- that was</p> <p>5 used in power supplies in the 1990s?</p> <p>6 MR. WELLS: Objection to form.</p> <p>7 THE WITNESS: As I've said before, I</p> <p>8 haven't yet prepared an opinion on arc-suppression</p> <p>9 circuitry at the time of the invention.</p> <p>10 BY MR. OU:</p> <p>11 Q Okay. Would the inventors of the</p> <p>12 patents-in-suit at the time that they filed for</p> <p>13 their patents have been familiar with</p> <p>14 arc-suppression circuitry in power supplies?</p> <p>15 MR. WELLS: Objection to form.</p> <p>16 THE WITNESS: I don't know what they were</p> <p>17 familiar with.</p> <p>18 BY MR. OU:</p> <p>19 Q Okay. And you didn't speak with</p> <p>20 Dr. Demaray or any of the other named inventors to</p> <p>21 understand whether or not they had any understanding</p> <p>22 of arc-suppression circuitry in power supplies at</p> <p>23 the time that they filed for their patents; is that</p> <p>24 right?</p> <p>25 A No, I have not spoken with them.</p> |

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| <p style="text-align: right;">217</p> <p>1 Q Okay. Do you understand that Dr. Demaray, 2 who is one of the named inventors, is the principal 3 of Demaray LLC? 4 MR. WELLS: Objection to form. 5 THE WITNESS: I understand that is the same 6 person, yes. 7 BY MR. OU: 8 Q Okay. And did Demaray LLC retain you or 9 are you being retained by Irell & Manella? 10 A Hmm. I'd have to think about that. 11 I was contacted by Irell & Manella. I'd 12 have to look at the engagement letter. 13 Q Okay. That -- that's fine. 14 But just to confirm, you didn't speak with 15 any of the inventors of the patents-in-suit to 16 understand their -- to understand whether or not 17 they had any understanding of the arc-suppression 18 circuitry that was in power supplies in the 1990s; 19 is that right? 20 A I have not spoken to the inventors at all. 21 Q And in preparing your claim construction 22 declaration, you did not review any manuals, 23 articles, textbooks, or literature that would have 24 discussed arc-suppression circuitry in power 25 supplies in the 1990s; is that right?</p> | <p style="text-align: right;">219</p> <p>1 THE WITNESS: Yeah, I -- I didn't have 2 something this old sitting on my bookshelf, no. 3 BY MR. OU: 4 Q Okay. And -- and I think I asked you this 5 earlier, but just to confirm, you were not provided 6 any of the extrinsic evidence that was exchanged by 7 the defendants in these cases in support of claim 8 construction -- you didn't get that set of materials 9 to review and consider in forming your claim 10 construction opinions; is that right? 11 MR. WELLS: Objection to form. 12 THE WITNESS: I didn't spend that long 13 looking today at that list of extrinsic evidence. 14 Maybe some of it was provided to me, but I can't say 15 that I recall getting a pile that said "extrinsic 16 evidence," or that I -- I don't remember seeing a 17 number of those documents. 18 I do recognize some of the documents from 19 my reading over the years. 20 BY MR. OU: 21 Q Okay. And then turning back to Exhibit 8, 22 Dr. Glew, are you still -- do you still have that up 23 and are you on Page 11, meaning the Bates number 24 ending in 11? 25 A Yes.</p> |
| <p style="text-align: right;">218</p> <p>1 MR. WELLS: Objection to form. 2 THE WITNESS: In my inquiry regarding claim 3 construction? 4 I did not pursue that, no. 5 BY MR. OU: 6 Q Okay. You -- you did look at Exhibit 7, 7 though, right? The Advanced Energy white paper that 8 we've been looking at? 9 A Yes, that, I did, the Scholl document, yes. 10 Q How is it that you selected that document 11 to review to inform your claim construction 12 positions but did not look at any other literature 13 or manuals, textbooks, or other documents relating 14 to arc-suppression circuitry or hardware? 15 MR. WELLS: Objection to form. 16 THE WITNESS: Well, that provides a nice 17 graphic showing what a pulse is. 18 BY MR. OU: 19 Q Was it provided to you by counsel? 20 A I believe it was, yes. 21 Q Okay. Meaning you didn't like go look 22 through a -- a stack of literature and manuals and 23 then find that one to rely on your declaration but 24 ignore the rest; is that fair? 25 MR. WELLS: Objection to form.</p> | <p style="text-align: right;">220</p> <p>1 Q Do you see in the last paragraph, it says 2 "Typical applications include DC sputtering with RF 3 bias, basic magnetron sputtering, cathodic-arc 4 deposition sputter etching, and DC biased RF 5 sputtering"? 6 Do you see that? 7 A I see where you've read. 8 Q Okay. In your opinion, would a person of 9 ordinary skill in the art be familiar with these 10 types of typical applications of the MDX power 11 supply that are disclosed in this manual? 12 MR. WELLS: Objection to form. 13 I instruct you not to answer. 14 BY MR. OU: 15 Q Are you going to follow your counsel's 16 instruction? 17 A Yes. 18 MR. OU: Sorry, Dr. Glew. Let me 19 actually -- ignore what I just put in the chat 20 because I'm going to relabel it with the right 21 exhibit number, so bear with me. 22 Okay. Dr. Glew, I've put into the chat a 23 document that's marked as Exhibit 9. Could you 24 please download it and let me know what you have it 25 open?</p> |

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| <p style="text-align: right;">221</p> <p>1 (Exhibit No. 9 was marked for 2 identification by the 3 videoconference technician; 4 attached hereto.) 5 THE WITNESS: I'm going to want to take a 6 break pretty soon. 7 MR. OU: Okay. Do you want to -- while 8 that's opening, do you want to just go off the 9 record now and we can take however much time you 10 need? 11 THE WITNESS: Sure. 12 MR. OU: Okay. Sounds good. 13 THE VIDEOGRAPHER: We are going off the 14 record at 17:19. 15 (A recess was taken from 5:19 p.m. 16 to 5:23 p.m.) 17 THE VIDEOGRAPHER: We are back on the 18 record at 17:23. 19 BY MR. OU: 20 Q Okay. Dr. Glew, do you have Exhibit 9 in 21 the chat open? 22 A Yes, I do. 23 Q Okay. Earlier today, do you recall us 24 having a discussion about a person of ordinary skill 25 in the art at the time of the invention would be</p> | <p style="text-align: right;">222</p> <p>1 familiar with, you know, publications or marketing 2 materials in the PVD equipment industry? 3 MR. WELLS: Objection to form. 4 THE WITNESS: I understand generally that 5 discussion, yes. 6 BY MR. OU: 7 Q Okay. Do you -- do you still agree with 8 that -- that discussion, or -- or do you stand by 9 that testimony that you gave earlier that a person 10 of ordinary skill in the art at the time of the 11 invention would have been familiar with publicly 12 available marketing literature or publications from 13 PVD suppliers such as Applied Materials? 14 MR. WELLS: Objection to form. 15 THE WITNESS: I would put a slight bit more 16 detail on it. A person of skill in the art isn't 17 expected to -- an individual isn't expected to know 18 or remember everything published in the world. For 19 the purposes of analysis, that is what one assumes a 20 POSITA knows. 21 MR. OU: Okay. Looking at Exhibit 9, this 22 is a -- it's a -- at the top, you see it says a PVD 23 productivity and technology publication, and it's 24 dated October 1996, Volume 3, Number 3, and at the 25 bottom, you can see it's from Applied Materials.</p> |
| <p style="text-align: right;">223</p> <p>1 Q Do you see that? 2 A I see that, yes. 3 Q Okay. In October 1996, you were still 4 working at Applied Materials; is that correct? 5 A Yes, I was. 6 Q Okay. Does -- does this type of 7 publication refresh your recollection or just look 8 familiar in terms of something that you were 9 familiar with or involved in at -- when you were at 10 Applied Materials? 11 MR. WELLS: Objection to form. 12 THE WITNESS: This would be a typical 13 document or -- or similar to a typical document one 14 might see. I have not reviewed it for the purposes 15 of this claim construction declaration. 16 BY MR. OU: 17 Q Okay. And sitting here today, it doesn't 18 refresh your recollection at all as to whether or 19 not you were, for example, involved in putting 20 together these types of publications? 21 A Oh, well, the person who put this 22 publication together's name is on the front of it. 23 I'm not -- this was not one I put together. 24 Q Okay. But while you were at Applied 25 Materials, you put together these types of</p> | <p style="text-align: right;">224</p> <p>1 publications as well? 2 A Well, you know, we published -- there were 3 two kinds of things one could do. One could put in 4 journal articles or conference articles or one could 5 do white papers. 6 I did more -- I was more involved in the 7 conference papers and things like that than the 8 white papers like this. This would generally be put 9 out by the marketing department, they would find 10 somebody in engineering to author it and they'd then 11 give it to customers. 12 Q Okay. And what was -- what was the purpose 13 generally of these types of documents at Applied 14 Materials? 15 A These were -- 16 MR. WELLS: Objection to form. 17 THE WITNESS: I mean, my recollection from, 18 you know, whatever, 25 years ago, is that these were 19 typically given to customers to promote -- to 20 promote the equipment. 21 BY MR. OU: 22 Q Okay. To kind of explain here is the type 23 of equipment that we're offering and here is some 24 literature about it? 25 MR. WELLS: Objection to form.</p> |

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| <p style="text-align: right;">225</p> <p>1 THE WITNESS: I would generally</p> <p>2 characterize this as a white paper, something that</p> <p>3 companies give out. It's not a -- it's not exactly</p> <p>4 a sales brochure per se, it's a little more</p> <p>5 technical than a sales brochure for people who want</p> <p>6 to read a bit more detail about a product, but it's</p> <p>7 not a -- it's not a journal article, it's not a</p> <p>8 refereed article or a conference paper.</p> <p>9 BY MR. OU:</p> <p>10 Q Okay. You would agree, though, that a</p> <p>11 person of ordinary skill in the art in 2001 in the</p> <p>12 context of the patents-in-suit would be familiar</p> <p>13 with publications or white papers such as this one</p> <p>14 that we're looking at, right?</p> <p>15 MR. WELLS: Objection to form.</p> <p>16 THE WITNESS: With regard to the white</p> <p>17 papers, it would depend. I mean, there were</p> <p>18 instances where white papers were only given to</p> <p>19 customers.</p> <p>20 There were other instances -- it depends on</p> <p>21 the company and the situation where white papers</p> <p>22 were given out more, I'd say, publicly,</p> <p>23 indiscriminately. So it would depend on that.</p> <p>24 BY MR. OU:</p> <p>25 Q Okay. Based on your experience working at</p> | <p style="text-align: right;">227</p> <p>1 going to take a while to download so we can probably</p> <p>2 do it during a break.</p> <p>3 But this excerpt has a Bates number of</p> <p>4 DEMINT00001124 and goes through 1135.</p> <p>5 A Okay.</p> <p>6 Q And it's an amendment and response to</p> <p>7 office action dated June 12th, 2006.</p> <p>8 Does -- are you familiar with this</p> <p>9 amendment and response to office action?</p> <p>10 A It generally looks like something out of</p> <p>11 the '657 application.</p> <p>12 Q Okay. If you go down to the page that ends</p> <p>13 in 1133, let me know when you're there.</p> <p>14 A Okay. I'm there.</p> <p>15 Q Okay. Do you see on Page 1113, it's -- the</p> <p>16 front page is titled "Declaration of</p> <p>17 Dr. R.E. Demaray Under 37 CFR 1.132"?</p> <p>18 A Yes.</p> <p>19 Q Okay. Is this a declaration that you</p> <p>20 reviewed in the context of preparing your claim</p> <p>21 construction positions?</p> <p>22 A I generally reviewed this file history. It</p> <p>23 was rather long. This looks generally familiar.</p> <p>24 Q Okay. When you say "generally familiar,"</p> <p>25 does -- does it -- now that you see it, does it</p> |
| <p style="text-align: right;">226</p> <p>1 Applied and familiarity with these types of</p> <p>2 publications, would a person of ordinary skill in</p> <p>3 the art be familiar with this type of publication?</p> <p>4 MR. WELLS: Objection to form.</p> <p>5 THE WITNESS: Off the top of my head, I</p> <p>6 don't know if this is something that Applied only</p> <p>7 gave to the customers who bought the equipment, that</p> <p>8 already had PVD equipment, or if they gave it out</p> <p>9 more generally, you know, if they handed it out at</p> <p>10 trade shows. I don't know that.</p> <p>11 Somebody else -- you know, it could go</p> <p>12 either way. Somebody else would have to testify to</p> <p>13 how this document was distributed.</p> <p>14 MR. OU: Okay. I'm going to put into the</p> <p>15 chat a document we're going to mark as Exhibit 10.</p> <p>16 Let me know when you have it, Dr. Glew.</p> <p>17 (Exhibit No. 10 was marked for</p> <p>18 identification by the</p> <p>19 videoconference technician;</p> <p>20 attached hereto.)</p> <p>21 THE WITNESS: Okay. I have it.</p> <p>22 MR. OU: Okay. Dr. Glew, Exhibit 10 is an</p> <p>23 excerpt from the file history of</p> <p>24 Application 10101863. If you want the full file</p> <p>25 history, I'm happy to give it to you, though it's</p> | <p style="text-align: right;">228</p> <p>1 refresh your recollection in any way as to something</p> <p>2 that you reviewed and considered in forming your</p> <p>3 claim construction positions?</p> <p>4 MR. WELLS: Objection to form.</p> <p>5 THE WITNESS: It -- it's something I, you</p> <p>6 know, would have seen in the file history. It's not</p> <p>7 necessarily that helpful in -- in discerning the</p> <p>8 meaning of the claim terms.</p> <p>9 BY MR. OU:</p> <p>10 Q Okay. So you reviewed this declaration but</p> <p>11 determined that it wouldn't be that helpful in</p> <p>12 discerning the meaning of the claim terms?</p> <p>13 MR. WELLS: Objection to form.</p> <p>14 BY MR. OU:</p> <p>15 Q Dr. Glew, sitting here today, do you have a</p> <p>16 recollection of reviewing this declaration and</p> <p>17 determining that it wouldn't be that helpful in</p> <p>18 discerning the meaning of the claim terms?</p> <p>19 MR. WELLS: Phil, I don't think he had</p> <p>20 finished looking at what he's was looking at in</p> <p>21 answering your prior question. Please let the</p> <p>22 witness finish.</p> <p>23 THE WITNESS: I'm looking at Page 1134.</p> <p>24 I remember, you know, the issue of</p> <p>25 distortion of the pulses, you know, that talks about</p> |

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| 229 | <p>1 protecting the DC power supply -- I'm in Column -- 2 or Paragraph 4 on Bates number ending in 1134 -- 3 protecting the pulsed DC power supply from the RF 4 energy while not restoring the pulses generated by 5 the pulsed DC power supply supplied to the target, 6 so this was actually one area that -- that was 7 helpful. 8 You know, the concept of the -- the need 9 to -- to filter a narrow band but not to ensnare the 10 portions of the DC pulse, especially on the rise and 11 fall that are going to be fairly complex. 12 BY MR. OU: 13 Q Okay. So now reviewing the declaration, 14 does it refresh your recollection, is this something 15 you did consider in forming your claim construction 16 positions? 17 A Yes, I think -- yeah, I think in particular 18 Paragraph 4 was something that was helpful. 19 Q The narrow band rejection filter, according 20 to Dr. Demaray, needed to do essentially two things. 21 One, protect the pulsed DC power supply from the RF 22 energy; and two, preserve the waveform or the shape 23 of the pulses. 24 Would you agree? 25 MR. WELLS: Objection to form.</p> | 231 | <p>1 Do you see that? 2 A I see that, yes. 3 Q In the first part of that sentence, would 4 you agree that Dr. Demaray is informing or telling 5 the patent office that the band rejection filter of 6 their invention is a filter that passes all of the 7 frequencies of the square wave power supply except 8 within a narrow band centered on the R frequency of 9 the RF bias? 10 MR. WELLS: Objection to form. 11 THE WITNESS: I think that a person of 12 skill in the art would understand what he is saying 13 there is that this is a filter, so it has a falloff 14 rate, and that, you know, even -- one would 15 understand as a POSITA that passing frequencies and 16 not passing other frequencies means that it has a 17 bandwidth and beyond the bandwidth, it falls off at 18 whatever the attenuation rate is for the filter, and 19 then even within the band, it doesn't necessarily 20 pass 100 percent, but, you know, it's going to 21 largely pass in the desired area and largely not 22 pass in the undesired area, depending upon the 23 attenuation rate of the filter. 24 BY MR. OU: 25 Q So a POSITA reading a statement like this</p> |
| 230 | <p>1 THE WITNESS: I think that those were two 2 things he's suggested that it should do. 3 BY MR. OU: 4 Q And the applicants repeatedly relied on 5 these two purposes to distinguish the prior art in 6 the prosecution of these patents, right? 7 MR. WELLS: Objection to form. 8 THE WITNESS: I think these were part of 9 the argument they made. The claims have multiple 10 claim elements that, in combination together, make 11 the claim. 12 This is -- you know, this explains what the 13 narrow band filter should do, protect, what it 14 shouldn't do, distort. So I would characterize it 15 more along those lines. 16 BY MR. OU: 17 Q In Paragraph 4 that you were just reading 18 from, the second sentence said "We discovered that a 19 band rejection filter, which is a filter that passes 20 all of the frequencies of the square wave power 21 supply except within a narrow band centered on the R 22 frequency of the RF bias, protected the pulsed DC 23 power supply from the RF energy while not distorting 24 the pulsed -- pulses generated by the pulsed DC 25 power supply applied to that target."</p> | 232 | <p>1 from Dr. Demaray would understand that his reference 2 to "passes all of the frequencies" would not be 3 intended to be an absolute all frequencies, right? 4 It would be in practice and reality, the 5 band rejection filter is supposed to reject the 6 frequencies within that band and then -- 7 A It's supposed to -- 8 MR. WELLS: Objection to form if that's the 9 question. 10 MR. OU: No. Sorry. I -- I wasn't done 11 asking my question. So I apologize for the long 12 pause, Dr. Glew. Let me ask it again. 13 Q So a POSITA reading a statement like this 14 from Dr. Demaray would understand that his reference 15 to "passes all of the frequencies" would not be an 16 absolute all frequencies, it would be more 17 consistent with the explanation you just gave that 18 it would pass -- it would reject the frequencies 19 within the band and then it would pass all the 20 other, subject to the attenuation rate for the 21 filter; is that fair? 22 MR. WELLS: Objection to form. 23 THE WITNESS: I would say that outside the 24 band, you know, there's a falloff rate and it will 25 start accepting or passing, you know, based upon the</p> |

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| 233 | <p>1 attenuation rate.</p> <p>2 Within the band, it's going to be fairly</p> <p>3 efficient at filtering at the band center and start</p> <p>4 falling off as it gets to the band edge. You know,</p> <p>5 that -- that's how filters work. A POSITA would</p> <p>6 understand that, you know, filters are -- filters</p> <p>7 have falloff rates and, you know, they're not square</p> <p>8 with -- they're not step functions or heavy side</p> <p>9 functions.</p> <p>10 Mathematically, they're filter circuits</p> <p>11 that have an attenuation rate per decade.</p> <p>12 BY MR. OU:</p> <p>13 Q So, Dr. Glew, you would agree that each of</p> <p>14 the claims in the patents-in-suit requires a narrow</p> <p>15 band rejection filter, right?</p> <p>16 A Last time I checked, they required narrow</p> <p>17 band rejection filters, yeah.</p> <p>18 Q Okay. Yeah, I didn't think that was a</p> <p>19 point to be disputed, but I just wanted to confirm.</p> <p>20 In other words, the -- the claims require a</p> <p>21 narrow band rejection filter, not some other type of</p> <p>22 filter like a low pass filter or a high pass filter</p> <p>23 or a band pass filter?</p> <p>24 You would agree with that, right?</p> <p>25 MR. WELLS: Objection to form.</p> | 235 |
| 234 | <p>1 frequencies, create a notch in the spectrum,</p> <p>2 basically, and then, you know, largely pass what's</p> <p>3 outside of that.</p> <p>4 There's always losses in any filter or any</p> <p>5 circuitry. Nothing is lossless; but they're pretty</p> <p>6 efficient circuits, usually.</p> <p>7 MR. OU: Let me go to your declaration at</p> <p>8 Paragraph 55, where you provide an opinion about the</p> <p>9 filter elements.</p> <p>10 Q Do you have that in front of you?</p> <p>11 A Yes.</p> <p>12 Q Okay. Generally speaking, what is -- a</p> <p>13 person of ordinary skill in the art, what would they</p> <p>14 understand to be the purpose of a filter in the</p> <p>15 context of the invention?</p> <p>16 MR. WELLS: Objection to form.</p> <p>17 THE WITNESS: Well, in this invention, it's</p> <p>18 very specifically a narrow band filter.</p> <p>19 Is your question what is a narrow band</p> <p>20 filter or what is a filter?</p> <p>21 BY MR. OU:</p> <p>22 Q I want to first start generally what's a</p> <p>23 filter, what's the purpose of a filter?</p> <p>24 MR. WELLS: Objection to form.</p> <p>25 THE WITNESS: You know, kind of -- in a</p> | 236 |
| 234 | <p>1 THE WITNESS: Well, Claim 1, for example,</p> <p>2 of '657 requires a narrow band rejection filter.</p> <p>3 Now, a narrow band rejection filter can be comprised</p> <p>4 of a number of circuit elements; but in -- in the</p> <p>5 end, it has to function like a narrow band rejection</p> <p>6 filter.</p> <p>7 BY MR. OU:</p> <p>8 Q And -- and what would be the functioning of</p> <p>9 a narrow band rejection filter as opposed to a</p> <p>10 different type of filter?</p> <p>11 MR. WELLS: Objection to form.</p> <p>12 THE WITNESS: Well, filters can have other</p> <p>13 functions; but a narrow band rejection filter</p> <p>14 rejects, at least at -- these are comprising -- you</p> <p>15 know, at least at a narrow band, sort of like a</p> <p>16 notch.</p> <p>17 BY MR. OU:</p> <p>18 Q And so it -- it rejects at a narrow band,</p> <p>19 and then the intent of the filter is to pass the</p> <p>20 frequencies that are not within the band,</p> <p>21 understanding that in practice, that may not</p> <p>22 actually happen; is that fair?</p> <p>23 MR. WELLS: Objection to form.</p> <p>24 THE WITNESS: Not exactly, no.</p> <p>25 It's meant to filter out a narrow band of</p> | <p>1 general English sense, you know, if you think of a</p> <p>2 water filter, it allows the water to pass through</p> <p>3 and filters out particles.</p> <p>4 The frequency filter allows certain</p> <p>5 frequencies to pass through and filters out others.</p> <p>6 It doesn't mean -- like in a water filter, there's a</p> <p>7 pressure drop, so some of the water is, you know,</p> <p>8 slowed down, and, yes, particles do get through</p> <p>9 water filters.</p> <p>10 But generally the intent here is that</p> <p>11 something is hindered from passing and something</p> <p>12 else is largely allowed to pass.</p> <p>13 BY MR. OU:</p> <p>14 Q Okay. And generally in the context of a</p> <p>15 frequency filter, how does a filter attenuate or</p> <p>16 pass frequencies?</p> <p>17 MR. WELLS: Objection to form.</p> <p>18 THE WITNESS: Well, you know, there are</p> <p>19 digital filters, there are analog filters and lots</p> <p>20 of filters.</p> <p>21 But, you know, generally, the filter takes</p> <p>22 frequencies that are undesired that you want to</p> <p>23 remove and sort of diverts them somewhere else,</p> <p>24 usually off to ground, something like that. The</p> <p>25 filter --</p> |

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| <p style="text-align: right;">237</p> <p>1 BY MR. OU: 2 Q And then these -- 3 A The frequencies that you want to pass 4 through, you know, doesn't -- doesn't divert off 5 or -- or short to ground, basically, yeah. 6 Q Put into very simplistic terms, a filter is 7 going to -- or the intent of the filter is to block 8 what you don't want to go through and let the rest 9 pass. 10 That's at least the intent of a filter, 11 right? 12 MR. WELLS: Objection to form. 13 THE WITNESS: Is that supposed to be more 14 on how it works or just what it does? 15 MR. OU: I guess I don't understand the -- 16 your -- what -- what you're asking me to clarify. 17 THE WITNESS: The last -- the last question 18 was how does a filter work, you know, and so it -- 19 it doesn't -- you know, I mean -- I don't think of 20 it as blocking exactly. I think of it as it 21 effectively diverts part of the signal to ground, it 22 bleeds it off, it, you know, diverts it to -- it 23 dumps -- it dumps some of the energy to ground, 24 typically is how -- typically is how they work. 25 If it's a digital filter, then it's done</p> | <p style="text-align: right;">239</p> <p>1 a POSITA understand a high pass filter to be at the 2 time of the invention? 3 A High pass filter is sort of the opposite of 4 a low pass filter. It lets high frequencies pass 5 and below a cutoff frequency, it starts attenuating 6 them at whatever the attenuation rate is. 7 Q And is that something that a POSITA would 8 also be familiar with at the time of the invention 9 and understand? 10 MR. WELLS: Objection to form. 11 THE WITNESS: I generally think that a 12 POSITA would understand basic circuit elements such 13 as a high pass filter. 14 BY MR. OU: 15 Q Okay. And then what about a band pass 16 filter? 17 What's your general understanding of a band 18 pass filter? 19 A You know, a band pass filter will let 20 certain frequencies pass and others are rejected. 21 Q And there's going to be a range of 22 frequencies that are intended to pass, but you'll 23 have the same issue that you described above where 24 there's going to be attenuation and then as you get 25 farther away from what's being rejected, that</p> |
| <p style="text-align: right;">238</p> <p>1 mathematically, you know, they just turn off those 2 frequencies after the transform function. But a 3 power -- you know, something involving real power, 4 that basically is diverting a portion of the signal 5 to ground that is undesired. 6 MR. OU: Okay. Fair enough. 7 Q Do you have an understanding of what is a 8 low pass filter? 9 A Generally, yes. 10 Q And can you give me an example of a low 11 pass filter? 12 A Sure. 13 A low pass filter lets low frequency pass 14 largely unhindered and frequencies above the cutoff 15 frequency, it starts attenuating. The farther it 16 gets away from that range, the more efficient the 17 attenuation. 18 Q Okay. And -- and a low pass filter, that's 19 something that a POSITA would have been familiar 20 with at the time of the invention, right? 21 MR. WELLS: Objection to form. 22 THE WITNESS: I think generally a POSITA 23 would be knowledgeable in basic circuit elements. 24 BY MR. OU: 25 Q What about a high pass filter? What would</p> | <p style="text-align: right;">240</p> <p>1 attenuation changes? 2 A Yes. 3 Generally -- yeah, I mean, a 3 DB filter 4 is -- every factor of 2 on frequency, the power 5 level drops by half. 6 Q Okay. And so this -- this same concept of 7 what gets rejected and what gets passed, and then 8 somewhere in the middle, there's going to be some 9 amount of attenuation changing, that would apply to 10 low pass filters, high pass filters, band pass 11 filters, narrow band rejection filters, you would 12 agree, right? 13 MR. WELLS: Objection to form. 14 THE WITNESS: I think generally, you know, 15 these analog circuits have a -- an attenuation rate. 16 Whether it's 3 DB per octave or 12 DB per octave, 17 there's still an attenuation rate beyond the -- the 18 targeted frequency. 19 I'm going to have to turn my lights on. 20 BY MR. OU: 21 Q And so, Dr. Glew, you would agree that the 22 claim-required narrow band rejection filter is 23 different than a band pass filter, right? 24 MR. WELLS: Objection to form. 25 THE WITNESS: Well, I mean, typically a</p> |

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| <p style="text-align: right;">241</p> <p>1 band pass filter is construed as, you know, it 2 passes a band, whereas a narrow -- this narrow band 3 rejection filter is something that doesn't pass a 4 band. 5 You know, it's -- one is -- you think of it 6 like a notch. One is a -- one's kind of like the 7 inversion of the other. 8 MR. OU: Right. 9 Q And so a person of ordinary skill in the 10 art would understand that narrow band rejection 11 filter is not the same as a band pass filter, right? 12 MR. WELLS: Objection to form. 13 THE WITNESS: I think of them as being the 14 opposite of each other. Maybe some people might 15 consider one to be a special case of the other, but 16 I -- I would consider them essentially the opposite 17 of each other. 18 BY MR. OU: 19 Q Okay. Is there any scenario that you can 20 think of where one would -- a person of ordinary 21 skill in the art would understand the two to be the 22 same or substantially the same? 23 MR. WELLS: Objection to form. 24 And I instruct you not to answer. 25 MR. OU: Let me, maybe, rephrase my</p> | <p style="text-align: right;">243</p> <p>1 So I've allowed the other question because 2 you were going at what's the meaning of band -- 3 narrow band rejection filter. Now it appears that 4 you've switched gears and are basing it on some kind 5 of noninfringement arguments, or whatnot, and that's 6 not the appropriate topic for this deposition. 7 MR. OU: Okay. Fair enough. Maybe I -- I 8 disagree with your objection, but I'll -- I'll ask a 9 different question. 10 Q Dr. Glew, if you had to explain in your own 11 words what a band rejection filter is, how would you 12 explain it? 13 MR. WELLS: Objection to form. 14 MR. OU: I'm sorry. Let me withdraw my 15 question, then. I actually misstated my question, 16 so let me try again. 17 Q Dr. Glew, if you had to explain in your own 18 words what a band pass filter is, how would you 19 explain it? 20 MR. WELLS: Objection to form. 21 THE WITNESS: I would generally think of a 22 band pass filter as a filter that passes a certain 23 band of frequencies preferentially. 24 BY MR. OU: 25 Q Okay. Is there any scenario that you can</p> |
| <p style="text-align: right;">242</p> <p>1 question and see if this will pass your counsel's 2 filter. 3 Q Is there a scenario that you can imagine 4 where a person of ordinary skill in the art in 5 reading the disclosures and the patents-in-suit 6 would understand the claim-required narrow band 7 rejection filter to be the same or substantially the 8 same as a band pass filter? 9 MR. WELLS: Objection to form. 10 I instruct you not to answer. 11 MR. OU: All right. Maclain, let me just 12 hear the explanation for why you're instructing the 13 witness not to answer. I'm asking him about what a 14 POSITA would understand a narrow band rejection 15 filter to encompass. 16 MR. WELLS: It certainly sounds like you're 17 asking him what are the equivalents under a 18 potential infringement read equivalent to a narrow 19 band rejection filter. When you say "substantially 20 similar" or "similar," that's what I understand 21 you're getting at. 22 He's not here to opine on infringement 23 issues any more than he's here to opine 24 on invalidity issues. He's here to opine on claim 25 construction issues.</p> | <p style="text-align: right;">244</p> <p>1 think of that a person of ordinary skill in the art, 2 in reading the patents-in-suit and disclosures in 3 the specification and the claims, would understand 4 the claim-required narrow band rejection filter to 5 be a filter that passes a certain band of 6 frequencies? 7 MR. WELLS: Objection to form. 8 I instruct the witness not to answer. 9 BY MR. OU: 10 Q Are you going to follow your counsel's 11 instruction? 12 A Yes. 13 Q Okay. So, Dr. Glew, let me -- do you have 14 your declaration in front of you? 15 A Yes. 16 Q Can you turn to Paragraph 55? 17 Are you there? 18 A Yes. 19 Q In the third sentence, you state "Rejecting 20 and passing frequencies are, however, exact 21 opposites and different subjects." 22 Do you see that? 23 A Yes. 24 Q What do you mean by "rejecting 25 frequencies"?</p> |

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| <p style="text-align: right;">245</p> <p>1 A Well, rejecting is filtering out, so if 2 one -- like a narrow band filter rejects a narrow 3 band of frequencies. A low pass filter rejects 4 filters -- rejects frequencies above a certain 5 frequency. Given the attenuation rate, of course. 6 Q Okay. And what do you mean by "passing 7 frequencies"?</p> <p>8 A Passing frequencies is the attempt of a 9 filter not to diminish or attenuate the frequency; 10 so the goal in passing frequencies is not to bleed 11 off any of the -- of the power or voltage, but to 12 let it all through. 13 So one -- one is sort of like the brakes 14 and the other is sort of like the gas. 15 Q And -- and is that what you mean by -- when 16 you then say they are exact opposites? 17 A Rejecting and passing are exact opposites, 18 yes. 19 Q And a POSITA would understand that there's 20 some gray area or what you've been referring to as 21 depending on the attenuation rate between the 22 frequencies that are passing and rejecting in a 23 filter; is that fair? 24 MR. WELLS: Objection to form. 25 THE WITNESS: I wouldn't call it a gray</p> | <p style="text-align: right;">247</p> <p>1 are inherent in any circuit, and that's different -- 2 it's a whole different set of problems than trying 3 to filter out or maximize the -- the filtering or 4 removal of a -- of a frequency. 5 Q Understood. 6 In the next sentence, Dr. Glew, you say 7 filters can reject alone. 8 What did you mean by that? 9 A Well, you know, I've written filters can 10 reject alone, they can pass alone, or they can both 11 reject and pass different frequencies 12 simultaneously. There can be notch filters that 13 have a couple of bands in them. 14 You know, if you look at a narrow band pass 15 filter -- or narrow band rejection filter -- excuse 16 me -- first it passes, then it rejects, then it 17 passes. So there's -- you know, there's different 18 architectures for filters. 19 Q Sorry. That last part that you were 20 explaining, a narrow band rejection filter, that 21 first passes, then it rejects, then it passes, could 22 you elaborate on that? I didn't follow what you 23 were saying. 24 A Sure. 25 You know, at low frequencies, it might pass</p> |
| <p style="text-align: right;">246</p> <p>1 area. I'd just call it how analog filters work. 2 They start attenuating at a certain frequency and 3 the signal level drops off at a certain rate. 4 For example, maybe every doubling of 5 frequency, the power level drops by 2 or 4 or 10, 6 something like that. So that's attenuation rate. 7 The higher the attenuation rate, the sharper the 8 cutoff. 9 BY MR. OU: 10 Q Okay. And then you state rejecting and 11 passing frequencies are different subjects. 12 I wanted to ask and better understand what 13 you meant by that. 14 A The -- the endeavor to filter typically 15 involves bleeding off certain frequencies to ground, 16 or something along that lines, selecting a frequency 17 and diverting it to -- so it doesn't go down the 18 path of the main signal or the desired signal. 19 Passing it, you have a different set of 20 problems. You're trying not to have losses. So 21 there's always losses in any circuit. There's 22 straight capacitance and inductance and wires and 23 components that are near each other, they communicate 24 with each other electrically, there's losses. 25 So passing means minimizing the losses that</p> | <p style="text-align: right;">248</p> <p>1 everything. Then as it approaches the -- the -- 2 I'll call it the cutoff frequency, it starts 3 diminishing, attenuating the signal, it maximizes 4 the attenuation at the selected frequency, then it 5 starts slowly backing off on attenuation and 6 allowing the frequency. 7 And then eventually it's allowing, 8 essentially, most of the frequency. So, you know, 9 you -- you go through allowing, rejecting, allowing, 10 you know, that's -- which is different than a low 11 pass filter, which first allows low frequencies, 12 then rejects as you -- as you go from left to right 13 up the frequency domain, it first -- the low pass 14 filter first allows the frequencies to pass and then 15 above a cutoff frequency, it starts attenuating the 16 frequencies. 17 So there's just different architectures. 18 Q Okay. When you were saying "first" then, 19 you weren't talking any type of temporal element, 20 you were just saying that there's a -- there's a 21 band that's going to be passed and then there's 22 going to be -- you know, a band or range that's then 23 rejected, and then another one that's being passed? 24 A Yes. 25 Q Did I -- did I understand your explanation?</p> |

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| <p style="text-align: right;">249</p> <p>1 Okay. So --</p> <p>2 A Instead of being temporal, I was talking</p> <p>3 about the frequency domain.</p> <p>4 Q Right, so --</p> <p>5 (Mr. Ou and the witness speak</p> <p>6 simultaneously.)</p> <p>7 BY MR. OU:</p> <p>8 Q So when you said filters can reject alone,</p> <p>9 you aren't talking about the -- the entire filter,</p> <p>10 were you? Meaning like a filter only rejects? Or</p> <p>11 is that what you were intending to say?</p> <p>12 MR. WELLS: Objection to form.</p> <p>13 THE WITNESS: Well, you can have a filter,</p> <p>14 for example, that rejects all AC. It rejects all</p> <p>15 frequencies and only allows DC. There are a lot</p> <p>16 of -- there's a lot of different architectures</p> <p>17 for -- for filter circuits.</p> <p>18 BY MR. OU:</p> <p>19 Q Okay. But even in that situation,</p> <p>20 something would still be passed, right?</p> <p>21 A Well, it would still be passed but it</p> <p>22 wouldn't pass any frequencies, it would just pass</p> <p>23 DC.</p> <p>24 Q Understood. I think maybe I just</p> <p>25 misunderstood what you were writing in this</p> | <p style="text-align: right;">251</p> <p>1 filters in these claims pass certain frequencies and</p> <p>2 reject others.</p> <p>3 MR. OU: Okay. Got it. I just wanted to</p> <p>4 make sure that you weren't intending to provide a --</p> <p>5 an opinion that a POSITA would understand the narrow</p> <p>6 band rejection filter of the claims to be a filter</p> <p>7 that only rejected frequencies or only passed</p> <p>8 frequencies.</p> <p>9 Q You weren't intending to say that in</p> <p>10 this -- or suggest that in this sentence that we've</p> <p>11 been looking at, right?</p> <p>12 A I'm not saying that a narrow band rejection</p> <p>13 filter does that.</p> <p>14 You know, there are filters that don't pass</p> <p>15 AC or don't pass DC, yeah.</p> <p>16 Q Okay. But those --</p> <p>17 A But that's not a narrow band rejection</p> <p>18 filter.</p> <p>19 Q And it's not the narrow band rejection</p> <p>20 filter that's disclosed in these patents-in-suit,</p> <p>21 right?</p> <p>22 A No.</p> <p>23 The patents-in-suit are not -- do not</p> <p>24 reject all frequencies or pass all frequencies, no.</p> <p>25 Q Okay. So if -- if you had to describe how</p> |
| <p style="text-align: right;">250</p> <p>1 sentence. Let me ask it this way.</p> <p>2 You would agree that this last part,</p> <p>3 that -- you say "or they can both reject and pass</p> <p>4 different frequencies simultaneously."</p> <p>5 A low pass filter will both reject and pass</p> <p>6 different frequencies simultaneously, right?</p> <p>7 A Yes.</p> <p>8 Q Same thing with a high pass filter, right?</p> <p>9 A Yes.</p> <p>10 Q Same thing with a --</p> <p>11 A Generally, yes.</p> <p>12 Q Same thing with a band pass filter, right?</p> <p>13 A Yes, they -- they pass and reject.</p> <p>14 Q And then same thing with a band rejection</p> <p>15 filter, right?</p> <p>16 A Yes, it passes, rejects, passes.</p> <p>17 Q As well as a narrow band rejection filter,</p> <p>18 right?</p> <p>19 A Yes, it would pass and reject selectively.</p> <p>20 Q And that would include the specific narrow</p> <p>21 band rejection filter that is part of the -- the</p> <p>22 claims in the asserted patents, right?</p> <p>23 A The narrow band rejection --</p> <p>24 MR. WELLS: Objection to form.</p> <p>25 THE WITNESS: The narrow band rejection</p> | <p style="text-align: right;">252</p> <p>1 the narrow band rejection filter of these patents</p> <p>2 rejected frequencies, certain frequencies, and</p> <p>3 passed certain frequencies, how would a person of</p> <p>4 ordinary skill in the art explain that?</p> <p>5 MR. WELLS: Objection to form.</p> <p>6 THE WITNESS: You know, it -- as I've</p> <p>7 written in Paragraph 50, the plain and ordinary</p> <p>8 meaning, I think, that a POSITA would understand is</p> <p>9 a narrow band rejection filter is a filter that</p> <p>10 rejects a narrow band of frequencies.</p> <p>11 BY MR. OU:</p> <p>12 Q And what would a POSITA then understand in</p> <p>13 terms of what that narrow band rejection filter</p> <p>14 passes?</p> <p>15 How would a POSITA describe or understand</p> <p>16 that?</p> <p>17 A What it doesn't filter, it passes. That</p> <p>18 which is not filtered is passed. You know, given --</p> <p>19 given the limitations of any circuit not being</p> <p>20 perfect.</p> <p>21 Q Okay. So you would agree that a POSITA</p> <p>22 would understand a narrow band rejection filter of</p> <p>23 the patents-in-suit to reject a narrow band of</p> <p>24 frequencies and pass the rest, subject to any</p> <p>25 limitations of any circuit not being perfect; is</p> |

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| 253 | <p>1 that fair?</p> <p>2 MR. WELLS: Objection to form.</p> <p>3 THE WITNESS: A POSITA would understand the</p> <p>4 plain and ordinary meaning of narrow band filter as</p> <p>5 a filter which rejects a narrow band of frequency.</p> <p>6 That's all it -- that's all it's supposed to do is</p> <p>7 reject a narrow band.</p> <p>8 A POSITA would also understand no circuit</p> <p>9 is perfect, you know, it's not going to perfectly</p> <p>10 reject and it's not going to perfectly pass.</p> <p>11 There's losses in any circuit. There's no circuit</p> <p>12 that's 100 percent. That would violate the laws of</p> <p>13 thermodynamics.</p> <p>14 But, yeah, it's simply that, a filter which</p> <p>15 rejects a narrow band of frequencies.</p> <p>16 BY MR. OU:</p> <p>17 Q The intent of a narrow band rejection</p> <p>18 filter, to the extent it's not an ideal filter, is</p> <p>19 one that would inject a narrow band of frequencies</p> <p>20 and then pass all the frequencies outside of the</p> <p>21 narrow band, right?</p> <p>22 MR. WELLS: Objection to form.</p> <p>23 THE WITNESS: As I've written, its -- its</p> <p>24 goal is to reject a narrow band of frequencies.</p> <p>25 Every -- you know, there's limitations in every</p> | 255 | <p>1 MR. OU: Sure. Let me give you a -- an</p> <p>2 example to -- to -- to better understand it. Okay?</p> <p>3 Let's -- let's take a low pass filter as an</p> <p>4 example. Okay?</p> <p>5 Q You would agree that a low pass filter is</p> <p>6 not a narrow band rejection filter, right?</p> <p>7 A I would say yes, a low pass filter is not a</p> <p>8 narrow band rejection filter.</p> <p>9 Q Okay. And a low pass filter is going to</p> <p>10 reject a range of frequencies above a certain</p> <p>11 frequency, right?</p> <p>12 A Yes, it attenuates above a certain</p> <p>13 frequency.</p> <p>14 Q Okay. So let's assume that the narrow band</p> <p>15 of frequencies is within that range of frequencies</p> <p>16 that is rejected by the low pass filter.</p> <p>17 Do you follow me?</p> <p>18 A Not yet.</p> <p>19 Are you saying that the low pass filter</p> <p>20 cutoff point is below the narrow band center point?</p> <p>21 Q Yes.</p> <p>22 In other words, the -- the -- the narrow</p> <p>23 band of frequencies that is rejected is within the</p> <p>24 range of frequencies that is also rejected by the --</p> <p>25 by the low pass filter.</p> |
| 254 | <p>1 circuit. No circuit can go up to an infinitely high</p> <p>2 frequency.</p> <p>3 Everything fails at infinitely high</p> <p>4 frequencies, so, you know, a POSITA would</p> <p>5 understand, you know, the basic limitations of -- of</p> <p>6 these types of analog circuits.</p> <p>7 MR. OU: Okay. Dr. Glew, let me -- let me</p> <p>8 explain to you, maybe, a potential concern that one</p> <p>9 may be confused with your plain and ordinary meaning</p> <p>10 of narrow band rejection filter, and maybe you can</p> <p>11 explain if this is what you're intending.</p> <p>12 Q So you've provided the opinion that the</p> <p>13 plain and ordinary meaning of narrow band rejection</p> <p>14 filter is a filter which rejects a narrow band of</p> <p>15 frequencies, right?</p> <p>16 A Well, I understand that that's how a person</p> <p>17 of skill in the art would understand it, yes.</p> <p>18 Q Okay. Would a person of ordinary skill in</p> <p>19 the art understand that it would be a -- a filter</p> <p>20 which rejects a narrow band of frequencies in</p> <p>21 addition to some other bands -- band or bands of</p> <p>22 frequencies that are not within that narrow band?</p> <p>23 MR. WELLS: Objection to form.</p> <p>24 THE WITNESS: I'm not sure I understand</p> <p>25 your question.</p> | 256 | <p>1 A Well, what you're describing to me, I</p> <p>2 think, are two filters.</p> <p>3 Q Those would be two different filters,</p> <p>4 right?</p> <p>5 MR. WELLS: Objection to form.</p> <p>6 THE WITNESS: The narrow band rejection</p> <p>7 filter is still a narrow band rejection filter, the</p> <p>8 low pass filter is still a low pass filter. What</p> <p>9 you've described, I think, is two filters.</p> <p>10 MR. OU: Let me give you --</p> <p>11 THE WITNESS: You know, if one -- if one</p> <p>12 has six filters in a row, are they all -- you know,</p> <p>13 they're still -- they're still what they are. You</p> <p>14 know, there may -- there may be a desire to also --</p> <p>15 I don't know. It depends -- I guess I don't really</p> <p>16 understand what the question is.</p> <p>17 MR. OU: Yeah. Let me -- let me try it a</p> <p>18 different way and -- and maybe give you a different</p> <p>19 example. Okay?</p> <p>20 Q In the patents-in-suit, the embodiment or</p> <p>21 example that they give for their narrow band</p> <p>22 rejection filter is a filter that has -- it's a</p> <p>23 2 megahertz center with approximately 100 kilohertz</p> <p>24 bandwidth, right?</p> <p>25 A I generally recall that, yes.</p> |

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| <p style="text-align: right;">257</p> <p>1 Q Okay. And so the narrow band of</p> <p>2 frequencies in an ideal filter would be rejecting</p> <p>3 between 1.95 megahertz and 2.05 megahertz, right?</p> <p>4 A Did you say plus or minus 100, or --</p> <p>5 Q I think it said that the -- the bandwidth</p> <p>6 was 100 kilohertz, and so I applied it with that.</p> <p>7 A Okay. I got it.</p> <p>8 Yes, that's approximately correct. It</p> <p>9 starts attenuating -- whatever its efficiency is, it</p> <p>10 starts attenuating at those frequencies. Or</p> <p>11 passing. Excuse me, yeah, at those frequencies,</p> <p>12 yeah.</p> <p>13 Q Right.</p> <p>14 The -- that narrow band rejection filter is</p> <p>15 supposed to start passing at 1.95 or 2.05 and then</p> <p>16 going below 1.95 and above 2.05, right?</p> <p>17 A That's generally what -- what I think is</p> <p>18 described, yes.</p> <p>19 Q Okay. And there's no dispute that that</p> <p>20 type of filter with that center of frequencies and</p> <p>21 that bandwidth is the -- a narrow band rejection</p> <p>22 filter, right?</p> <p>23 A I understand that to be a narrow band</p> <p>24 rejection filter, for example, as described in</p> <p>25 Claim 20 of the '657.</p> | <p style="text-align: right;">259</p> <p>1 MR. WELLS: Objection to form.</p> <p>2 THE WITNESS: Yeah, I mean, I think the</p> <p>3 high pass filter is still a high pass filter. I</p> <p>4 mean, I can -- you know, that circuit doesn't make a</p> <p>5 lot of sense.</p> <p>6 I mean, it's the kind of thing that you</p> <p>7 might want a couple on the low side so that you've</p> <p>8 got -- you know, if you had a lot of signal on the</p> <p>9 low end side and you wanted extra boost on your --</p> <p>10 actually, it just -- the circuit isn't making a lot</p> <p>11 of -- a lot of sense, really.</p> <p>12 Yeah, maybe, you know -- yeah, maybe, if</p> <p>13 you put it on the low side down at 1.95, you could</p> <p>14 get additional filtration on the low side if, for</p> <p>15 some reason, there was a -- a desire to do that.</p> <p>16 But I don't know. Whatever. It's hard to -- the</p> <p>17 high pass filter is still just a high pass filter.</p> <p>18 BY MR. OU:</p> <p>19 Q Okay. And -- and that high pass-- a person</p> <p>20 of ordinary skill in the art wouldn't consider that</p> <p>21 high pass filter to be a narrow band rejection</p> <p>22 filter in the context of the invention simply</p> <p>23 because it also rejects a narrow band of</p> <p>24 frequencies -- right? -- in addition to other</p> <p>25 frequencies?</p> |
| <p style="text-align: right;">258</p> <p>1 Q Okay. Now, let's just say that -- and keep</p> <p>2 that range in mind -- that the inventors instead</p> <p>3 designed and used a filter that rejected all</p> <p>4 frequencies below 2.2 megahertz. Okay?</p> <p>5 A Okay.</p> <p>6 Q Now, that filter would also reject that</p> <p>7 same narrow band of frequencies, 1.95 megahertz</p> <p>8 through 2.05 megahertz, right?</p> <p>9 A This was a high pass filter, 2.2?</p> <p>10 Q Right.</p> <p>11 And so it would reject anything below</p> <p>12 2.2 megahertz, which would include the 1.95 through</p> <p>13 2.05 megahertz range, right?</p> <p>14 A Yeah.</p> <p>15 It has an attenuation rate. You know, if</p> <p>16 it was a very slow drop-off, it might -- you know,</p> <p>17 it might give you a little boost on the downside</p> <p>18 more so than the upside.</p> <p>19 Q Okay. So a person of ordinary skill in the</p> <p>20 art would not understand that high pass filter that</p> <p>21 I just described that rejects everything under</p> <p>22 2.2 megahertz to be a narrow band rejection filter</p> <p>23 simply because it rejected that narrow band of</p> <p>24 frequencies that we had just talked about?</p> <p>25 You would agree with that, right?</p> | <p style="text-align: right;">260</p> <p>1 MR. WELLS: Objection to form.</p> <p>2 THE WITNESS: The high pass-- see, I don't</p> <p>3 understand that the high pass filter rejects a</p> <p>4 narrow band. It rejects a broad band. It -- you</p> <p>5 know, it happens to reject a band that overlaps a</p> <p>6 narrow band filter, but the high pass filter is</p> <p>7 still just rejecting a broad band. That's how I --</p> <p>8 MR. OU: Right. And -- right. And -- and</p> <p>9 that's kind of my point.</p> <p>10 Q You were not intending to try to say that</p> <p>11 a -- a POSITA would understand -- because your --</p> <p>12 your understanding of a -- of a narrow band</p> <p>13 rejection filter only speaks to what is being</p> <p>14 rejected; and so if a filter was actually rejecting</p> <p>15 a broader band which included that narrow band, you</p> <p>16 would agree that that's not a narrow band rejection</p> <p>17 filter, right?</p> <p>18 MR. WELLS: Objection to form.</p> <p>19 THE WITNESS: I -- I would say that the --</p> <p>20 you know, on its own, the high pass filter is not --</p> <p>21 it's just a high pass filter, it's a broad band</p> <p>22 filter. It's not a narrow brand rejection filter.</p> <p>23 However, one can combine multiple filters in a</p> <p>24 circuit, and there may be reasons to do so.</p> <p>25 For example, you know, there may be some</p> |

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| <p style="text-align: right;">261</p> <p>1 really noisy things at the low end. Sometimes 2 people want to screen out 60 hertz, you know, line 3 voltage that's in the building, you know, or 4 something, or there's an issue of maybe something 5 shorting out that's a safety feature. 6 So you could put -- you know, you might put 7 a -- you might combine a narrow band filter with 8 other filters for safety purposes; but, you know, 9 the narrow band filter is a narrow band filter and 10 the other filters are other types of filters. 11 BY MR. OU: 12 Q The patents don't disclose combining -- 13 MR. WELLS: Phil, the witness isn't there. 14 MR. OU: Oh, I'm sorry. 15 MR. WELLS: And when you get to a stopping 16 point, can we take a five-minute break? I need to 17 use the services. 18 MR. OU: Yeah, let's take one now. No 19 problem. Let's go off the record. 20 THE VIDEOGRAPHER: We are going off the 21 record at 18:22. 22 (A recess was taken from 6:22 p.m. 23 to 6:29 p.m.) 24 THE VIDEOGRAPHER: We are back on the 25 record at 18:29.</p> | <p style="text-align: right;">263</p> <p>1 pulse looks kind of like part of a square. 2 If you actually do a Fourier transform of 3 the real signal, what you'll see is that it's a 4 combination of frequencies that end up looking 5 roughly square, or, in fact, pretty square, 6 depending on how good the circuit is. 7 But if you start pulling out some of the 8 higher frequencies, it starts looking less and less 9 square. You know, it's not a sharp or fairly sharp 10 90 with a rise, then a -- then a sustaining level, 11 or a drop and a sustaining level at a specific DC 12 voltage, negative. So that's the -- that's what 13 he's talking about there. 14 Q What about the pulsed DC power supply 15 causes the square -- causes the pulsed DC power 16 signal to be a square wave? 17 MR. WELLS: Objection to form. 18 THE WITNESS: Power -- power -- power that 19 comes into the power supply is AC. That's what 20 comes into to the wall, and then it gets rectified 21 to DC. But, you know, it's not perfect. It may 22 look pretty good. 23 If you look at it under a oscilloscope, you 24 know, it starts looking less good but -- in fine 25 resolution.</p> |
| <p style="text-align: right;">262</p> <p>1 BY MR. OU: 2 Q Dr. Glew, could you take a look at the 3 Exhibit 10, which is the portion of the file history 4 that we looked at earlier? 5 A Okay. 6 Q All right. Looking at Paragraph 3 of the 7 Demaray declaration -- let me know when you're 8 there. 9 A I have that in front of me. 10 Q Okay. Looking at the last sentence, you 11 see it reads "Utilizing a band pass filter between 12 the pulsed DC power supply and the plasma, however, 13 will not protect the pulsed DC power supply from the 14 RF bias and will also unduly distort the square wave 15 of the pulsed DC power supply -- power signal 16 applied to the target, which detrimentally affects 17 the deposition conditions." 18 Do you see that? 19 A Yes. 20 Q What did -- what would a POSITA understand 21 Dr. Demaray to mean when he's was referring to the 22 square wave of the pulsed DC power signal applied to 23 the target? 24 A Well, I think he just meant there that the 25 edge -- the sharp corner on the -- the rise of a DC</p> | <p style="text-align: right;">264</p> <p>1 But if you break it down mathematically, 2 it's going to look kind of like a combination of 3 very complex combination of multiple frequencies 4 that add up to look square, and if you strip out 5 those high frequencies, then it starts looking less 6 sharp and starts getting rounder. 7 BY MR. OU: 8 Q So in -- in Paragraph 43 of your 9 declaration -- let me know when you have it. 10 A Okay. I'm there. 11 Q The last sentence, you write "Pulsed DC 12 power passing through zero could, thus, roughly 13 approximate the following schematic waveform," and 14 there's a graph where the Y axis is amplitude, the X 15 axis is time, and you see some rectangles formed 16 periodically. 17 Would you agree? 18 MR. WELLS: Objection to form. 19 THE WITNESS: I think the document speaks 20 for itself. It's -- you know, it's -- it's a square 21 wave, basically. It's a square wave in that it's, 22 you know, for example, showing 50 percent duty cycle 23 at 1 and 50 percent at the other. 24 But in reality, they don't need to be 25 50 percent.</p> |

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| <p>1 MR. OU: Just so I understand, you were 2 just referring to 50 percent duty cycle. 3 Q What do you mean by that? 4 A Well, it's at a high -- it's at a high -- 5 two things. First of all, it's at a high voltage 6 half the time and a low voltage half the time. 7 Right? 8 Q Got it. 9 And what you're saying is that a pulsed DC 10 power supply doesn't need to be at the high voltage 11 and low voltage for the same amount of time; and I 12 think, actually, it's usually quite different in 13 terms of how much time it's at a negative voltage 14 versus -- or the high voltage and low voltage, 15 right? 16 A Yes, and it doesn't have to be centered at 17 zero. 18 Q Right. 19 It -- meaning right now the -- the -- where 20 the half of the wave -- the first half of the wave 21 doesn't cross zero? Is that what you mean? 22 Meaning like the wave could go up or down 23 and usually it's actually -- it would shift down 24 where the negative voltage is significantly more 25 negative than whatever is the positive voltage; is</p> | 265 | <p>1 not to mean a perfect square having 90-degrees 2 angles at each corner, right? 3 MR. WELLS: Objection to form. 4 THE WITNESS: Well, what I was saying is 5 that they wouldn't necessarily understand that it 6 was, you know, duty cycle, you know, even between 7 positive and negative, and that it was centered 8 at -- you know, that the plus and the minus were 9 equal, that they could be biased up or down. 10 He does want it to stay as square as 11 possible, which is why he uses the narrow band 12 filter, so the higher frequencies don't get bled 13 off, because when you bleed off high frequencies off 14 a sharp wave like this, it will start rounding the 15 corners and it will make them -- fall off time 16 longer too. 17 You know, it becomes sort of deformed, 18 basically. You know, it's what you see oftentimes 19 on oscilloscopes. You see a -- a lagging drop-off 20 and kind of a -- a rounded rise. 21 BY MR. OU: 22 Q Okay. But a person of ordinary skill 23 reading Dr. Demaray's statement in his declaration 24 wouldn't read square wave to mean a perfect square 25 wave, right?</p> | 267 |
| <p>1 that right? 2 A Yeah, that's essentially it. 3 Q Okay. And -- and why is it that, you know, 4 Dr. Demaray describes what's coming out of the 5 pulsed DC power supply as a square wave? 6 What does that refer to in the context of 7 this -- this picture that you have, this schematic 8 wave form? 9 MR. WELLS: Objection to form. 10 THE WITNESS: Well, you know, if you think 11 of like a carpenter's square, a square is -- when 12 something is square, it's something that's at 90 13 degrees. It's, you know, got a sharp corner on it. 14 It's the easiest thing to draw, it's what you'll 15 usually see, you know, as the first example. 16 So his concern was that the corners stay 17 square and that they don't become round due to 18 bleed-off of higher frequencies. So even though 19 this looks -- you know, if it were actually coming 20 out of a DC power supply, if you started filtering 21 out higher frequencies, it would become less sharp 22 on the corners. 23 MR. OU: I think I understand. 24 Q A person of ordinary skill in the art would 25 understand Dr. Demaray's reference to square wave</p> | 266 | <p>1 MR. WELLS: Objection to form. 2 THE WITNESS: I'm -- as I said, they 3 wouldn't -- they wouldn't expect anything is 4 perfect. Nothing is. 5 But Dr. Demaray does want to keep it as 6 sharp -- you know, as square at the corners as 7 possible, which is why he -- he went with the narrow 8 band filter, to protect the RF, but not, as he put 9 it -- not distorting the pulses generated by the 10 pulsed DC power supply. 11 So what I think they wouldn't understand is 12 they wouldn't understand that it was necessarily 13 plus and minus the same or that it was, you know, 14 duty cycle the same, either positive or negative. 15 MR. OU: Understood. 16 Q Reading -- reading Dr. Demaray's statement, 17 square wave, a person of ordinary skill in the art 18 wouldn't understand that to mean that you have plus 19 and minus the same in terms of the voltages or the 20 duty cycles being the same; is that fair? 21 The intent of square wave is just to say 22 that you want -- you do not want -- you want the 23 corners to be as -- as close to 90 degrees as 24 possible? 25 MR. WELLS: Objection to form.</p> | 268 |

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| <p>1 THE WITNESS: That's -- you know, I sort of 2 read it that, you know, that's what he -- you know, 3 when he says "square," he's looking for the -- the 4 vertical and horizontal are roughly square with each 5 other, you know, that it's a step function, you 6 know, as much as possible. 7 MR. OU: Right. 8 Q And -- and -- and that's a result of using 9 the pulsed DC power supply where you're setting the 10 negative voltage at a certain voltage and then 11 there's a certain positive voltage and that's going 12 to be at a reverse time, which is likely going to be 13 different for the time that you're at the negative 14 voltage, right? 15 MR. WELLS: Objection to form. 16 THE WITNESS: I'm not sure -- I didn't 17 really follow that as a question. What were you 18 asking? 19 MR. OU: Sure. Let -- let me reask the 20 question. 21 Q In this -- the square wave, or at least 22 how -- how Dr. Demaray frames the square wave, the 23 top and bottom of the waves are parallel to the Y -- 24 to the X axis, right? 25 MR. WELLS: Objection to form.</p> | 269 | <p>1 possible because it's supposed to be DC and the 2 vertical being as fast as possible, generally 3 desirable. 4 BY MR. OU: 5 Q And that's how a POSITA would have 6 understood Dr. Demaray's reference to square wave 7 from the pulsed DC power supply in reading his 8 declaration? 9 MR. WELLS: Objection to form. 10 THE WITNESS: You know, I understand that 11 he talks about not distorting the pulses, meaning 12 keeping it as square as possible. He writes in 13 Paragraph 4 "We discovered that a band rejection 14 filter, which is a filter that passes all of the 15 frequencies of the square wave power supply except 16 within a narrow band on the RF frequency of the RF 17 bias, protected the pulsed DC power supply from the 18 RF energy while not distorting the pulses generated 19 by the pulsed DC power supply applied to the 20 target." 21 So the distortion is not evident or 22 minimized for the -- you know, the vertical rise and 23 that first rise corner and then on the -- the 24 drop-off, or vice-versa. 25 MR. OU: Give me one second, Dr. Glew. I'm</p> | 271 |
| <p>1 THE WITNESS: I think they are -- yeah, 2 as -- you know, they're basically as flat as 3 possible. I would say that's what -- that's part of 4 it. 5 BY MR. OU: 6 Q And the reason that they're as flat as 7 possible is because there is a set negative voltage, 8 which is going to be the bottom of the wave, and 9 then the set positive voltage, which is going to be 10 at the top of the wave, right? 11 MR. WELLS: Objection to form. 12 THE WITNESS: These are intended to be DC, 13 constant voltage, so that's the goal here in a DC, 14 is to keep it constant. 15 MR. OU: Right. 16 Q It's intended to be DC constant except 17 where you are pulsing and, thus, going from the 18 negative voltage to the positive voltage and then 19 back down to the negative voltage, right? 20 MR. WELLS: Objection to form. 21 THE WITNESS: Again, I understand "square" 22 in that the vertical and the horizontal respectively 23 make a 90 degree. 24 You know, the goal is to preserve as much 25 of that as possible, the horizontal being as flat as</p> | 270 | <p>1 going to drop in one more exhibit. 2 I'm getting a "Network Disconnect" when I'm 3 putting in a document. Can we go off the record for 4 a second? 5 THE VIDEOGRAPHER: We are going off the 6 record at 18:44. 7 (A recess was taken from 6:44 p.m. 8 to 6:45 p.m.) 9 THE VIDEOGRAPHER: We are back on the 10 record at 18:45. 11 (Exhibit No. 11 was marked for 12 identification by the 13 videoconference technician; 14 attached hereto.) 15 BY MR. OU: 16 Q Dr. Demaray -- I'm sorry. 17 Dr. Glew, do you have Exhibit 11 open? 18 A Yes, I do. 19 Q Okay. Exhibit 11 is Demaray's opening 20 claim construction brief, right? 21 A That's what it's titled, yes. 22 Q Okay. Did you review the claim 23 construction brief in preparation for your 24 deposition? 25 A I reviewed the -- the claim constructions</p> | 272 |

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| <p style="text-align: right;">273</p> <p>1 with the attorneys. I'm not -- the claim 2 construction brief isn't exactly an engineering 3 document. 4 Q Understood. I -- I more so actually just 5 want to draw your attention to a document that has 6 the competing proposed construction, so this was the 7 easiest document to -- to point to. 8 You are familiar with, obviously, the -- 9 the -- the parties' competing proposed 10 constructions, right? 11 A In general, yes. I generally have them in 12 my declaration. 13 Q Okay. If you go to the last page of the 14 opening claim construction brief -- 15 A Okay. 16 Q And I wanted to ask you about the 17 "substantially constant" or the claim language "the 18 temperature of the substrate substantially 19 constant." 20 And are you contending that this term means 21 that the temperature along the substrate cannot 22 deviate by about 10 degrees from any other point on 23 the same substrate? 24 A No -- 25 MR. WELLS: Objection to form.</p> | <p style="text-align: right;">275</p> <p>1 So what I understand, holding it within 2 10 degrees means that -- that no point on the wafer 3 is going to vary by more than 10 degrees, so they 4 may -- they're not going to be the same because the 5 center is hot and the door is cold and the walls are 6 somewhere between the door and the center. 7 Q Got it. 8 But you understand this term to mean that 9 the temperature isn't going to deviate by more than 10 10 degrees of whatever is the set or expected 11 temperature; is that right? 12 MR. WELLS: Objection to form. 13 THE WITNESS: No, not exactly. 14 If one sets the wafer at 300 degrees and 15 one has one temperature sensor, then one knows that 16 that is the temperature at that point, but one also 17 typically measures the wafer and knows that there's 18 a certain variation within the wafer; that it's 19 coldest near the door, the slip valve where the 20 wafer comes in, it's colder -- it's cold on the 21 edges, but not as cold as near the door, typically; 22 and it's hottest in the center. 23 So whatever the set point is, that's for 24 where the temperature sensor is, but the wafer is 25 not going to be that temperature everywhere.</p> |
| <p style="text-align: right;">274</p> <p>1 THE WITNESS: -- that's not what I'm 2 opining here. 3 MR. OU: Okay. 4 THE WITNESS: I don't understand this, 5 yeah. 6 BY MR. OU: 7 Q Yeah, can you just clarify how you -- how 8 you understand this -- this particular term and how 9 a person of ordinary skill in the art would 10 understand this term? 11 A Sure. 12 If a wafer is 300 degrees in the middle, it 13 may be, you know, 290 on the edge because the edge 14 is near the chamber wall, the chamber walls are 15 usually less than 70 degrees. You don't want to 16 melt the O rings. So it's cold. So these are 17 cold-walled chambers. They're not at the same 18 temperature as the substrate. 19 So what you typically have is you have a 20 variation across the wafer of, you know, X, let's 21 say, and we have a 300-degree wafer, and it's 10 -- 22 it's to 300 in the center, 290 on the edge, and a 23 little colder near the door, the slip valve where 24 the wafer comes into the chamber. That's probably 25 the coldest spot, so maybe it's 288.</p> | <p style="text-align: right;">276</p> <p>1 Holding it within 10 degrees, though, means that the 2 wafer, whatever temperature -- whatever point on the 3 wafer is at, it's going to stay within 10 degrees of 4 that in the -- during the process. 5 The reality is one is going to know 6 where -- where the temperature sensor is. Maybe one 7 has two or three temperature sensors. One -- 8 BY MR. OU: 9 Q So how -- how would one know whether or not 10 at any point the wafer is going to vary by more than 11 10 degrees? 12 What is it varying from? 13 A Its -- its temperature range during the 14 process. 15 Q But how is that determined? Like how do 16 you know what the temperature range is? 17 A Typ- -- typically one knows the temperature 18 where the temperature sensor is, and that's what one 19 monitors, and one knows also -- one of skill in the 20 art knows that there's a variation over the range of 21 the wafer, and that's fine. 22 You know, you've worked it up so that that 23 variation across the -- from the middle to the edge 24 of the wafer is X; but, you know, you want to keep 25 it in a range during the process run. You know, as</p> |

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| <p style="text-align: right;">277</p> <p>1 the power turns on, the wafer gets hotter, but it 2 all gets hotter. 3 The parts that were 290 come up to 300, the 4 parts at 300 might come up to 310, but that's still 5 within -- every point is staying within 10 degrees 6 of-- you know, with a 10-degree range. 7 Q Again, sorry if I'm not understanding 8 completely; but staying within a 10-degree range of 9 what? 10 What is the 10 degrees varying from? 11 MR. WELLS: Objection to form. 12 THE WITNESS: It's -- the range is its 13 temperature range during the process. 14 Claim 10 says the reactor in Claim 6 15 further including a temperature controller for 16 holding the temperature of the substrate 17 substantially constant. 18 So it doesn't say "substantially uniform," 19 it says "substantially constant," so if you're 20 measuring the center of the wafer and you see that 21 it's 300 degrees, then it should stay, you know, 22 within 10 degrees of that. 23 BY MR. OU: 24 Q Okay. And then if -- if you're measuring 25 at some other point in the wafer that's, for</p> | <p style="text-align: right;">279</p> <p>1 So there's always a process setting, so 2 that's -- one of skill in the art would understand 3 that 10 degrees is the process setting for 4 temperature control. That -- that defines 5 "substantially constant." 6 Q Let me direct your attention, Dr. Glew, 7 back up to Page 2 of the opening claim construction 8 brief. 9 And do you see starting at, I guess, 10 halfway down Page 1, there's kind of a brief 11 overview or summary of the Demaray patents that's 12 basically Section 2? 13 A I'm sorry. I'm on Page 2, Section 3? 14 Q And I'm sorry. So on -- on the bottom of 15 Page 1, there's a Section 2 that's titled "The 16 Demaray Patents." 17 Do you see that? 18 A Yes. 19 Q And if you go into the top of Page 2, the 20 last sentence reads "An insight of the inventors was 21 that a narrow band rejection filter can be used to 22 protect the DC power supply from damaging feedback 23 from an -- from a RF bias." 24 Do you see that? 25 A Yes.</p> |
| <p style="text-align: right;">278</p> <p>1 example, 290 degrees, it needs to stay within 2 10 degrees of that? 3 A Yes. 4 And like I said, the edges are almost 5 always colder than the center. 6 Q So essentially the staying within 7 10 degrees is within 10 degrees of whatever you've 8 measured the temperature at? 9 A Right. 10 The reality is one only measures the 11 temperature where the temperature sensor is. There 12 might be two temperature sensors, there might be 13 three, but, you know, they're not everywhere. 14 Q Okay. So -- and based on whatever that 15 temperature sensor is measuring, a person of 16 ordinary skill in the art would understand the 17 temperature of the substrate substantially constant 18 to be within about 10 degrees of whatever that 19 measurement is. 20 Do I understand that right? 21 A Yes. 22 And that is how one sets processes. Any -- 23 any parameter for a process typically has a range 24 where you say 1,000 watts plus or minus 20 watts, or 25 300 degrees plus or minus 5 degrees, or something.</p> | <p style="text-align: right;">280</p> <p>1 Q Do you agree with that statement? 2 A I think that's lawyer speak. It's sort of 3 shorthand. There's a lot more to it than that. 4 Q You would agree that a person of ordinary 5 skill in the art at the time of the invention would 6 know that if a power supply at risk of getting 7 damaging feedback from a RF bias -- that you would 8 put a filter in there to block that RF energy, 9 right? 10 MR. WELLS: Objection to form. 11 And I instruct the witness not to answer. 12 BY MR. OU: 13 Q Are you going to follow your counsel's 14 instruction? 15 A Yes. 16 Q Okay. At the time of the invention, what 17 are the different ways that a person of ordinary 18 skill in the art working in PVD systems would 19 understand of how to protect a DC power supply from 20 damaging feedback from a RF bias? 21 MR. WELLS: Objection to form. 22 And I instruct the witness not to answer. 23 THE WITNESS: I'm turning on my lights. 24 MR. OU: Dr. Glew, if you don't mind, let's 25 go off the record. I could be wrapping up, but I</p> |

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| 281 | <p>1 just want to check some notes. So if you don't</p> <p>2 mind, give me -- let me take like a five- -- five-,</p> <p>3 ten-minute break, and then we can probably wrap up.</p> <p>4 Okay.</p> <p>5 THE WITNESS: Okay.</p> <p>6 THE VIDEOGRAPHER: We are going off the</p> <p>7 record at 18:56.</p> <p>8 (A recess was taken from 6:56 p.m.</p> <p>9 to 7:08 p.m.)</p> <p>10 THE VIDEOGRAPHER: We are back on the</p> <p>11 record at 19:08.</p> <p>12 MR. OU: Dr. Glew, could you pull back up</p> <p>13 Exhibit 10 for me? This is the -- and turn to</p> <p>14 the --</p> <p>15 THE WITNESS: I have it.</p> <p>16 MR. OU: Okay. And -- and I want to draw</p> <p>17 your attention back to Paragraph 4 of Dr. Demaray's</p> <p>18 declaration, which is on the page that ends in 1134.</p> <p>19 THE WITNESS: Okay. I am at Page 1134.</p> <p>20 BY MR. OU:</p> <p>21 Q Okay. Would you agree that a person of</p> <p>22 ordinary skill in the art reading the second</p> <p>23 sentence of Paragraph 4 of his declaration would</p> <p>24 understand that the necessity of the narrow band</p> <p>25 rejection filter as opposed to some other type of</p> | 283 | <p>1 maintain your objection, Maclain?</p> <p>2 MR. WELLS: I'm rereading your question</p> <p>3 just to make sure.</p> <p>4 Yes, I'm maintaining my objection.</p> <p>5 MR. OU: Okay. Let me, maybe, ask a -- a</p> <p>6 different question, and we'll see what happens.</p> <p>7 Q Dr. Glew, you understand that when the</p> <p>8 applicants first filed their applications for these</p> <p>9 patents-in-suit, they didn't include a limitation</p> <p>10 that it be a narrow band rejection filter, it was</p> <p>11 just a filter to begin with?</p> <p>12 Is that consistent with your understanding</p> <p>13 of your review of the file history?</p> <p>14 MR. WELLS: Objection to form.</p> <p>15 THE WITNESS: My general recollection is</p> <p>16 that there were some amendments.</p> <p>17 MR. OU: Okay. And -- and those -- and</p> <p>18 those amendments including -- included further</p> <p>19 narrowing the claim to require a narrow band</p> <p>20 rejection filter as opposed to other types of</p> <p>21 filters.</p> <p>22 Q You would agree, right?</p> <p>23 A My general recollection is yes, they</p> <p>24 narrowed the claim with that language, or they --</p> <p>25 they -- that's my general recollection. If you want</p> |
| 282 | <p>1 filter is needed in order to preserve the square</p> <p>2 wave shape of the power supply signal?</p> <p>3 MR. WELLS: Objection to form.</p> <p>4 And I instruct the witness not to answer.</p> <p>5 MR. OU: And, Maclain, just so I</p> <p>6 understand, on what basis?</p> <p>7 MR. WELLS: It appears you're making</p> <p>8 noninfringement arguments and doctoring up</p> <p>9 equivalence arguments. You're not asking him what</p> <p>10 the meaning of a narrow band rejection filter is.</p> <p>11 You asked that earlier, he's addressed</p> <p>12 that. You asked him about the other language and he</p> <p>13 addressed that. But now it appears that you're</p> <p>14 making noninfringement arguments and DOE arguments.</p> <p>15 MR. OU: Well, I'm not, he's -- Dr. Glew</p> <p>16 has opined that the square wave -- or a person of</p> <p>17 ordinary skill in the art would not understand the</p> <p>18 square wave aspect to be a part of the proposed</p> <p>19 construction, so I -- if you're going to sustain</p> <p>20 your objection, then, you know, it is what it is, we</p> <p>21 can take it up with the court, but --</p> <p>22 Q Are you going to follow your counsel's</p> <p>23 instruction, Dr. Glew?</p> <p>24 A Yes.</p> <p>25 MR. OU: Okay. And you're going to</p> | 284 | <p>1 to put that office action rejection and their</p> <p>2 response in front of me, I'd be happy to confirm it.</p> <p>3 Q Just based on your review of the file, sir,</p> <p>4 you agree that the claims were narrowed to include</p> <p>5 the further limitation that it be a narrow band</p> <p>6 rejection filter as opposed to any other type of</p> <p>7 filter, right?</p> <p>8 MR. WELLS: Objection to form.</p> <p>9 THE WITNESS: I recall that they were</p> <p>10 narrowed with additional claim limitations. I</p> <p>11 believe that was one of them, but I -- you know, if</p> <p>12 you want to put the claim language -- or excuse</p> <p>13 me -- the -- the rejection and the office action and</p> <p>14 the response in front of me, I'd be happy to look at</p> <p>15 it.</p> <p>16 If you want to -- if you want to represent</p> <p>17 that, then I can answer the question accordingly.</p> <p>18 MR. OU: Sure.</p> <p>19 I'll -- I'll represent that -- that the</p> <p>20 original claims did not require it to be a narrow</p> <p>21 band rejection filter as submitted by the</p> <p>22 applicants.</p> <p>23 Q So you would agree, then, with that</p> <p>24 representation, that the claims were narrowed</p> <p>25 through prosecution to include -- to limit the</p> |

Transcript of Alexander David Glew, Ph.D.
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| <p style="text-align: right;">285</p> <p>1 filter to specifically a narrow band rejection 2 filter, right? 3 MR. WELLS: Objection to form; and so the 4 record is clear, after this question, your time is 5 up, Phil. 6 You can answer. 7 THE WITNESS: With that limitation, then -- 8 with that representation, then yes, they were 9 narrowed to include a specific type of filter, a 10 narrow band. 11 (Mr. Ou and Mr. Wells speak 12 simultaneously.) 13 MR. WELLS: -- we want to take a break 14 first. 15 MR. OU: Wait, wait, wait. Hold on. 16 Are -- are you shutting down my time? 17 Because I only have a few more questions left and I 18 do think, given the court's ruling today as to the 19 inappropriateness of your speaking objections, which 20 took up a lot of my time, I'm probably entitled to 21 more time than the exact seven hours that you 22 stopped on the dot. 23 But if you want to take a break and think 24 about that -- we're, obviously, going to reserve the 25 right to seek additional time, but I'll -- I'll</p> | <p style="text-align: right;">287</p> <p>1 record at 19:20. 2 EXAMINATION 3 BY MR. WELLS: 4 Q Dr. Glew, earlier today there were some 5 questions about whether or not you reviewed the 6 parent file history for the '657 patent. 7 Do you recall that? 8 You're muted. 9 A Generally, yes. 10 Q And do you understand that the last three 11 digits of the parent patent to the '657 is the '356 12 patent? 13 MR. OU: Object to form. 14 THE WITNESS: Yes, I do. 15 BY MR. WELLS: 16 Q And did you review the '356 patent's file 17 history in preparing your opinions on claim 18 construction? 19 MR. OU: Objection; form. 20 THE WITNESS: Yes, I did. 21 I cited to it in Paragraph 21 of my 22 declaration. 23 MR. WELLS: And in addition, there were 24 some discussions earlier today about manuals for 25 different reactors and material -- parts related</p> |
| <p style="text-align: right;">286</p> <p>1 defer to you. If you -- if want to shut down the 2 deposition as to my questioning, that's -- that's 3 your prerogative. 4 MR. WELLS: Well, I think the record 5 reflects that you asked about noninfringement, you 6 asked about invalidity, you asked about IPRs, you 7 put references from the IPRs before the witness and 8 spent time on those. 9 So no. I think the record shows that if 10 any -- if there was any waste of time, it was on 11 your side. So the seven-hour point has been 12 reached; and given your conduct at the deposition, I 13 think it's appropriate that it stop. 14 We're going to take a break, and then I'm 15 going to do a couple of redirects, and then we'll 16 finish up. 17 MR. OU: Okay. Well, I disagree with your 18 representations and characterizations of our -- our 19 questions, but the record will speak for itself. 20 MR. WELLS: Yep. 21 THE VIDEOGRAPHER: We are going off the 22 record at 19:14. 23 (A recess was taken from 7:14 p.m. 24 to 7:20 p.m.) 25 THE VIDEOGRAPHER: We are back on the</p> | <p style="text-align: right;">288</p> <p>1 thereto. 2 Q Do you recall those discussions generally? 3 A Generally, yes. 4 Q And are -- in your experience, are manuals 5 to reactors and parts thereto all confidential -- or 6 I mean all public? 7 MR. OU: Objection; form. 8 THE WITNESS: Most tool manuals are 9 confidential. Some other manuals -- more 10 specifically, component manuals -- are less likely 11 to be confidential. 12 BY MR. WELLS: 13 Q And if the materials are confidential, then 14 a person of skill in the art wouldn't have access to 15 them, correct? 16 MR. OU: Objection; form. 17 THE WITNESS: A person of skill in the art 18 wouldn't have access to confidential manuals. 19 BY MR. WELLS: 20 Q And there was some discussion earlier as 21 well regarding the cathode current as a variable 22 that's monitored in the reactors discussed in the 23 Demaray patents. 24 Do you recall that discussion? 25 A Yes, generally.</p> |

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| <p style="text-align: right;">289</p> <p>1 Q What happens to the cathode current when an 2 arc is impending, when there's an impending arc 3 event? 4 A As the insulating layer on the target 5 breaks down, there will be a current rush that 6 instigates the plasma arc. 7 Q And so if you wanted to monitor, for 8 example, the cathode current, you could do that and 9 do arc suppression at -- when you noted an increase 10 in the cathode current; is that right? 11 MR. OU: Objection; form. 12 THE WITNESS: One should be able to monitor 13 the cathode current to see the onset of an arc 14 incident. 15 BY MR. WELLS: 16 Q And you could use that for arc suppression; 17 is that right? 18 A Yes. 19 MR. OU: Object to form. 20 THE WITNESS: One could use knowledge of 21 the impending arc to switch the voltage positive and 22 suppress an arc. 23 MR. WELLS: I don't have any further 24 questions. 25 ///</p> | <p style="text-align: right;">291</p> <p>1 MR. WELLS: I think the objection is 2 appropriate. 3 MR. OU: Okay. We disagree. 4 Q Dr. Glew, did you -- did you discuss the 5 substance of the testimony that you just gave with 6 your counsel over the break? I just want a yes or 7 no answer. 8 MR. WELLS: Objection. 9 And I instruct the witness not to answer. 10 BY MR. OU: 11 Q Did you talk about the testimony that you 12 were about to give during the break with your 13 counsel? 14 MR. WELLS: Okay. I instruct you not to 15 answer. 16 And then, Phil, I've made my position 17 clear, you've made your position clear. Move along 18 or I'll cut it off. You've already used up your 19 seven hours. 20 MR. OU: Okay. Well, I need a redirect 21 based on the -- recross based on the redirect you 22 just did. 23 I think the last question that your counsel 24 had asked you, Dr. Glew, was whether or not one 25 could use knowledge of the impending arc to switch</p> |
| <p style="text-align: right;">290</p> <p>1 MR. OU: All right. I have a few follow-up 2 questions. 3 FURTHER EXAMINATION 4 BY MR. OU: 5 A Dr. Glew, the first question is, did you 6 discuss the substance of the testimony that you just 7 gave with your counsel during the break? 8 MR. WELLS: You can instruct -- I instruct 9 you not to answer on the basis of work product and 10 attorney/client privilege. 11 You can answer the question as to whether 12 we had any discussions. You can answer yes or no as 13 to whether we had any discussions. 14 THE WITNESS: Yes. 15 BY MR. OU: 16 Q And what were -- what were the discussions 17 that you had with your counsel during the break? 18 MR. WELLS: I instruct you not to answer. 19 MR. OU: Okay. Well, we're going to 20 object, you know, to that instruction. You can't -- 21 the witness is in the middle of a deposition. You 22 can't discuss the substance of his testimony or 23 prepare testimony during a break. 24 So are you going to continue to instruct 25 the witness not to answer.</p> | <p style="text-align: right;">292</p> <p>1 the voltage positive and suppress an arc, and -- or 2 at least that was your statement. 3 Q Is that right? 4 MR. WELLS: Objection to form. 5 THE WITNESS: Essentially, yes. 6 As I answered earlier in the day, the 7 patent recommends that the current to the cathode is 8 one of the things that determines the need for 9 applying the positive voltage and that the target is 10 indeed the cathode. 11 I'm looking at Column 5, Line 30. It says 12 the Target 12 functions as a cathode when power is 13 applied to it, and it's equivalently termed a 14 cathode, so this is -- yeah, the same answer I gave 15 earlier. 16 And then later on describes in that same 17 column, that the -- the cathode voltage is a 18 parameter in determining the need to apply the 19 positive voltage. 20 BY MR. OU: 21 Q Can you point me to anywhere in the 22 specification of the patents-in-suit where the 23 applicants described functionality that would detect 24 an arc event and then thereafter trigger arc 25 suppression to quench the arc as was shown in</p> |

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| <p style="text-align: right;">293</p> <p>1 Figure 5 of Exhibit 7?</p> <p>2 MR. WELLS: Phil, that has nothing to do</p> <p>3 with the -- my examination, so move along.</p> <p>4 Do you have any questions relating to --</p> <p>5 that are actually proper recross?</p> <p>6 MR. OU: Yeah. I think that goes directly</p> <p>7 to the questions you just asked, so if the witness</p> <p>8 will answer the question --</p> <p>9 (Mr. Ou and Mr. Wells speak</p> <p>10 simultaneously.)</p> <p>11 MR. OU: Well, the only time that that</p> <p>12 cathode voltage came up was when the witness was</p> <p>13 asking -- answering the questions that I was asking</p> <p>14 related to this very issue, so I disagree.</p> <p>15 If you're going to instruct the witness not</p> <p>16 to answer, then that's your prerogative.</p> <p>17 MR. WELLS: I'll allow this one question;</p> <p>18 but if you have any follow-up, then we're done,</p> <p>19 unless you have something that's actually related to</p> <p>20 the questions I asked.</p> <p>21 MR. OU: This is related to the questions</p> <p>22 you asked, and I do have questions related to the</p> <p>23 other questions you asked.</p> <p>24 Q So, Dr. Glew, can you answer the question</p> <p>25 I -- I just asked you? And I can re- --</p> | <p style="text-align: right;">295</p> <p>1 shown in Figure 5 of Exhibit 7 where an arc event</p> <p>2 occurs, it is detected and then the Sparc-le is</p> <p>3 triggered to suppress the arc, that's not an</p> <p>4 arc-free deposition, right?</p> <p>5 MR. WELLS: Objection to form.</p> <p>6 MR. OU: There's arcing occurring?</p> <p>7 THE WITNESS: I think the point is that</p> <p>8 it's not a -- not a significant enough event to</p> <p>9 cause damage to the deposition.</p> <p>10 The point -- the point of catching it early</p> <p>11 is that it doesn't necessarily cause a cascade that</p> <p>12 would trigger the plasma to have a little lightning</p> <p>13 bolt. If it doesn't do that, then it wouldn't be</p> <p>14 effective; but, you know, that's the point of it, is</p> <p>15 not to -- not to drop particles on the wafer.</p> <p>16 BY MR. OU:</p> <p>17 Q Earlier in your attorney's redirect of you,</p> <p>18 I believe you stated or provided an opinion that</p> <p>19 most tool manuals are confidential.</p> <p>20 Did you say that?</p> <p>21 A Yes.</p> <p>22 Q What forms -- what is the basis of your</p> <p>23 opinion that most tool manuals are confidential?</p> <p>24 A When I was at Applied Materials, we marked</p> <p>25 most of our tools confidential. When I get tool</p> |
| <p style="text-align: right;">294</p> <p>1 A Yes.</p> <p>2 Q And I can reask the question again if you</p> <p>3 need me to.</p> <p>4 A No.</p> <p>5 The same reference that I cited to earlier</p> <p>6 in the day when you examined me, at Column 5,</p> <p>7 Line 41, "To obtain arc-free deposition, the pulsing</p> <p>8 frequency exceeds the critical frequency that depend</p> <p>9 on target material, cathode current, and reverse</p> <p>10 time."</p> <p>11 So the cathode current is disclosed as</p> <p>12 something that would determine the need to pulse.</p> <p>13 Q Where does it say that the cathode current</p> <p>14 is disclosed as something that would determine the</p> <p>15 need to pulse?</p> <p>16 A During -- it starts -- starting at</p> <p>17 Column 5, Line 39. "During the positive period,"</p> <p>18 and the positive period is the -- the positive</p> <p>19 pulse, "the insulating layer on the surface of 12 is</p> <p>20 discharged and arcing is prevented."</p> <p>21 Then it goes on to say "To -- to obtain</p> <p>22 arc-free deposition, the pulsing frequency exceeds a</p> <p>23 critical frequency that depend on target material,</p> <p>24 cathode current, and reverse time."</p> <p>25 Q But you would agree that the circumstance</p> | <p style="text-align: right;">296</p> <p>1 manuals in cases, they're usually marked</p> <p>2 confidential, I have to destroy them, give them</p> <p>3 back.</p> <p>4 So most process tool reactor manuals are</p> <p>5 confidential. It doesn't mean there aren't some</p> <p>6 that aren't, but most I've seen are, certainly in</p> <p>7 the last number of decades.</p> <p>8 Q And it's -- is it -- it's your opinion that</p> <p>9 if a tool manual is confidential, that it falls</p> <p>10 outside of the scope of what a person of ordinary</p> <p>11 skill in the art would understand, notwithstanding</p> <p>12 their experience working in a particular industry?</p> <p>13 MR. WELLS: Objection to form.</p> <p>14 THE WITNESS: Can you reask the question?</p> <p>15 MR. OU: Yeah.</p> <p>16 Q It's your opinion that if a tool manual is</p> <p>17 confidential, that falls outside of the scope of</p> <p>18 what a person of ordinary skill in the art would</p> <p>19 understand at the time of the invention,</p> <p>20 notwithstanding their experience working in a</p> <p>21 particular industry? In this case, PVD?</p> <p>22 MR. WELLS: Objection to form.</p> <p>23 THE WITNESS: In the -- if the manual is</p> <p>24 confidential, then it's not publicly available or</p> <p>25 disclosed, it could very well be outside the</p> |

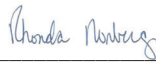
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| <p style="text-align: right;">297</p> <p>1 knowledge of one of skill in the art at the time. 2 BY MR. OU: 3 Q Okay. Is it your opinion that everything 4 in a tool manual that's been marked confidential is 5 actually confidential and not known to the public? 6 MR. WELLS: Objection to form. 7 THE WITNESS: There may be aspects of the 8 manual that are kind of routine, but there are 9 certainly aspects in manuals that have some of the 10 latest and greatest information that the tool 11 manufacturers would consider confidential, and it 12 remains confidential for a while. 13 BY MR. OU: 14 Q So, for example, if a power supply tool 15 manual disclosed a typical application that had DC 16 power to the target and RF bias to the substrate, 17 and that type of configuration was also disclosed in 18 publicly available information, you would agree that 19 that part of the manual, that's not confidential 20 information that wouldn't have been known to the 21 person of ordinary skill in the art, right? 22 MR. WELLS: Objection to form. 23 THE WITNESS: Can you repeat that question? 24 MR. OU: Yeah. 25 Let's say, for example, a power supply tool</p> | <p style="text-align: right;">299</p> <p>1 MR. WELLS: Objection to form. 2 Instruct you not to answer. 3 BY MR. OU: 4 Q Dr. Glew, is it your testimony that every 5 portion of a tool manual that's been marked 6 confidential is beyond the knowledge of a person of 7 ordinary skill in the art? 8 A No -- 9 MR. WELLS: Objection to form. 10 But go ahead. 11 THE WITNESS: -- not every portion is 12 beyond the scope of one of skill in the art, or 13 knowledge; but there are going to be portions that 14 are if it's marked confidential. 15 MR. OU: Okay. Persons of ordinary skill 16 in the art could rely on their knowledge from 17 working in the industry, and that would be within 18 the scope of a person of ordinary skill in the art's 19 knowledge at the time of the invention when 20 assessing what a POSITA would understand a -- a 21 particular patent to cover. 22 Q You would agree, right? 23 A Repeat that question, please. 24 Q A person of ordinary skill in the art can 25 rely on their own knowledge from working in a</p> |
| <p style="text-align: right;">298</p> <p>1 manual like the MDX power supply manual that we 2 looked at earlier disclosed typical application of 3 using that power supply that would be in a 4 configuration that has a DC power to the target and 5 RF bias to the substrate, and that same type of 6 configuration was disclosed in publicly available 7 information that was not confidential. 8 Q You would agree that that portion of the 9 manual would not be considered confidential such 10 that it would be beyond the knowledge of a person of 11 ordinary skill in the art, right? 12 MR. WELLS: Objection to form. 13 And I instruct you not to answer. 14 MR. OU: Okay. Well, you asked a redirect 15 on the question. But I'll ask a slightly different 16 question. 17 Dr. Glew, let's say, for example, that a 18 power supply tool manual disclosed a typical 19 application of that power supply, and that same 20 application was publicly available in other sources 21 of information that was not confidential. 22 Q You would agree that that portion of the 23 manual would not be considered confidential such 24 that it would be beyond the knowledge of a person of 25 ordinary skill in the art, right?</p> | <p style="text-align: right;">300</p> <p>1 particular industry -- industry, and that knowledge 2 would be within the scope of what a person of 3 ordinary skill in the art at the time of the 4 invention would know when assessing trying to 5 understand the scope of a particular patent, right? 6 MR. WELLS: Objection to form. 7 THE WITNESS: A person of skill in the art 8 can generally rely upon their knowledge; however, if 9 they have knowledge that is not public, that is 10 confidential, trade secret, I wouldn't expect that 11 that would be considered as part of the knowledge of 12 POSITA -- of a general POSITA. 13 BY MR. OU: 14 Q And you would agree that whether or not 15 that information is trade secret, that depends on 16 the information, right? 17 It would depend on whether or not that 18 information was actually trade secret material or it 19 was something that would have been readily 20 understood by a person of ordinary skill in the art, 21 right? 22 MR. WELLS: Objection to form. 23 THE WITNESS: It could be trade secret or 24 simply confidential, highly confidential. There is 25 information that skilled professionals have that</p> |

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| 301 | <p>1 other people don't have at tech companies.</p> <p>2 BY MR. OU:</p> <p>3 Q Well, if information that's -- that's</p> <p>4 labeled as confidential was well known to persons of</p> <p>5 ordinary skill in the art, you would agree that that</p> <p>6 information would fall within the knowledge of a</p> <p>7 person of ordinary skill in the art, right?</p> <p>8 MR. WELLS: Objection to form.</p> <p>9 And I'm going to instruct you not to</p> <p>10 answer. This is going so far afield of what was</p> <p>11 actually asked, it just goes to -- sorry. I'm</p> <p>12 instructing you not to answer.</p> <p>13 Phil, do you have any other questions that</p> <p>14 are related to actually what I asked?</p> <p>15 MR. OU: Well, this line of questions is</p> <p>16 related to the questions that you asked; but if</p> <p>17 you're going to shut down the deposition, this was</p> <p>18 the last follow-up question I had, so I will defer</p> <p>19 to you. If you're shutting down the deposition,</p> <p>20 that's your prerogative.</p> <p>21 MR. WELLS: I'm instructing him not to</p> <p>22 answer and I understand that you're done with your</p> <p>23 questioning.</p> <p>24 Okay. We can go off the record.</p> <p>25 MR. OU: I am with the caveat I am done</p> | 303 |
| 302 | <p>1 (A recess was taken from 7:38 p.m.</p> <p>2 to 7:42 p.m.)</p> <p>3 THE VIDEOGRAPHER: Back on the record at</p> <p>4 19:42.</p> <p>5 BY MR. OU:</p> <p>6 Q Dr. Glew, do you recall on redirect by your</p> <p>7 counsel, you were asked whether or not you had</p> <p>8 reviewed the parent application file history to the</p> <p>9 patents-in-suit and you revised your testimony to --</p> <p>10 to say that you actually had?</p> <p>11 Do you recall that testimony?</p> <p>12 MR. WELLS: Objection to form.</p> <p>13 THE WITNESS: Generally I recall that, yes.</p> <p>14 BY MR. OU:</p> <p>15 Q Okay. Now that your recollection has been</p> <p>16 refreshed as to what portions of the file history</p> <p>17 that you did review, other than the file histories</p> <p>18 for the patents-in-suit and the parent application,</p> <p>19 did you review the file histories of any of the</p> <p>20 other applications in this patent family?</p> <p>21 A I don't recall reviewing any other</p> <p>22 applications, file history applications.</p> <p>23 MR. OU: Okay. Yeah, I have no further</p> <p>24 questions, then, thank you.</p> <p>25 MR. WELLS: Okay. We can go off the</p> | 304 |
| 301 | <p>1 with my questioning because you're shutting down the</p> <p>2 deposition. We will reserve the right to seek</p> <p>3 additional time with Dr. Glew based on the previous</p> <p>4 objections and issues that we've raised.</p> <p>5 But I don't want to belabor the point and</p> <p>6 I'm sure you'll reserve and take your own position</p> <p>7 on that issue, and we can take it up with the court</p> <p>8 if needed.</p> <p>9 (Mr. Chaikovsky and Mr. Wells speak</p> <p>10 simultaneously.)</p> <p>11 MR. WELLS: -- and we'll take it up with</p> <p>12 the court as necessary.</p> <p>13 MR. CHAIKOVSKY: Sorry. Apologize. This</p> <p>14 is Yar Chaikovsky butting in here a little bit at</p> <p>15 the end.</p> <p>16 Could we -- before we shut down and go of</p> <p>17 the record, and everyone made their reservations,</p> <p>18 could we take a one-minute break before everyone</p> <p>19 goes home? I just want to discuss with our team</p> <p>20 here.</p> <p>21 So if we can just go off the record, not</p> <p>22 close the deposition. We may come back, but we may</p> <p>23 come back and just say the deposition is over.</p> <p>24 THE VIDEOGRAPHER: Okay. We are going off</p> <p>25 the record at 19:38.</p> | 302 |
| 303 | <p>1 record.</p> <p>2 THE VIDEOGRAPHER: Okay. We are going off</p> <p>3 the record at 19:44.</p> <p>4</p> <p>5 (Off the record at 7:44 p.m.</p> <p>6 PST.)</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p> | 303 |

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| <p style="text-align: right;">305</p> <p>1 ACKNOWLEDGMENT OF DEPONENT</p> <p>2</p> <p>3</p> <p>4 I, Alexander David Glew, Ph.D., do hereby</p> <p>5 acknowledge that I have read and examined the</p> <p>6 foregoing testimony, and the same is a true, correct</p> <p>7 and complete transcription of the testimony given by</p> <p>8 me and any corrections appear on the attached Errata</p> <p>9 sheet signed by me.</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15 _____</p> <p>16 (DATE) (SIGNATURE)</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p> | |
| <p style="text-align: right;">306</p> <p>1 I, the undersigned, a Certified Shorthand</p> <p>2 Reporter of the State of California, do hereby certify:</p> <p>3 That the foregoing proceedings were taken</p> <p>4 before me at the time and place herein set forth with</p> <p>5 all participants appearing remotely before me; that any</p> <p>6 witnesses in the foregoing proceedings, prior to</p> <p>7 testifying, were duly sworn or affirmed; that a record</p> <p>8 of the proceedings was made by me using machine</p> <p>9 shorthand, which was thereafter transcribed under my</p> <p>10 direction; that the foregoing transcript is a true</p> <p>11 record of the testimony given.</p> <p>12 Further, that if the foregoing pertains to</p> <p>13 the original transcript of a deposition in a federal</p> <p>14 case, before completion of the proceedings, review of</p> <p>15 the transcript [] was [X] was not requested.</p> <p>16 I further certify I am neither financially</p> <p>17 interested in the action nor a relative or employee of</p> <p>18 any attorney or party to this action.</p> <p>19 IN WITNESS WHEREOF, I have this date</p> <p>20 subscribed my name.</p> <p>21</p> <p>22 Dated: March 5, 2021</p> <p>23 </p> <p>24 _____ Rhonda Norberg</p> <p>25 CSR No. 9265, CCRR No. 185</p> | |

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