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Transcript of Jason A. Janet, Ph.D.

Date: September 13, 2024

Case: Hesai Technology Co., Ltd. -v- Ouster, Inc. (PTAB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

Transcript of Jason A. Janet, Ph.D.
Conducted on September 13, 2024

1 (1 to 4)

1 UNITED STATES PATENT AND TRADEMARK OFFICE 2 BEFORE THE PATENT TRIAL AND APPEAL BOARD 3 ----- 4 HESAI TECHNOLOGY CO., LTD., : 5 Petitioner, : 6 : CASE IPR 2023-01422 7 versus : U.S. Patent No. 8 : 11,287,515 9 Patent Owner. : 10 ----- 11 DEPOSITION OF JASON A. JANET, PH.D. 12 13 10:58 a.m. 14 September 13, 2024 15 CONDUCTED REMOTELY 16 17 Job No.: 552839 18 Pages: 1 - 95 19 Stenographically Reported By: 20 Susan DiFilippantonio, RPR, RMR, California CSR 14383 21 22	3 1 I N D E X 2 WITNESS/EXAMINATION PAGE 3 JASON A. JANET, PH.D. 4 4 EXAMINATION 4 5 BY MR. HEFAZI 6 EXAMINATION 82 7 BY MR. MEYER 8 EXAMINATION 84 9 BY MR. HEFAZI 10 DISCLOSURE 88 11 CERTIFICATE OF REPORTER 93 12 SIGNATURE OF DEPONENT 95 13 14 E X H I B I T S 15 Petitioner's Exhibit 2002, '018 11 16 Provisional Application 17 Petitioner's Exhibit 1006, U.S. 24 18 Patent Number 10749308 19 Petitioner's Exhibit 1005, U.S. 44 20 Patent Number 10,790,077 21 Petitioner's Exhibit 1042, U.S. 58 22 Patent Number 10,141,822 23 Petitioner's Exhibit 1045, U.S. 79 24 Patent Number 10530209
2 1 APPEARANCES: 2 On Behalf of the Petitioner, HESAI TECHNOLOGY CO., LTD.: 3 QUINN EMANUEL URQUHART & SULLIVAN, LLP 4 BY: Nima Hefazi 5 865 South Figueroa Street 6 10th Floor 7 Los Angeles, CA 90017 8 213.443.3000 9 nimahefazi@quinnemanuel.com 10 11 On Behalf of the Patent Owner, OUSTER, INC.: 12 KILPATRICK TOWNSEND & STOCKTON, LLP 13 BY: Megan E. Bussey 14 Matthew Meyer 15 3 Times Square 16 New York, NY 10036 17 212.775.8700 18 mbussey@ktslaw.com 19 mmeyer@ktslaw.com 20 21 22	4 1 (Friday, September 13, 2024 10:58 a.m.) 2 JASON A. JANET, PH.D., 3 called as a witness at the instance of the Petitioner, 4 being first duly sworn, was examined and deposed as 5 follows: 6 EXAMINATION 7 BY MR. HEFAZI: 8 Q. Good morning. Sorry, I think I heard Dr. J or 9 -- is it Dr. Janet or how do I pronounce your last name? 10 A. They all work, but Janet is, I guess, historic. 11 It's what my family uses. 12 Q. Janet, okay. I was probably going to butcher 13 your -- your last name throughout the depo and you were 14 going to probably let me do it, so I appreciate you 15 letting me get it right. 16 So, Dr. Janet, good morning. 17 MR. HEFAZI: And I guess -- do we need to 18 swear in the witness or do -- 19 THE COURT REPORTER: I just did. I just 20 did. 21 MR. HEFAZI: Oh, sorry. Sorry, I must 22 have missed that.

5 1 BY MR. HEFAZI: 2 Q. Okay. So, Dr. Janet, you've submitted a 3 declaration here in this IPR proceeding; is that right? 4 A. Yes, sir. 5 Q. Okay. And we're here for your deposition 6 related to that proceeding? 7 A. Yes, sir. 8 Q. And where are you currently located? 9 A. I'm currently located in Raleigh, North 10 Carolina. 11 Q. Okay. Are you at your home, at some offices? 12 A. I'm at the Kilpatrick law firm office in 13 Raleigh. 14 Q. Okay. I see a nice coffee setup back there, so 15 I assumed that your home probably didn't have that. 16 Okay. Is there anyone else in the room with 17 you? 18 A. Yes, Megan Bussey is. 19 Q. Okay. And is she -- I mean, roughly, is she 20 sitting like right next to you or is she kind of -- 21 A. So across and to the left. 22 Q. Okay. Across and to the left. Perfect.	7 1 (Recess.) 2 BY MR. HEFAZI: 3 Q. Just so that we're on the same page today, if 4 you could just let me know if you're accessing any other 5 documents or applications or anything other than the 6 exhibits that I put into the chat so that the record is 7 clear. Is that fair? 8 A. Yes, sir. 9 Q. Okay. And with that, let us jump in -- 10 actually, before I do that, have you been deposed 11 before, sir? 12 A. I have, yes. 13 Q. Roughly how many times? 14 A. Somewhere, I think, between 40 and 50 times. I 15 don't know that I have an accurate count, but I know 16 it's north of 40. Not sure if it's over 50. 17 Q. Okay. And have you ever been deposed in a -- in 18 a LiDAR case, a case -- 19 A. Yes. 20 Q. -- involving LiDAR technologies? 21 A. Yes, I have. 22 Q. Okay. Have you ever been involved in a case
6 1 And do you have anything in front of you? 2 A. I have my laptop and I have clean copies of the 3 exhibits and I have a -- a clean pad -- 4 Q. And paper? Okay. 5 And what's on your laptop? 6 A. I have my -- open the e-mail that I use. I'm 7 assuming that if things don't work, for example, being 8 dropped in the chat, then I can receive an e-mail. If 9 you want, I can close that out. 10 Q. Yeah, if we could just close out all 11 applications other than Zoom. I'll put it in the chat, 12 the exhibits. And if you have trouble, you know, 13 opening those, we can -- we can kind of revisit that. 14 But does that -- is that fair? 15 A. Yes, sir. 16 Q. And just so that we're -- we're on the same 17 page -- I know you have some paper copies of exhibits, 18 but just so we're on the -- the same page and the record 19 is clear, if you open any applications, if you -- 20 THE WITNESS: Did he freeze on you too? 21 THE COURT REPORTER: Yes, he's frozen. 22 This is the Court Reporter.	8 1 involving Waymo? 2 A. I don't think so. That would be on my CV, page 3 5, list of cases for which I've served as an expert 4 witness. And I don't recall that, but it wouldn't be 5 too difficult for us to go to that just to be absolutely 6 certain. 7 Q. Yeah. No, that -- that's fine. 8 All right. So your CV has the full list of your 9 expert engagements? 10 A. Yes, sir. 11 Q. Okay. Now, in this proceeding, you presented 12 opinions regarding the priority date of the '515 Patent. 13 Do you recall that? 14 A. I'm -- give me a second. Let me get my 15 bearings. So I'm going to open up my declaration. 16 Q. And that's Exhibit 2004 to this proceeding? 17 A. Yes, sir. 18 Q. And while you're doing that, is that a clean 19 copy of your declaration or are there any marks, 20 notations on the -- 21 A. There are no marks on it, so a clean copy. 22 Q. Okay. So, yeah, let me reask my -- my question

9 1 so you have a clean question, and then feel free to 2 consult your declaration, Exhibit 2004. 3 You've presented opinions regarding the priority 4 date of the '515 Patent in this case, correct? And if 5 it helps, I think paragraph 240 of your declaration. 6 A. I'm sorry, you said paragraph 240? 7 Q. Paragraph 240, yeah. 8 A. Okay. Yeah. As paragraph 240 states, it's my 9 understanding that all of the challenged '515 Patent 10 claims have written description support in the 11 paragraphs, figures and claims of the '018 application, 12 and then a table is provided subsequent to that. 13 Is that what you're referring to? 14 Q. Well, yes, I think that's -- those are the 15 opinions that I'm referring to. And so I think the 16 table that you referenced lists a number of limitations 17 for the challenge claims. Correct? 18 A. Yes, sir. 19 Q. Okay. And -- and one of the limitations of the 20 '515 Patent recites a support component. Do you recall 21 that? 22 A. Yes, sir.	11 1 Exhibit 2002 to this proceeding, which is the '018 2 provisional application. 3 Let me know when you have that up. 4 (Petitioner's Exhibit 2002, '018 5 Provisional Application, was marked for 6 identification.) 7 THE WITNESS: Okay, I have that up. 8 BY MR. HEFAZI: 9 Q. Okay. Now, in your table, you pointed to 10 paragraphs 126, 127 and Figure 8, so I just want to make 11 sure we're on the same page as to what you're 12 identifying as support for the support component of the 13 claims. So let's start with Figure 8. 14 A. Okay. 15 Q. Now, the figure obviously doesn't use the word 16 or contain the word "support component" anywhere, right? 17 A. The word "support" is not in the annotation, if 18 that's what you're asking. 19 Q. Okay. And, I guess, what is it that you're 20 identifying as the support component that provides 21 written description support for the limitations 14-E 22 through F, 1-E and 22-E?
10 1 Q. And outside of the claims the patent doesn't use 2 the word "support component." Are you aware of that? 3 A. I will take that at face value. I would have to 4 go back to be absolutely sure. 5 Q. Okay. Well, we can go back to that if needed. 6 But in your -- so -- so the limitation related 7 to the support component, that is Limitation 1-E, 14-E 8 to 14-F and 22-E-1, right? Those limitations recite the 9 support component? 10 A. Yes, sir. 11 Q. And it looks like you cite Figure 8 and 12 paragraphs 127 and 128. I don't know if you have a hard 13 copy of the '018 application; otherwise, I can introduce 14 it into the -- an electronic version into the chat. 15 A. I don't know which exhibit that is. 16 Q. It's Exhibit 2002. If it would be helpful, I 17 can also put it in the chat, whichever you prefer to 18 use. 19 A. Yeah, you know what, if you don't mind, that 20 would be good. Just -- sometimes it makes it easier to 21 go back and forth, to have digital and hard copy. 22 Q. Sure. So I have introduced into the chat	12 1 Is it the bearing housing 805 or -- just trying 2 to get us on the same page here. 3 A. Right. 4 Yes, if memory serves me correctly and -- in 5 reference to paragraphs 127 and 128 in the '081 6 provisional, reference is made to the T-shaped bearing 7 housing 805, and again in paragraph 0128 the T-shaped 8 bearing housing 805. 9 Q. And as part of your experience, have you worked 10 with bearings and bearing housings? 11 A. Yes, sir. 12 Q. Had you worked with bearings and bearing 13 housings prior to the date of the '515 Patent? 14 A. Yes, sir. 15 Q. Had you ever used bearing housings to assemble a 16 rotor and stator structure? 17 A. I am going to default to yes only because there 18 are so many motors that I've been involved with building 19 from scratch, modifying and integrating. I am 20 reasonably sure that there are at least a few where a 21 bearing housing was used for coupling a rotor to a 22 stator.

13 1 Q. Okay. And let me ask you -- well, you also 2 refer to in your reports, I think, a number of analyses, 3 like thermal analysis and torsional analysis. Have you 4 performed thermal analysis -- strike that. Let me ask a 5 clean question. 6 Have you performed thermal analysis before as 7 part of design process? 8 A. Yes, I have. 9 Q. Have you performed torsional analysis before as 10 part of the design process? 11 A. I think you mean torsional. And the answer is 12 yes. 13 Q. How did you go about performing those analysis? 14 Were there any tools that are used in the industry? 15 A. There are tools used in industry, and there are 16 calculations that one would use. A person of ordinary 17 skill in the art could employ basic force torque 18 kinematics and dynamics equations in a home brew type of 19 analysis; for example, MATLAB or even Excel; or if they 20 were to code something, write some software from 21 scratch. There are tools that would include, for 22 example, Ansys, probably -- to name one of at least a	15 1 But on page 153 -- let me know when you're 2 there. 3 Q. So I actually don't have the attachment there. 4 But if you want to reference -- mine stops at the 5 actual -- without the CV. But if you want to just 6 reference me to what the name of the company is that 7 you're engaged by. 8 A. Okay. 9 So on the same page, case Ouster v. Hesai. And 10 that was the ITC case that I believe is on hold but -- 11 and for which I've not done any work that I can recall 12 yet. 13 There's also one in the District Court of 14 Delaware, Ouster v. Hesai, et al. Same situation, I 15 think the only work I've done on an Ouster-related case 16 is related -- is -- are these IPRs. So for those, I 17 believe I've been engaged but not tasked. 18 Velodyne v. Ouster -- 19 Q. You were represented -- you were engaged by 20 Ouster in that case, the Velodyne -- 21 A. I was engaged by Ouster in that case, yes. And 22 that case ended very quickly. I don't believe I was
14 1 few. 2 Q. So it sounds like you -- you've done this a fair 3 amount. I mean, is -- is performing these type of 4 analyses part of the kind of standard design process? 5 A. I think that would depend on what you're 6 designing. If you're integrating something, the -- and 7 the risk is low, perhaps it's been shown extensively 8 before, then as a person of ordinary skill, you might 9 take a lighter approach. If it's something entirely 10 new, the design process would probably be employed, but 11 there is no guarantee that the design process would 12 yield accurate results, would provide a high-confidence 13 prediction of the outcome, particularly if it's 14 something new. 15 Q. Now, you said you were involved in certain cases 16 involving LiDAR. Do you recall that? 17 A. Yes, sir. 18 Q. What company were you engaged by? 19 A. I wonder if I could refer you to Exhibit 2004, 20 my declaration. A copy of my resume as of the time of 21 this writing is included starting on Bates -- or Page 22 Number 153 of 158. I don't think that's Bates.	16 1 tasked with very much on that. 2 I might be missing a few here, but 3 Velodyne v. RoboSense. And I was engaged by RoboSense. 4 Q. And any others? 5 A. Well, there are other cases that actually 6 include aspects of LiDAR. They weren't focused -- LiDAR 7 was not the prime focus. It was an element of the 8 platforms that were at issue. 9 Q. Okay. And you consider those cases also to be 10 a -- form a part of your qualification as a person of 11 skill in the art in this proceeding? 12 MR. MEYER: Objection. Form 13 THE WITNESS: Well, it's my impression, I 14 guess, that serving as an expert witness doesn't 15 necessarily form the expertise of a person of 16 ordinary skill; rather it would be the skills that 17 they have before serving as the expert. 18 BY MR. HEFAZI: 19 Q. Fair enough. 20 I guess you -- you mentioned that you were 21 engaged as an expert on cases that involve components of 22 LiDAR. Presumably -- and maybe this is a -- too much of

17 1 an assumption, but presumably you were engaged because 2 you were an expert on those components of LiDAR. Is 3 that fair? 4 A. Well, just to clarify, they weren't necessarily 5 components of LiDAR. It's where LiDAR was a component 6 of the broader system, and the LiDAR was one of the ways 7 in which the system would perceive its environment. 8 Q. I see. Okay. 9 And, I guess, let me ask more generally. So 10 with all of these cases, these companies -- let's take 11 one, specifically Ouster -- do you have any 12 understanding of whether, in designing their LiDARs, 13 they used and performed any kind of torsional or thermal 14 analyses? 15 A. Do I have any indication that they've done that? 16 Is that -- 17 Q. Any understanding of whether they would have 18 done that as part of the design of their LiDAR devices. 19 A. I would be making assumptions, and I'm not sure 20 if that's entirely within the scope of the opinions that 21 I've rendered here. 22 Q. Well, I guess I'm wondering, do you feel that	19 1 that you don't have any instance that they copied, as a 2 POSITA, would you understand that in designing a LiDAR 3 that's not copied, that you would perform, as part of 4 the design process, these type of analyses? 5 MR. MEYER: Objection. Form. 6 BY MR. HEFAZI: 7 Q. And, for the record, you're looking at your 8 declaration -- 9 A. Yes, sir. 10 Q. -- Exhibit 2004? 11 A. Sorry. I neglected to mention that, and I 12 apologize. 13 Q. No problem. 14 So the question's been pending for kind of some 15 time now. Is there something specific you're looking 16 for to answer that question? 17 A. I am looking for elements within my declaration 18 to help with my answer to -- 19 Q. So sitting -- you know, sitting here right now, 20 having reviewed your declaration for a number of 21 minutes, as a person of skill in the art, do you know 22 whether the analysis that you discuss in your -- in your
18 1 it's always necessary to perform these kind of analyses 2 when you're designing a LiDAR system? 3 Or let me strike that and ask, would a POSITA 4 understand that it's necessary to perform these kind of 5 analyses when designing a LiDAR system? 6 A. I think it depends on the maturity of the 7 technology that's being integrated. If -- if I decided 8 to copy somebody else's LiDAR that seemed to function 9 just fine, then I would probably be less inclined, if at 10 all, to perform much analysis. If it's -- 11 Q. Are you suggesting that Ouster copied someone's 12 LiDAR? 13 A. I'm -- I'm providing a circumstance. I'm not 14 making that suggestion. I'm providing a circumstance 15 for whether I would be compelled, as a person of 16 ordinary skill, to always, sometimes or not apply the 17 analysis, torsional analysis, thermal dynam- -- thermal 18 analysis, computational fluid dynamics, that sort of 19 thing, to get -- 20 Q. If it's -- my question is, if you're -- put 21 aside copying. Like let's not speculate, then. With 22 regards to Ouster, where you're -- where you're saying	20 1 report are the type of analysis that persons of skill in 2 the art would perform when designing LiDAR? 3 A. So, for example, if -- 4 MR. MEYER: Objection to form. 5 THE WITNESS: -- you -- I'm sorry. Did I 6 cut somebody off? 7 MR. MEYER: I just objected to form. You 8 can proceed with answering. 9 THE WITNESS: Thank you. 10 So, for example, paragraph 131 of my 11 declaration, I mention how changes would not be 12 taken lightly by a person of ordinary skill. And a 13 little further down, "The complications that a 14 person of ordinary skill would need to address 15 before contemplating, among others, changes to an 16 existing design. These would include, for example, 17 the need for determining the mechanical, 18 electrical, electromagnetic power losses, 19 performing a thermal analysis, for example, with a 20 computation of fluid dynamics analysis, conducting 21 a new torsional analysis" and so on. 22 So I believe that that is one example, of

21 1 perhaps several throughout my declaration, that 2 respond to or give an answer to your question. 3 BY MR. HEFAZI: 4 Q. So what was that answer? So would a person of 5 skill in the art perform, for example, the analyses that 6 you've listed in paragraph 131 when designing LiDAR? 7 A. Well, as I mentioned in reference to paragraph 8 131 -- and I could certainly search for other examples 9 that are very similar -- whenever contemplating a 10 change, let's say, that these analyses would be 11 performed: The mechanical, electric -- electromagnetic 12 losses, the thermal analysis, new torsional analysis and 13 other analyses. 14 Q. Okay. Let's switch topics slightly. If we go 15 to page 51 of your declaration, you'll see a picture 16 of -- and maybe that's where you already are. Actually, 17 it's a little bit farther up. So you'll see a picture 18 of Figure 7B of Pardhan, which I think paragraph 131 was 19 also referring to. 20 Let me know when you're there. 21 A. I'm there. 22 Q. Okay. So Pardhan discloses bearings, right?	23 1 coupled to offer rotation about the shaft of Pardhan's, 2 and that shaft is labeled 734; is that right? 3 A. Yes, I believe so. 4 Q. So -- and just sticking with Figure 7B, Pardhan 5 also discloses in that figure electromagnetic coil 6 738-B. Do you see that? 7 A. I just want to make sure that the number is 8 right. I know generally what you're referring to. 9 Yes, I believe that's right. 10 THE COURT REPORTER: You cut out. Your 11 question cut out. 12 BY MR. HEFAZI: 13 Q. Yeah, so let me try again. 14 Pardhan refers to its system as a thermal rotary 15 link. I think that's, in fact, the patent's title. 16 A. I think that's right, yes. The title, paragraph 17 96, "thermal rotary link." 18 Q. Okay. And so Figure 7B shows one embodiment of 19 Pardhan's thermal rotary link; is that fair? 20 A. I think that's fair, that it's -- 21 MR. MEYER: Objection to form. 22 THE WITNESS: -- embodiment.
22 1 A. I'm sorry, Pardhan ex- -- discloses what? 2 Q. Bearings, B-E-A-R-I-N-G-S. 3 A. Oh, bearings. 4 Yes, it would appear so. 5 Q. And those are labeled 730 and 732 in Pardhan? 6 A. Yes, I believe so. 7 Q. And those bearings are within a housing; is that 8 right? 9 A. Yes. I'm not sure if it's exactly defined as 10 that, but it's within a hollow cylinder. 11 Q. And as a POSITA, would you consider that to be a 12 housing for the bearings? 13 A. I think we can call it that for right now. I am 14 not sure of any language to the contrary of that. 15 Q. And that bearing housing is used to -- sorry. 16 That bearing housing is coupled to Pardhan's 17 rotor platform 720, right? 18 A. Yes. 19 Q. And it's used to assemble the rotor and stator 20 structure of Pardhan, right? 21 A. Yes, sir. 22 Q. And, in fact, those bearings are rotationally	24 1 BY MR. HEFAZI: 2 Q. And that embodiment includes a rotary joint 3 device for connecting the rotor and stator together, 4 correct? 5 A. Would it be possible to, I guess, download the 6 electronic version of Pardhan or would you mind maybe if 7 I took a look at it in hard copy? 8 Q. Sure. Do you have the hard copy? Or I could 9 try to download the electronic copy. 10 Do you have the hard copy in front of you? 11 A. I do. It means moving a few books around, but 12 if -- so if you could load the electronic copy, that 13 would make it a little easier. 14 Q. Yeah, let me see if I can get that up there. 15 So I've introduced into the chat Exhibit 1006, 16 which is the Pardhan prior art reference. That's U.S. 17 Patent Number 10749308. 18 (Petitioner's Exhibit 1006, U.S. Patent 19 Number 10749308, was marked for identification.) 20 BY MR. HEFAZI: 21 Q. And I guess I'll withdraw my prior question. 22 Let me just ask a couple questions about the front page

25 1 here. So Pardhan is a reference to -- that's assigned 2 to Waymo, correct? 3 A. Yes. The -- on the face, the assignee is Waymo. 4 Q. And are you familiar with Waymo? 5 A. Generally, yes. 6 Q. And Waymo has self-driving cars that have 7 rotating LiDARs on them? 8 A. That's my recollection, yes, sir. 9 Q. Okay. And Pardhan lists on its face a number of 10 inventors, one of those being Droz, Pierre Droz. 11 Do you see that? 12 A. Yes, I do. 13 Q. And in this IPR, another one of the references 14 that's being relied upon is to that same inventor, 15 Mr. Pierre Droz, correct? 16 If you don't recall, it's not important. We can 17 move on, but -- 18 A. I just don't see it in the references cited, but 19 I could be missing it. 20 Q. Yeah. I mean, I think if you look at page 52 of 21 your declaration, you'll -- you'll see there is a 22 reference to a Droz patent.	27 1 A. Well, the -- I think the challenge is that your 2 question is not really verbatim. If I'm recalling 3 correctly, I think you are asking if the rotary joint is 4 what attaches the rotor to the stator. Is that correct? 5 Q. So it's slightly different. My question was 6 Pardhan's thermal rotary link includes -- well, let me 7 take it in pieces. 8 Pardhan's thermal rotary link includes a rotary 9 joint, right? 10 A. Yes, it's referred to as a rotary joint. 11 Q. Okay. And the rotary joint may provide for 12 rotation of the rotor with respect to the stator, right? 13 A. Yes. 14 Q. Okay. And if we look at Figure 7B of Pardhan, 15 are you able to tell me which portions of Figure 7B form 16 the rotary joint? 17 A. Can I trouble you to drop Dr. Levy's into the 18 chat, please? 19 Q. So I don't -- I don't have that on me right now. 20 I can get it at a break. 21 But I guess I'm -- so looking at Figure 7B, is 22 the answer that just looking at this figure, you don't
26 1 A. Oh, are you referring to my reference -- my 2 declaration or are you referring to the -- 3 Q. Sorry I wasn't clear. So Exhibit 2004, your 4 declaration, you make reference to a patent to Droz, and 5 I was just confirming that that Droz is the same 6 inventor that we see here on the Pardhan reference, 7 Exhibit 1006. 8 A. Yes. 9 Q. Okay. So, I guess, going back to my initial 10 question, Pardhan's thermal rotary link includes a 11 rotary joint device for connecting the rotor and stator 12 together, right? And if it would be helpful, you can 13 look at column 11, lines 6 through 10. 14 A. Oh, thanks. You're referring to Patent '308; am 15 I correct? 16 Q. That's right. That's right. 17 A. And your question was what? 18 Q. The thermal rotary link includes a rotary joint 19 device for connecting the rotor and stator together? 20 And I think maybe I gave you the wrong column 21 number. It's column 11, lines 6 through 10. I don't 22 know if I accidentally said 10.	28 1 know what the rotary joint is? 2 MR. MEYER: Objection. Form. 3 THE WITNESS: I -- I would not put it 4 that way. What I'm recalling is I believe that 5 Dr. Levy defined the rotary -- thermal rotary 6 joint, and so I want to -- I want to make sure that 7 I get the language precise. 8 BY MR. HEFAZI: 9 Q. Okay. Well, you know, I'm not asking for 10 Dr. Levy's opinion right now. I'm asking about yours. 11 So just as a person of skill in the art having, 12 you know, provided opinions about Pardhan, are you able 13 to tell me which portions of Figure 7B correspond to the 14 rotary joint portion of Pardhan's thermal rotary link? 15 A. I don't believe I was asked to provide a 16 separate opinion. I believe I was asked to opine on the 17 basis of what Dr. Levy and the petitioner put forth. 18 Q. Okay. So sitting here right now, you don't have 19 any understanding of which portions of Figure 7B 20 comprise the rotary joint device of Pardhan? 21 A. I would have to put some more thought into that 22 if I were to proffer a separate opinion. So I

29 1 ultimately am using as my baseline what I recall as 2 Dr. Levy's and the petition's -- I'm just trying to find 3 the specifics to be sure that that's what we're using. 4 Q. Okay. And we saw in -- a moment ago that 5 Pardhan says that the rotary joint is for providing for 6 rotation of the rotor with respect to the stator. And 7 even given that statement you still don't have an 8 understanding of which portions of Figure 7B are for 9 providing rotation of the rotor with respect to the 10 stator? 11 Let me ask a better question. 12 A moment ago we saw Pardhan say that the rotary 13 joint of the thermal rotary link provides for rotation 14 of the rotor with respect to the stator. In view of 15 that disclosure, are you able to say which portions of 16 Figure 7B would comprise the rotary joint of the thermal 17 rotary link? 18 A. I ultimately defer to my report, Dr. Levy's and 19 the petition to clarifying this definition. But it's my 20 recollection -- and I'm happy to provide in the errata 21 correction if I'm off in any way, but it's my 22 recollection that it's a thermal rotary joint, which	31 1 Q. Okay. So the rotary joint is a part of the 2 thermal rotary link. Would you agree with that? 3 A. The rotary joint 120 refers to a table with 4 components, and it's not a drawing. It's not an 5 annotated drawing. It's just a -- it's just a 6 component. 7 The rotary joint 120, which, again, is only 8 called out in Figure 1, is not separate and apart from 9 anything that transfers the thermal energy. And a 10 person of ordinary skill, I'm looking at this and I see 11 nothing other than -- nothing separate or distinguished 12 from 120 that would address the thermal energy, and so I 13 would consider that to be one and the same. 14 Q. So that's -- that's not my question. But my -- 15 my question is slightly different. 16 So maybe -- you know, maybe since you're looking 17 for a figure, let's -- let's move to column 16. Lines 18 59 through 61 refers to the rotational joint 404. 19 Do you see that? 20 A. I'm sorry, which column? 16? 21 Q. Yeah. 22 A. And which lines?
30 1 means that it is, A, transferring heat or processing or 2 transitioning temperature; it is rotary, meaning it can 3 rotate; and it's a joint, meaning it is a coupling of 4 some sort. 5 And so if I'm remembering correctly, I believe 6 that, per that definition -- and I believe that this is 7 also, again, from memory, because the document has not 8 been put in front of me, that it encompasses part 720, 9 which would include that sleeve with the bearings in it. 10 Q. Okay. Now, you mentioned that it's a thermal 11 rotary joint. Now, you have the electronic copy of 12 Pardhan available. If you search it, do you see any 13 reference to the word "thermal rotary joint"? 14 A. Well, to start, in column 11, line 7, the 15 thermal rotary link -- 16 Q. Okay. So I think we might have a disconnect 17 between our -- the question. 18 So there's a thermal rotary link. I see that. 19 But do you also see in line -- column 11, lines 7 20 through 10, it says, "The rotary joint may form part of 21 the thermal rotary link"? 22 A. Yes.	32 1 Q. Lines 49 through 58. And it talks about "the 2 thermal rotary link may include a rotor connected to a 3 stator through a rotational joint 404." 4 Do you see that? 5 A. Yes. 6 Q. Okay. And so if we look at Figure 4, the 7 rotational joint is the kind of -- the -- the housing 8 that couples the rotor and the stator; is that right? 9 A. Okay. So I'm -- I'm there and I see the 10 language that you're referring to. 11 Q. Is there a difference between a rotary joint and 12 a rotational joint? 13 A. I don't recall opining on how those might be 14 distinguished from each other. 15 Q. Okay. So as a person of skill in the art, you 16 don't have an opinion about whether -- or what portions 17 of Pardhan's system comprise the rotational joint or the 18 rotary joint; is that fair? 19 A. I'm not sure I followed your question. Could 20 you say that again? 21 Q. So you don't have an opinion as to which 22 portions of Pardhan -- Pardhan's thermal rotary link

33 1 comprise the rotary joint device? 2 MR. MEYER: Objection. Form. 3 THE WITNESS: I, again, may have provided 4 an opinion on that. I don't recall that. If 5 there's anything in my report that we could look at 6 that you're referring to, I'm happy to do that. 7 BY MR. HEFAZI: 8 Q. Okay. I don't recall you providing an opinion 9 on that. I guess I'm just asking whether you have an 10 opinion based on your reading of Pardhan. And, I guess, 11 let me -- well, actually, strike that. 12 You referred to -- to Johnson being or covering 13 a rotary joint, so, I guess, what is the portion -- 14 sorry. Strike that. 15 You refer to Pardhan as covering a rotary joint. 16 So what is the portion of Pardhan you contend is -- is 17 the rotary joint? 18 A. I think it's -- 19 MR. MEYER: Objection. Foundation. 20 THE WITNESS: I think it's defined in the 21 section in column 11, the rotary joint 120, which 22 refers to, I believe, Figure 1, which is not	35 1 MR. MEYER: Objection. Form. 2 THE WITNESS: I'm now -- 3 BY MR. HEFAZI: 4 Q. And before I -- before I -- maybe I can withdraw 5 that question. 6 Let me ask a couple foundational questions here. 7 Have you ever used a rotary joint device prior to being 8 retained in this case? 9 A. Yes. 10 Q. How often? 11 A. Our -- throughout the robotics, automation, 12 autonomous systems domain, which I have been in since 13 the mid to late '90s. 14 Q. Okay. And what is kind of the defining 15 characteristics of a rotary joint device? 16 A. I think that's going to depend on context. 17 Q. Do -- do rotary joint devices typically include 18 a shaft? 19 A. Typically? Well, not necessarily. They could 20 be a ball. They could be other things. 21 Q. Yeah, so that wasn't my question. 22 My question is, do they typically include a
34 1 distinguished from the thermal transfer. It just 2 says it's a box and has the label "120 rotary 3 joint." 4 BY MR. HEFAZI: 5 Q. And so are you saying that the rotary joint can 6 be the entirety of the thermal rotary link system? 7 A. I'm not sure if you're asking me can you take 8 the thermal rotary link, which is this -- I'm using the 9 right term here -- for example, part 720 and then 10 dissect it and then ask if -- because it's not really 11 described any other way, if it doesn't contribute to the 12 thermal or the heat transfer. 13 Q. Yeah, so I guess my -- my question - we saw a 14 moment ago that Pardhan says that it's thermal rotary -- 15 sorry. Strike that. 16 We saw a moment ago that Pardhan refers to a 17 rotary joint device being a part of the thermal rotary 18 link. And in your declaration you say Pardhan covers 19 rotary joints. And so I'm trying to understand, what 20 are you saying is the rotary joint? Is it the entirety 21 of the thermal rotary link or is it some part of the 22 thermal rotary link in Figure 7B?	36 1 shaft? 2 A. I don't know that I would put in the word 3 "typically." I think it just depends on the 4 application. 5 Q. Okay. Is it common for applications that use 6 rotary joint devices to connect rotors and stators to 7 use a shaft? 8 A. Maybe you could clarify what you mean by common, 9 because I can think of numerous examples where there's 10 not a shaft. 11 Q. Can you think of numerous examples where there 12 is a shaft? 13 A. There are certainly examples where there is a 14 shaft, but there are several where there is not. 15 Q. Okay. So both are, you know, well-known options 16 for rotary joint devices; is that fair? 17 A. Again, I think it depends on what you're 18 defining as the rotary joint. Is it -- I'll just give 19 you a few tiny examples. I mean, is it actuated? Is it 20 passive? Is it amped? Is it -- you know, what's the 21 purpose of the joint? Under what conditions or in what 22 domains is it operating?

37 1 Q. Is -- is Pardhan's -- the one shown in Figure 2 7B, is that actuated? 3 A. The one shown in Figure 7B is basically, I 4 believe -- and, again, I'm not going to contradict my 5 report, so I defer to my report. But it is the 6 actuator. 7 Q. Yeah. And is it -- is one of the known ways of 8 kind of develop -- or treating a rotary joint device in 9 such a system to use a shaft with bearings? 10 A. That is certainly a known way. Not the only 11 way, but, yes. 12 Q. And so when Pardhan refers to a rotary joint 13 device that forms a part of its thermal rotary link, you 14 would agree that it at least includes the shaft and the 15 -- kind of the bearing housing that's coupled to the 16 rotor? 17 A. Could you repeat that? 18 Q. So when Pardhan refers to its thermal rotary 19 link as including a rotary joint device, that rotary 20 joint device at least includes the shaft 734 and the 21 bearing housing 728 that couples the rotor and the 22 stator?	39 1 planes," which, per the figure that we've been looking 2 at, are 720 and 722. And I might have said "planes." I 3 mean plates -- "each including an array of concentric 4 fins so that," quote, "heat may be transferred from the 5 fins of the rotor to fins of the stator by way of an air 6 gap separating adjacent fins." 7 Q. So I'm able to read your declaration, as well, 8 but the problem is that that's not responsive to the 9 question that I asked. And if the answer is you don't 10 know, you can say, "I don't know." 11 But my -- my question -- and I'm going to get an 12 answer to it, so I'm going to ask it again -- is, in 13 Figure 7B, are you able to say whether the shaft and the 14 bearing housing that couples the rotor and the stator 15 are part of the rotary joint device? 16 A. What I can say is that they are -- they form the 17 thermal rotary link. 18 Q. Again, nonresponsive, because Pardhan says the 19 thermal rotary link, a part of it is the rotary joint 20 device. 21 And so my question is, are you saying that the 22 rotary joint device is -- strike that.
38 1 A. I'm a little concerned I'm not entirely 2 following your question because you might be including 3 some components that aren't -- 4 Q. Go ahead, sorry. That aren't? 5 A. That aren't included necessarily. So maybe you 6 could ask that again. 7 Q. So when Pardhan states that its thermal rotary 8 link includes a rotary joint device, that rotary joint 9 device would include -- it may have other parts, but it 10 would at least include the shaft 734 and the bearing 11 housing 728 that couples the rotor to the stator? 12 A. So I just don't want to go off the rails here 13 and provide an opinion about a question that might be 14 construed in a couple of different ways. I think that 15 paragraph 97 does a reasonable job of explaining this, 16 where I quote, "The inability" -- from Pardhan -- "The 17 inability to dissipate heat at a sufficient rate may 18 stem from, for example, a density with which the 19 electrical and optical components of the LiDAR device 20 are packaged inside the LiDAR device housing." 21 And then I go on to say that Pardhan, from my 22 understanding, "discloses expanded rotor and stator	40 1 So my question is, does the shaft and the 2 bearing housing form a part of the rotary joint device 3 referred to in Pardhan? 4 A. What I can say is it forms a part of the thermal 5 rotary link. 6 Q. Okay. So you can't say whether it forms a part 7 of the rotary joint device; you don't have any opinion 8 or understanding of that? 9 A. So the rotary joint 120 is not given description 10 beyond what is shown in Figure 1, which is to say that 11 it is an element of the LiDAR device. There's -- 12 there's nothing else in here that refers to the thermal 13 transfer and then what's described in where we focused, 14 column 11, as it forming part of the rotary link. 15 Q. Sir, your -- your declaration says Pardhan 16 covers a rotary joint. What is the rotary joint part 17 that you're referring to? Is it the entirety of Figure 18 7B or some portion? 19 A. Well, let's -- 20 MR. MEYER: Objection. Form. 21 THE WITNESS: Yeah, so -- so what -- what 22 aspect of my report and my declaration are you

41 1 referring to at this point? 2 BY MR. HEFAZI: 3 Q. Take a look at paragraph 205 of Exhibit 2004 of 4 your report, where you say, "Johnson, Pardhan is saying 5 all cover rotary joints." So when you say Pardhan 6 covers a rotary joint, what part of Figure 7B is the 7 rotary joint that you're referring to? 8 A. Paragraph 205 refers to at least three different 9 references as all covering rotary joints. 10 Q. One of those references is Pardhan, right? 11 A. One of them is Pardhan, correct. 12 Q. So when you say Pardhan covers a rotary joint, 13 which portion of Figure 7B or which portion of Pardhan 14 are you saying is the rotary joint? 15 A. I'm generically describing in such a way that 16 all three of those references could be similarly 17 described. 18 Q. Okay. So you don't have an understanding about 19 whether there's any portion -- you're not referring to 20 any portion of Figure 7B as covering a rotary joint; is 21 that fair? You don't have any opinion about that? 22 A. I would obviously defer to my report. If	43 1 references is the -- is the rotary joint, what exactly 2 did you mean? So you've identified the shaft. Is there 3 any other portion of these devices that you are 4 referring to when you made that specific statement? 5 A. Well, I may have to back out a little bit on the 6 shaft. So if you could also put Zhang, which is 7 Exhibit 1007. 8 Q. Yeah, I'll do that in a moment. But can you 9 just maybe tell me what you meant by that statement? 10 What commonality were you thinking of when you made that 11 statement? 12 A. Well, they rotate. 13 Q. So when you say the commonality is that these 14 three references a rotary joint device, you mean simply 15 that they all rotate? 16 A. I think there are some nuances to the -- how 17 it's defined on a per-reference basis, but the 18 commonality is you have a rotor and a stator. 19 Q. Anything else other than the rotor and stator? 20 A. Well, again, I'm happy to go to where I break 21 this down side by side in my report. The -- I think 22 that the fact that they rotate is the common
42 1 there's another place in my report that you want to go 2 to about this, then I'm happy to review with you and 3 clarify anything. But the commonality between these 4 three references is the -- the rotary joint. 5 Q. Okay. And when you say the commonality is the 6 rotary joint, what does the rotary joint include? 7 So -- so let me ask specifically, does the 8 common rotor joint include a shaft? 9 A. For each of these three references? 10 MR. MEYER: Objection to form. 11 BY MR. HEFAZI: 12 Q. Correct. 13 A. I would have to think hard and maybe go back and 14 look to see if any other embodiments were described, but 15 off the top of my head, the -- for these three, there's 16 a shaft. 17 Q. And for these three, there's a bearing housing, 18 right? 19 A. Could I ask you to put Exhibit 1005 and -- 20 Q. Yeah, I'll put that in a second. 21 I just want to understand, when you say a moment 22 ago, right, that the commonality between these three	44 1 denominator. 2 Q. So let me -- I've introduced Exhibit 1005 into 3 the link. That's the Johnson reference? 4 A. Right. 5 (Petitioner's Exhibit 1005, U.S. Patent 6 Number 10,790,077, was marked for identification.) 7 THE WITNESS: Could you also put in 1007? 8 BY MR. HEFAZI: 9 Q. Yeah, we'll get to that in a second. 10 But with regards to 1005, I want to explore the 11 commonalities there. Does Johnson -- I guess you said 12 it also covers -- wait a minute. 13 Can we take a short five-minute break? 14 (Recess.) 15 BY MR. HEFAZI: 16 Q. So before we took a break, I put Exhibit 1005, 17 which is a Waymo patent that Johnson referenced, Patent 18 Number 1079077. Let me know when you have that. 19 A. I have that. 20 Q. Okay. Now, Figure 3A of Johnson includes a 21 rotary joint device, right? 22 A. Yes. Figure 3A is described in Johnson as a

45 1 side view of a device that includes a rotary joint, 2 according to an example embodiment. 3 Q. Okay. And if we look at Figure 3A, would the 4 rotary joint device in Pardhan include a shaft? 5 A. Well -- 6 MR. MEYER: Objection. Form. 7 BY MR. HEFAZI: 8 Q. It's been quite some time now. Is there an 9 answer to the question? 10 A. I don't recall Johnson using the word "shaft." 11 Q. Okay. So I'm not asking if it uses the word 12 "shaft." I'm asking whether a POSITA reviewing Figure 13 3A would understand that it is the -- the rotor and 14 stator are assembled with a shaft. 15 A. Well, as I mentioned before, shaft is not the 16 only way to put together a rotor and stator, so there 17 would be options other than a shaft. I don't think it's 18 necessarily a shaft. 19 Q. Okay. A shaft with a bearing housing would be 20 one option; is that fair? 21 A. A shaft with a bearing option -- are you 22 referring to any place I discuss that in my declaration?	47 1 Does Johnson disclose how to implement and 2 assemble the rotor and stator structure? 3 A. Well, to start, column 2, Johnson mentions each 4 toroidal coil winding, extending around the shared core 5 region between a respective first-end and a respective 6 second-end, the respective first-end electrically 7 connected to a respective first-end electrical contact, 8 respective second-end electrically connected to a 9 respective second-end electrical contact. Device also 10 includes a plurality of mountable components. Each 11 mountable component electrically couples to a respective 12 first toroidal coil winding to a respective second 13 toroidal coil winding via respective first-end 14 electrical contact and a respective first toroidal coil 15 winding, and the respective second-end electrical 16 contact of the respective second toroidal coil winding. 17 Q. So in that embodiment, would the rotor and the 18 stator be assembled using -- what method? 19 A. Well, I think that partly depends on what you 20 define as assembled. I -- 21 Q. Let me -- let me clear -- yeah, go ahead. 22 A. No, it's okay. Go ahead.
46 1 Q. Well, you said that there are different options, 2 and I'm asking, is that one of the options? I'm trying 3 to understand the different options. So starting with 4 that one, is that one of the options? 5 A. I just want to make sure I've got the context 6 here, because I'm a little concerned you might be asking 7 me for a hypothetical. So your question was, for the 8 rotor of Johnson to move relative to the stator of 9 Johnson, what are various options for that, knowing that 10 it's not necessarily a shaft? 11 Q. Yeah. So I understand that there might be other 12 ways to implement this. Is one of the ways that you 13 could implement coupling of the -- or assemble the rotor 14 and stator in Johnson using a shaft with a bearing 15 housing? 16 A. I think it would depend on the operational 17 environment, the domain. I think it would depend on a 18 variety of other use factors and environmental factors. 19 Q. Is there anything that you saw in Johnson that 20 precludes you from using that option? 21 Let me ask a better question. Let me withdraw 22 that one.	48 1 Q. No. I mean, I -- I guess I want to ask you more 2 precisely, then. If you look at -- let's turn -- let's 3 kind of focus on a particular language here. If you 4 look at Johnson and you look at column 6, lines 51 5 through 57, and it says, "A rotary joint device may 6 include a first structure, for example, a rotor, 7 configured to rotate relative to a second structure, for 8 example, a stator." 9 Do you see that? Did I read that right? 10 A. Yes. 11 Q. Okay. Is one of the ways that it can be 12 configured, the rotor to rotate relative to the stator, 13 a shaft with a bearing housing? 14 A. Well, that's not mentioned here. 15 Q. Okay. So Johnson doesn't say how it configures 16 the rotor to rotate relative to the stator? 17 A. I don't -- again, I don't know that I would go 18 that far, because at a minimum it describes how it's 19 electrically connected and that -- how they magnetically 20 couple to each other. 21 Q. Okay. But it doesn't say one way or another 22 whether it uses a shaft and a bearing housing to couple

49 1 or configure the rotor and stator together? 2 A. It's not mentioned. 3 Q. Okay. And we saw -- 4 A. Not as far as I recall at least. 5 Q. Okay. And we saw in Pardhan it has a shaft and 6 a bearing housing that it uses to couple the rotor and 7 stator together, right? 8 A. Coupling one aspect, yes. 9 Q. And in the '515 Patent, you've identified a 10 bearing housing as the support component, right? 11 A. A bearing housing as what? 12 Q. As the support component. 13 A. I don't think I limited it to just the bearing 14 housing. 15 Q. You identified that as one of the items of the 16 support component, right? You pointed to -- 17 A. Say again. 18 Q. You pointed to the T-shaped bearing housing as 19 one of the -- as a support component, as disclosure for 20 a support component. 21 Let me withdraw the question, because I think 22 you already answered that pretty clearly above, and let	51 1 A. Of column 6. Exhibit 1005? 2 Q. Yeah. It says "one or more embodiments 3 disclosed herein can be used with any device that 4 includes an electromagnetic coil." 5 A. You mean line 49? 6 Q. Oh, sorry. You're right. I -- I think I got 7 those line numbers mixed up. Yeah, line 49. 8 Did I read that right? 9 A. What I see here is -- and this may have been 10 exactly what you just said -- "one or more embodiments 11 disclosed herein can be used with any device that 12 includes an electromagnetic coil." 13 Q. And Pardhan's Figure 7B includes an 14 electromagnetic coil, right? 15 A. I would say, generally speaking, yes. 16 Q. Okay. Let me switch gears a little bit. 17 Do you have the petition in front of you? 18 A. It might be easier for me to find if you -- or 19 bring up if you can send it electronically. 20 Q. Sure. Let me -- 21 A. What exhibit is that? 22 Q. The petition would be Paper 2. Let me just
50 1 me ask a slightly different question for you. 2 If you look up here at column 6 -- 3 A. Column 6 of? 4 Q. Lines 49 through 51 [sic] of Exhibit 1005. 5 A. 1005? So say again, please. I'm on column 6. 6 What were the lines? 7 Q. Yeah, lines 59 through 61. Do you see, sir, it 8 says "one or more embodiments disclosed herein can be 9 used with any device that includes an electromagnetic 10 coil"? 11 A. Well, the way that it reads, "to that end, 12 illustrative embodiments described herein include a 13 rotary joint device that includes an electromagnetic 14 coil similarly to device 100." 15 Q. So my -- my question is a bit different. It 16 says that embodiments disclosed herein could be used 17 with any device that includes an electromagnetic coil. 18 Do you see that? 19 A. I'm not seeing it in the way that you're 20 describing it. Am I just on the wrong line? You said 21 lines 59 through 61? 22 Q. Of column 6.	52 1 upload it to the chat. I think you said that might be 2 easier for you. 3 A. But, yeah, if you could put it in the chat, that 4 would probably make it a little more fluid and spare me 5 a paper cut or two. 6 Q. Okay. Those paper cuts are devastating. 7 Okay. Let me know when you have it up. 8 A. I have it up. 9 Q. Okay. Let's turn to page 24 of the petition. 10 A. (Complying.) 11 Okay. 12 Q. And this page addresses limitation 14-E, which 13 is the support component limitation. 14 Do you see that? 15 A. Yes. 16 Q. Now, if we turn to page 25, you understand that 17 Petitioner has acknowledged that Pardhan's bearing 18 housing doesn't include arms, right? 19 A. Yes. 20 Q. Okay. And then Petitioner provides two 21 arguments -- and I understand you don't agree with them, 22 but two arguments about why it's obvious to modify

53 1 Pardhan to include arms. 2 Do you see that? That's on page 25 to 26. 3 A. I see those. 4 Q. And the first one is that such modification 5 would have been obvious -- strike that. 6 The first one illustrates a number of bearing 7 housings and says it would have been obvious to provide 8 one of those bearing housings to strengthen the 9 attachment to the sleeve? 10 MR. MEYER: Objection. Form. 11 THE WITNESS: I saw that theory. 12 And I think I spoke over counsel. 13 BY MR. HEFAZI: 14 Q. Yeah, sorry. Let me reask the question. 15 So the first argument is on pages 25 to 26 and 16 relates to a number of bearing housings related -- shown 17 on page 26. Do you see that? 18 A. Are you referring to the top row of three 19 drawings with purple highlights at the top of page 26? 20 Q. Yeah. Yeah. I think there are -- on 26 there's 21 three shown in the top row and then there's an 22 additional kind of image below that.	55 1 refer to those as flanges. And the reason is because 2 those bearings don't do what Dr. Levy or the petitioner 3 indicate that they're doing. 4 Q. Okay. Well, on the fourth one, you argue -- 5 well, let's -- let's look at the one on the bottom, 6 right, where I think you expressly say that they're not 7 arms. Is that right? 8 A. The one on the bottom, which I believe is from 9 Exhibit 1042, is part of a structure that's like a truss 10 or a lattice that actually circles back, and the part 11 that circles back or completes that circuit to the shaft 12 is not shown in this image. So they also don't function 13 as arms, they function as linkages. And when you have a 14 truss, you're not just reliant on arms to keep something 15 up, you're reliant on the static nature that those 16 linkages have relative to each other to provide 17 stability. So I could actually have pivot points at 18 every single juncture there, depending on how I set this 19 truss up, and it wouldn't be solely reliant on those 20 four linkages that are highlighted in purple. 21 Q. Yeah, that's not what I'm trying to understand. 22 In your declaration you say that a POSITA would
54 1 Do you see that? 2 A. So may I ask, are you just referring to the 3 three at the top of the page or all four? 4 Q. Well, I guess I'm just asking more generally at 5 this point. Do you see that there's four of these 6 exemplary kind of bearing housings identified in this -- 7 on page 26? 8 A. They are referred to as bearing housing designs 9 and the -- they are from at least two different 10 exhibits, 1033 and 1042. 11 Q. Okay. And so in this first argument -- and I 12 understand you dispute it, want to kind of make sure 13 we're on the same -- this first argument, Petitioner is 14 arguing that these known bearing designs render it 15 obvious to add arms to Pardhan's bearing housing. Is 16 that your understanding? 17 A. That's my understanding of the theory put forth. 18 Q. Okay. And I think for the top three, you're not 19 disputing that those include arms, but for the bottom 20 one, you are disputing that they include arms. Is that 21 fair? 22 A. I don't believe I refer to those as arms; I	56 1 understand that arms of the '515 Patent cantilevered, 2 whereas the petitioner erroneously identified arms from 3 Exhibit 1042 are actually not cantilevered. Did I -- is 4 that your opinion? 5 A. Let's just -- if you would, kind of direct me, 6 first of all, so I can make sure I'm calibrated. 7 Q. Yeah. It's page 118 of your declaration, 8 Exhibit 2004, and it's that last sentence there. 9 A. Yes, that reads, I believe, almost exactly as 10 you said, a POSITA would understand that arms of the 11 '515 Patent are cantilevered, whereas -- 12 Q. What exactly does it mean for arms to be 13 cantilevered? 14 A. The -- the way that it's described in the '515, 15 the arms are cantilevered, meaning that they radiate 16 from the -- the portion that rotates around the access 17 of rotation in a rigid and stable enough fashion that 18 they will counter misalignment, potential problems and, 19 just due to the nature of, you know, it being a rotating 20 system, other potential instabilities that might exist 21 depending on how it's operated and in what environment. 22 Q. Would a -- so you mentioned this truss. Would a

57 1 system that has kind of arms that are supported on both 2 ends -- would that be cantilevered? 3 A. That is not the same as cantilevered. That's 4 where I have -- imagine, as an alternative, that I had 5 instead of these -- what you're calling arms on the top 6 and the bottom -- having a vertical bridge between them 7 or a vertical link between them, if they came together 8 at a point, those -- that's not really cantilevered. 9 They -- they actually rely on each other, so there's a 10 compressive aspect and a tensile aspect to each of those 11 links that net out to zero, and that's what -- it -- but 12 it relies on being able to perform that circuit, as 13 opposed to, as is implied here but is not the case, the 14 assumption is that what's colored purple are rigid 15 branches emanating from the component that rotates 16 around the axis of rotation that, by itself, could 17 support whatever it's supposed to be supporting. And 18 the way that it's drawn, especially if you were to look 19 at figure -- different perspectives of that figure, you 20 would notice that it doesn't rely just on the -- on 21 the -- what you're calling branches. 22 Q. So I guess let me throw up Exhibit 1042 here.	59 1 then you wouldn't need a truss, it would just be able to 2 support itself on one side? 3 A. Arms would be able to support from -- from one 4 end. Is that what you're referring to? 5 Q. Yeah. Like basically we could emanate out and 6 you wouldn't have any need -- you wouldn't have any kind 7 of support on the other side, the truss? 8 A. I wouldn't need it. So that's the thing, if -- 9 if I look at this, I look at this and I see a truss. I 10 see where it needs to complete that circuit from the 11 top, out to the radius, down, perhaps through a rigid 12 link, and then back to the center to hold whatever it's 13 supposed to hold. That would be a truss. 14 Q. And is there any -- I guess when you say that 15 the '515 Patent's arms are cantilevered and don't cover 16 non-cantilevered arms, are you relying on any kind of 17 lexicography or disclaimer in the specification? 18 A. From the '515? 19 Q. Uh-huh. 20 A. We have that exhibit up? 21 Q. I don't think it's in the chat. 22 But I guess I'm asking more generally, are you
58 1 And if I could turn to Figure 8 of Exhibit 1042. 2 (Petitioner's Exhibit 1042, U.S. Patent 3 Number 10,141,822, was marked for identification.) 4 BY MR. HEFAZI: 5 Q. So you can see that structure is shown in Item 6 704 of Figure 8. That's another view of that structure, 7 right? 8 A. Correct. 9 Q. Okay. And those arms, they emanate outwards 10 from that middle sleeve, right? 11 A. They do. 12 Q. And then they are supported on the other end by 13 the -- what you called the truss; is that right? 14 A. Well, they're mated to the rest of the truss. 15 It -- it's part of what forms the truss when assembled. 16 You also can't tell from, say, like Part 704 if 17 there are any or no degrees of freedom there. But if 18 the arms were -- if the arms worked as is interpreted by 19 Hesai, then that -- that cage, that structure that then 20 wraps back around to the bottom, wouldn't be essential. 21 Again, it's the difference between a truss and an arm. 22 Q. So you're saying that if -- if they were arms,	60 1 relying on lexicography [sic] or disclaimer? Do you point 2 to anything in your declaration where you argue as 3 lexicography or disclaimer? I don't see any citation to 4 the '515 Patent for this. 5 A. Other than the mention of the '515? 6 Q. Yeah. Are you familiar with what lexicography and 7 disclaimer are? 8 A. Do you mean lexicography? 9 Q. Lexicography, yes. 10 A. My understanding of lexicography is that it's 11 based on how something is drawn. 12 Q. Your understanding of that is -- well, what do 13 you mean by that? 14 A. Well, I would say that, as you know, first of 15 all, I'm not an attorney and I'm not -- I can't really 16 provide a legal opinion how to interpret lexicography. 17 But my limited understanding is it is based on what's 18 drawn and what's shown -- 19 Q. And so -- 20 A. -- and -- and/or if it's limited to, you know -- 21 I guess described. But art can -- can play a major role 22 in that.

61 1 Q. Okay. So is the reason -- I guess let me take a 2 step back. 3 Does the term "arms" have like an established 4 meaning in the art? 5 A. To a person of ordinary skill? 6 Q. Yeah. 7 A. I believe it does. It's -- as I mentioned, it's 8 -- it's something that can provide strength and 9 stability. This is why you have the term "moment arm," 10 "strong arm," "support arm." And -- and, you know, 11 obviously they can be movable. They can be movable, as 12 in actuated. 13 Q. Now, in page 118, where you make this statement 14 that "arms must be cantilevered," do you cite to any 15 dictionary or any exhibit that reflects that plain 16 meaning? 17 A. Could I trouble you, while I'm looking at my 18 dec, to put the '515 Patent in the chat? 19 Q. Well, I'm not asking about the '515 Patent right 20 now. I'm asking just about whether on page 118 -- on 21 your declaration at page 118, whether you cite any 22 evidence reflecting the plain meaning of "arms."	63 1 A. Not embedded in that sentence, no. 2 Q. Okay. And if we go to the next sentence -- I'm 3 not going to read it, but you would agree that that 4 sentence, which ends the paragraph, also does not cite 5 to any exhibit reflecting the plain meaning of what you 6 contend cantilevered arms are? 7 A. Well, perhaps I should clarify my previous 8 answer. So obviously I cite to the '515 Patent as them 9 being cantilevered. 10 Q. Okay. So other than the 5 -- but you don't cite 11 to any column or line number, correct? 12 A. I may not here, but I defer to my report and, 13 obviously, the figures and descriptions within the '515. 14 Q. Okay. And sitting right -- here right now, do 15 you know if the '515 provides a definition of arms -- 16 well, strike that. 17 Other than the '515 Patent, do you cite to any 18 evidence in support of your opinion that arms are not 19 cantilevered under the plain meaning? 20 A. That arms are not cantilevered under the plain 21 meaning? 22 Q. Sorry. Strike that.
62 1 I think it's been a minute or so, but, I mean, I 2 don't see anything in that paragraph or page 118 to 119 3 of any kind of exhibit citation for that statement. Do 4 you agree? 5 Do you know how much longer it's going to take 6 for you to review these two sentences and provide an 7 answer? 8 A. I don't know that I could give you a time 9 estimate. 10 Q. Well, why don't we read it together. The 11 sentence says, "A POSITA would understand that arms of 12 the '515 Patent are cantilevered, whereas what the 13 petitioner erroneously identifies as arms from 14 Exhibit 1042 are actually not cantilevered because 15 component 704, shown more clearly in Figure 7 of 16 Exhibit 1042, forms a U that is actually a rigid 17 self-supporting truss, not an arm," period. 18 Now, would -- you would agree there's no exhibit 19 citation there, correct? 20 A. I -- it's -- I cited to Exhibit 1042, but -- 21 Q. Okay. Other than Exhibit 1042, you don't cite 22 to anything else, right?	64 1 Other than the '515 Patent, do you cite to any 2 support for your position that arms are cantilevered? 3 A. I, as I mentioned before, defer to my report. 4 I'm happy to continue looking through my report and 5 provide additional support. In our conversation just a 6 few minutes ago, I also brought up examples of moment 7 arm being, you know -- the implication being that it's a 8 rigid component or element that can provide 9 counter-torque or torque. And there are other examples: 10 You know, strong arm, support arm. 11 So these are well-known descriptions of arms 12 that are consistent with what I have here. And, again, 13 happy to continue reviewing through my report, or if 14 there's some other place that you want to direct me to 15 related to arms, I'm happy to visit that. 16 Q. No, okay. Let's -- let's switch topics a little 17 bit. 18 And let me ask you, you would agree that Johnson 19 discloses a plurality of coil windings wound around a 20 ring-shaped core, right? And that's exhibit that we saw 21 a moment ago, the prior art reference, Johnson, at 22 Exhibit 1005.

65 1 And just to speed this up, if you want to go to 2 page 79. 3 A. Of which document? 4 Q. Of your declaration, Exhibit 2004. 5 A. You're referring to paragraph 144, where I say, 6 "In my opinion, Johnson's disclosure of a plurality of 7 coil windings wound around a single ring-shaped core 8 shared by all coil windings does not teach or suggest a 9 plurality of stator elements each including a coil wound 10 around a magnetic core?" 11 Q. That's right. 12 So you're not disputing that Johnson discloses a 13 plurality of coil windings around a single ring-shaped 14 core, right? 15 A. The -- 16 Q. That part is not in dispute? 17 Sorry, I think I cut you off. 18 There's no dispute that Johnson discloses a 19 plurality of coil windings wound around a single 20 ring-shaped core, right? 21 A. So just to make sure I'm clear on your question, 22 could I trouble you to say that again?	67 1 of Exhibit 2004, your declaration. 2 A. Before we do, Counselor, could I -- since we 3 were on this page or in proximity, paragraph 145, could 4 I make a quick correction to what's written there? 5 Q. Sure. What is that correction? 6 A. Well, in paragraph 145 it reads, the first 7 sentence, "A POSITA would understand that each stator 8 has its own magnetic core," and what I meant to say is 9 each stator element has its own magnetic core. 10 Q. Okay. 11 A. Thank you. So, I'm sorry, where was it you 12 asked me to turn? 13 Q. 182. 14 A. Paragraph 182? 15 Q. Uh-huh. 16 Okay. So in this paragraph, you talk about 17 Pardhan's winding 738B, and then you go on to say 18 that -- that -- I guess you quote a portion here of 19 Pardhan where you emphasize that its design allows for a 20 smaller rotary transformer. Which -- so -- so I guess 21 the question for you is the following: So is the goal 22 of Pardhan to have kind of a more -- kind of a smaller
66 1 Q. Yeah. There's no dispute that Johnson discloses 2 a plurality of coil windings wound around a single 3 ring-shaped core? 4 A. I think that's fair, you know, unless there's 5 another aspect of my declaration that might dispute 6 that. But I'm -- I see where you could interpret it 7 that way right now. 8 Q. So in Johnson there's a first coil wound around 9 Johnson's ring-shaped core and a second coil wound 10 around Johnson's ring-shaped core? 11 MR. MEYER: Objection. Form. 12 BY MR. HEFAZI: 13 Q. Well, let me -- let me withdraw that question. 14 MR. HEFAZI: And, actually, could we take 15 a short break, maybe ten minutes? 16 THE COURT REPORTER: Off the record at 17 1:15. 18 (Recess.) 19 THE COURT REPORTER: We're back on the 20 record at 1:28. 21 BY MR. HEFAZI: 22 Q. Okay. Could I ask you to turn to paragraph 182	68 1 device within that cavity of Figure 7B? 2 Let me strike that and ask a better question. 3 Is Pardhan -- does Pardhan disclose trying to 4 minimize or have a kind of smaller-sized device within 5 the cavity of its thermal rotary link? 6 It's been a few minutes. Do you have an answer 7 to the question? 8 A. Well, I'm working to provide you with one. Do I 9 have your permission to do a word search on 10 Exhibit 1006? 11 Q. Sure. Can you just say what you're searching 12 for? 13 A. Yes, "transformer." I just want to make sure 14 I've got the locations. 15 Q. And I guess, just so you have a clean question 16 for you, my question is, is an objective of Pardhan to 17 have a small kind of device disclosed within the space 18 of its cavity? 19 A. Thank you for repeating that. 20 Column 21, starting, I think, at line 9, "The 21 windings 938b [sic] are connected to the stator, as 22 opposed to the rotor, so that energy to power the motor

69 1 is not transferred through the rotational connection via 2 rotary transformer," in parentheses, "thus allowing for 3 a smaller rotary transformer." 4 So it would appear -- and I'm just sort of 5 beginning there, but it would appear that there's an 6 implied objective or value to have a smaller rotary 7 transformer when it says "thus allowing for a smaller 8 rotary transformer." 9 Q. Okay. And is it just -- I guess you focused on 10 the rotary transformer. What about the -- the coil 11 winding? Is an objective of Pardhan to also have a 12 smaller winding within the space of its cavity? 13 A. Oh, so this question was not about the 14 transformer, this question was about the windings of -- 15 Q. I guess this question was more -- more generally 16 about the kind of motor and coil and the stuff that's 17 within the winding. Is -- is -- is the objective of 18 Pardhan to make that cavity kind of compact and fit -- a 19 compact device within the cavity, or do you just not 20 have an opinion on that? 21 A. I might not be following what specific 22 components you're referring to. Are you lumping	71 1 A. I believe the answer can be found, at least in 2 large part, paragraph 112 of my declaration, where 3 Pardhan expressly described the implementations of LiDAR 4 device that could need to be oversized or need its 5 oversized rotating heat sink. Then Pardhan teaches its 6 LiDAR device 100 has a first receiver 110 and a second 7 receiver 112 that have the same horizontal field of 8 view. So you're already talking about a -- a fairly 9 large system just by virtue of the -- the blocks, the 10 receiver blocks, having two different fields of view. 11 It then -- Pardhan further teaches an optical 12 lens for the first receiver 110 of its LiDAR device with 13 dimensions of approximately 10 centimeters by 5 14 centimeters as well as a focal length of approximately 15 35 centimeters. So we're already talking about a pretty 16 large system. 17 And then, notably, Pardhan's first lens alone, 18 just in comparison, would be too large to fit in the 19 Velodyne VLP-16 puck, which had an overall diameter of 20 10.3 centimeters, whereas the optical lens for the first 21 receiver of Pardhan is 10 centimeters. So -- 22 Q. Yeah.
70 1 components together and then asking is the objective of 2 Pardhan to -- 3 Q. Yeah, let me take a step back and ask this: Do 4 you have a sense of how large the cavity is in Pardhan? 5 Can you tell? 6 A. You're referring to the diameter between the 7 first ring, fin ring? 8 Q. Correct. In Figure 7B, that -- that cavity 9 that's formed between those fin rings, do you have any 10 sense or does Pardhan say what its size is? 11 A. Well, I make reference to the size 12 approximations of Pardhan in general in various parts of 13 my declaration, and including, for example, Figure 3 of 14 Pardhan. But let me -- let me go there. 15 Q. And so you're looking at Figure 3 of Pardhan, 16 which shows the device 100 on the top of a vehicle; is 17 that right? 18 A. Well, I brought that up because I also refer to 19 that in my declaration. 20 Q. I see. 21 So you're saying that provides like a rough kind 22 of correlation to the size of Pardhan's device, right?	72 1 A. Go ahead, I'm sorry. 2 Q. No. No. Go ahead. I mean, I'm reading all 3 this. Go ahead. Is there -- 4 A. Yeah. And a POSITA would have recognized that 5 Pardhan's LiDAR device is being similar to the 6 then-antiquated bucket-sized Velodyne HDL-64 from many 7 years prior, which had a large -- which had large power 8 requirements. And I -- I cite the different exhibits 9 there. 10 So based on that, even though I may not have 11 done the analysis to estimate the diameter between 12 the -- the diameter of the first concentric fin, I 13 believe one could be done, and while I would love to do 14 it, I guess I hesitate to give you an estimate right 15 now. 16 Q. Okay. But it's a relatively large device, is 17 what you're saying? 18 A. That's the -- that's the understanding I believe 19 a person with ordinary skill would have, again, as 20 described in paragraph 112 and possibly other places in 21 my declaration. But I think that's a good example. 22 Q. Okay. Now, if you look at -- back to

73 1 Exhibit 1005, which is the Johnson reference, and if we 2 look at Figure 3B, for example -- 3 A. I'm sorry. Give me a second. I'm -- I know I 4 have it up. I'm just trying to find it. 5 Okay. Sorry about that. And you directed me to 6 which figure? 7 Q. Figure 3B. 8 A. Okay. 9 Q. Would the circuit board in Figure 3B -- or that 10 rotor there, would that fit within Pardhan's heat sink, 11 in your opinion? 12 And let me strike that and ask a better 13 question. 14 Would the rotor shown in -- the rotor platform 15 shown in Figure 3B of Johnson, Exhibit 1005, fit within 16 the cavity shown in Figure 7B of Pardhan, Exhibit 1006? 17 A. I don't recall off the top of my head any 18 limitations about Johnson and diameter, but give me a 19 second to confirm. I believe Johnson was also the one 20 that was quiet about shaft, that there wasn't mention of 21 a shaft, so it might've been nonparametric. 22 I obviously defer ultimately to my declaration.	75 1 before expressing an opinion, if it fit, it would take 2 up the entire space. 3 Q. If it fit, it would take up -- so -- okay. So 4 roughly the same as what's shown in Figure 7B, that the 5 windings and the transformers taking up the entire space 6 of that cavity would -- would be kind of the same fit 7 for Johnson? 8 A. I'm not totally sure, because when I contemplate 9 what is alleged to be Johnson's objective of a more 10 compact packet stator-rotor interaction, paired with 11 Pardhan's design, I'm not entirely sure, and perhaps I 12 am actually skeptical, that Johnson's design would 13 perform as well as what Pardhan has in its drawing, 14 Figure -- I believe you refer to it as 7B. 15 Q. Yeah, so that's not my question. 16 My question is, you referred to Johnson as being 17 a compact design and Pardhan being a large design, so 18 I'm wondering whether -- what you mean by that. I'm 19 trying to explore that opinion. And specifically the 20 rotor platform shown in Johnson in Figure 3B, what is 21 the relationship, in terms of size, to the rotor 22 platform shown in Figure 7B? Would it fit in the cavity
74 1 Just a quick observation in response to your question: 2 As a person of ordinary skill, recognizing the high 3 moment of inertia, which is to say the sluggishness of 4 the Pardhan reference, and adding to that the drag 5 associated with or inherent to the Pardhan reference, 6 where the moment of inertia is proportional to the 7 square of the radius and the drag is proportional to the 8 square of the radius and angular velocity -- so you have 9 this compounded counter-torque effect, and as a person 10 of ordinary skill, when I contemplate fitting Pardhan 11 with Johnson, I know that I would need to maximize my 12 motor torque. And to maximize that motor torque, I 13 would fill up that space as much as possible. And even 14 if that generates the heat, which Pardhan is -- intended 15 to, by its design, wick and transfer. 16 Q. I didn't quite follow. Is your opinion -- I 17 mean, in terms of size, would Johnson's rotor platforms 18 shown in Figure 3 fit within the cavity of Pardhan 19 Figure 7B? 20 A. Again, I defer to my report. In the -- that 21 aside, and to be corrected by my report if I've deviated 22 from something that I've had no time to think about	76 1 in the same way? Would it be smaller? 2 A. As I mentioned before, I doubt seriously it 3 would be smaller. The -- one can't say something fits 4 and expect that it doesn't perform the job that it does 5 and be happy with the fact that it fits. From my 6 perspective as a person of ordinary skill, the "it" that 7 needs to fit has to also be able to cause the rotary 8 motion and enable what else is disclosed or required by, 9 in this situation, Pardhan. 10 Q. Yeah. So are you -- 11 A. And I am -- sorry. 12 Q. I get that. I get that. I get that you have a 13 separate opinion about that. I'm just trying to focus 14 right now on the specific question that I'm asking. 15 When you say it's compact, what are you 16 referring to? Are you referring to the fact that it's 17 smaller than what is shown within the cavity existing in 18 Pardhan? It sounds like you're saying it's the same 19 size. 20 A. What I'm saying -- and I have worked with motors 21 like what's disclosed in Johnson. I've seen them work 22 and I've seen them destroy themselves. The Johnson --

77 1 Johnson disclosure may not be able to provide the torque 2 required, what's described in Pardhan. So if you want 3 to force-fit it into that what you're calling cavity, 4 you could, but I would also expect that if I fit it in 5 there, it's going to do the same job, and I don't -- I 6 don't get the impression it would do that. 7 So that's why I would probably be surprised if 8 you consumed anything other than the maximum space 9 available and, second of all, that it would perform the 10 same as the -- the radial flux stator-rotor 11 configuration originally disclosed by Pardhan. Just 12 because something can be compact doesn't mean it does 13 the job. When you add Pardhan's unnecessary concentric 14 ring or concentric fin configuration for thermal 15 management and you grow this thing and you have 16 sluggishness, allow the moment of inertia that's -- 17 that's proportional to the square of the radius, so it 18 gets profoundly worse, exponentially worse as you grow 19 in diameter, and you add in the drag, which is 20 proportional to the velocity of those fins relative to 21 the air and/or whatever medium is in there, and that 22 is -- and that velocity is radius times angular rate,	79 1 Q. Okay. That's fine. 2 Let me introduce one last exhibit here. This is 3 Exhibit 1045, to Karplus, Patent Number 10530209. 4 (Petitioner's Exhibit 1045, U.S. Patent 5 Number 10530209, was marked for identification.) 6 BY MR. HEFAZI: 7 Q. This is another patent to Waymo, right? 8 A. Assignee on the face of this patent appeared to 9 be Waymo. 10 You are referring to the '209 Patent? 11 Q. Correct. I'll call it the Karplus patent, if 12 that's okay. 13 A. Okay. 14 Q. And if you go to Figure 1, this shows the kind 15 of same figure that we saw in Exhibit 1006, Pardhan, 16 with the device -- the LiDAR device sensor at the top of 17 the vehicle, right? 18 A. You're referring to component 102 in Figure 1? 19 Q. Yeah. Component 102 roughly corresponds to 20 component 100 in Pardhan, right? 21 A. Yes -- well, no. They -- two different sizes. 22 Q. I mean, in terms of their diameter with respect
78 1 then you end up with a tremendous amount of work that I 2 don't believe Johnson anticipated for what it disclosed. 3 Q. So question for you. You mentioned moment of 4 inertia and drag. Are those proportional to -- I think 5 you said "angular velocities." Are these somehow 6 proportional to how fast this thing is rotating? 7 A. Of -- yes, velocity plays a role. 8 Q. And I guess another question for you: What is 9 the relationship between the, you know, power transfer 10 and power distance of the transformer coils and their -- 11 their size, their radius, all things being equal? 12 A. You're referring to the -- 13 Q. For the wireless transformer coils, like the 14 wireless transformer power coils. 15 A. Yeah. I was looking for a number, the part 16 number. 17 Q. Yeah. I think it's 740 and 748. 18 All things being equal, will a larger radius 19 lead to a larger kind of power transfer? 20 A. I really don't recall being asked to opine about 21 that. I'd have to -- I'd have to think about that 22 before giving you an answer.	80 1 to the car, they look pretty similar, no? 2 A. I don't know if I'd go that far. Appears to be 3 some differences there. 4 Q. Okay. Well, the size of the car is the same, 5 right? I mean, this is depicting the same car. 6 A. The size of the car looks pretty similar, I 7 would just say. I'm not overlaying it. The -- well, 8 maybe -- let me just make sure I've got the same view 9 here. 10 Q. I'm not saying exactly. I'm saying they're 11 roughly the same size cars. 12 A. I -- I don't know that I would go that far. Did 13 I provide an opinion on that? 14 Q. Well, you applied an opinion -- we were talking 15 about the Figure 3 of Pardhan showing that Pardhan's 16 device 100 is -- is large. Did you not? And you 17 pointed to the size of the car and the relationship to 18 all of that. 19 A. Yes, it's indicative. But this '209 Patent that 20 you just put up, the -- what you're equating to 21 component 100 in Pardhan is 102, but those clearly are 22 two different sizes.

81 1 Q. Okay. And they both fit on top of a 2 similar-size car, right? 3 A. And even there, I'm hesitant to say yes. I 4 haven't overlaid it. I mean, I'm kind of having to go 5 back and forth visually here. I mean, I see the same 6 components, but whether they scale the same, I -- I 7 don't know yet. 8 Q. Okay. And -- and if we look -- 9 MR. HEFAZI: Actually, I think I might be 10 done. Let's -- can we take a five-minute break? 11 And I might be done. 12 THE COURT REPORTER: Off the record at 13 2:04. 14 (Recess.) 15 THE COURT REPORTER: We are back on the 16 record at 2:10. 17 MR. HEFAZI: Okay. I have no further 18 questions. Thank you, Doctor, for your time. I 19 pass the witness. 20 MR. MEYER: Okay. Can we take a short 21 five-or-so-minute break so I can consider redirect? 22 THE COURT REPORTER: Off the record at	83 1 is, but I meant to say "faces," and for whatever reason 2 it's spelled F-A-C-I-E-S. I'd have to search exactly 3 for where it is, but obviously F-A-C-I-E-S, as far as 4 I'm aware of, is not a word. 5 I think I referenced incorrectly -- in paragraph 6 207, just after the first sentence, it says 7 "Exhibit 1006." I believe that's supposed to be 1011. 8 I don't know that this is that big of a deal, 9 but paragraph 225, the last sentence says "under its 10 lower power consumption detecting device." I -- that 11 might be fine as is -- you know what. Cancel that one. 12 And then I think it'd be pretty obvious on 13 paragraph 255, first sentence, "Ouster's OS sensor 14 products also embody all of the features of Claims 1, 4 15 and 17," and it should read 1, 4, I think, 11 and 17 -- 16 I'm sorry -- 1, 4, 14 -- 14 is an independent claim -- 17 and 17. 18 So those are the ones that I recall, not 19 necessarily -- not all, obviously, substantive, but 20 those are the corrections I felt should be made just to 21 clean things up a little bit. 22 Q. Okay. Thank you. Dr. Janet, I have no further
82 1 2:11. 2 (Recess.) 3 MR. MEYER: I would like to do a short 4 redirect, just a couple of questions. 5 THE COURT REPORTER: Yes. Back on the 6 record at 2:16. 7 EXAMINATION 8 BY MR. MEYER: 9 Q. Dr. Janet, earlier today you corrected a 10 typographical error in your declaration. Are there any 11 other typographical errors you wanted to correct today? 12 A. Yes, sir. 13 Q. And what are those? 14 A. Paragraph 116 of my declaration, the last 15 sentence says "Picala's rotor plate 720." That should 16 read "Pardhan's rotor plate 720." 17 Paragraph 152, the sentence that begins 18 "essentially," comma, after the parenthetical currently 19 reads "from the system would recover before reforming." 20 That actually needs to read "from which the system would 21 recover." 22 I can't recall exactly where this misspelling	84 1 questions for you. 2 MR. MEYER: So I pass the witnesses back 3 to counsel. 4 Oh, Nima, you're muted. 5 MR. HEFAZI: Yeah. Just one last 6 question. 7 EXAMINATION 8 BY MR. HEFAZI: 9 Q. Did you speak with your counsel regarding the 10 substance of your testimony at any point today? 11 A. No. 12 MR. MEYER: I will -- 13 MR. HEFAZI: Okay. Thank you. 14 MR. MEYER: Hold on. Let me speak. 15 Okay, yeah, sorry. No objection. 16 BY MR. HEFAZI: 17 Q. Have you spoken with counsel at all today 18 regarding any subject matter? 19 A. Well, yes. We talked about -- 20 Q. What -- 21 A. -- breakfast, that -- 22 Q. Any other topics?

85 1 A. Logistics, how we were going to set up the video 2 system using a laptop versus using the in-room video 3 system. 4 Q. Any topics related to any references in this 5 IPR? 6 A. No, not that I recall. 7 Q. Any topics related to LiDAR? 8 A. No, not that I recall. 9 Q. Well, I guess I'm having trouble about the -- 10 the recalling part. I mean, the depo has been three 11 hours. 12 A. Right. So are you asking -- 13 Q. So -- 14 A. Yeah. So obviously we had prep yesterday. 15 Q. Yeah, I'm talking about today. After this depo 16 was started, have you talked at all -- putting aside 17 breakfast and all that stuff, have you talked to your 18 attorney about any of the references in this case? 19 A. No. 20 Q. Have you talked to them about any of the papers 21 in this case, the petition, your declaration, others? 22 A. Other than the location of them, that's it.	87 1 find where the -- in which binder of four the 2 petition was located. That was it. 3 MR. HEFAZI: Okay. Okay. I have no 4 further questions. 5 MR. MEYER: I have no further questions 6 either. 7 THE COURT REPORTER: Could I get each of 8 the attorneys to state their transcript order on 9 the record, please? 10 MR. HEFAZI: Yeah. So for Petitioner 11 it's two days business -- two business days, with a 12 rough today. 13 MR. MEYER: And the patent owner would 14 like a rough and then just the transcript in the 15 normal -- normal time frame. 16 (The deposition was concluded at 2:26 17 p.m.) 18 19 20 21 22
86 1 Q. What did you say about the location of them? 2 A. I was trying to find a document during the 3 deposition, and it's -- it's in one of the binders and I 4 couldn't figure out which binder it was. But, I mean, 5 there was nothing about the reference itself. It was 6 just where it was located, which binder. 7 Q. Which document was it? 8 A. I don't remember. I think it was the petition. 9 Yeah. 10 Q. And did it relate to any particular -- or, I 11 guess, was it after any particular set of questioning 12 that you recall? 13 A. I think that it was -- I'm sorry, did I cut 14 somebody off? 15 Q. No. Go ahead. 16 THE WITNESS: Matthew, I didn't cut you 17 off? 18 MR. MEYER: I mean, I would caution you 19 not to reveal any privileged information, but I -- 20 you can answer. 21 THE WITNESS: Yeah, there's nothing to 22 reveal. The -- this had to do with me trying to	88 1 DISCLOSURE 2 Pursuant to Article 10.B of the Rules and 3 Regulations of the Board of Court Reporting of the 4 Judicial Council of Georgia which states: Each 5 court reporter shall tender a disclosure form at 6 the time of the taking of the deposition stating 7 the arrangements made for the reporting services of 8 the certified court reporter, by the certified 9 court reporter, the court reporter's employer or 10 the referral source for the deposition, with any 11 party to the litigation, counsel to the parties, or 12 other entity. Such form shall be attached to the 13 deposition transcript, I make the following 14 disclosure: I am a Georgia Certified Court 15 Reporter. I am here as a representative of Planet 16 Depos. 17 Planet Depos, was 18 contacted to provide court reporting services for 19 the deposition. Planet Depos, will not be taking 20 this deposition under any contract that is 21 prohibited by O.C.G.A. 9-11-28(c). Planet Depos, 22 has no contract/agreement to provide reporting

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1 services with any party to the case, any counsel in	1 interested, financially or otherwise, in the outcome
2 the case, or any reporter or reporting agency from	2 of this matter.
3 whom a referral might have been made to cover this	3 IN WITNESS WHEREOF, I have hereunto set my hand
4 deposition. Planet Depos, will charge its usual	4 this 17th day of September 2024.
5 and customary rates to all parties in the case, and	5
6 a financial discount will not be given to any party	6 <u>Susan DiFilippantonio</u>
7 to this litigation.	7 Susan DiFilippantonio, Notary Public
8 <u>Susan DiFilippantonio</u>	8 and Registered Professional Reporter
9	9 Commission Expires 10-22-2028
10 Susan DiFilippantonio, Notary Public	10 Georgia Certificate Number 2125
11 and Registered Professional Reporter	11
12 Commission Expires 10-22-2028	12
13 Georgia Certificate Number 2125	13
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1 STATE OF GEORGIA:	1 CAPTION
2 COUNTY OF FULTON:	2 The Deposition of JASON A. JANET, PH.D., taken in
3	3 the matter, on the date, and at the time and place set
4 I, Susan DiFilippantonio, Certified Court	4 out on the title page hereof.
5 Reporter and Notary Public within and for the	5 It was requested that the deposition be taken by
6 State of Georgia, do hereby certify:	6 the reporter and that same be reduced to typewritten
7 That JASON A. JANET, PH.D., the witness whose	7 form.
8 remote deposition is hereinbefore set forth, was	8 It was agreed by and between counsel and the
9 duly sworn by me before the commencement of such	9 parties that the Deponent will read and sign the
10 deposition, and that such deposition was taken	10 transcript of said deposition.
11 before me and is a true record of the testimony	11
12 given by such witness.	12
13 I further certify that the adverse party,	13
14 OUSTER, INC., was represented by counsel at the	14
15 deposition.	15
16 I further certify that the remote deposition of	16
17 JASON A. JANET, PH.D. occurred on Friday, September 13,	17
18 2024, commencing at 10:58 a.m. to 2:26 p.m.	18
19 I further certify that I am not related to any	19
20 of the parties to this action by blood or marriage,	20
21 I am not employed by or an attorney to any of the	21
22 parties to this action, and that I am in no way	22

Transcript of Jason A. Janet, Ph.D.
Conducted on September 13, 2024

24 (93 to 96)

93 1 CERTIFICATE OF REPORTER 2 STATE OF GEORGIA 3 COUNTY OF FULTON 4 Before me, this day, personally appeared, JASON A. 5 JANET, PH.D., who, being duly sworn, states that the 6 foregoing transcript of his deposition, taken in the 7 matter, on the date, and at the time and place set out 8 on the title page hereof, constitutes a true and 9 accurate transcript of said deposition. 10 11 *If no changes need to be made on the following two 12 pages, place a check here _____, and return only this 13 signed page.* 14 15 16 17 18 19 20 21 22	95 1 Reason for Change: _____ Page No. _____ Line No. _____ 2 Should read: _____ 3 Reason for Change: _____ 4 Page No. _____ Line No. _____ Should read: _____ 5 Reason for Change: _____ 6 Page No. _____ Line No. _____ Should read: _____ 7 8 Reason for Change: _____ 9 SIGNATURE OF DEPONENT 10 _____ 11 JASON A. JANET, PH.D. 12 Sworn to and subscribed before me 13 this _____ day of _____, _____. 14 15 16 17 18 19 20 21 22
94 1 DEPOSITION ERRATA SHEET 2 Assignment No. 552839 3 Case Caption: HESAI TECHNOLOGY CO., LTD. -vs- OUSTER, 4 INC. 5 Witness: JASON A. JANET, PH.D. 6 DECLARATION UNDER PENALTY OF PERJURY I declare 7 under penalty of perjury that I have read the entire 8 transcript of my deposition taken in the captioned 9 matter or the same has been read to me, and the same is 10 true and accurate, save and except for changes and/or 11 corrections, if any, as indicated by me on the 12 DEPOSITION ERRATA SHEET hereof, with the understanding 13 that I offer these changes as if still under oath. 14 _____ There are no changes noted. 15 _____ The following changes are noted: 16 Page No. _____ Line No. _____ Should read: _____ 17 _____ 18 Reason for Change: _____ Page No. _____ Line No. _____ 19 Should read: _____ 20 _____ Reason for Change: _____ 21 Page No. _____ Line No. _____ Should read: _____ 22 _____	

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