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Transcript of Carl Meinhart, Ph.D.

Date: September 5, 2024

Case: SharkNinja Operating, LLC, et al. -v- Dyson, Inc., et al. (1:23-CV-11277-ADB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

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[REDACTED]

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[illegible][illegible]

14 Q Did you see any prior art patents that
15 their structure necessarily used the Coanda Effect
16 for automatically wrapping hair?

17 A So in order to understand if their
18 structure did utilize the Coanda Effect, what I
19 would need to do is analyze it, and I didn't
20 analyze individual -- individual patents.

21 What I did was I took combina -- I took
22 prototypes that were built from combinations of
23 patents, so I didn't analyze like one specific
24 one, like, say, Saito or Lindsey, and then

Conducted on September 5, 2024

157 1 reproduce their structure with their structural 2 limitations and see if that practices the Coanda 3 Effect. I did not do that, but it would take 4 analysis because you would have to do 5 experimentation as well as perhaps CFD to simulate 6 it, so I couldn't tell you. 7 I can only tell you what I put in my 8 report, which I took two patents together and then 9 had this device, and then I can tell you that they 10 did practice the Coanda Effect, but I did not do 11 the analysis on individual patents, so I can't 12 tell you. 13 Q Did you bring those prototypes with you? 14 A I did. 15 Q Okay. Do you have the Lindsey -- the 16 Lindsey-Saito prototype? 17 A I do. 18 Q Can you put it up there in front of the 19 camera, please? 20 A Yes. 21 Q What happens if you push on opposite ends 22 of that thing? 23 A This one? 24 Q Yes.	159 1 little bit -- it is a -- this material is bowed 2 out a little bit, just from handling and things 3 like that, but it doesn't have a prescribed bolus 4 in it. It is more of a cylindrical shape. 5 Q Does it have the post that runs down the 6 middle of it like Saito does? 7 A This particular prototype -- this 8 particular prototype does not have a post in the 9 middle of it. It is open in the middle. 10 Q Now, you said your prototype bows out a 11 little bit on the sides, right? 12 A I don't think that it was designed that 13 way. I think that it is just from being round and 14 things like that that it is deformed a little. 15 Q Okay. So it is not cylindrical under your 16 definition, correct? 17 A This one I would say is cylindrical, and 18 cylindrical when I tested it. I would say that 19 there is slight imperfections in it from handling 20 it after it was tested. 21 Q As it is in your hands right now, it is 22 not cylindrical under your definition because it 23 bows out on the sides, right? 24 A There is a small amount of bowing. It
158 1 A Nothing. If I push too far, it will 2 buckle. 3 Q So you can't -- you can't compress that 4 and force it to bow out like Saito; is that 5 correct? 6 A Like a bolus, no, that -- no, it is not -- 7 and that is really a function of the material, not 8 the structure. 9 Q You didn't build a structure that when you 10 compress it, it actually bows out, correct? 11 A If you -- if this was 3D printed from a 12 different material, it could bow out, yes. 13 Q I'm not asking about if. I'm asking about 14 the prototype you made. The prototype you made 15 will not compress the way Saito does, does it? 16 A This specific prototype with the 3D 17 materials that it is printed with, the plastics, 18 will not -- it is not flexible to bow out, but 19 that is a function of the material more than the 20 structure. 21 Q Okay. Does it have a bolus in it the way 22 that Saito does, your prototype? 23 A This one -- this one is a constant 24 diameter, or roughly constant diameter. It is a	160 1 is -- it depends upon how -- it depends on what 2 your degree of cylinder is. So there is some 3 natural deformation in it, but it is -- it is 4 cylindrical in shape. It is definitely generally 5 cylindrical. 6 Q It is generally cylindrical. I'm asking 7 you, is it cylindrical since it bows out? 8 A I would say it was cylindrical before it 9 was deformed, yeah, so it is not cylindrical right 10 now, but it was cylindrical before I traveled with 11 it and -- and -- 12 Q Do you have a prototype with you of that 13 combination that is cylindrical? 14 A It was cylindrical when I tested it. 15 Q I'm not asking that. Do you have a 16 prototype right now that is cylindrical as you 17 define it? 18 A I have -- the prototype -- this particular 19 prototype is the only Saito-Lindsey combination 20 prototype that I have, and it is generally 21 cylindrical. It is -- it is not perfectly 22 cylindrical, and -- but it is generally 23 cylindrical. So with the Dyson definition, it is 24 cylindrical, in my opinion.

Conducted on September 5, 2024

1 Q Whose idea was it to make a Dyson -- 2 Dyson -- I'm sorry, strike that. 3 Whose idea was it to make a Saito-Lindsey 4 prototype? 5 A I'm not sure. 6 Q Not yours, right? 7 A I did not personally make this, that's 8 correct. 9 Q Who made it? 10 A I don't know. 11 Q Who designed it? 12 A That I don't know. 13 Q Who selected which aspects of Saito and 14 Lindsey would end up in the prototype? 15 A That I don't know. 16 Q How did you get ahold of the prototype? 17 A I was sent it by counsel. 18 Q So Shark's lawyers got a prototype from 19 somewhere, and they sent it to you, right? 20 A Yes. 21 Q And what did you do to confirm what 22 changes had been made to Saito or Lindsey in the 23 prototype? 24 A Yeah, a couple of things. One is I	161 1 Q Do you recall the pending question? 2 A Yeah, it's what were the modifications for 3 the Saito-Lindsey combination of the prototype, so 4 I'm going through my report looking for it. 5 Q How about page 90, paragraph 210? 6 A 90, I was in a different section, so thank 7 you. 8 Q Do you recall the pending question? 9 A Yes. What were the changes that were made 10 between the Saito-Lindsey combination to make the 11 prototype, and so I'm -- so I'm reading paragraph 12 210 right now so I can answer that. (Reviewing 13 document.) 14 Q Can you answer the question based on 15 paragraph 210? 16 A Yes, I'm reading the paragraph right now. 17 I was in the wrong section before. Okay, yeah. 18 So if you read paragraph 210, what it says 19 is the model approximates the shape that would be 20 created by viewing Lindsey's Figure 9, which is 21 shown above, right, which shows the different jets 22 coming out on that surface, extruding it to form a 23 cylindrical attachment, right? So that is -- that 24 is a natural thing to do, and we do that in
162 1 visually looked at it, and then also I received 2 the CAD file for it, and then I looked at the CAD 3 file and analyzed it. And I looked at the 4 cross-sections of it, and so I could see what the 5 geometry looked like and I put that in my report 6 and then confirmed it with the Saito-Lindsey 7 references. 8 Q Who created the CAD files for the 9 Saito-Lindsey prototype that you tested? 10 A That I do not know. 11 Q And how did that person decide on the 12 contact shapes incorporated into the Saito-Lindsey 13 prototype that you tested? 14 A I don't know, but -- but it agrees -- it 15 corresponds to features that are taught by 16 Saito-Lindsey, and they -- with minor 17 modifications which I explain in my report. So it 18 has been detailed in my report, but I didn't 19 personally do it. 20 Q How many minor modifications were there? 21 A Well, we can look at it in the report if 22 you would like. I lay it out in the report. 23 Q Tell me how many modifications were made. 24 A Okay, let's go to the report.	164 1 mechanical engineering all the time. We take a 2D 2 object, extrude it out. 3 And then two minor modifications to the 4 vanes themselves. So one is give the vanes a 5 slight curvature, like slightly curve the surface, 6 and then the second is the edges of the vanes were 7 slightly extended in order to decrease the width 8 of the gap slots formed between each vane. Both 9 these modifications would have been obvious to one 10 skilled in the art. 11 So it is extruded, right, to give it three 12 dimensions, and then the vanes were slightly 13 curved, and then the vanes are slightly extended 14 to decrease the width of the gap. 15 Q And those were the only modifications that 16 were made to the combination? 17 A Those were the primary ones and, of 18 course, and then it is open on the inside, as 19 well, so those -- those are the primary 20 modifications that I see. 21 Q Were there any other modifications made to 22 Lindsey's vanes in the model? 23 A I don't believe so. I think those were 24 the primary modifications. Those were the major

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IPR2024-00993 - Dyson

Ex. 2077 - Page 4

Conducted on September 5, 2024

165 1 ones that I noted. Maybe there are some very 2 minor things, but the major ones we just 3 discussed. 4 Q Saito shows bristles, right? 5 A Yes. 6 Q And Lindsey shows bristles, right? 7 A Yes. 8 Q And the bristles -- 9 A But -- sorry, go ahead. 10 Q The bristles in Lindsey are connected to 11 the vane, to the -- to the vanes, right? 12 A Lindsey shows bristles, and he also shows 13 certain vanes that don't have bristles. So there 14 is bristles, and then there is regions where there 15 is no bristles. 16 Q Which figure of Lindsey is intended to say 17 that there is no bristles? 18 A I'm looking at Figure 11, and I didn't 19 say -- 20 Q You don't see bristles on Figure 11? 21 A Yeah, to be clear, Figure 11 shows 22 regions -- I'm not saying that Lindsey is teaching 23 no bristles. I'm just saying Figure 11, when you 24 look at it, there are parts of the vanes that	167 1 bristles, we would have to look at Lindsey to know 2 for sure. I mean, I'd have to review that real 3 quickly, but the figure itself shows bristles and 4 shows regions without bristles. So Lindsey 5 clearly discloses bristles. And that figure, 6 maybe it's for illustrative purposes, but it also 7 shows no bristles. 8 So a POSA looking at the figure and sees 9 no bristles, they might say, oh, maybe you don't 10 need all the bristles. 11 Q They might say that or they would say 12 that? 13 A They could say that. 14 Q I'm not asking what could happen. I'm 15 asking what would happen. Would a person of skill 16 in the art know to remove the bristles from 17 Lindsey? 18 A I think they would. If they saw that 19 figure, I think -- 20 Q What would you suggest to the person of 21 skill in the art to remove the bristles from 22 Lindsey? 23 A Looking at Figure 11 and seeing it without 24 bristles, part of it without bristles, they might
166 1 don't have bristles just depicted in the picture. 2 Q And those are depicted that way so that 3 you can see the shape of the vanes, but not to 4 suggest that the whole thing doesn't have bristles 5 on it, right? 6 MR. BUROKER: Objection, vague. 7 A I would have to review Lindsey to know for 8 sure. I'm just looking at the figure, and the 9 figure on its own. And I see the figure on its 10 own, there are regions that don't show bristles. 11 And if we want to go into Lindsey and see where he 12 explains why he is not showing bristles, we can do 13 that. 14 Q Who decided to make these minor 15 modifications to Lindsey's vanes? 16 A I am not sure. 17 Q Another modification was that there is no 18 bristles on the vanes, correct? 19 A Well, as you see on that picture, that 20 Figure 11, it does show parts where there is 21 bristles, parts where there is not bristles. 22 Q Do you know -- 23 A Yeah, and so to confirm that Lindsey is 24 teaching -- teaching bristles and away from no	168 1 think, oh, well, I don't need bristles on every 2 vane, and then like, oh, if I don't need bristles 3 in every vane, maybe I don't need bristles at all, 4 and -- and so that would motivate someone. 5 Now, whether Lindsey is -- in the text is 6 teaching that is one thing, but if a POSA is 7 looking at the figure, you know, they would -- it 8 would pop in their head, oh, I don't need 9 bristles. 10 I mean, I have done that all the time. 11 I've looked at figures in my career and -- without 12 reading the caption and getting ideas from it 13 and -- and, oh, it is natural not to have the 14 bristles. 15 Q So you see in Lindsey Figure 11 it has 16 holes in the vanes. Do you see those? 17 A I do. 18 Q Okay. Was that another modification to 19 the vanes that was made between Lindsey and your 20 model? 21 A So those holes look like Element 22, so we 22 should go to Lindsey and the written description 23 of this figure and then we can analyze together 24 what -- definitely explain what -- what Lindsey

Conducted on September 5, 2024

169 1 is doing with those holes. 2 Q Did you analyze what Lindsey is doing with 3 those holes as part of your work on this case? 4 A Well, first of all, I don't know if 5 they're holes. They're circular marks on the -- 6 on the vane. To determine whether they're holes 7 or not, I think we would want to look at the 8 specification of Lindsey. 9 As I sit here today, I don't recall what 10 Item 22 of Lindsey is, if that is a hole or if 11 that is just some marking for a particular reason. 12 Q What else could it be if it weren't holes? 13 A Well, we could look at the Lindsey 14 reference and find out. 15 Q Do you have the Lindsey reference there 16 with you? 17 A I do. 18 Q Okay. Tell me what the holes are on 19 Figure 11, those round things if they're not 20 holes. 21 A I didn't say they weren't holes. I'm just 22 saying let's look to see what they are. 23 Q You know, it is strange, I thought you 24 were the expert on Lindsey. You don't know	171 1 Q Tell me what Item 22 in Lindsey is. 2 A Okay. Thank you. (Reviewing document.) 3 So Item 22 is prongs. 4 Q Okay. 5 A And I believe Item 58 is holes, and then 6 there is a -- the gap between the vanes as well. 7 So -- yeah, so the modification would be -- yeah, 8 to -- that would be obvious for a POSITA to see 9 that the -- as this figure is written, there is 10 bristles in some places and no bristles in other 11 places, but yet there is still the circles that 12 signify the bristles. 13 Also, what you notice is that the holes 14 are not actually all the way through, right? So 15 they're not really through holes the way they're 16 drawn, and that just might be an artistic thing. 17 But as a POSA, when I look at a figure, 18 the figure at first glance, without studying the 19 text in detail, at first glance, when you look at 20 the figure, you see there is no bristles. And so 21 without knowing why the bristles are not there, it 22 naturally would pop in your mind, well, maybe you 23 don't need them for this, or maybe you just need 24 them on the sides like they're shown. That --
170 1 whether Lindsey has holes or not? 2 A I have reviewed -- 3 MR. BUROKER: Objection, move to strike as 4 argumentative. 5 A I have looked at hundreds of documents. 6 My reports are 500 pages roughly. There is a lot 7 of material here, and I just ask for your patience 8 that I can review materials that are in my report 9 such that I can properly answer your questions. 10 It is -- it is hard to keep all of this 11 stuff in the head, and it is not a memory test. 12 This is -- this is a test -- this is a testimony 13 of what is in my report, and I'm happy to give 14 that to you, but I need to review the documents to 15 answer your questions. 16 Q You can review the documents. 17 Does your report anywhere consider whether 18 holes had to be removed from Lindsey's vanes in 19 order to make your model? 20 A I would have to look. Which one do you 21 want me to do first? Do you want me to look at 22 Lindsey's first and see what Lindsey is calling 23 Item 22, or do you want me to search my report for 24 holes and whether I --	172 1 that is -- that is -- as a POSA, that is what -- 2 that is what I would see. 3 And then the through -- the holes are not 4 drawn through, so they also just look like circles 5 on the surface. 6 So -- so yes, so I think it is natural for 7 a POSA to -- to not have bristles on it, because 8 that figure shows regions that don't have 9 bristles, but that might just be an artifact of 10 the illustration, but it can give you ideas. 11 Q Okay. So one modification that was made 12 to Lindsey's vanes was to get rid of the bristles, 13 right? 14 A Yeah. We're not having -- yeah, not have 15 them because he also doesn't have them everywhere, 16 as it is shown. 17 Q As described in the patent, it does have 18 it everywhere. All you have to do is look up what 19 Item 22 is, and then you know that he is 20 describing bristles everywhere, right? 21 A Yeah. You have to dig into it like we did 22 just now. 23 Q Okay. So one modification that has to be 24 made to the device described in Lindsey is to get

Conducted on September 5, 2024

1 rid of the bristles, correct, in order to make 2 your model? 3 A Yeah. I did not put bristles -- yeah, 4 there is no bristles on this model, that's 5 correct. 6 Q And whoever made that model, which wasn't 7 you, didn't put the bristles on there, right? 8 A Yes, that's correct. 9 Q And that change is not noted in your 10 report anywhere, is it? 11 A I would have to go through the report to 12 make sure it is not noted there. It may be. 13 Q Well, we looked at paragraph 210, which is 14 where you noted the two minor modifications. You 15 don't note any other minor modifications, do you? 16 A Yes. So 210 talks about those two minor 17 modifications, and then there is additional 18 paragraphs that explain why someone would do those 19 modifications. There is no talk of bristles in 20 paragraph 210 for sure. 21 Q Show me where in your report you explain 22 why a person of skill in the art would remove the 23 bristles from Lindsey in order to make your model. 24 A Okay. I will have to review the section	173 1 Q The bristle base comes from Saito, 2 correct? 3 A And this is a Saito-Lindsey combination. 4 Q Okay. The bristle base you're discussing 5 in paragraph 177 comes from Saito, correct? 6 A Yes. 7 Q Okay. Where in your report does it say to 8 remove the bristles from the Lindsey vanes? 9 A Yeah, that -- I don't see that -- 10 Q Okay. 11 A -- in my report. 12 Q Where in your report does it say to remove 13 the holes from the Lindsey vanes? 14 A Well, again, so if you look at Figure 11, 15 you know, like we talked about a POSA would 16 realize that they would see that illustration as 17 it is and -- and think that there shouldn't be -- 18 that there don't necessarily have to be bristles 19 there. 20 The other thing is that the holes, they're 21 relatively small holes compared to the gaps, like 22 the Gaps G. 23 And so while Lindsey teaches that those 24 holes can be put there to let more air flow out,
174 1 to -- to -- to show a negative -- to show that I 2 don't say it, but I can -- I will look for it. 3 Q While you are looking for it, please look 4 for where you say to remove the holes too. 5 A (Reviewing document.) 6 Q Mr. Meinhart, do you remember the pending 7 question? 8 A Yes, I do, thank you. Yeah, I'm ready to 9 answer it. 10 So on paragraph 177 -- so I had to read 11 quite a bit. 12 On paragraph 177, I'm talking about the 13 Saito-Lindsey mockup. You will see in the picture 14 above it. It says: In my opinion, as shown in 15 the photos of the mockup above, the modification 16 of Saito's attachment uses an array of vanes as 17 taught by Lindsey in place of the bristle base, 18 which would have resulted in a cylindrical 19 attachment with slotted-shaped outlets formed 20 between the pair of adjacent vanes. So in my 21 opinion, that element is rendered obvious under 22 the combination. 23 So -- so that is where I discuss removing 24 a bristle base.	175 1 the -- it is clear that the main air flow out of 2 this thing is the vanes. 3 And so -- so you would have to -- so you 4 could remove the holes, and it would modify the 5 air flow through the vanes slightly, but I don't 6 see in my report where I explicitly explain that 7 except in using Figure 11. 8 Q Your report doesn't discuss anywhere 9 removing the holes from the Lindsey vanes or why a 10 person of skill would do that, does it? 11 A I don't see it explicitly in this section. 12 Q All right. Let's look at the image at the 13 top of page 84. It is a CAD model. 14 A Okay. 15 Q This is a CAD model of the combination of 16 Saito and Lindsey, correct? 17 A That is correct. 18 Q And this is the one you relied on? 19 A Yes. 20 Q This shows the vanes overlapping one 21 another, doesn't it? 22 A It does. 23 Q Okay. That is another modification that 24 had to be made to Lindsey in order to make this

Conducted on September 5, 2024

177 1 thing work was to have the vanes overlapping each 2 other, right? 3 A Well, so we did the two -- the two 4 changes, making the vanes slightly curved, and 5 then extending them. And when you do that, when 6 you curve them and extend them, they naturally 7 overlap. 8 Q Well, that is not quite true, is it? So 9 if I look at Figure 11, which we were looking at 10 Lindsey Figure 11 on page 93 of your report, I 11 could make those vanes slightly wider and they 12 wouldn't overlap, would they? 13 MR. BUROKER: Objection, vague. 14 A Well, I think they would, and it is hard 15 to see from that. But if you look at the 16 cross-section of Figure 9, which is the 17 cross-section of Lindsey, which he puts in there 18 to illustrate, you know, what it looks like and 19 what is happening. 20 So it is clear from Figure 9 that if you 21 extend them out and curve them, they will 22 inherently overlap, right? 23 It is a little harder to see that from the 24 illustration. I think that is more of the	179 1 A That I can't tell you without -- without 2 doing a comparison. I'm sorry, I just don't know. 3 Q Where in your report do you discuss the 4 fact that the vanes are made to overlap, and that 5 a person of ordinary skill would find that overlap 6 obvious? 7 A Yeah, so that is a -- that was a natural 8 consequence of extending the vanes and putting 9 curvature that caused them to overlap. It also 10 caused the gap to be smaller. That is the natural 11 consequence of it. I don't know whether I 12 discussed the overlapping, per se. 13 Q Your report doesn't actually discuss the 14 overlapping of the vanes in your model, does it? 15 A I would have to read it. So far what I've 16 reviewed, I haven't seen that, but I would have to 17 review it with that eye to see if I discuss the 18 overlap of it. But it's a natural consequence of 19 extending and curving it, that I can tell you. 20 Q But it is not discussed in your report, 21 right? 22 A Say again. 23 Q But it is not discussed in your report, 24 that overlap?
178 1 artifact of the 3D illustration, but the 2D 2 illustration makes it quite clear. 3 Q Was the overlap of the vanes in the 4 modified Saito-Lindsey combination important in 5 order to make it work for its intended purpose? 6 MR. BUROKER: Objection, vague. 7 A So in order -- so your question says, was 8 the overlap required to make it work. And so in 9 order for me to analyze that, I would need to have 10 two prototypes, one where they don't overlap, one 11 where they do overlap, and then test them 12 individually as well as the CFD simulations on 13 them, and then I could tell you. 14 All I can tell you is that the model that 15 I did use, this prototype, when I tested it and 16 when I did CFD on it, it tended to cause hair to 17 wrap. 18 Q But you didn't make that model, right? 19 A I did not make this model, that's correct. 20 I analyzed it, but I did not make it. 21 Q I didn't ask you if the -- if the overlap 22 was necessary. I asked you whether the overlap 23 was important. So is the overlap of the vanes 24 important in order to make the hair wrap?	180 1 A Well, the overlap is illustrated in my 2 report. I don't know if it -- I honestly I can't 3 tell you if it is explicitly discussed. 4 Q Let's go back to that same image on the 5 top of page 84. You see how each one of those 6 vanes is kind of T-shaped, it has got a rib that 7 runs down the middle of it? 8 A Yes. 9 Q What is the purpose of that rib? 10 A I'm not sure. 11 Q Who decided to add that rib to Lindsey's 12 vanes? 13 A That I cannot tell you. 14 Q Where in your report do you discuss that 15 Lindsey's ribs have been modified to include that 16 rib? 17 A Well, Lindsey shows a rib. 18 Q Does it? Where? 19 A Yeah. It appears to me Figure 9, if you 20 look at Figure 9, you look at the cross -- the 21 hatch cross-sections, it looks like there's a rib. 22 Q That is some sort of a attachment 23 mechanism for the vane to the underlying 24 superstructure, right?

Conducted on September 5, 2024

181 1 A Again, I would have to refresh my memory 2 on this exact figure, but to me it looks like a 3 structural component that has -- it's rib shaped. 4 Now, exactly its function in Lindsey and 5 why he put it there, I would have to review the 6 specification, but -- but just looking, as I sit 7 here today on Figure 9, it looks like there is a 8 rib. 9 Q The rib has been modified in shape between 10 Lindsey and the vanes in the model shown in the 11 CAD diagram on the top of page 84, right? 12 A The rib in Figure 9 of Lindsey is 13 illustrative. It is not dimensioned. It is an 14 illustrative embodiment, and so it has a rib, and 15 that rib looks quite similar to me to the CAD -- 16 the CAD model and rib. 17 The dimensions might be slightly different 18 and may be shifted slightly, but the figure is 19 illustrative, and so the element is there in both 20 figures. They might be slightly different 21 dimensions, but Lindsey didn't provide dimensions. 22 Q Your report doesn't discuss the different 23 shape or dimensions of the rib on the vanes of 24 Lindsey that had to be made in order to make your	183 1 Q Okay. And what do the little arrows 2 represent? 3 A So -- so the colors going from -- from 4 blue to red represent velocity magnitude, right? 5 And so red is -- the dark red is about 36 meters 6 per second. The black lines that you see with the 7 arrows, those black lines represent stream lines, 8 and stream lines are everywhere tangential to the 9 flow field, to the velocity field. 10 So under steady flow, those stream lines 11 tell you where little tiny particles of fluid 12 would move during -- during the normal course of 13 operation. 14 And then those arrows, those black arrows 15 tell you the direction of the movement, so then 16 that way we're oriented that the flow basically 17 moves from left to right. 18 Q So in layman's terms, the lines show you 19 the direction that the air is moving, or the path 20 that the air is moving, and the arrows show the 21 direction along that path that the air is moving, 22 right? 23 A That is correct, and the -- and the color 24 tells you the magnitude of how fast they're
182 1 mockup, does it? 2 A My report does not discuss the dimensions, 3 but it displays the dimensions. So if you look at 4 the top figure on page 84, you will see X axis, Y 5 axis in millimeters, and you will see, it looks 6 like graph paper with divisions every -- what is 7 it, every millimeter. And so -- so it is quite -- 8 so I didn't fully disclose the dimensions that 9 were used. 10 Now, in Lindsey, I don't believe that 11 figure discloses specific dimensions, so -- so 12 they had to be some dimension, right? So it 13 wasn't modified. It was similar in shape to 14 Lindsey, and the dimensions -- Lindsey doesn't 15 disclose them, but to have a physical mockup, you 16 have to have some dimensions. And so 17 proportionality they look -- they look quite 18 similar proportionally, so... 19 Q Look at the diagram on page 85 under 20 paragraph 205. This is a CFD diagram, correct? 21 A On 85? 22 Q Yes. 23 A Yeah, it is a -- it is a velocity field 24 from results of CFD.	184 1 moving. 2 Q All right. So if we look at the image on 3 page 85, the airflow moves mostly up the diagram 4 until it hits that overlap, and then it takes a 5 sharp right turn and is pushed out right and 6 tangential along the surface of the next plate, 7 correct? 8 A Yeah, it -- it comes up and then it hits 9 that top plate, curves around, and exits in I 10 would say at a slight angle, right? 11 So if you read my review of the Coanda 12 Effect, one of the parameters is that angle, 13 right? So if you have a cylinder down here, you 14 have an angle, and that angle, if it is pointed up 15 this way, it may be harder to do the Coanda 16 Effect. If it is pointed down, it is easier. If 17 it is completely tangential or horizontal, then 18 that is another Reynolds number that is required. 19 Here is what happens, it looks like the 20 flow is slightly up, right? As we go slightly up, 21 it hits that top, and then you will notice the 22 stream lines curve, and when the stream lines 23 curve, it curves back down and reattaches to 24 the -- to that external surface. And that is the

Conducted on September 5, 2024

185 1 Coanda Effect that is causing it to -- to bend 2 down and reattach. 3 Q And the right turn of that airflow is 4 being caused by the overlap between the two 5 adjacent plates, right? 6 A Yeah. What is happening -- it's a 7 combination of, you know, you will -- I wish I 8 could draw on the screen, but it is a combination 9 of the bottom surface and the top surface. 10 And so what is happening is the flow is 11 coming up vertically. It has momentum. It hits 12 that top, which creates a high pressure region and 13 causes the stream lines to curve, so that stream 14 line -- the first stream line curving is the 15 combination of the top and the bottom changing its 16 direction. 17 And then it exits out, and then it changes 18 direction again due to the Coanda Effect. 19 Q So that overlap is really critical to 20 getting the air to move and exit that slot to the 21 right, correct? 22 MR. BUROKER: Objection, vague. 23 A Well, the overlap has an effect. Now, if 24 you were to pull this out and not have it	187 1 top one because it can't go through, right? It is 2 impenetrable. 3 So that is the dominant thing that causes 4 it to change. The bottom one helps a little bit, 5 but it is the top one that really -- 6 Q And the overlap that we see in the figure 7 in paragraph 205, that is exactly like the overlap 8 that is taught in the '979 patent, right? 9 MR. BUROKER: Objection, vague. 10 A I wouldn't say that. I mean, we can talk 11 about the claim in the '979 patent, if you like, 12 we can talk about that claim. 13 Q I'm talking about figures in the '979 14 patent. That overlap is just the same as the 15 overlap that is taught in the '979 patent, right? 16 A Let's take a look. 17 MR. BUROKER: Objection, vague. 18 And when we get to a stopping point, we're 19 almost at two hours since our last break, I would 20 appreciate a bio break, but you can finish this 21 question. 22 A Okay. I drank plenty of coffee today in 23 preparation for this deposition, so -- okay. 24 Let's look at it. So look at Figure 5B of
186 1 overlapping, then the question is how much effect 2 would it have. 3 You know. That is something that I would 4 need to do analysis on. Both of them matter. The 5 dominant one is the top one, so if it was slightly 6 out, it would -- if one went over like that, it 7 would still -- it would still do that curve 8 because it can't go through the top wall, right? 9 And -- and then -- but maybe it doesn't 10 curve quite as much. You know, there might be 11 some minor modifications as you change that 12 overlap, but we would need to do a comparison 13 to -- to assess that. 14 Q So this model could work without the 15 overlap, is that what you are saying? 16 A I would need to test it to know for sure. 17 It would -- it would change slightly. It probably 18 would work just fine without the overlap, but I 19 would -- in order to testify affirmatively, I 20 would need to do the simulations. 21 Q Okay. And the dominant vane is the upper 22 one you said? 23 A Oh, yeah. So the part -- the dominant 24 part that causes it as it is ejecting up is the	188 1 the patent, right? Is that -- that the figure you 2 are referring to? 3 Q It is. 4 A Okay, yeah, and so there is an overlap 5 there. The flow is going out the other direction, 6 right, and -- and there is an overlap. 7 Now, there are differences between these 8 two things. So one difference that pops up 9 immediately is that Figure 5B, the bottom plate is 10 filleted. It's a smooth -- has smooth edges. 11 This one -- this figure has sharp edges, 12 so it is not -- it doesn't have the same fillets 13 in it. There is no dimensions in 5B, so I can't 14 confirm Reynolds number, I can't confirm 15 dimensions, I can't confirm gaps, I can't confirm 16 curvatures, things like that. 17 So there is a lot of -- there is some 18 similarities, and then there is some structural 19 differences, and then the dimensions could be 20 quite different as well because the Figure 5B, as 21 I recall, doesn't teach specific dimensions. 22 Q How do you know that the person that made 23 the Saito-Lindsey model didn't put the overlap in 24 with hindsight reconstruction from the '979

Conducted on September 5, 2024

1 patent? 2 A Well, as we talked about, I'm not the one 3 who did it, but as a POSA, I can see how -- I 4 think it is natural to do it without hindsight. 5 You don't need hindsight for that overlap. If you 6 just extend it out and curve it, that overlap just 7 happens naturally. It is not something that 8 requires hindsight whatsoever. 9 Q Do you know for sure that the person who 10 made the model didn't use hindsight in order to 11 come up with the idea for the overlap? 12 A As I said, I don't know who did the model, 13 so I don't know what their actions are. I can 14 only tell you my opinion as -- through the eyes of 15 the POSITA, what I see. 16 MR. STEADMAN: Let's take a break. 17 THE WITNESS: Okay, thank you. What time 18 should we come back? 19 MR. STEADMAN: Five minutes is good enough 20 for me, but whatever you need. 21 THE WITNESS: Let's do 10. 22 VIDEOGRAPHER: Off the record at 5:20 p.m. 23 (Recess, 5:20 to 5:28 p.m.) 24 VIDEOGRAPHER: Back on record, 5:28 p.m.	189 1 one was which and what it was supposed to 2 represent, right? 3 A Yes. 4 Q What else did they tell you about the 5 models? 6 A That is about it. Yeah, that is about it, 7 and then I got a -- the Shark wand and I started 8 doing an analysis like I have done for fluid 9 mechanics for 35 years, started looking at them 10 and, you know, inspecting them and seeing how they 11 work and plugging them in and then doing CFD on 12 them, you know, all the tools that I have used and 13 developed over the years, I started looking at 14 them. 15 Q These models were not developed or created 16 at your instruction, were they? 17 A That's correct, they were not. 18 Q And did you discuss the models with 19 counsel after you got them? 20 A You cut out for just a second. Please 21 repeat. 22 Q Did you discuss the models with counsel 23 after you got them? 24 A Well, we had multiple privileged
189 1 Q When counsel handed you these mockup 2 models, how did you know what they were? 3 A Well, they didn't -- they were mailed -- 4 they were mailed to me. I don't -- I don't recall 5 exactly. 6 Q Did counsel tell you that it was supposed 7 to be a model of Saito combined with Lindsey? 8 A You know, I don't -- I don't remember the 9 conversation necessarily about when I figured out 10 this one belongs to one, this one belongs to that 11 one. 12 What I do remember is that they were 13 mailed to me, and -- and then I was looking at 14 these references and -- and then the CAD models as 15 well, the CAD models were emailed to me, and so I 16 started analyzing them and looking at them, and I 17 was able to figure it out. 18 I think the CAD models were analyzed -- 19 were labeled or they were -- or I got an email 20 saying, okay, this CAD model this means this, this 21 CAD model means this, and then I can put the two 22 together with the prototypes, but other details I 23 just don't remember. 24 Q So counsel is the one that told you which	190 1 conversations about the models, the results, 2 things like that. 3 Q Tell me what was in those conversations, 4 please. 5 MR. BUROKER: I'm not going to let you get 6 into that. That is work product. I instruct you 7 not to answer that. 8 Q Okay. So just so we don't waste a lot of 9 time, you're not going to tell me anything that 10 you discussed with counsel about these models that 11 they created and sent to you and told you were the 12 combinations of the various references; is that 13 right? 14 A That's correct. 15 [REDACTED] 16 [REDACTED] 17 [REDACTED] 18 [REDACTED] 19 [REDACTED] 20 [REDACTED] 21 [REDACTED] 22 [REDACTED] 23 [REDACTED] 24 [REDACTED] 191

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IPR2024-00993 - Dyson

Ex. 2077 - Page 11