

UNITED STATES INTERNATIONAL TRADE COMMISSION

In the Matter of:	)	Investigation No.
CERTAIN OUTDOOR AND SEMI-OUTDOOR	)	337-TA-1331
ELECTRONIC DISPLAYS, PRODUCTS	)	
CONTAINING SAME, AND COMPONENTS	)	
THEREOF	)	

CONDENSED TRANSCRIPT WITH KEYWORD INDEX

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838 1 UNITED STATES INTERNATIONAL TRADE COMMISSION 2 Washington, D.C. 3 BEFORE THE HONORABLE MONICA BHATTACHARYYA 4 Administrative Law Judge 6 In the Matter of:) Investigation No. 7 CERTAIN OUTDOOR AND SEMI-OUTDOOR) 337-TA-1331 8 ELECTRONIC DISPLAYS, PRODUCTS) 9 CONTAINING SAME, AND COMPONENTS) 10 THEREOF) 13 International Trade Commission 14 500 E Street, S.W. 15 Washington, D.C. 17 Thursday, June 29, 2023 19 EVIDENTIARY HEARING, VOLUME IV 21 The Hearing commenced in Courtroom A, pursuant to the 22 notice of the Judge, at 9:30 a.m. Eastern. 25 Reported by: Karen Brynteson, FAPR, RMR, CRR	840 1 APPEARANCES: (CONTINUED) 2 3 For Complainant (Continued): 4 CRAIG D. CANNON, ESQ. 5 ALTON L. ABSHER, III, ESQ. 6 ANDREA A. ANDERSON, ESQ. 7 JONATHAN E. HARRIS, ESQ. 8 Kilpatrick Townsend & Stockton LLP 9 1001 West Fourth Street 10 Winston-Salem, NC 27101 11 12 MATTHEW J. MEYER, ESQ. 13 Kilpatrick Townsend & Stockton LLP 14 1080 Marsh Road 15 Menlo Park, CA 94025 16 17 18 19 20 21 22 23 24 25
839 1 APPEARANCES: 2 3 For Complainant Manufacturing Resources International, 4 Inc.: 5 AARTI SHAH, ESQ. 6 Kilpatrick Townsend & Stockton LLP 7 1420 Fifth Avenue, Suite 3700 8 Washington, D.C. 20005 9 202-508-5800 10 11 DARIO A. MACHLEIDT, ESQ. 12 KATHLEEN R. GEYER, ESQ. 13 Kilpatrick Townsend & Stockton LLP 14 1420 Fifth Avenue, Suite 3700 15 Seattle, WA 98101 16 17 RUSSELL A. KORN, ESQ. 18 DAVID A. REED, ESQ. 19 MITCHELL G. STOCKWELL, ESQ. 20 Kilpatrick Townsend & Stockton LLP 21 1100 Peachtree Street NE, Suite 2800 22 Atlanta, GA 30309 23 24 25	841 1 APPEARANCES (Continued): 2 For Respondents Samsung Electronics Co., Ltd., Samsung 3 Electronics America, Inc., Samsung SDS Co. Ltd., and 4 Samsung SDS America, Inc.; Coates Signco Pty Limited and 5 Coates US Inc.; and Industrial Enclosures Corporation d/b/a 6 Palmer Digital Group: 7 PATRICK J. MCCARTHY, ESQ. 8 ANNAKA NAVA, ESQ. 9 JACQUELINE GENOVESE BOVA, ESQ. 10 JEREMY JONES, ESQ. 11 Goodwin Procter LLP 12 1900 N Street, N.W. 13 Washington, D.C. 20036 14 15 DARRYL M. WOO, ESQ. 16 Goodwin Procter LLP 17 Three Embarcadero Center 18 San Francisco, CA 94111 19 20 JESSE CHENG, ESQ. 21 ELIZABETH J. LOW, ESQ. 22 YOONA LEE, ESQ. 23 Goodwin Procter LLP 24 601 Marshall Street 25 Redwood City, CA 94063

842 1 APPEARANCES (Continued): 2 For Respondents (continued): 3 DOUGLAS J. KLINE, ESQ. 4 SRIKANTH K. REDDY, ESQ. 5 CHRISTIE L. LAROCHELLE, ESQ. 6 HARRISON GUNN, ESQ. 7 KARA GROGAN, ESQ. 8 Goodwin Procter LLP 9 100 Northern Avenue 10 Boston, MA 02210 11 12 NAOMI L. BIRBACH, ESQ. 13 CHRISTINE POTKAY, ESQ. 14 CHRISTINA DENISE GO, ESQ. 15 Goodwin Procter LLP 16 The New York Times Building 17 620 Eighth Avenue 18 New York, New York 10018 19 20 21 22 23 24 25	844 1 P R O C E E D I N G S 2 (9:30 a.m.) 3 JUDGE BHATTACHARYYA: Good morning. Please be 4 seated. 5 MS. GO: Good morning, Your Honor. We have a 6 housekeeping matter. 7 JUDGE BHATTACHARYYA: Okay. Yes. Please go 8 ahead. 9 MS. GO: My name is Denise Go on behalf of 10 Respondents, and with me I have the table of exhibits for 11 the direct examination of Sungsu Lee and Dean Neikirk, as 12 well as the table of exhibits for the cross-examination of 13 Himanshu Pokharna. May I please approach? 14 JUDGE BHATTACHARYYA: Yes, you may. Thank you. 15 Okay. So I'm going to formally admit the exhibits. I have 16 a table of exhibits entitled Direct Examination of Sungsu 17 Lee. It starts with Exhibit RPX-2 and goes to RX-1222C. 18 Are there any objection to admission of these 19 exhibits? 20 MS. ANDERSON: No objections, Your Honor. 21 JUDGE BHATTACHARYYA: Okay. Then those exhibits 22 are admitted. 23 (Exhibits, as submitted by counsel and reflected 24 in the attached index, were received into evidence.) 25 JUDGE BHATTACHARYYA: I also have a table of
843 1 ATTORNEY ADVISOR: 2 ALTON HARE, ESQ. 3 Attorney-Advisor 4 U.S. International Trade Commission 5 500 E Street, S.W. 6 Washington, D.C. 20436 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	845 1 exhibits for the direct examination of Dean Neikirk. It 2 starts with JX-159C. 3 MS. ANDERSON: No objections, Your Honor. 4 JUDGE BHATTACHARYYA: Okay. And just for the 5 record, it ends with RX-1516. And so those exhibits are 6 admitted with no objection. 7 (Exhibits, as submitted by counsel and reflected 8 in the attached index, were received into evidence.) 9 JUDGE BHATTACHARYYA: The next table of exhibits 10 is from the cross-examination of Himanshu Pokharna. Starts 11 with RX-0019 and ends with RX-0025. 12 Are there any objection to admission of these 13 exhibits? 14 MS. ANDERSON: No objections, Your Honor. 15 JUDGE BHATTACHARYYA: Those exhibits are 16 admitted. 17 (Exhibits, as submitted by counsel and reflected 18 in the attached index, were received into evidence.) 19 MS. ANDERSON: Good morning, Your Honor. 20 Complainant has two tables of exhibits, one for the 21 exhibits for admission from the direct examination of 22 Himanshu Pokharna, and one for Complainant's 23 cross-examination of Dr. Dean Neikirk. May I approach? 24 JUDGE BHATTACHARYYA: Yes, you may. Thank you. 25 I'll do them both at once. I have two tables of

846 1 exhibits before me, Complainant's Direct Examination of 2 Himanshu Pokharna, starts with Exhibit Number CX-29C, ends 3 with RX-1516; and another table of exhibits entitled 4 Complainant's Cross-Examination of Dr. Dean Neikirk, starts 5 with CX-1704C and ends with JX-213C. 6 Are there any objections to admission of these 7 exhibits? 8 MS. GO: No objections, Your Honor. 9 JUDGE BHATTACHARYYA: Okay. Then those exhibits 10 in those two tables are admitted. 11 (Exhibits, as submitted by counsel and reflected 12 in the attached index, were received into evidence.) 13 MS. ANDERSON: And, Your Honor, the parties 14 would like some clarification about the procedure for 15 entering exhibits for witnesses that go on Friday, so that 16 the parties have time to meet and confer, after the 17 witnesses take the stand and are cross-examined, regarding 18 which exhibits should be entered. 19 JUDGE BHATTACHARYYA: My preference is to finish 20 it all up on Friday. So, if necessary, we can take a 21 break -- 22 MS. ANDERSON: Okay. 23 JUDGE BHATTACHARYYA: -- after the last witness 24 and finish that up. If there's some large problem, we can 25 defer it to the next week, but I really prefer to finish it	848 1 Q. What is that? 2 A. It's a trade show for all types of digital 3 signage that is held or was held in Las Vegas. 4 Q. Sometimes we call that DSE, right? 5 A. That's correct. 6 Q. When was the DSE show in 2008? 7 A. It was at the end of February, 2008. 8 Q. Did you attend that show? 9 A. I did. 10 Q. Did Vertigo in general have a presence at that 11 show? 12 A. We had a small booth there, yes. 13 Q. Do you know whether MRI had a booth? 14 A. MRI also had a booth, yes. 15 Q. Did you spend time at the MRI booth at the 2008 16 Digital Signage Expo? 17 A. I did. 18 Q. Did Vertigo have any displays at its booth? 19 A. We had the Outdoor Promotions double display 20 wedge that we had developed. And that was on the MRI 21 booth, yes. 22 Q. How about at the Vertigo booth, was Vertigo 23 displaying any of its ideas or technology at its booth? 24 A. We had no product on the booth, but we did have 25 three scrolling display screens showing evidence of our
847 1 on Friday. 2 MS. ANDERSON: Thank you, Your Honor. 3 JUDGE BHATTACHARYYA: Thank you. 4 And we're on the public record, correct? 5 MR. KLINE: That's correct, Your Honor. I -- my 6 -- I expect this entire examination can stay on the public 7 record. 8 Whereupon-- 9 CHRISTOPHER BOLTON, 10 having been previously duly sworn/affirmed, was examined 11 and testified as follows: 12 DIRECT EXAMINATION -- Resumed 13 BY MR. KLINE: 14 Q. Good morning, Mr. Bolton. 15 A. Good morning. 16 Q. And again I'd just -- 17 THE REPORTER: Sorry, you have to put your 18 microphone on. Tap it on the side. 19 THE WITNESS: Good morning. 20 BY MR. KLINE: 21 Q. Yes, I can hear that. Thank you very much, 22 Mr. Bolton. 23 Picking up where we left off at the end of 24 yesterday, are you familiar with the Digital Signage Expo? 25 A. I am.	849 1 history and conceptual designs. 2 Q. And if we could call up, Mr. Smith, RX-0762. 3 It's in your binder, but if it's more 4 convenient, whatever you prefer, Mr. Bolton, you can look 5 at the screen as well. It's up to you. 6 A. I see it. 7 Q. Do you recognize this document? 8 A. I do. 9 Q. What is it? 10 A. This was a PowerPoint that we had on, scrolling 11 on a digital display on the screen, which showed a range of 12 conceptual ideas and products that we were working on. 13 Q. If we could turn to page 4 of RX-0762. What is 14 this? 15 A. This is one of the images. It's a exploded 16 illustration schematic of a potential airflow arrangement, 17 cooling arrangement within an enclosure. 18 Q. When you say one of the images, what do you mean 19 by "the images"? 20 A. We have a number of images of this particular 21 concept. This happened to be an exploded illustration of 22 that concept. 23 Q. Who created this image? 24 A. It was created by my -- one of my design 25 engineers, Dwayne Gavel.

850 1 Q. When? 2 A. In the days and weeks leading up to the Digital 3 Signage Expo in 2008. 4 Q. Did you work with Mr. Gavel on the creation of 5 this image that we're looking at on page 4 of RX-0762C? 6 A. I did. 7 Q. I see there are arrows on the image. What do 8 the arrows represent? 9 A. They're intended to represent a series of 10 airflows throughout the enclosure system, to illustrate how 11 thermal management might work in this type of enclosure. 12 Q. And how about the arrows, the vertical arrows 13 toward the back of the image that are blue below and red 14 toward the top, what do those arrows represent? 15 A. The conceptual idea is that we're showing a 16 chimney of air through the center between two displays, and 17 the reason they're changing from blue to red is that 18 they're illustrating heat is extracted from the system. 19 Q. What do you mean by "chimney"? 20 A. It's an open flow of air. Ambient air comes 21 into the bottom and is exhausted at the top. 22 Q. We can take that down, Mr. Smith. 23 So after that DSE show, late February of 2008, 24 did Vertigo continue its relationship with MRI? 25 A. Yes, we did.	852 1 A. It was shortly after the DSE show. 2 Q. I notice the subject of the e-mail is 3 "alternative 70-inch LCD displays." Do you see that? 4 A. I do. 5 Q. What did you mean by "alternative"? 6 A. The system that we had worked on up to this 7 point for Outdoor Promotions was not a common configuration 8 for street furniture and for digital displays because the 9 screens were 90 degrees perpendicular to each other in a 10 wedge shape. 11 The real estate that was available in the 12 majority of street furniture was two screens back to back. 13 And that's what I was more interested in because the wider 14 market was interested in that configuration. 15 Q. Now, in the first sentence of this e-mail, you 16 wrote, "I never got the chance to discuss my thoughts." 17 Do you see that? 18 A. I do. 19 Q. What did you mean by that? 20 A. Both Bill and I had been very busy at that show. 21 We had seen a lot of people. We talked to a lot of 22 customers. So we hadn't had the chance to sit down to talk 23 about any of these conceptual ideas. 24 Q. In the second sentence, you wrote, "I see this 25 as a separate development from Las Vegas." Do you see
851 1 Q. How was the relationship? 2 A. It was very good, very collaborative. 3 Q. In what ways was Vertigo collaborating with MRI 4 following the DSE show in 2008? 5 A. We had a number of proposals that we were making 6 to customers in the digital out-of-home industry. MRI were 7 providing the electronics, the displays to go inside those 8 screens. They were one of the only companies that were 9 able to do that at that time. 10 Q. And if we could call up, Mr. Smith, JX-0062C. 11 It's in your binder, but, again, whatever you'd like. 12 Now, it looks like there's an e-mail here and 13 then there's a forwarding of that e-mail. Focusing on the 14 original e-mail toward the bottom of the page on JX-0062C, 15 do you recognize that, Mr. Bolton? 16 A. I do, yes. 17 Q. What is it? 18 A. It's an e-mail that I wrote to Bill Dunn 19 following the DSE show explaining some ideas that I had 20 that we had been working on that I hadn't been able to talk 21 to him about at the show. 22 Q. What's the date of the e-mail? 23 A. It's March the 4th, 2008. 24 Q. And why did you send Mr. Dunn this e-mail on 25 March 4th of 2008?	853 1 that? 2 A. I do. 3 Q. Again, what did you mean by that? 4 A. As I just explained, Las Vegas was a particular 5 wedge configuration; the market was looking for a 6 back-to-back configuration, where it would be difficult to 7 incorporate air-conditioners, just because of the real 8 estate available to us. 9 Q. And in your next paragraph, you wrote to 10 Mr. Dunn on March 4th of 2008, "I have attached some 11 information to prime your thought process." 12 Do you see that? 13 A. I do. 14 Q. Why did you write to Mr. Dunn on March 4th of 15 2008 to prime his thought process? 16 A. I wanted to send him some of the information 17 that we hadn't had a chance to discuss. I attached a 18 number of visualizations, and I briefly describe what my 19 thoughts were. And I was looking for his input in relation 20 to MRI's screens. 21 Q. You noted "the principles are to have a split 22 airflow." Do you see that? 23 A. Yes. 24 Q. What did you mean by "split airflow"? 25 A. We were looking -- as that previous illustration

854 1 shows, we were looking at a range of methods of cooling the 2 components, including the displays, within an integrated 3 outdoor system. So the airflow was split between closed 4 loops around the screens and an open chimney of air between 5 the screens, where we could put any electronics that were 6 not going to be damaged by external ambient air. 7 Q. You went on to write, "a central ambient forced 8 air chimney through the base and top exhaust." 9 What did you mean there? 10 A. As I previously explained, it was an open plenum 11 of air, ambient air coming in at the bottom and exhausting 12 through the top. There was no filtration or any other 13 method of cooling it. 14 Q. And if we could turn to JX-0063, do you 15 recognize that, Mr. Bolton? 16 A. I do. 17 Q. What is it? 18 A. This is the unexploded illustration of the 19 system that we previously looked at. It's a rendered -- 20 Q. I'm sorry. Go on. 21 A. It's a rendered computer-aided design model to 22 photo-realistically illustrate what it might look like. 23 Q. Who created this figure? 24 A. I created the original models, and Dwayne Gavel, 25 my design engineer, created the image.	856 1 Q. Are any of Mr. Dunn's ideas reflected in these 2 renderings? 3 A. No. 4 Q. Did anyone at MRI have any role in creating 5 these renderings? 6 A. No, they didn't. 7 Q. Did Vertigo include any information that it 8 received from MRI in these renderings? 9 A. No, we did not. 10 Q. Do you recall ever receiving a response from 11 Mr. Dunn or anybody at MRI to your March 4th, 2008 e-mail? 12 A. No, I don't recall any written response. 13 Q. If we could turn to JX-0079. Do you recognize 14 this, Mr. Bolton? 15 A. This is the face page of a provisional patent. 16 Q. And if we could stay on that page first, 17 Mr. Smith. Thank you. 18 And we see that it is Application Number 19 61/039,454, right? 20 A. Yes. 21 Q. Tell us what date it shows as its filing date. 22 A. March the 26th, 2008. 23 Q. And if we could turn to page 39 of the document, 24 please. Who is listed as the inventor? 25 MR. MACHLEIDT: Objection, Your Honor,
855 1 Q. Was this one of your attachments to your March 2 4th, 2008 e-mail to Mr. Dunn? 3 A. It was. 4 Q. If we could turn to JX-0064C, please. 5 Do you recognize this, Mr. Bolton? 6 A. I do. 7 Q. What is it? 8 A. This is that same digital signage enclosure 9 integrated within a transit shelter. 10 Q. Was it attached to your March 4th e-mail? 11 A. It was. 12 Q. Who created the image? 13 A. I created the 3D models, the block models, and 14 Dwayne Gavel created the image. 15 Q. And if we could turn to JX-0065C, please. 16 Do you recognize this? 17 A. I do. 18 Q. What is it? 19 A. This is the illustration we discussed earlier. 20 It is an exploded variant of that digital display. 21 Q. Was it included with your March 4th e-mail? 22 A. It was. 23 Q. Did Mr. Dunn play any role in creating any of 24 these renderings? 25 A. No.	857 1 foundation. 2 JUDGE BHATTACHARYYA: Mr. Kline, could you lay a 3 foundation for this testimony? 4 MR. KLINE: Fair enough. 5 BY MR. KLINE: 6 Q. Have you ever seen this document before, 7 Mr. Dunn -- sorry. Pardon me, Mr. Bolton? 8 A. I have. 9 Q. Right. And you recognize it to be a provisional 10 patent application? 11 A. I do, right. 12 Q. Who's listed as the first named inventor? 13 A. William Dunn. 14 Q. If we could turn to page 33 of JX-0079, have you 15 seen that before, Mr. Bolton? 16 A. I have. 17 Q. Do you recognize it? 18 A. I do. 19 Q. What is it? 20 A. It appears to be a traced image of one of the 21 renderings that we had showing at the DSE show in 2008. 22 Q. Why does it appear to you to be a traced image? 23 A. It's an exact representation of that CAD 24 rendering. 25 Q. Did you trace it?

858 1 A. I did not. 2 Q. Do you know who traced it? 3 A. I do not. 4 Q. Are you aware that in the past Mr. Dunn has 5 testified that you drew the image? 6 A. I'm aware of that, yeah. 7 Q. Did you draw the image? 8 A. I did not draw this image, no. 9 Q. Did MRI ever ask you if they could use any of 10 your designs in their patent application? 11 A. No, they didn't. 12 Q. Did you ever authorize MRI to use any of your 13 designs in any MRI patent application? 14 A. No, I did not. 15 Q. Did Mr. Dunn ever ask you if he could use your 16 model that correlates to -- the CAD rendering of which 17 correlates to Figure 9 in his patent application? 18 A. No, he did not. 19 Q. Did Mr. Dunn ever ask you if he could use any of 20 your designs in his patent application? 21 A. Nope. 22 Q. Did Mr. Dunn ever ask you for permission to 23 include this hand drawing in his patent application? 24 A. No, he did not. 25 Q. Had he asked, would you have agreed?	860 1 Q. -- the third item in that list, you wrote, "I 2 recognize the MRI patent application for split airpaths." 3 Do you see that? 4 A. I do. 5 Q. What were you referring to there? 6 A. I was aware that Bill and MRI were registering 7 IP around cooling their devices. We were also registering 8 IP at the system level. And I just wanted to make it clear 9 that we weren't claiming anything of the MRI designs to us, 10 and I was assuming that they would be the same. 11 Q. How did you come to be aware that MRI was 12 pursuing protection for its technology? 13 A. Bill told me that we were -- they were. 14 Q. So what did you mean by the word "recognize"? 15 A. I mean, I was aware of that, looking at 16 different methods of -- around their displays. I didn't 17 know what the specific detail of that was. 18 Q. Now, the MRI patent application that we looked 19 at a moment ago, which was JX-0079, do you recall that '454 20 application that included the Figure 9 I asked you some 21 questions about? 22 A. Yes. 23 Q. When was the first time you saw that? 24 A. It would be in 2013. 25 Q. In your June 2nd, 2008 e-mail on the screen
859 1 A. No. We were creating our own patent application 2 at that time. 3 Q. If we could turn to RX-0548, please, Mr. Smith. 4 Thank you. 5 Do you recognize RX-0548, Mr. Bolton? 6 A. I do. 7 Q. What is it? 8 A. It's an e-mail letter that I sent to Bill in 9 regard to an enclosure system that we were building for MRI 10 to house a particularly technical display that they had 11 been developing. 12 Q. When did you send it? 13 A. This is on the 2nd of June, 2008. 14 Q. And why did you send it? 15 A. I sent him some CAD models of what that proposal 16 was with some explanation of what those models were about, 17 and I was explaining that we both had some investment in 18 this -- in this particular model and later we might need 19 some agreement between us to define what that was. 20 Q. You see on the portion of RX-0548 that we're 21 looking at here, there are two bullet lists? 22 A. I do. 23 Q. Directing your attention to the second of the 24 bullet lists -- 25 A. Yeah.	861 1 here, you wrote, "Some formal understanding may be 2 necessary in due course." 3 Do you see that? 4 A. I do. 5 Q. What did you have in mind there? 6 A. Some kind of memorandum of understanding so that 7 we could define which company was developing which aspects 8 of these systems. 9 Q. So around this time, June 2nd, 2008, how was 10 your relationship with MRI? 11 A. It was very good. 12 Q. Were you working on other projects with MRI 13 around this time? 14 A. Yes, we were. 15 Q. Was one of those a project for a company called 16 Inova? 17 A. It was, yes. 18 Q. Am I pronouncing that correctly, Inova? 19 A. Yeah. 20 Q. Inova. What was the Inova project? 21 A. It was the design and supply of a range of 22 digital displays back to back and single digital displays 23 to go into the PATH rail network in New York. 24 Q. Did those projects -- did those displays in that 25 Inova project include a cooling system?

862 1 A. They did. 2 Q. Did MRI, to your understanding, have knowledge 3 of what that cooling system would be in the Inova project? 4 A. We worked closely together, so, yes, they would 5 have had knowledge. 6 Q. Were displays ever manufactured and sold for 7 that Inova project? 8 A. Yes, we made several hundred displays. 9 Q. When? 10 A. In 2008. 11 Q. Now, at some point, did Vertigo's relationship 12 with MRI begin to change? 13 A. It did. 14 Q. How so? 15 A. We started to realize that MRI was competing 16 with Vertigo with some of our customers, that perhaps we 17 had inadvertently created a competitor to, to Vertigo. I 18 came across them at various supplier conferences. 19 Q. How did you come to form the view that MRI was 20 competing directly with Vertigo in the 2008/2009 time 21 frame? 22 A. Well, as I say, we came across them at various 23 supplier conferences. Also, they had a lot of our images 24 on their websites at this time, new websites. 25 Q. Did there come a time that you learned that MRI	864 1 with us in, you know, what -- the markets that Vertigo was 2 focusing on, and I wanted to try and find a resolution that 3 would benefit both of us. 4 Q. The beginning of the next paragraph, you wrote, 5 "It is not our intention to claim any invention or IP of 6 MRI as accredited to Vertigo." 7 Do you see that? 8 A. I do. 9 Q. What did you mean by that? 10 A. Again, I had -- you know, I was aware that MRI 11 were creating intellectual property around their screens 12 and digital displays, as Vertigo was also. I wanted to 13 make it clear that I had at no time claimed any of their 14 developments as our own. And I was assuming that they 15 would be the same. 16 Q. At the time you wrote this letter to Mr. Dunn, 17 March 13th of 2009, were you trying to maintain a 18 constructive working relationship with MRI? 19 A. I was. 20 Q. Why? 21 A. They were one of the only companies that were 22 able to provide this level of technical display. 23 Q. Were you able to maintain a constructive working 24 relationship with MRI after this time? 25 A. No, not really. No.
863 1 was displaying Vertigo images on its website? 2 A. There did, yes. 3 Q. What, if anything, did you do about that? 4 A. I contacted their sales director and asked them 5 to take them down. 6 Q. If we could turn to JX-0052, please. It will 7 come up on your screen. 8 Do you recognize that document, Mr. Bolton? 9 A. I do. 10 Q. What is it? 11 A. It's a letter that I wrote to Bill explaining 12 that I felt we might now be becoming competitors and 13 suggesting that we could find a way to resolve the 14 situation. 15 Q. When did you send this letter to Mr. Dunn? 16 A. The 13th of March, 2009. 17 Q. There's a paragraph toward the bottom of this 18 front page. Thank you. 19 You wrote, "The Vertigo concern is that we have 20 helped teach MRI to compete with us in our historical 21 markets." Do you see that? 22 A. I do. 23 Q. Why did you write that to Mr. Dunn? 24 A. As I previously said, I believed that we had 25 inadvertently given them sufficient information to compete	865 1 MR. KLINE: Pass the witness, Your Honor. 2 JUDGE BHATTACHARYYA: Thank you. 3 MR. MACHLEIDT: A few moments to pass out some 4 binders, Your Honor? 5 JUDGE BHATTACHARYYA: Yes. 6 MR. MACHLEIDT: May I proceed, Your Honor? 7 JUDGE BHATTACHARYYA: Yes, you may. 8 CROSS-EXAMINATION 9 BY MR. MACHLEIDT: 10 Q. It's good to see you again, Mr. Bolton. 11 A. Good morning. 12 Q. Do you still live at Hill Top in the northern 13 U.K.? 14 A. I do. 15 Q. Did you come to D.C. just for this hearing? 16 A. I did. 17 Q. Are Samsung's lawyers still paying your \$1,000 18 rate? 19 A. They are. 20 Q. Do you expect to be compensated for your travel 21 expenses in coming to D.C.? 22 A. I do. 23 Q. Yesterday you mentioned a company by the name of 24 Greystoke. Did I get that right? 25 A. You did.

866 1 Q. Does a company named Praevar employ Greystoke? 2 A. It does. 3 Q. Does Praevar compete with MRI? 4 A. To some degree it does, yes. 5 Q. Do I remember your title at Praevar is executive 6 director? 7 A. That's correct. 8 Q. Mr. Bolton, have you had a day book in your 9 possession since, give or take, the 1980s. 10 A. I have. 11 Q. And is a day book, frankly, a personal notebook 12 of yours? 13 A. It is. 14 Q. Random question. Do you happen to have your 15 current day book somewhere in this courtroom? 16 A. I don't. 17 Q. Did you leave it at the hotel? 18 A. I didn't bring it with me on this occasion. 19 Q. Mr. Bolton, were you in the courtroom on Monday 20 during what we call opening statements? 21 A. I was. 22 Q. I want to ensure we're on the same page when we 23 talk about documents and exhibits through the course of our 24 interaction together. We have a lot of documents. A lot 25 of them have been labeled many different ways, so bear with	868 1 all of the pages of this exhibit, CX-2511. And when you 2 get to the end, Ms. Gray, just keep us there for a moment. 3 Mr. Bolton, you agree that the image we have on 4 the screen here, that's the rendering or visualization you 5 talked about during your direct exam? 6 A. I agree, yes. 7 Q. You have no idea when you exactly formed in your 8 mind the idea of what we see on the screen, do you? 9 A. Yes, I have an idea. 10 Q. Mr. Bolton, I deposed you in February of this 11 year, remember? 12 A. I do remember. 13 Q. Do you remember yesterday you gave an oath 14 before you took the stand? 15 A. Absolutely. 16 Q. Do you recall giving that same oath before your 17 deposition? 18 A. I do. 19 Q. Flip to the -- I think it's the second to last 20 tab in the binder we gave you. And do you see the tab 21 marked CX-1894? 22 A. Can you bring it up on the screen? 23 Q. Let's do it this way first, because I'm going to 24 try to finagle a few different things, but -- 25 A. I'm just struggling to open this all.
867 1 me in terms of what's in your binders and what we put on 2 the screen. 3 Can you turn in the binder we just handed you 4 to, I think it's the first tab, CX-2511. 5 And, Ms. Gray, if you could please put that up 6 on the screen. And, Ms. Gray, if you could call out, 7 frankly, just everywhere that we have text, so we don't 8 have so much white space. 9 Mr. Bolton, ignoring what's at the top, the 10 e-mail from Greystoke, do you recall talking about this 11 during your direct examination, correct? 12 A. I do, yes. 13 Q. Do you see -- and, actually, Ms. Gray, could you 14 scroll up a smidge so we can see the deposition exhibit 15 sticker? 16 Mr. Bolton, do you see where it says Exhibit 17 Bolton and then 6? 18 A. Yes. 19 Q. There's the date, February 23rd of 2023? 20 A. Yes. 21 Q. Do you understand this document was one of the 22 documents you and I talked about during your deposition? 23 A. I do. 24 Q. Ms. Gray, if you could, stop calling out the 25 e-mail and just tick through the next few pages so we see	869 1 MR. KLINE: Do you need a hand with that? He 2 has just a little trouble with his hand. 3 BY MR. MACHLEIDT: 4 Q. Oh. Are you okay? 5 A. I found it now, yes. Thank you. 6 Q. Thank you. 7 A. Sorry, I've got some mobility issues with my 8 arm. 9 Q. Just let us know if you need any help. Take all 10 the time you need. 11 Are you looking at your deposition transcript 12 from February of this year? 13 A. I am. 14 Q. Do me a favor -- again, taking the time you need 15 and if you need help, please say so -- turn to page 156. 16 A. Yes. 17 Q. Mr. Bolton, I want to read from lines 5 to 15 18 from page 156. Follow along with me, please. 19 "Question: When did you first form in your mind 20 the idea of what we see on the last page of Exhibit 6? 21 "Answer: I have no idea exactly when. The 22 development of these themes on these concepts took place in 23 a period up to Christmas 2007, and up to the DSE show 2008. 24 That was the purpose of them. We were trying to show 25 conceptual design thinking on a loop playing on a booth, so

870 1 that's what they were created for, so they were always 2 intended to be visualizations." 3 Did I read that correctly? 4 A. You did. 5 Q. Mr. Bolton, you did not discuss any of the 6 concepts that are reflected in this image that was attached 7 to your March 4th, 2008 e-mail with anybody at MRI before 8 you actually sent the e-mail; is that correct? 9 A. That's correct. 10 Q. Did you say during your direct that this image 11 reflects what a -- or what you call a split airpath? 12 A. Yes. 13 Q. In March of 2008, did you consider the split 14 airpath concept that is described in your e-mail and shown 15 in this attachment, did you consider that to be something 16 that was new? 17 A. I considered that it's something that was new to 18 the digital signage industry, yes. 19 Q. You were working for Vertigo in March of 2008? 20 A. I was, yes. 21 Q. Vertigo never provided to a customer a display 22 that made use of the split airpath concept that we see on 23 the screen, correct? 24 A. Correct. 25 Q. Ms. Gray, you can take that down. Thank you.	872 1 Q. Did the Inova project involve 32-inch screens? 2 A. 32- and 40-inch screens, from memory. 3 Q. Mr. Bolton -- and, again, let me know if you 4 need any help -- can you go to the tab in your binder 5 RX-697. 6 A. 697. 7 Q. And if you would like, I'm happy to put this one 8 up on the screen. 9 A. Please, if you would. Thank you. 10 Q. Certainly. 11 Ms. Gray, can you go to RX-697, please. And 12 let's keep it this way for now. We may end up calling out 13 different bits and pieces. 14 Mr. Bolton, do you see this document on the 15 screen in front of you? 16 A. I do. 17 Q. Were you able to get to it in your binder? 18 A. I was. Thank you. 19 Q. You're welcome. 20 Do you know a gentleman by the name of Peter 21 Kaszycki? 22 A. I do. 23 Q. Is that how you pronounce his name? 24 A. I believe so. 25 Q. That's how you pronounced it?
871 1 Mr. Bolton, did you meet Bill Dunn in December 2 of 2007? 3 A. I did. 4 Q. It sounds like, from your direct exam, you did 5 not know who Bill Dunn was before December of 2007? 6 A. No, I did not. 7 Q. The first time you ever talked to Mr. Dunn was 8 December of 2007? 9 A. That's correct. 10 Q. Did Vertigo go into bankruptcy in 2009? 11 A. They went into administrative receivership, yes. 12 Q. Did MRI ever send cease and desist letters to 13 Vertigo that accused Vertigo of patent infringement? 14 A. At a later date, they did, yes. 15 Q. Do you believe that any of the MRI cease and 16 desist letters got in the way of Vertigo's attempt to raise 17 financing? 18 A. I do believe that, yes. 19 Q. You mentioned, I think near the tail end of your 20 direct exam, the Inova project. Do you remember that? 21 A. Yes. 22 Q. Was the Inova project something that involved 23 displays that were going to go into an underground subway? 24 A. That's where they were intended to be deployed, 25 yes.	873 1 A. I think that's correct. 2 Q. In the 2009 time period, did Mr. Kaszycki work 3 for MRI? 4 A. He did. 5 Q. Was he the MRI sales director, to the best of 6 your knowledge? 7 A. He was. 8 Q. Did you and Mr. Kaszycki get along? 9 A. We got along professionally. 10 Q. Sticking with this time period, did a Ralph 11 Idems work for Vertigo? 12 A. Ralph was the CEO of Vertigo, yes. 13 Q. What about Greg Smrke, did he work at Vertigo? 14 A. He did. 15 Q. Did I say his name right? 16 A. You did. 17 Q. What about Tom Sinnott, did he work at Vertigo? 18 A. He did. 19 Q. Do you see at the top of this document, Peter 20 Kaszycki wrote to Bill Dunn: "Bill, we are okay with 21 Chris"? 22 A. Yes. 23 Q. Ms. Gray, can you call out the portion of this 24 document that begins with the text "In a message dated 25 March 13, 2009." It's a little bit above the midway point.

874 1 If you could call out the text starting from "In a message 2 dated March 13," and then all the way down on through the 3 rest of the document. I apologize, Ms. Gray. If you could 4 just start with that. Exactly. Perfect. Thank you. 5 Mr. Bolton, in this e-mail from 2009, Peter 6 Kaszycki wrote to you: "Relative to the new MRI website, 7 we have been very open with Vertigo about the potential use 8 of some of your designs." 9 Did I read that correctly? 10 A. You did. 11 Q. Sticking with what we have on the screen in 12 front of us, Mr. Kaszycki wrote to you: "Even at the show 13 three weeks ago, we shared with Ralph, Tom, and Greg that 14 we were happy that Vertigo allowed us to use these images." 15 Did I read that correctly? 16 A. You read it correctly. 17 Q. Ms. Gray, you can take that down. Thank you. 18 Mr. Bolton, once more, let me know if it's 19 easier on the screen. There's a tab in front of you that 20 is JX-21C. Would you like me just to put it on the screen, 21 and if you need to look at more, we can take a time to look 22 through the binder? 23 A. Sure. That's fine. 24 Q. Ms. Gray, could you pull up JX-21C, and let's 25 just stick with the first half of that document for now.	876 1 you need to. 2 But, Ms. Gray, can you go to RX-762. 3 You remember talking about this document during 4 your direct exam? 5 A. I did. 6 Q. Ms. Gray, would you jump to page 4, please. 7 We all know the answer to this question. Do you 8 remember talking about this image? 9 A. I do. 10 Q. Do you agree with me that Vertigo did not show 11 this presentation during the 2008 DSE show? 12 A. We did show this presentation during the 2008 13 show. 14 Q. Mr. Bolton, sticking with the screen or the 15 image that's in front of us on the screen, do you see any 16 copyright markings on it? 17 A. Not on this particular printed document, no. 18 Q. Do you see any text here indicating that what we 19 see is the property of Vertigo or Vertigo Group? 20 A. No. 21 Q. If this image had been displayed at the 2008 DSE 22 show, it would have a statement along the lines of "This is 23 the property of Vertigo," correct? 24 A. I would have expected it to have, yes. 25 Q. You don't see any statement like that on this
875 1 Mr. Bolton, do you see that in this document, 2 the header, or what I call the header, it says Vertigo 3 Inc.? 4 A. It does. 5 Q. Do you see the date of April 31st, 2008? 6 A. That's correct. 7 Q. Ms. Gray, please flip to the third page of this 8 document, and when you do that, call out the top paragraph 9 for us, please. 10 Mr. Bolton, this first sentence, it states, 11 "Vertigo's knowledge" -- let me start over. "Vertigo's 12 knowledge base has been limited to 'print in post' signage 13 technology to date." 14 Did I read that correctly? 15 A. You did. 16 Q. Still in this paragraph that's in front of us, 17 the last sentence reads, "However the technology to ensure 18 a digital signage design that can withstand severe 19 temperature and weather conditions has not been reached 20 either by Vertigo, or for the most part, by the industry as 21 a whole." 22 Did I read that correctly? 23 A. You did. 24 Q. Ms. Gray -- again, Mr. Bolton, if you would like 25 to look at it in your binder, happy to wait and help you if	877 1 page or anywhere throughout the entire document, do you? 2 A. Not on this presentation, no. 3 Q. Ms. Gray, can you put up CX-241. 4 Mr. Bolton, all of these are in your binder. If 5 you need to look at anything, please do so. 6 A. Okay. 7 Q. This is just the first page, but based on what 8 we're looking at, do you agree that this is part of the 9 file history that led to the Vertigo patent that ends in 10 the numbers '174? 11 A. It certainly looks that way, yes. 12 Q. Mr. Bolton, actually, if we just stick with the 13 screen, this may go quicker, but, again, you have the very 14 large file history in front of you. 15 Ms. Gray, please jump us to page 205 of this 16 same document. Perfect, Ms. Gray. Thank you. 17 Mr. Bolton, do you see in about the middle, it 18 says "filing date" -- I read it as May 7th, 2008? 19 A. I do. 20 Q. You and I talked about this during your 21 deposition. Again, let me know if you need to take a look 22 at the big stack in front of you. 23 But do you agree that in the file history, 24 starting on this page, we start to look at the original 25 provisional application that ultimately led to the Vertigo

878 1 patent? 2 A. Yes. 3 Q. Ms. Gray, please jump to page 235 of this 4 document. 5 Mr. Bolton, on page 235 of the provisional 6 application dated May 7th of 2008, do you see a 7 black-and-white copy of the visualization that we've been 8 talking about a lot in this courtroom? 9 A. I do see that, yes. 10 Q. Ms. Gray, you can take that down. Thank you. 11 Ms. Gray, can you put up RX-548. 12 Mr. Bolton, you remember talking about this, 13 correct? 14 A. I do. 15 Q. And if you can call out, similar to what 16 Mr. Kline did, Ms. Gray, the bullet in about the middle 17 that begins with "I recognize"? 18 Mr. Bolton, you confirmed during your direct 19 exam that on June 2nd of 2008, you wrote to Bill Dunn that 20 you recognize the MRI patent application for split 21 airpaths, correct? 22 A. That's correct. 23 Q. On this same document, Ms. Gray, if you can 24 scroll down just a little bit. 25 On June 2nd of 2008, Mr. Bolton, you wrote to	880 1 Displays, right? 2 A. I do. 3 Q. In March -- I'll take a step back. I think this 4 is what you alluded to, potentially, when you and I were 5 talking and when you were discussing with Mr. Kline. 6 In March 2013, MRI accused Vertigo of patent 7 infringement, correct? 8 A. They did. 9 Q. Ms. Gray, can you call out the first paragraph 10 on the second page for us, please. 11 Mr. Bolton, in this paragraph, MRI accused 12 Vertigo of improperly including photos of MRI products in 13 the Vertigo patent application, correct? 14 A. I can see that, yes. 15 Q. Ms. Gray, you can take that down. Thank you. 16 As far as you know, in response to MRI's 17 infringement letter, Vertigo never said that any MRI patent 18 or application contained your intellectual property, 19 correct? 20 A. Sorry, could you repeat that? 21 Q. Absolutely. As far as you know, in response to 22 the MRI infringement letter, Vertigo never told MRI that 23 any MRI patent application included intellectual property 24 that belonged to you, Mr. Bolton? 25 A. That's correct.
879 1 Bill Dunn that "other units will be available for 2 demonstration in a non-specific format, into which MRI 3 screens could be integrated as required. We may be forced 4 to demonstrate alternative screens in these configurations 5 also -- obviously I wouldn't expect MRI to participate in 6 these trials, and they won't include split airpath 7 variants." 8 Did I read that correctly? 9 A. You did. 10 Q. Ms. Gray, you can take that down and perhaps 11 pull up JX-52. 12 I'll make this one quick, Mr. Bolton. 13 Ms. Gray, if you can call out the tiny paragraph 14 at the bottom of the page beginning with "It is not." 15 Mr. Bolton, on March 13th of 2009, you wrote to 16 Mr. Dunn: "It is not our intention to claim any invention 17 or IP of MRI as accredited to Vertigo." 18 Did I read that correctly? 19 A. You did. 20 Q. Ms. Gray, you can take that down, and move us to 21 CX-2508, please. And if you could, Ms. Gray, maybe call 22 out everything above the subject line. Ms. Gray, if you 23 could scroll down and actually include the subject line for 24 us, please. Thank you. 25 Mr. Bolton, you see the name Vertigo Digital	881 1 Q. Ms. Gray, can you pull up CX-2515, please. And 2 we'll stay here for now. 3 Mr. Bolton, do you agree with me that we're 4 looking at the one and only Vertigo '174 patent? 5 A. I believe that's what we're looking at, yes. 6 Q. You're a named inventor on this patent? 7 A. I was. 8 Q. Do we see your name in the top left or so where 9 it says "inventors"? 10 A. We do. 11 Q. The '174 patent is assigned to Vertigo Digital 12 Displays, correct? 13 A. Correct. 14 Q. Do you see near the top right of this document 15 that the Vertigo patent issued on June 25th of 2013? 16 A. Yes. 17 Q. Going back not too long ago, do you remember the 18 figure, the black-and-white figure from the Vertigo 19 provisional application? It had a label of 10B. 20 A. I do remember that, yeah. 21 Q. Do you agree with me that the '174 patent does 22 not have that same split airpath Figure 10B image anywhere 23 in the patent? 24 A. I agree it does not have it. 25 MR. MACHLEIDT: Your Honor, five seconds to

882 1 confer with people smarter than me? 2 Your Honor, no further questions at this time, 3 subject to re-recross. 4 JUDGE BHATTACHARYYA: Thank you. 5 REDIRECT EXAMINATION 6 BY MR. KLINE: 7 Q. Mr. Bolton, hopefully just a couple quick 8 things. Counsel asked you about the Inova project. Do you 9 recall that? And I had asked you about that on direct as 10 well. 11 A. I do. 12 Q. The display delivered by Vertigo for the Inova 13 project, did that include an air-to-air heat exchanger? 14 A. It did. 15 Q. Did it include a loop of air around the display? 16 A. It did. 17 Q. If we could call up RX-069C, please. RX-069 -- 18 I'm sorry, I misspoke. It's RX-0697C. 19 You were shown this on direct, Mr. Bolton. It 20 will come up in a moment. Do you recall counsel asked you 21 a couple of questions about this? 22 A. Yes. 23 Q. Do you see the paragraph in the middle in the 24 e-mail from Mr. Kaszycki back to you, I think? 25 A. I see it here, yes.	884 1 There's a paragraph around the middle of the 2 page that states, "Vertigo Group embarked on a project in 3 March of 2007 to develop a universal digital display 4 product with an LCD as its core component, comprising 5 complementary systems to economically," then there's a 6 list. 7 What project was Vertigo referring to there? 8 A. We were looking at all types of thermal 9 management and integration of digital displays within 10 outdoor enclosure systems. 11 Q. And that statement is followed by a bullet list. 12 Do you see that? 13 A. I do. 14 Q. And what is this bullet list? 15 A. It describes the objectives of what this 16 program -- what we were trying to achieve within this 17 program. 18 Q. If we could turn to CX-2508C, please. Do you 19 recall counsel asking you a few questions about this? 20 A. I do. 21 Q. March 8th of 2013. Do you see that? 22 A. I do. 23 Q. What was the state of Vertigo's business at the 24 time? 25 A. Vertigo had been purchased by Chilin Technology.
883 1 Q. Right. "Even at the show three weeks ago, we 2 shared with Ralph, Tom, and Greg that we were happy that 3 Vertigo allowed us to use these images." 4 Do you see that? 5 A. I see that's what it says, yes. 6 Q. Did Vertigo ever give permission to MRI to 7 include a hand sketch of its CAD rendering as Figure 9 in 8 MRI's March 26th, 2008 patent application? 9 A. No. 10 Q. Did MRI ever tell you it was going to do that? 11 A. No. 12 Q. If we could call up, please, JX-0021C. 13 Do you recall counsel asked you a few questions 14 about this document? 15 A. I do. 16 Q. What is it? 17 A. So this is a report following a development 18 program that Vertigo had. SR&ED is a Canadian government 19 initiative, Scientific Research and Experimental 20 Development, where we were looking for some tax credits 21 relative to development work that we were doing. 22 Q. Who prepared the document? 23 A. I would have prepared the initial outline and 24 then the report. 25 Q. If we could turn to page 2 of JX-0021C, please.	885 1 It was a considerably smaller business than it had been 2 prior to 2009. And I was -- I had left Canada and I was 3 working in Taiwan at the time. 4 Q. Oh, I'm sorry. Where were you at the time? 5 A. I was in Taiwan. 6 Q. But you were still associated with Vertigo at 7 the time? 8 A. I was not directly associated with Vertigo at 9 this point. 10 Q. Do you have any reason to believe -- was Vertigo 11 in a position in March of 2013 to afford patent litigation? 12 A. No. No, they were not. 13 MR. KLINE: I pass the witness, Your Honor. 14 MR. MACHLEIDT: Five seconds, Your Honor? 15 JUDGE BHATTACHARYYA: Yes. Please go ahead. 16 MR. MACHLEIDT: One or two real quick questions, 17 Your Honor. 18 JUDGE BHATTACHARYYA: Yes, please proceed. 19 RECROSS-EXAMINATION 20 BY MR. MACHLEIDT: 21 Q. Mr. Bolton, you mentioned that you were here for 22 the opening statements, correct? 23 A. Correct. 24 Q. You could see what was projected on the screens? 25 A. Yes.

886 1 Q. Do you still believe that between MRI and 2 Vertigo, you, rather than Bill Dunn, came up with the idea 3 of using a split airflow to cool a display? 4 A. In this application, yes. 5 MR. MACHLEIDT: No further questions, Your 6 Honor. 7 JUDGE BHATTACHARYYA: Okay. Thank you. 8 Mr. Bolton, thank you. You may step down. 9 THE WITNESS: Thank you, Your Honor. 10 (The witness stood down.) 11 MS. POTKAY: Good morning, Your Honor. 12 Christine Potkay for Respondents. Respondents call as 13 their next witness Dwayne Gavel. May I approach the 14 witness with a binder? 15 JUDGE BHATTACHARYYA: Yes, you may. 16 Good morning, Mr. Gavel. 17 THE WITNESS: Good morning. 18 BY MS. POTKAY: 19 Q. Good morning, Mr. Gavel. 20 JUDGE BHATTACHARYYA: I'll swear in the witness 21 first. 22 Could you please raise your right hand. 23 Whereupon-- 24 DWAYNE GAVEL, 25 having been first duly sworn/affirmed, was examined and	888 1 A. I have been working as a mechanical designer 2 since the late 1980s. 3 Q. Do you have any technical training? 4 A. Yes. In 1984, I graduated from Ryerson, which 5 is a college in Toronto, with a Bachelor of technology 6 degree in industrial engineering. 7 Q. Did you learn to be a mechanical designer at 8 Ryerson? 9 A. Well, the first year of the program covered 10 basic engineering principles. And after that, I 11 specialized in the IE program, so I would have to say that 12 my mechanical design skills were developed through 13 work-related experiences. 14 Q. Where do you work? 15 A. I have my own design consultancy company. 16 Q. And what's the name of that company? 17 A. The company is called CubicArt Design. 18 Q. Where does the name come from? 19 A. I developed that name to relate the precise 20 nature of creating CAD geometry with the general artistry 21 of product design. 22 Q. And how long have you worked at CubicArt 23 Designs? 24 A. I started the company in 1998 and operated full 25 time for 16 years. I then took a direct employment job
887 1 testified as follows: 2 THE WITNESS: Yes, I do. 3 DIRECT EXAMINATION 4 BY MS. POTKAY: 5 Q. Good morning, Mr. Gavel. Would you please 6 introduce yourself to the Court. 7 A. Good morning. My name is Dwayne Gavel. 8 Q. Where are you from? 9 A. I live in Zephyr, which is a small community 10 north of Toronto. 11 Q. What do you do for a living? 12 A. I'm a freelance mechanical designer. 13 Q. What does a mechanical designer do? 14 A. Generally speaking, a mechanical designer will 15 use CAD and other software tools to develop and document 16 parts and assemblies. 17 Q. What is CAD? 18 A. CAD is an acronym for computer-aided design and 19 generally refers to the use of a 3D modeling package. 20 Q. What do you design? 21 A. I design a variety of metal products for various 22 markets, including the digital out-of-home market, 23 automotive, medical, some architectural as well. 24 Q. How long have you been working as a mechanical 25 designer?	889 1 with one of my customers for five years, and rebooting 2 CubicArt in 2019. 3 Q. And what customer was that? 4 A. That was Vertigo. 5 Q. How did you initially come to work for Vertigo? 6 A. I began working with Vertigo as a direct result 7 of the relationships that I had with the cofounders, Ralph 8 Idems and Chris Bolton. 9 Q. How did you come to meet Mr. Bolton? 10 A. Chris was involved with a couple of U.K.-based 11 companies which were doing business with my current 12 employer at the time, and that employer was Rainford 13 Corporation. 14 Q. Do you recall around what time you began doing 15 work for Vertigo? 16 A. That would have been 2001/2002 time frame. 17 Q. And at that time, you were working as a 18 consultant? 19 A. That's correct. 20 Q. At some point in time, did you work with Vertigo 21 on a project for a company called Outdoor Promotions? 22 A. Yes, I worked with Vertigo on the Outdoor 23 Promotions contract late 2007. 24 Q. And what was your involvement in the project 25 initially?

890 1 A. Initially, I was involved in creating rendered 2 product images for the bid proposal. 3 Q. What are rendered product images? 4 A. Within the context of my work flow, a rendered 5 image is a computer-generated photo-realistic 6 representation of a 3D CAD model. 7 Q. Did Vertigo submit that bid proposal to Outdoor 8 Promotions? 9 A. Yes, they did. 10 Q. And do you know whether or not Vertigo won that 11 contract based on its proposal? 12 A. Yes, they won that contract. 13 Q. What was your role on the project for Outdoor 14 Promotions after Vertigo won the contract? 15 A. Once we secured the contract, I immediately 16 began doing the detailed design of the enclosure system. 17 Q. And what did that detailed design involve? 18 A. Essentially designing, modeling, and detailing 19 every component and sub-assembly that made up the overall 20 enclosure system. 21 Q. Do you recall who was the manufacturer of the 22 display panels within the enclosure system? 23 A. That was Samsung. 24 Q. And how was the Samsung display placed within 25 the structure?	892 1 Q. And how did you go about designing the custom 2 brackets based on the information that Samsung provided? 3 A. Well, I guess, generally speaking, specifically 4 pages 2 and 3 referenced the brackets that we were just 5 referring to, and so what I did was I referenced this 6 documentation, which outlined how the brackets were being 7 changed from a stock perspective and how they were being 8 repositioned on the back of the display. 9 And using that information, along with the space 10 that I had available within the envelope of the enclosure, 11 I prepared designs for the custom brackets. 12 Q. But were you able to design a bracket that 13 connected the displays to the enclosure in the Outdoor 14 Promotions project? 15 A. Yes. Yes, I was. 16 Q. And you can take that down, Mr. Smith. Thank 17 you. 18 While that work for Outdoor Promotions was going 19 on, did you work on any other projects for Vertigo? 20 A. Yes. Yes, I did. 21 Q. And what work was that? 22 A. I recall specifically putting together a 23 collection of conceptual product design renderings, which 24 were going to be displayed at an upcoming trade show. 25 Q. What was the name of that trade show?
891 1 A. Each display had interface brackets, I'll call 2 them, mounted on the back surface. And those brackets were 3 used to connect the display panels to more significant 4 support beams within the enclosure. 5 Q. And who created these interface brackets that 6 connected the displays with the enclosure? 7 A. I created a custom version of that bracket, 8 which was to replace the stock components supplied with the 9 LCD. 10 Q. In order to create the custom version of the 11 brackets, did you need to know anything from Samsung? 12 A. Yes. Well, to start with, we had the 3D 13 mechanical model of the display, but I recall also 14 receiving a technical document from Samsung during the 15 design phase. 16 Q. I'd like you to turn to JX-35 in your binder. 17 A. Okay. 18 Q. Do you recognize this document? 19 A. Yes, I do. 20 Q. And what is this document? 21 A. This is a copy of the technical notification 22 from Samsung outlining various mechanical changes that were 23 occurring on the LCD panel. 24 Q. Did you receive this document from Samsung? 25 A. Yes.	893 1 A. That was the Digital Signage Exposition, or DSE. 2 Q. And when did it take place? 3 A. Late February 2008. 4 Q. What was your role in creating these rendered 5 images for Vertigo for the 2008 DSE show? 6 A. Generally speaking, I was prepping and modifying 7 CAD assembly models that were supplied to me by Chris 8 Bolton and applying finishes, colors, and whatnot to finish 9 the digital rendered output files. 10 Q. And what were the models of? 11 A. They were of a variety of different styles of 12 digital out-of-home display enclosures. 13 Q. I'd like you to turn to JX-63. 14 A. Okay. 15 Q. Do you recognize this document? 16 A. Yes, I do. 17 Q. And what is it? 18 A. This is a rendered image of a double-sided 19 digital signage enclosure, conceptual design. 20 Q. Who created it? 21 A. Chris created -- Chris Bolton created the model, 22 and I modified the model and created the rendered output. 23 Q. Thank you. Let's turn to JX-64 in your binder. 24 Do you recognize this document? 25 A. Yes, I do.

894 1 Q. And what is this document? 2 A. Again, it's a rendered image showing the same 3 enclosure concept that we just reviewed within the context 4 of a transit shelter. 5 Q. And who created this? 6 A. I created the image based on models that were 7 supplied to me by Chris Bolton. 8 Q. Let's turn to JX-65. 9 Do you recognize this document? 10 A. Yes, I do. 11 Q. And what is this one? 12 A. Again, this is another variation of the same 13 enclosure. This rendered image, however, shows a partially 14 exploded view of the cabinet and some additional arrow 15 geometry, which is meant to represent airflow within the 16 enclosure and also outside of the enclosure. 17 Q. What specific role did you have in creating the 18 CAD model seen in the rendered image in JX-65? 19 A. So, again, as I mentioned, Chris created the 20 basic enclosure model. I -- we then discussed the intent 21 of creating such a schematic, and based on those 22 conversations and our collective experience and knowledge, 23 I specifically created the exploded view and also the arrow 24 geometry representing airflow through the enclosure. 25 Q. Did anyone other than Chris Bolton provide input	896 1 the descriptive notes, to create my customer invoicing. 2 Q. And staying at the first page of JX-22, what 3 project did this particular time sheet relate to? 4 A. This specifically covers the work that I did on 5 the product design concepts for the Vegas show. 6 Q. And what does your time sheet reflect with 7 respect to your work on that project? 8 A. Generally, it reflects the fact that I spent 9 just over 51 hours between February 15th and February 25 10 completing the job. 11 Q. Can you look anywhere else to see when the model 12 was created? 13 A. Yes. You can look at the SolidWorks models. 14 SolidWorks files typically have metadata, which shows 15 timestamps. 16 Q. Did you look at the metadata for the CAD model 17 that we looked at in the rendered image shown in JX-65? 18 A. Yes, I did. 19 Q. And what did you learn? 20 A. I learned specifically that the assembly model 21 that Chris prepared was started on the 17th of February, 22 2008, and then further investigation at the component level 23 of that assembly model verified that I completed my work on 24 the 25th of February, 2008. 25 Q. Let's turn to RX-1499. Do you recognize this
895 1 on the CAD model? 2 A. To my knowledge, no. It was derived 3 specifically from Chris Bolton and myself collaborating. 4 Q. When did you complete the work on these models 5 for the DSE show? 6 A. My portion of the work was finished on February 7 25th, 2008. 8 Q. And how do you know that specific date? 9 A. I reviewed a project time sheet summary report 10 specific to this task. 11 Q. Let's turn to JX-22. Do you recognize this 12 document? 13 A. Yes. Yes, I do. 14 Q. What is it? 15 A. These are copies, various copies of project time 16 sheet summaries for work that I had done on various 17 contracts for Vertigo. 18 Q. And did you maintain time sheets like the one at 19 JX-22 in the ordinary course of business at CubicArt in 20 2008? 21 A. Yes. I created weekly time sheets and I still 22 do. 23 Q. And do these time sheets accurately reflect the 24 work that you did and when you did it? 25 A. Yes. I extract the time information, as well as	897 1 document? 2 A. Yes, I do. 3 Q. What is this document? 4 A. This is -- this is the native CAD assembly model 5 of the -- what I'll call the airflow schematic SolidWorks 6 assembly, with that model open and also an information 7 window that displays the metadata timestamp. 8 Q. And who prepared this document? 9 A. I did. 10 Q. Does it reflect the CAD model that we looked at 11 as an exploded view rendered image in JX-65? 12 A. Yes. It's actually a screenshot taken from 13 within the SolidWorks environment with that model open. 14 Q. Let's turn to RX-812. 15 A. Okay. I'm there. 16 Q. Do you recognize this? 17 A. Yes. 18 Q. And what is this document? 19 A. This is, I'll call it, a multi-level bill of 20 material that was derived from the assembly model that we 21 just looked at. It shows every component at every level 22 within that assembly and summarizes who created that 23 component and what date that component was created. 24 Q. Thank you, Mr. Gavel. 25 MS. POTKAY: I pass the witness.

898 1 MR. ABSHER: Permission to approach the witness 2 with some cross binders, Your Honor? 3 JUDGE BHATTACHARYYA: Yes, that's fine. 4 CROSS-EXAMINATION 5 BY MR. ABSHER: 6 Q. Good morning, Mr. Gavel. 7 A. Good morning. 8 Q. My name is Alton Absher. I am one of MRI's 9 lawyers and I'm going to ask you some questions. 10 Now, you testified on direct that you started 11 your design consultancy around 1998; is that correct? 12 A. That is correct. 13 Q. And then by, say, the end of 2007, Vertigo was 14 one of the clients of your design consultancy? 15 A. Actually, Vertigo was a client of mine prior to 16 that date. 17 Q. But at least by 2007 they were; is that correct? 18 A. Correct, yes. 19 Q. And so in late 2007, how many employees did 20 Vertigo have? 21 A. I was specifically involved with the design end 22 of the business, but I think if you -- if you would -- if 23 you would include the office staff, plus those in the 24 manufacturing environment, I'm guessing perhaps over 50. 25 Q. And then in 2014, Vertigo hired you as an	900 1 about February 15th. 2 Q. Mr. Gavel, do you recall giving deposition 3 testimony in this case in February 2023? 4 A. Yes, I do. 5 Q. And that there was a court reporter transcribing 6 your testimony at that time? 7 A. Yes. 8 Q. And you were under oath, right? 9 A. Yes, I was. 10 Q. And you swore to tell the truth? 11 A. Certainly did. 12 Q. And did you tell the truth in that deposition, 13 Mr. Gavel? 14 A. To the best of my ability, yes. 15 Q. And you had the opportunity to review the 16 transcript of that deposition, correct? 17 A. Yes. 18 Q. Please turn in your binder in front of you, 19 Mr. Gavel, to the tab marked CX-1896C. It should be near 20 the back. 21 A. Okay. 22 Q. And if you could turn to page 67, please. And 23 I'm going to -- and I'm going to direct your attention to 24 line 9 on page 67. Please let me know when you're there. 25 Are you there, Mr. Gavel?
899 1 employee for a period of time; is that correct? 2 A. Yes. 3 Q. So in that time period before 2014, when you 4 were providing services for Vertigo, you were not an 5 employee at the end, correct? 6 A. That is correct. 7 Q. Now, let's talk a little bit about an exhibit 8 that you discussed on your direct examination, JX-65. 9 Ms. Gray, would you mind publishing that, 10 please. 11 You recognize this document on the screen? 12 A. Yes, I do. 13 Q. And you testified, if I understood you, on 14 direct that a collaboration with Mr. Bolton -- you 15 collaborated with Mr. Bolton and then you created the CAD 16 file from which this image is derived; is that correct? 17 A. Actually, Mr. Bolton created the enclosure model 18 first, and then after our collaboration, I modified that 19 model to create the exploded view and also the airflow 20 geometry. 21 Q. Okay. Thank you for that clarification. 22 Now, you don't know when you and Mr. Bolton 23 started to collaborate on the -- on this project; is that 24 correct? 25 A. No. I would say we started to collaborate on or	901 1 A. I am, yes. 2 Q. I'm going to read page 67, starting at line 9. 3 And, Ms. Gray, you can take that image down. 4 "Question: When did you and Mr. Bolton begin 5 collaborating on the idea that ultimately led to what we 6 see in Exhibit 2? 7 "Answer: I don't recall when we began 8 discussing the requirement or when we started to 9 collaborate. I can -- I can confirm that, I think there's 10 a creation date of mid-February 2008, tagged on this 11 particular model, so our collaboration, you know, it was -- 12 it would have been around that time frame, I guess." 13 Did I read that correctly, Mr. Gavel? 14 A. Yes. 15 Q. Ms. Gray, you can put that image back up again, 16 JX-65C. 17 I'd like to help -- I'd like to understand a 18 little better how this image was created. If I understood 19 your direct testimony, you received a conceptual model from 20 Mr. Bolton; is that right? 21 A. Yes. 22 Q. And he had prepared that enclosure in a 23 collapsed state? 24 A. That's correct. 25 Q. And then you created the exploded state and

902 1 added the airflow geometry. Is that what you said? 2 A. Correct. 3 Q. Okay. Great. 4 Now, you -- as far as Mr. Bolton's ideas as they 5 relate to this image, you don't know whether or not any of 6 Mr. Bolton's ideas came from any work that he was doing 7 with MRI; is that correct? 8 A. That's correct. 9 Q. And I believe you also -- strike that. 10 Mr. Gavel, do you recall giving some testimony 11 on direct regarding the creation and modification date of 12 this file? 13 A. Yes. 14 Q. And you agree that you can create a new CAD file 15 and not add any geometry to it and still save that CAD 16 file; is that right? 17 A. Yes, I did. 18 Q. And the create date would show the date that you 19 saved it for the first time, right? 20 A. That's correct, yeah. 21 Q. So the CAD file on which this image is rendered 22 may not have looked like this until, say, late February of 23 2008; is that right? 24 A. That's correct. 25 Q. Now, this exhibit that we've been discussing,	904 1 Q. Page number 33, sir. 2 A. Okay. 3 Q. And I'm going to direct your attention to line 4 3. 5 "Question: You're not familiar with the term 6 'split airflow'?" 7 "Answer: Again, I could have heard that term 8 being used in the industry but I don't recall specifically. 9 My understanding -- my general understanding of what that 10 would mean is likely the same as a closed loop system, but 11 I have to qualify I'm not a thermal expert. So..." 12 Did I read that correctly? 13 A. Yes, you did. 14 Q. And a closed loop system is one in which there's 15 movement within an enclosure and separate movement of air 16 outside the enclosure; is that right? 17 A. Yes. 18 Q. And in that closed loop system, the two loops of 19 air, the one inside and the one outside, don't ever touch; 20 is that right? 21 A. That's correct. They -- they pass through a 22 common element usually, which would be part of a cooling 23 device like a heat exchanger. 24 Q. Ms. Gray, you can take that down. Thank you. 25 Mr. Gavel, you never spoke with anyone at MRI
903 1 that shows a split airpath; is that right? 2 A. The term "split airpath" is one that I've heard 3 regularly recently, and it has several different meanings 4 to me. So I could give you my speculation on what "split 5 airpath" means, if that would help. 6 Q. Well, in your understanding as someone who has 7 been in the industry for a number of years, does a split 8 airpath require more than one airpath? 9 A. Generally speaking, I would say yes. At the 10 very least, a split airpath would involve redirecting one 11 airpath into several different directions. 12 Q. And you understand a split airpath to be the 13 same as a closed loop system; is that right? 14 A. Not necessarily. 15 Q. Okay. And so, Mr. Gavel, you recall giving 16 deposition testimony in February, correct? 17 A. Yes. 18 Q. And you told the truth? 19 A. Yes, I did. 20 Q. You were under oath? 21 A. Yes. 22 Q. Can you please turn to tab C-1896C and go to 23 page 33. 24 25 A. Sorry, what was that page number?	905 1 before December of 2007; is that right? 2 A. To my knowledge, no. 3 Q. And you never communicated in any way with 4 anyone at MRI before December 2007; is that correct? 5 A. Not that I recall. 6 Q. And, in fact, you had never even heard of MRI 7 before December of 2007; is that right? 8 A. That's fair to say. 9 Q. And you haven't visited MRI's facility in 10 Alpharetta, Georgia, have you? 11 A. No. 12 Q. And have you ever heard of a company called 13 American Panel Corporation? 14 A. I recognize that name through our association 15 with MRI during the Outdoor Promotions contract. 16 Q. But you haven't been to American Panel 17 Corporation's facility either, have you? 18 A. No, I have not. 19 Q. Okay. And you and Mr. Bolton have been working 20 together, at least off and on, since around the late 1980s; 21 is that right? 22 A. That's correct. 23 Q. And so -- so when you started creating the image 24 we've been talking about with the exploded view with the 25 airpaths, you had been working with Mr. Bolton off and on

906 1 for about, I guess, close to 20 years; is that right? 2 A. Yes. 3 Q. And, in fact, as of this year, you're still 4 working on some projects with Mr. Bolton, right? 5 A. Correct. 6 Q. Is that with his company called Praevar? 7 A. Yes. 8 Q. Okay. And this -- and that exhibit -- can you 9 throw Exhibit 65 up again, please, Ms. Gray. 10 And Exhibit 65 here, that was the first time you 11 had ever created a schematic showing the movement of 12 airflow, right? 13 A. Yes. 14 Q. And in the 15 years since then, so in 2023, in 15 the intervening 15 years since then, you haven't worked on 16 any other projects that show arrows depicting airflow, have 17 you? 18 A. I've worked on many other projects, but we've 19 not had the need to create a marketing image such as this. 20 Q. So let me just direct you -- please answer my 21 question. 22 So in the 15 years since then, Mr. Gavel, you 23 have never worked on any other projects that show arrows 24 depicting airflow, correct? 25 A. That's correct.	908 1 please, Ms. Gray. 2 And this is the listing of the named inventors 3 for this provisional patent application, right? 4 A. Correct. 5 Q. And so the first -- the first name there is 6 Mr. Bolton, correct? And that's Chris Bolton, who was at 7 Vertigo? 8 A. Yes. 9 Q. And he was a co-founder of Vertigo, right? 10 A. Yes. 11 Q. And then the second named inventor, that's you, 12 correct? 13 A. Yes, it is. 14 Q. And at this time in 2008, you were not an 15 employee, but you did consulting work for Vertigo; is that 16 fair? 17 A. That is correct. 18 Q. And then the last individual, who is the third 19 named inventor there? 20 A. Greg Smrke. 21 Q. Okay. And he was -- and was he a consultant to 22 Vertigo at that time as well? 23 A. I believe he was, yes. 24 Q. All right. Let's take a look now at page 235 of 25 Exhibit 2524.
907 1 Q. Thank you. 2 Mr. Gavel, I'd like you to turn in the notebook 3 to the tab marked CX-2564. 4 And, Ms. Gray, if you could pull up CX-2564 -- 5 excuse me, 2524, and show page 206 on the screen. And -- 6 yes. 7 And, Mr. Gavel, if you could turn to the page, 8 sir. At the bottom right of the page, it says page 206. 9 A. Got it. Almost there. Okay, I'm there. 10 Q. Thanks. And do you recognize this as a 11 provisional patent application? 12 A. Yes, it appears to be. 13 Q. And we see kind of in the middle -- if you want 14 to highlight that, Ms. Gray -- but the application number 15 ends in 197. 16 Do you see that? 17 A. Yes. 18 Q. And then the filing date -- if you want to 19 highlight that, Ms. Gray -- it's May 7th of '08. 20 Do you see that? 21 A. Yes. 22 Q. And can you please turn to page 209 -- and also 23 publish page 209, please. 24 A. Okay. 25 Q. If you could just show the sort of top half,	909 1 Do you understand this to be sort of a photocopy 2 of the same rendering as Exhibit 65 that we looked at 3 earlier, Mr. Gavel? 4 A. Yes. 5 Q. Okay. Great. 6 You can take that down, Ms. Gray, and bring up 7 CX-2523. 8 And if you want to look at the first page of 9 that document, do you recognize this as a U.S. patent 10 ending in -- it's U.S. Patent Number 8,472,174? 11 A. Yes. 12 Q. And do you see that the assignee is Vertigo 13 Digital Displays, Inc.? 14 A. Yes. 15 Q. And then if you look maybe about two-thirds of 16 the way down, under related U.S. application data, it 17 claims priority to the same provisional application ending 18 in '197 that we just discussed. Do you see that? 19 A. Yes. 20 Q. Now, I'd like you to flip to the figures of this 21 patent in your binder. 22 And, in particular, Ms. Gray, if you want to 23 pull up page 12 on the screen. 24 And do you notice that -- and then show page 13, 25 please, Ms. Gray.

910 1 And notice that Figure 10B, it is not in that 2 patent, is it? 3 A. I haven't leafed through every diagram, so -- 4 but I don't believe it is. 5 Q. Okay. 6 A. No. I'll confirm that it is not. 7 Q. Okay. Thank you. 8 And, Ms. Gray, you can take those down and bring 9 up the first page of the patent again. 10 Now, if you look at the inventors on the first 11 page of this patent, Mr. Gavel -- could you please magnify 12 the inventors, please, Ms. Gray? Yep. 13 The first named inventor -- so, first of all, 14 you're not named as an inventor on this patent, right? 15 A. That's correct. 16 Q. So they took -- so they took you off, but they 17 added -- it looks like the first one is Ralph Idems, do you 18 see that? 19 A. Yes, I do. 20 Q. And now, Ralph Idems was a co-founder of 21 Vertigo, wasn't he? 22 A. Yes. 23 Q. And you don't know why they took you off and 24 added Ralph Idems, do you? 25 A. I do not.	912 1 CAD illustration output may have been used for those as 2 well, correct? 3 A. It's possible. I don't recognize it, but the 4 geometry may have been used. 5 Q. And in Figures 21 and 22, those are also line 6 art from CAD drawings that you created, correct? 7 A. CAD drawings or models that were used to create 8 those drawings, yes. 9 Q. And look at Figures 23 to 25. Are those also 10 line art from your CAD drawings? 11 A. Yes. 12 Q. And what about Figure 26? 13 A. I had no involvement in the creation of that 14 chart. 15 Q. Okay. So it seems like more than half of the 16 figures of this '174 Vertigo patent came from your work. 17 Is that fair? 18 A. I wouldn't characterize it as specifically my 19 work. I was working for Vertigo on several different 20 projects, so, you know, it was a product of some of my 21 work, definitely. 22 Q. But more than half the figures include things 23 that you created, correct? 24 A. Or that I had worked on. 25 Q. And -- but still you weren't included as an
911 1 Q. And let's look a little more closely at the '174 2 patent, in particular, if you want to turn to the third 3 page, which is where the figures begin. And if you look at 4 Figures -- sort of the -- pages 3 through 8, which are 5 figures 1 through 6, Mr. Gavel, these figures represent -- 6 or these figures were created from line art drawings that 7 you created, correct? 8 A. Yes, I believe so. 9 Q. Okay. But even though you provided those, the 10 line art from which these drawings were created, you were 11 not named as an inventor on this patent, right? 12 A. No. 13 Q. Let's keep going. Now let's look at Figure 9 on 14 page 11. And look at Figures 9 through 13, Mr. Gavel. 15 You also had involvement in creation of those 16 figures, correct? 17 A. Yes. I don't know if I created these specific 18 images, but they definitely came from CAD models that I had 19 a part in creating. 20 Q. And let's go to Figure 16. Your CAD 21 illustration output was also used for Figures 16 and 17, 22 right, Mr. Gavel? 23 A. Sorry. Yes, that is correct. That was for, 24 yes, a different -- a different project. 25 Q. And then looking at Figures 18 and 20, you're	913 1 inventor, right? 2 A. Yes. 3 Q. Instead, they added Vertigo's co-founder, right? 4 A. Yes. 5 Q. Okay. Now, let's look at page 23 -- if you 6 could pull that up, Ms. Gray -- and look at Figure 22. 7 Do you see element 244 there? 8 A. Yes, I do. 9 Q. And those are struts, right? 10 A. Yes, they are. 11 Q. But you didn't design those struts, did you? 12 A. No. 13 Q. And Vertigo didn't design those struts, did 14 they? 15 A. No. They would have been a commercially 16 available off-the-shelf product that we purchased or 17 specified for this program. 18 Q. Let's really quickly go back to the provisional 19 application, 2524, and page 212. 20 Can you pull that up, Ms. Gray? 21 And you see, this is the title page of the 22 provisional. You see it's called outdoor audio video 23 display system. Do you see that, Mr. Gavel? 24 A. I do, yes. 25 Q. And then the section below that is called the

914 1 background of the invention. Do you see that? 2 A. Um-hum. 3 Q. Let's scroll down to paragraph 3 and look at the 4 first sentence. It says, "There is a need to provide 5 smaller-scale digital displays that are suitable for use as 6 a street-level display for use in a harsh environment, such 7 as outdoor use in locations where the units may be exposed 8 to direct sun, and other situations of extreme heat or 9 cold." 10 Did I read that correctly? 11 A. Yes. 12 Q. And so, do you agree that as of May 2008 when 13 this -- when Vertigo filed this patent application, there 14 was a need for digital displays suitable for use in 15 environments such as direct sun and extreme heat? 16 A. Yes, I would agree with that. 17 Q. Okay. Let's turn to the next page, please, 18 Ms. Gray, and we could -- yeah, get the entire first 19 paragraph there. 20 And let's look, in particular, at the second 21 sentence from the end that says, "There is therefore a need 22 to provide a system which includes a secure enclosure for a 23 flat panel digital display unit, but which is capable of 24 maintaining a suitable temperature range for an LCD 25 monitor."	916 1 A. Apparently, yes. 2 Q. And this is Vertigo's patent application, right, 3 not MRI's? 4 A. Yes. 5 Q. Okay. And this patent application from Vertigo 6 also discusses a 70-inch Samsung monitor. Do you see that? 7 A. I do. 8 Q. And -- but Vertigo didn't invent the 70-inch 9 Samsung monitor, did it? 10 A. No. 11 Q. No. In fact, that would be Samsung, I presume, 12 right? 13 A. Correct. 14 Q. But yet, despite not inventing that, Vertigo 15 still included that in its patent application, didn't it? 16 A. Yes. 17 Q. You testified on direct about creating some 18 custom brackets for Vertigo. Do you recall that? 19 A. I do. 20 Q. But the creation of that custom bracket that you 21 -- that you created reflects nothing more than common 22 design work, right? 23 A. I would agree with that. 24 Q. Thank you very much for your time, Mr. Gavel. 25 MR. ABSHER: I pass the witness.
915 1 Did I read that correctly? 2 A. I believe so, yes. 3 Q. And then, again, you would agree that such a 4 system as described here was needed in May 2008, right? 5 A. Generally, I would agree. I have to caveat that 6 I had no involvement in the creation of this text or body 7 of this provisional patent application, so... 8 Q. And, Ms. Gray, could you please turn to page 224 9 of this exhibit. In particular, pull up paragraph 45. 10 In the second sentence, it says, "In one aspect 11 a high output LCD monitor, such as the MRI 12 brightness-enhanced open-frame 70-inch Samsung monitor is 13 used to permit use in direct or near-direct sunlight." 14 Do you see that? 15 A. Yes, I do. 16 Q. So did you know that at the time this was filed 17 in May of 2008, that Vertigo and MRI were under a 18 nondisclosure agreement? 19 A. I would have assumed that they were based on the 20 partnership that we had going on with the Outdoor 21 Promotions contract, but I don't know specifically that 22 they were. 23 Q. Okay. But, regardless of an NDA, Vertigo still 24 included this statement about MRI's technology in its 25 patent application, right?	917 1 MS. POTKAY: Nothing further from Respondents, 2 Your Honor. 3 JUDGE BHATTACHARYYA: Thank you. 4 Mr. Gavel, you may step down. 5 (The witness stood down.) 6 JUDGE BHATTACHARYYA: Let's recess for 15 7 minutes. 8 (A recess was taken at 11:06 a.m., after which 9 the proceedings resumed at 11:22 a.m.) 10 JUDGE BHATTACHARYYA: Please be seated. 11 MR. KLINE: Your Honor, Respondents call Robert 12 Smith-Gillespie next and I have for the Court two copies of 13 a slide presentation. 14 JUDGE BHATTACHARYYA: Thank you. 15 Welcome, Mr. Smith-Gillespie. 16 THE WITNESS: Thank you. 17 JUDGE BHATTACHARYYA: Could you please raise 18 your right hand. 19 Whereupon-- 20 ROBERT SMITH-GILLESPIE, 21 having been first duly sworn/affirmed, was examined and 22 testified as follows: 23 24 THE WITNESS: I do. 25 JUDGE BHATTACHARYYA: Thank you.

918 1 DIRECT EXAMINATION 2 BY MR. KLINE: 3 Q. Good morning, Mr. Smith-Gillespie. 4 A. Good morning. 5 Q. Could you introduce yourself to the Court, 6 please. 7 A. My name is Robert Smith-Gillespie. 8 Q. Where do you live? 9 A. I live in Eugene, Oregon. 10 Q. What were you asked to do in connection with 11 this investigation? 12 A. I was asked to provide opinions relative to the 13 validity or invalidity of the asserted patents in this 14 case. 15 Q. And have you formed any conclusions on that 16 matter? 17 A. Yes, I have. 18 Q. What conclusions have you formed? 19 A. I have -- my opinion is that the asserted 20 patents are obvious in view of various prior art that I 21 have considered. 22 Q. Have you prepared a set of demonstratives to 23 assist in your testimony here today? 24 A. Yes, I have. 25 Q. So let's take a look at slide 2.	920 1 numeric displays and then mid-sized to large panel 2 displays. 3 Q. And I understand you have some experience 4 working on a simulator for the F-22 fighter jet? 5 A. Yes. That was a consulting project that I did. 6 That was an LED backlight design for a set of large aspect 7 ratio TFT displays in the simulator that utilized some 8 cooling structures that required airflow across the plates. 9 Q. Has your professional experience included any 10 past involvement in any professional organizations 11 concerning electronic displays? 12 A. Yes. I have been involved in the Society For 13 Information Displays for a number of years. I sat on a 14 paper organization or paper review committee for organizing 15 the annual symposium for, I'd say, five or six years. 16 Q. And have you yourself published any articles on 17 heat transfer issues relating to electronics? 18 A. Yes, both related to LED backlighting, related 19 to LCD ruggedization and thermal environment exposures as 20 well as some papers on how to calculate for design purposes 21 the temperature that an LED die inside a product would 22 reach using basically heat transfer mathematics. 23 Q. And do you have an understanding about the 24 definition of a person of ordinary skill in the art in the 25 context of the patents at issue in this investigation?
919 1 Does this slide reflect your educational 2 background and work experience? 3 A. Yes, it does. 4 Q. Could you summarize for us, please, your 5 educational background? 6 A. Yes. So I have a Bachelor of Arts in Physics 7 from State University of New York, Plattsburgh, 1981; a 8 Bachelor of Science in Mechanical Engineering from Arizona 9 State in 1989; and then more recently, a Master's of 10 Science in Systems Engineering from Embry-Riddle 11 Aeronautical University, 2021. 12 Q. Mr. Smith-Gillespie, what is your current 13 occupation? 14 A. I am currently working as a senior staff 15 engineer for Alveo Technologies, a medical device 16 diagnostic -- in vitro diagnostic device developer and 17 manufacturer. 18 Q. Do you have any professional experience working 19 with liquid crystal displays? 20 A. Yes, I do. 21 Q. Can you give us a couple of examples of that? 22 A. Okay. Yes. So in -- earlier in my career at 23 Honeywell, I was working on flight deck displays for 24 commercial aircraft, and most of the work there in the -- 25 probably from '89 on, was around LCD displays, both small,	921 1 A. Yes, I do. 2 Q. And what do we have here on slide 3? 3 A. This is two very similar definitions of a person 4 of ordinary skill in the art. 5 Q. And are you, in fact, a person of ordinary skill 6 in the art under this definition? 7 A. Yes, I am. 8 Q. Were you in the 2008 time frame? 9 A. Yes, I was. 10 Q. If you could turn to -- if we could turn in your 11 binder. I should have said you have a binder -- 12 A. I do have. 13 Q. -- of exhibits, RX-0254. 14 Do you recognize the document? 15 A. Oh -- 16 Q. It is on your screen as well? 17 A. Yes, okay. 18 Q. You're always welcome to look through your 19 binder. But sometimes you may find that it is enough 20 information on the screen. 21 A. Yes. 22 Q. Do you recognize the document? 23 A. Yes, it is a copy of my CV. 24 Q. Who prepared it? 25 A. I prepared it.

922 1 Q. When? 2 A. I updated it about the beginning of this year. 3 Q. Was it accurate as of that time? 4 A. Yes, it was. 5 MR. KLINE: Your Honor, Respondents offer 6 Mr. Smith-Gillespie as an expert in the field of electronic 7 displays, including thermal management associated with 8 electronic displays. 9 JUDGE BHATTACHARYYA: Any objection? 10 MR. STOCKWELL: Your Honor, Complainants object 11 to the witness' qualifications with respect to thermal 12 management, in particular. I am happy to do voir dire on 13 that during our cross-examination, rather than interrupt 14 counsel's direct. 15 JUDGE BHATTACHARYYA: All right. Why don't we 16 proceed that way. 17 MR. KLINE: Thank you, Your Honor. 18 BY MR. KLINE: 19 Q. Turning to slide 4, Mr. Smith-Gillespie, what 20 materials did you rely upon and consider in connection with 21 conducting your analysis in this investigation? 22 A. I reviewed the asserted patents and their file 23 histories, a number of prior art references, the claim 24 construction by both parties and by the Court, deposition 25 testimony and MRI's expert reports, and I considered this	924 1 that are relevant to your investigation? 2 A. Yes. There's several that I used. 3 Q. Are several of the references that you have used 4 described on this slide 6 of RDX-007? 5 A. Yes, this depicts four of the patents that I 6 considered, prior art patents, including Takeuchi, Kim, 7 Kimura for the constricted convection plate cooling patents 8 and then the Karppanen patent for the '287, '740 and '142. 9 Q. And do you understand that the parties have 10 agreed to the construction of certain claim terms in the 11 investigation? 12 A. I understand that, yes. 13 Q. On slide 7, what do you recognize this to be? 14 A. This is the summary of the agreed-upon 15 constructions of the claim terms that are listed on the 16 left column. 17 Q. Did you apply these constructions in conducting 18 your analysis? 19 A. Yes, I did. 20 Q. And while the parties could not agree on all the 21 constructions, do you understand that the Court has issued 22 constructions of certain claim terms? 23 A. Yes, I understand that. 24 Q. And do you recognize the terms on slide 8? 25 A. Yes. Again, on the left side are the terms that
923 1 all in light of my experience in the electronic display 2 business. 3 Q. And did you conduct your analysis in this matter 4 from the perspective of a person of ordinary skill in the 5 art under the definition we saw a moment ago? 6 A. Yes, I did. 7 Q. Taking a look at the patents in this 8 investigation, do you group them in any way? 9 A. Yes. 10 Q. How so? 11 A. There's -- there's -- the first two patents, the 12 '595 and the '322 patent relate to cooling structures 13 incorporating a constricting convection plate. The '287 14 patent relates to open and closed loop cooling for an 15 electronic display. And then the '740 and '142 patent 16 relate to the use of heat exchanger in cooling of 17 electronic display. 18 Q. And have you been made aware of the dates that 19 MRI claims as the earliest priority dates for each of these 20 asserted patents? 21 A. Yes, I am. 22 Q. And have you just accepted that date for 23 purposes of your analysis? 24 A. I have. 25 Q. Are you aware of particular prior art references	925 1 required construction; on the right side, the constructions 2 provided by the Court. 3 Q. And, similarly, what do we see on slide 9? 4 A. Same thing, just additional terms. 5 Q. Did you apply all of these constructions in the 6 course of your investigation in this matter? 7 A. Yes, I did. 8 Q. So based on the materials you considered, your 9 experience in the field, and the Court's claim 10 constructions and the parties' agreement regarding claim 11 constructions, what conclusions did you reach concerning 12 the validity of the asserted claims that you analyzed? 13 A. It's my opinion that the asserted claims of the 14 '595, '322, '740, '142 and '287 are all anticipated or 15 obvious in view of the prior art. 16 Q. And with respect to your conclusions that 17 certain of the asserted claims would have been obvious in 18 view of the prior art, you understand, do you not, that MRI 19 has argued there are certain secondary conditions of 20 non-obviousness that undercut the obviousness conclusion? 21 A. Yes, I do. 22 Q. Have you considered those arguments? 23 A. I have reviewed them, yes. 24 Q. Did you form any conclusions concerning those 25 secondary considerations?

926 1 A. Yes. It is my opinion that they are not 2 convincing and -- for a number of reasons. I have a slide 3 later on that will talk about it. 4 Q. Right. We will come back to that, thank you. 5 And you have mentioned anticipation and obviousness. 6 Did you also consider the issue of written 7 description with respect to any of the asserted claims? 8 A. Yes, I did. With respect to claim 9 of the '322 9 patent. 10 Q. What conclusions did you reach in that regard? 11 A. That there is inadequate written description in 12 the specification of the '322 patent to support the claim. 13 Q. So I would like to turn to the '595 and '322 14 patents first. Fair? Fair to go that way? 15 A. Okay. 16 Q. What conclusions have you reached concerning the 17 asserted claims, first, of the '595 patent? 18 A. Claim 1 is anticipated in view of Takeuchi or 19 Kim or by both, I should say. And then claim 4 is obvious 20 in view of Kim with Hong, as is claim 7. And then claim 8 21 is obvious in view of Kim, Hong, and Takahashi together. 22 Q. And what conclusions have you reached concerning 23 the validity of the asserted claims from the '322 patent? 24 A. Claim 3 is obvious in view of Kim and Tachikawa. 25 Claim 4 is obvious in view of Kim and Hong. Claim 5 is	928 1 Q. Does the image come from the Takeuchi reference 2 itself? 3 A. Takeuchi Figure 1. 4 Q. What are we seeing on the right-hand side? 5 A. This is a cross-section view from -- that is 6 provided, it is Takeuchi Figure 5. It is essentially a 7 slice down the middle of the display or somewhere in the 8 central region of the display to better illuminate the 9 material stacks in the display. 10 Q. You're familiar, are you not, with the term 11 "open loop cooling"? 12 A. I am, yes. 13 Q. How if at all does that relate to Figure 5 on 14 slide 15? 15 A. So briefly Figure 5 discloses an air pathway 16 where air is drawn in from the outside through a set of 17 figures under the draw of a fan, 57, that is shown at the 18 top. And then progresses through a constricted channel 19 along the back of the display elements 16 and 17. 20 And exits the display in that area, so since the 21 air comes from outside ambient and progresses back through 22 outside ambient, this is considered an open loop. 23 Q. So let's take a look at claim 1 of the '595 24 patent, in particular. And I see you have divided it up 25 into sections. Is that right?
927 1 obvious in view of Kim, Hong, and Tachikawa. Claim 8 is 2 obvious in view of Kim, Hong, and Takahashi. And claims 9, 3 12, and 13 are obvious in view of Kimura. 4 Q. So let's start with your analysis concerning the 5 prior art reference, I will say Takeuchi. Thank you very 6 much. 7 A. Okay. 8 Q. We have an excerpt here on slide 14 but you can 9 find in the binder on your table, RX-1367. 10 I would ask you whether you recognize the 11 document? 12 A. Yes, I do. This is United States Patent 13 Application Publication, published on March 6th of 2003 for 14 a display system with cooling device to Takeuchi. 15 Q. When did it publish? 16 A. March 6th of 2003. 17 Q. Thank you. Turning to slide 15, what is the 18 image shown on the left-hand side of slide 15? 19 A. This is a front view of Takeuchi's electronic 20 display showing the screen area that's formed by pixel 21 elements 2 in the center of the frame. There's a frame 22 around that, obviously, of 1, and then there's some light 23 sources that are nested around the outside of the frame to 24 illuminate the light guide plate which you won't see 25 because it is transparent.	929 1 A. That's correct. So it will be easier to follow 2 along with the sub-claims or claim elements as we go. 3 Q. So let's walk through those elements. Does 4 Takeuchi disclose an electronic display? 5 A. Yes. Takeuchi discloses a display system. The 6 display system includes panel portions that receive an 7 inputted image signal and cause a video image to be 8 displayed on the display. 9 Q. Does Takeuchi describe a system for cooling an 10 electronic display? 11 A. Yes. Takeuchi also discloses that at paragraph 12 7, the display system includes a cooling device for 13 properly cooling a display system. 14 Q. What is the electronic display disclosed by 15 Takeuchi? 16 A. It's a light-emitting display that utilizes LEDs 17 around the circumference of the display that illuminate a 18 light guide. The light travels by total internal 19 reflection through the display. 20 As long as the elements 16 and 17 are maintained 21 in contact with the display, if they are electronically 22 moved backward to create a very small space, they are no 23 longer totally internally reflected, they -- they then 24 scatter light forward. 25 So by organizing how those are adjusted, the

930 1 panels electrically, you can create an image on the 2 display. 3 Q. And in your view, does the preamble of claim 1 4 of the '595 patent limit the claimed system to any 5 particular type of electronic display? 6 A. No, it doesn't. 7 Q. And how do you know that Takeuchi discloses a 8 system for cooling its electronic display? 9 A. Well, Takeuchi discloses that, as I mentioned, 10 in paragraph 7 and then details the elements later on. 11 Figure 5 also shows the cooling system, again, with the 12 arrows provided by Takeuchi that show airflow directions. 13 Q. Turning to slide 18, the claim refers to the 14 display having a posterior display surface. Do you see 15 that? 16 A. Yes, I do. 17 Q. And do you understand the Court has construed 18 that term? 19 A. Yes. 20 Q. What did the Court conclude? 21 A. A posterior display surface is a rear-facing 22 surface of the display assembly. And here Takeuchi 23 discloses a light guide plate and panels 16 and 17. Panels 24 16 and 17 are the most posterior portion, so I have 25 highlighted those in red as the posterior display surface.	932 1 convection plate as the Court has construed that term? 2 A. Yes. In Figure 5 and its description in 3 paragraph 40, Takeuchi discloses a partition plate, 53, 4 which is generally a flat shape and it is placed between 5 the rear cover and the back sides of the light guide plate 6 and panel 16 and 17. 7 Q. And what do you base your conclusion upon that 8 it acts as a constricted convection plate? 9 A. This plate forces --the partition plate creates 10 a flow path for a fluid to move through, fluid being air, 11 to move through and along the backlight of the light plate 12 to basically remove heat from that portion of the display. 13 Q. In the configuration depicted in Takeuchi Figure 14 5, where is the partition plate 53 relative to the 15 posterior display surface? 16 A. It's behind the posterior display surface, 17 spaced apart sufficiently to allow airflow to move through 18 the zone. 19 Q. Turning to slide 21, the claim notes two side 20 panels placed adjacent to the constricted convection plate 21 and the posterior display surface. 22 Is Takeuchi's display system enclosed? 23 A. Yes, it is enclosed. 24 Q. How do you know that? 25 A. Takeuchi forms some insulating materials at the
931 1 Q. Turning to slide 19, the patent claim goes on to 2 say that it is contained within a housing. Does Takeuchi 3 disclose a housing for its electronic display? 4 A. Yes. The housing is comprised of two parts, a 5 frame 3 that goes around the circumference and prevents 6 light leakage at the periphery of the panel, both from the 7 LEDs and the panel itself. 8 And then there is a rear cover that completely 9 covers the display -- the display portions of the light 10 guide and the panels, 16 and 17. It is 51 shown in this 11 figure. 12 Q. Pardon me. I was going to ask that. Does the 13 patent give a reference number to the rear cover? 14 A. Yes. 15 Q. What is the reference number? 16 A. 51. 17 Q. Turning next we see the claim refers to a 18 constricted convection plate placed posterior to the 19 posterior display surface. And this is on slide 20. 20 What's your understanding of how the Court has 21 construed the term "constricted convection plate"? 22 A. This Court construed constricted convection 23 plate to mean a plate that's configured to form part of a 24 constricted convection channel. 25 Q. And does Takeuchi disclose a constricted	933 1 periphery of the display. In this cross-section view, 2 there is a pair shown. One would see those same 52 3 elements if a horizontal cross-section were taken through 4 the display, so that forms a sealed chamber, with the 5 exception of a pair of inlets and an outlet. 6 And this is -- this is discussed -- the inlets 7 are through filters 54 and 55a and b, and the outlets are 8 through the fan area. 9 Q. And how do the side panels impact airflow, if at 10 all? 11 A. In this case, the side panels do two things. 12 One, they prevent the air from diverging outward from 13 behind the -- the light guide and panels 16 and 17 and 14 thereby not cooling the display. 15 They additionally prevent the influx of dirty 16 air. You will see there's a series of filters, a coarse 17 filter followed by a fine filter at 55a and 55b, so this 18 shows that the channel is sealed, except for entrances and 19 exits. 20 Q. And where are those side panels located relative 21 to the constricted convection plate in the posterior 22 display surface? 23 A. They are at the edges, the side edges of the 24 channel. 25 Q. And you're familiar with a gentleman who has

934 1 testified earlier this week, Mr. Credelle? 2 A. Yes, I am. 3 Q. And you're aware that Mr. Credelle has argued 4 that Takeuchi does not disclose side panels? 5 A. Yes, I am aware that's his opinion. 6 Q. And do you agree with his opinion? 7 A. I disagree with it. There is no support for it 8 in Takeuchi to say that these are not side panels to a 9 constricted convection channel. 10 Q. Nevertheless, if we were to take Mr. Credelle's 11 opinion for sake of argument, have you considered the 12 question whether a person of ordinary skill at the time 13 would have wanted to have added side panels to Takeuchi's 14 cooling system? 15 A. Yes, I have considered it. 16 Q. What have you concluded in that regard? 17 A. It would be obvious to include side panels to 18 direct the airflow along the backlight for reasons I 19 previously mentioned, one being the keeping out the dirty 20 air and, two, preventing the air from the -- the airflow 21 into the backlight from diverging out from behind the 22 display and disrupting the cooling, reducing the uniformity 23 of the cooling, essentially. 24 Q. Would the Takeuchi cooling system work with 25 outside panels?	936 1 is another filtered inlet at 55b, part of the way up the 2 constricted convection channel. 3 Q. Does airflow through Takeuchi's chamber to 4 remove heat from the posterior display surface? 5 A. Yes, it does. 6 Q. How so? 7 A. Fan 57, which is called a blower, pulls the air 8 or draws it through the constricted convection channel. 9 There's a recessed portion, 56, where this fan sits and 10 behind the fan, as you can see even in the section view, 11 there's an open space to allow the air out. 12 Q. And I understand you have undertaken to compare 13 Figure 5 of Takeuchi against Figure 5D of the '595 patent; 14 is that right? 15 A. Yes, I have. 16 Q. Is this that comparison? 17 A. Yes, it is. 18 Q. What are we looking at here? 19 A. This shows the Figure 5 of Takeuchi on the left 20 and Figure 5D of the '595 patent on the right. Both of 21 these are cross-section views. Both of them show air 22 inlets to a constricted channel at the bottom area of the 23 display. 24 Additionally, they both show airflow arrows that 25 progress up through the display along the rear surface of
935 1 A. It is my opinion it would not work with outside 2 panels. 3 Q. Turning to slide 22, we see that the patent 4 claim refers to defining a constricted convection channel 5 having an entrance and an exit. 6 Do you see that? 7 A. Yes, I do. 8 Q. Do you understand that the Court has construed 9 the term "constricted convection channel"? 10 A. Yes, I have. 11 Q. And have you taken that construction into 12 consideration in the course of your analysis? 13 A. Yes, I have. 14 Q. Based on that, do Takeuchi's constricted 15 convection plate and side panels define a constricted 16 convection channel? 17 A. Yes, they do. 18 Q. Where is that? 19 A. That's the space behind panels 16 and 17, which 20 are highlighted red in this view, and in front of partition 21 plate 53, which is highlighted yellow-ish. 22 Q. Does Takeuchi disclose an entrance and an exit 23 to the constricted convection channel? 24 A. Yes, Takeuchi in Figure 5 discloses an entrance 25 at 55a, which is through a filter mechanism, and then there	937 1 the display element. 2 And then they both have fans at the top, which 3 are drawing the air through the channel and exhausting it 4 out of the constricted convection channel. 5 Q. Thank you. So then just to summarize, what is 6 your conclusion with respect to Takeuchi and how it relates 7 to claim 1 of the '595 patent? 8 A. It is my opinion that claim 1 of the '595 patent 9 is anticipated or obvious in view of Takeuchi, since it 10 discloses each of the claim elements of claim 1. 11 Q. Let's turn next to the Kim reference, which I 12 believe was identified on an earlier slide. Is that 13 consistent with your understanding? 14 A. Yes. 15 Q. Did you form certain conclusions concerning the 16 Kim reference and its impact on the asserted claims of the 17 '595 and '322 patents? 18 A. Yes, it's my opinion that Kim anticipates claim 19 1 of the '595 patent, and Kim in view of Hong renders 20 claims 4 and 7 of the '595 patent obvious. And claim 8 is 21 obvious in view of Kim and Hong with Takahashi. 22 Q. How about the '322 patent, what conclusions did 23 you reach? 24 A. With regard to the '322 patents, it is my 25 opinion that claim 3 is obvious in view of Kim and

938 1 Takahashi. Claim 4 is obvious in view of Kim with Hong. 2 Claim 5 is obvious in view of Kim with Hong and Tachikawa. 3 And claim 8 is obvious in view of Kim with Hong and 4 Takahashi. 5 Q. So, Mr. Smith-Gillespie, I will note at this 6 moment we have some references that you have relied upon, 7 one called Tachikawa, correct? 8 A. Yes, that's correct. 9 Q. Another called Takahashi, correct? 10 A. That's correct. 11 Q. And we already have heard about Takeuchi, 12 correct? 13 A. That's correct. 14 Q. So you will correct me when I misspeak -- 15 A. If you promise to correct me as well. 16 Q. -- and jumble these. 17 So I have to ask you to remind us of the 18 summaries of your -- of your opinion with respect to the 19 '322 patent as shown on slide 27. 20 A. Okay. My opinion, claim 3 of the '322 patent is 21 obvious in view of Kim and Tachikawa. Claim 4 is obvious 22 in view of Kim with Hong. Claim 5 is obvious in view of 23 Kim, Hong, and Tachikawa. And then claim 8 is obvious in 24 view of Kim, and Hong, with Takahashi. 25 Q. Thank you. And if you look in your binder at	940 1 A. Yes. This is a cross-section view of the 2 reassembled exploded view parts. So what we have is 3 display casing 110, where 115, you'll see 115 and 111, 4 those two elements joined together, they form casing 110. 5 There's an LCD panel that resides just inside 6 the casing. Behind that is a backlight unit. And then 7 there's a shield cover highlighted in green, 140, and then 8 cooling fan unit in the lower portion of the figure 9 highlighted in green. 10 Q. So turning to slide 31, we have claim 1 of the 11 '595 patent and, again, it appears you have divided it into 12 elements. Is that fair? 13 A. That's correct, yes. 14 Q. So taking it element-by-element, does Kim 15 disclose an electronic display? 16 A. Yes. As shown in column 4, '436, a display 103 17 comprises a liquid crystal display panel which is an 18 electronic display. 19 Q. Does that display include a posterior display 20 surface as the Court has construed the term? 21 A. Yes. The backlight unit of the liquid crystal 22 display assembly is -- contains a posterior surface and it 23 is highlighted here in red. So backlight unit is Number 24 130. 25 Q. Does Kim disclose a system for cooling its
939 1 RX-1396, you will find a copy of a complete document that 2 we're showing, the cover of which we're showing on slide 3 28. 4 A. Yes. 5 Q. Do you recognize the document? 6 A. Yes, I do. 7 Q. What is it? 8 A. This is what we're calling the Kim reference. 9 It's an issued U.S. patent for a cooling unit and display 10 apparatus having the same. It was filed in July of -- July 11 16th of 2007. 12 Q. Let's take a look at Figure 2 of the Kim 13 reference, which is shown here on slide 29. What are we 14 looking at here? 15 A. This is an exploded view of the electronic 16 display assembly disclosed in Kim, the covers which are the 17 casings 110 are taken apart, there's actually two elements, 18 110 -- 111 and 115 that form the casing, allowing us to see 19 inside the stack of components. 20 In the front there is an LCD panel 120. Behind 21 that a backlight unit, 130, some electronics, and then a 22 shield cover, 140. And attached to the shield cover is a 23 cooling fan unit. 24 Q. And let's take a look at Figure 5 of Kim, in 25 particular. Help us understand this image, please.	941 1 electronic display? 2 A. Yes, Kim does. Kim includes a cooling fan and a 3 shield cover 140. The cooling fan unit is organized to 4 move air along the backlight unit in this space created 5 between the rear surface of the backlight unit and the 6 front surface of the shield plate. 7 Q. Does Kim's display system include a housing? 8 A. Yes, it does, casing 110. 9 Q. Does the Kim's display system include a 10 constricted convection plate as that term has been 11 construed by the Court? 12 A. Yes, it includes shield cover 140, which is -- 13 resides behind the backlight unit 130 and spaced apart from 14 it. 15 Q. And what does Kim say about the shield cover 16 140? 17 A. The shield cover is provided on the rear of the 18 backlight unit at column 452 through 55, and then, 19 additionally, that the shield cover, 140, may be formed in 20 diverse shapes, such that the flowing air produced by the 21 cooling fan can be efficiently guided. That's at column 4, 22 59 through 63. 23 Q. Looking at Figure 5 of Kim that we show here on 24 slide 34, where is the shield cover 140 relative to the 25 posterior display surface that you referred to a moment

942 1 ago? 2 A. It is rearward of the rear of the backlight 3 unit, so posterior to the posterior surface of backlight 4 unit 130, and it is spaced apart somewhat. 5 Q. Pardon me. 6 A. Yes. 7 Q. Element 1b of the '595 patent, two side panels 8 placed adjacent to the constricted convection plate and the 9 posterior surface shown as the heading of this slide 34 -- 10 35. 11 Does Kim's system include two side panels? 12 A. Yes. Kim's shield cover, 140, has a pair of 13 elements that are bent at 90 degrees to the plane of the 14 shield cover. These elements form side panels for the 15 airflow pathways. 16 Q. Where are those side panels arranged relative to 17 the constricted convection plate? 18 A. As you can see them in yellow here, they are on 19 the left-most and right-most edges, if this was looked at 20 from behind. 21 Q. Slide 36's heading tells us that the claim 22 describes defining a constricted convection channel having 23 an entrance and an exit. 24 Does Kim's display system include a constricted 25 convection channel as the Court has construed the term?	944 1 A. The primary entrance is at the cooling fan, unit 2 200. And then there are some airflow slits, 117 prime, 3 that allow the air to escape out the far extensive display 4 after passing over the backlight. 5 Q. You mentioned the cooling fan. What's the 6 element for that? 7 A. Cooling fan unit 200. 8 Q. What does that do in Kim? 9 A. That draws air, ambient air from outside of the 10 display and into the constricted zone that we have created 11 with the shield cover and the rear surface of the backlight 12 unit. 13 Q. Thank you, Mr. Smith-Gillespie. 14 So if you wouldn't mind, please summarize for us 15 your opinion concerning Kim, the Kim reference and its 16 effect on the validity of claim 1 of the '595 patent? 17 A. Yes. Claim 1 of the '595 is anticipated or 18 obvious in view of Kim, because each of the claim elements 19 are disclosed within the reference as I have just shown. 20 Q. Let's move on to claim 4 of the '595 patent 21 that's shown here on slide 39. Again, you have divided the 22 elements, right? 23 A. Yes, I do. 24 Q. So on claim 40, the '595 patent claim 4 preamble 25 in element A, a liquid crystal display comprising a liquid
943 1 A. Yes, it does. 2 Q. Where is that? 3 A. The constricted convection channel is the space 4 between the front of the shield cover, 140, highlighted in 5 green here, and the rear-facing surface of the backlight 6 unit, 130. There's a space in Figure 5 that you will see 7 arrows that progress upward towards some exit ports at the 8 top and the bottom and downward after passing through the 9 cooling fan unit. 10 Q. Does air flow through that channel to remove 11 heat from the posterior display surface in the Kim 12 reference? 13 A. Yes, Kim states this in a couple of places, that 14 the shield cover as I said before could be formed in many 15 and diverse shapes such that flowing air produced by the 16 cooling fan can be efficiently guided. 17 And then again while cooling air flows through 18 the space among the backlight unit, the circuit board 133 19 and the shield cover, so, yes, cooling air generated by the 20 cooling fan therefore can efficiently cool the LEDs as Kim 21 states in column 5. 22 Q. Does Kim's constricted convection channel 23 include an entrance and an exit? 24 A. Yes, it does. 25 Q. Where are they?	945 1 crystal stack. Do you see that? 2 A. Yes, I do. 3 Q. Does Kim disclose those elements? 4 A. Yes, Kim discloses that at column 4 the liquid 5 crystal display panel, and the liquid crystal display 6 panel, it is well-known, is a stack of materials, hence, 7 the shorthand, liquid crystal stack, which comprise a 8 couple of sheets of glass spaced apart in which liquid 9 crystal fluid is encased. There is additional color 10 filters inside the stack and then a pair of polarizers on 11 the outside. So, hence, the name a liquid crystal stack. 12 Q. The next element is shown on slide 41, a 13 backlight assembly behind the liquid crystal stack and 14 comprising a metal core printed circuit board, having front 15 and back sides, a plurality of LEDs mounted on the front 16 side of the PCB." 17 Does Kim's LCD panel include a backlight 18 assembly? 19 A. Yes. Kim discloses backlight unit 130. 20 Q. Where is the backlight? 21 A. It is located behind the liquid crystal display 22 panel. 23 Q. Does Kim's backlight assembly include a printed 24 circuit board? 25 A. Yes, it does. It also --

946

1 Q. Would a person of ordinary skill in the art
2 understand that to be a metal core printed circuit board?

3 A. Not necessarily with regard to Kim. Kim, I
4 forgot to mention, I apologize, that the backlight also
5 includes a plurality of LEDs mounted to -- which would be
6 mounted to a printed circuit board as a person of ordinary
7 skill in the art would understand.

8 Q. Were metal core printed circuit boards known in
9 the art prior to 2008?

10 A. Yes, they were. They probably started first
11 being known in the 1970s for controlling the heat buildup
12 in power electronics, but not related to displays.

13 Q. Thank you. We will come back to that in a
14 moment. Staying with slide 41, does Kim's backlight
15 assembly include a plurality of LEDs mounted to the printed
16 circuit board?

17 A. Yes. Kim discloses that a plurality of
18 light-emitting diodes, or LEDs, are used as the light
19 source, and that these LEDs are widely distributed on the
20 plane of the backlight unit.

21 Q. Are the LEDs mounted to the front or the back of
22 Kim's PCB?

23 A. They would be mounted to the front, so that the
24 light could be emitted through the optical films and
25 through the LCD to form an image.

947

1 Q. But, nevertheless, element 4b refers to a
2 posterior surface on the rear side of the PCB. Does Kim's
3 PCB have a rear posterior surface?

4 A. Yes. The rear side of the backlight is a
5 posterior surface on the rear side of the PCB.

6 Q. So thinking about claim elements 4c and d of the
7 '595 patent, did you reach any conclusions as to those
8 elements with respect to Kim -- the Kim reference?

9 A. Yes. These are both obvious in view of the Kim
10 reference as I described in my analysis of the '595, claim
11 1, which includes the posterior -- or constricted
12 convection plate. And then -- for 4c, and then 4d, a fan
13 position to draw air through is also obvious in view of Kim
14 for the same analysis I provided for claim 1 of the '595.

15 Q. So if you could, looking at slide 44, please
16 summarize for us the conclusions that you have reached
17 concerning the Kim reference as it relates to claim 4 of
18 the '595 patent.

19 A. Yes. Kim discloses each claim element in claim
20 4 of the '595 patent, with the exception of a metal core
21 printed circuit board.

22 Q. How would a person of ordinary skill in the art
23 in the 2008 time frame have determined what kind of circuit
24 board to use in a liquid crystal display?

25 A. They would basically perform an analysis early

948

1 in the design stage, looking at the environment that the
2 display was going to be operated in, the luminance
3 requirements, which would determine the LED power
4 dissipation, and then using that model, they could simply
5 change the thermal resistance of the circuit board element
6 from -- between a standard, what would be called an FR 4,
7 fiberglass circuit board or a metal core circuit board to
8 determine the benefit and if it was necessary.

9 Q. By 2008, did metal core printed circuit boards
10 offer any advantages?

11 A. Yes, they did. The primary advantages of the
12 metal core circuit boards are that the -- reduce the
13 thermal resistance of the pathway from the LED
14 light-emitting portion, which is called the LED die, and
15 that has to be maintained in a certain operating
16 temperature range.

17 As LED powers go up, it's important to keep that
18 in a -- to sink the heat out of it, so to ensure that the
19 LEDs operate efficiently and that the LEDs have long life
20 too, because the lifetime of an LED device is related to
21 the operating temperature of the device.

22 Q. And just let me ask, Mr. Smith-Gillespie, I
23 apologize for being behind you a little bit there. Those
24 advantages, are those depicted on this slide 45?

25 A. Yes. So what we're seeing here is the thermal

949

1 efficiency that I pointed out. If the LED were to operate
2 at lower temperatures, less power would be needed or for
3 the same power, you could achieve higher brightness levels.

4 Q. Are you aware of any examples in the prior art
5 2008 of an LCD that included a metal core printed circuit
6 board?

7 A. Yes. In fact, the Hong reference is one of the
8 ones that I chose for my analysis.

9 Q. And I think we're looking on slide 46 of an
10 example in RX-1374 in your binder. Is that the Hong
11 reference you just referred to?

12 A. That is.

13 Q. When did it publish?

14 A. It published in July -- on July 26 of 2007 as a
15 published application, patent application for a liquid
16 crystal display device.

17 Q. And what is its title?

18 A. A Liquid Crystal Display Device.

19 Q. Thank you. Turning to slide 47, there is a
20 figure on the right. Does that figure come from Hong?

21 A. Yes, that's Figure 3 of Hong.

22 Q. And what are we looking at?

23 A. This is an exploded view of the display device
24 of Hong showing, with the frame moved up, we see the liquid
25 crystal panel and its mounting frame, a bunch of optical

950 1 films that are part of the backlight reflective film and 2 then there is a backlight unit or I should say a light 3 source unit, which includes PCBs, which are metal core PCBs 4 highlighted in yellow. And then a bunch of LEDs, 124, 5 mounted to those printed circuit boards. 6 Q. Referring to the figure, you mentioned those are 7 metal core PCBs. Does the Hong specification itself tell 8 us anything about those PCBs? 9 A. Yes, Hong, Hong states that the base PCB 122 may 10 include a metal core printed circuit board, which may 11 effectively absorb and transfer heat produced at the LEDs, 12 124. So he is citing the advantage of this. 13 Q. Have you considered whether the teachings of 14 Hong would have motivated a person of ordinary skill in the 15 art in the 2008 time frame to make any changes to the 16 display system disclosed in the Kim reference we looked at 17 a moment ago? 18 A. Yes. Yes, I have. 19 Q. And what have you concluded in that regard? 20 A. I believe that it would be helpful in the Kim 21 reference to incorporate a metal core PCB. A person of 22 ordinary skill in the art would understand that there would 23 be power savings. It would also allow the display to be 24 driven at higher luminance levels without overheating 25 because of its improved thermal efficiency.	952 1 placed near the exit of the constricted convection channel? 2 A. Yes, I see that. 3 Q. Looking at the Figure from Kim on slide 50, 4 where is the fan in Kim located? 5 A. Kim states that it's located in a lower central 6 portion of the shield cover. 7 Q. And at slide 51, let's look at claim 8 from the 8 '595 patent. 9 A. Wait. I didn't finish my -- 10 Q. I'm sorry. 11 A. Sorry. It is my bad. 12 Q. No. 13 A. I forgot to mention the exit. So the fan where 14 it is located is in the lower portion. There are exit 15 slots or slits, they are called, 117 prime. They are both 16 at the top and you'll see also at the bottom. And there's 17 a set of airflow arrows, that show air exiting that channel 18 at 117 prime, so, therefore, it is located near the exit of 19 a constricted convection channel. 20 Q. Thank you. At slide 51, we see claim 8 of the 21 '595 patent. Do you see that the claim requires a 22 plurality of access apertures through the constricted 23 convection plate? 24 A. Yes, I do. 25 Q. What's an access aperture?
951 1 Q. And how would such a person of ordinary skill in 2 the art in 2008 have gone about substituting the metal core 3 PCB in Hong for the PCBs disclosed in Kim? 4 A. Right. So this would be fairly straightforward 5 because as you can see there's an element 150 here, which 6 is the rear case of the backlight assembly. We saw in the 7 exploded view of Kim, there's already a rear case of the 8 backlight assembly that -- upon which the printed circuit 9 boards would reside. 10 So it would be a simple matter of replacing the 11 material of the printed circuit board, and this is 12 something that the board builder would do. You just 13 specify, use, you know, an aluminum substrate PCB. 14 In terms of the assembly, there would be little, 15 very little impact. 16 Q. So if you could, please, for us, 17 Mr. Smith-Gillespie, summarize the conclusions that you 18 have reached concerning claim 4 of the '595 patent? 19 A. Yes. Claim 4 of the '595 patent is obvious in 20 view of Kim with Hong because it discloses each of the -- 21 the combination discloses each of the elements, claim 22 elements of claim 4. 23 Q. So at slide 49, let's turn to claim 7 of the 24 '595 patent. 25 Do you see that claim 7 requires that a fan be	953 1 A. It is an aperture or a hole or a covered hole 2 that could be uncovered that allows access to, whether it 3 is screws, fasteners, connectors, that sort of thing, to 4 prevent -- to make easy the job of maintenance or service 5 for -- without taking the rear plate off. 6 Q. Does Kim's shield cover, for example, in Figure 7 2 of the Kim reference shown on slide 52, include access 8 apertures? 9 A. Yes. There's at least an access aperture where 10 the fan attaches. There's a sub-element that's probably 11 shown better in another view, but the fan mounts on a 12 little bracket and attaches to the shield cover. 13 And if you'll notice, there is a fairly large 14 size aperture formed in the rear of the shield cover, 15 roughly about where you would see the connectors on that 16 electronics board 133, which the connectors would be at the 17 lower left corner there in my opinion. 18 Q. Were access apertures in electronic displays 19 generally known in prior art around 2008? 20 A. Yes, they were. 21 Q. Are you aware of any other examples in the art 22 of electronic displays that include a plurality of access 23 apertures through a plate? 24 A. Yes, I am. 25 Q. And if you could take a look for me, please, at

954 1 slide 53, which is a cover of the document in your binder, 2 RX-1356. What are we looking at here? 3 A. This is a Japanese published patent application 4 to Takahashi for an electronic display with cooling system. 5 Q. When was Takahashi published? 6 A. Takahashi was published March 9th of 1999. 7 Q. At a high level, Mr. Smith-Gillespie, what if 8 anything does Takahashi teach us with respect to access 9 apertures? 10 A. The access apertures provide an ease of 11 maintenance for display, but, first, the way they work is 12 by providing a through-hole that gets sealed. There's an 13 airflow plate that attaches to the rear of the display 14 through which airflows. 15 And normally there would be a screw hole in that 16 location. Takahashi -- Takahashi discloses a device that 17 prevents air leak out through the hole by having a deep 18 recess in this air leak prevention part so that you only 19 need to unscrew the air leak prevention part to get to 20 other components. 21 Q. Does Takahashi describe benefits of that 22 approach? 23 A. Yes, yes, right here at paragraphs 4 and 7. 24 Q. And what are those benefits? 25 A. In the event of maintenance or inspection, it is	956 1 claim 4 of the '322 patent which is shown on the left-hand 2 side of slide 55? 3 A. So claim 4 is very similar to the claim 4 -- of 4 the '322 patent is very similar to claim 4 of the '595 5 patent. The differences being that whereas the '595 patent 6 claims a metal core printed circuit board, there's no 7 limitation on the type of circuit board in the '322. 8 And then the '322 also adds an additional 9 requirement on the constricted convection plate, that being 10 that it is substantially parallel to the posterior surface 11 of the PCB. 12 Q. Were you finished? 13 A. I pause to think every now and then. 14 Q. That's good. 15 A. So, therefore, Kim in view of Hong, and I will 16 show with regard especially to claim 4c, it is rendered as 17 claim 4 of the '322 patent obvious as well? 18 Q. Turning to slide 56, Mr. Smith-Gillespie, remind 19 us, what did you conclude concerning whether Kim discloses 20 a constricted convection plate? 21 A. Yes, Kim discloses shield cover 140, which is 22 configured to form a constricted convection channel. So, 23 therefore, it's a constricted convection plate. 24 Q. And how is that shield cover oriented relative 25 to the posterior surface of the PCB in Kim?
955 1 possible to remove the substrate attachment screw from the 2 opening in the aforesaid air leak prevention part without 3 needing to remove the air guide plate. 4 Q. Did you consider whether the teaching of 5 Takahashi would have motivated a person of ordinary skill 6 in the art in the 2008 time frame to have made any changes 7 to the display described in the Kim reference that we 8 looked at earlier? 9 A. Yes, I did. 10 Q. What did you conclude in that regard? 11 A. I concluded that it would make sense to include 12 these in strategic areas if there is maintenance required 13 for those areas, allowing, you know, better -- better air 14 control within the constricted convection zone. 15 Q. And would a person of ordinary skill in the art 16 in that 2008 time frame have had a reasonable expectation 17 of success in making this modification to Kim? 18 A. Yes, it is very straightforward. Kim already 19 has a number of very small holes to create a larger one and 20 then seal it would not be outside the realm of skill of a 21 person in the art. 22 Q. So could you summarize for us, please, the 23 conclusions you reached -- well, no, that's not what I want 24 to ask. I want to start with claim 4 of the '322 patent. 25 What conclusions have you reached concerning	957 1 A. It is parallel to it. It is shown in Figure 5. 2 Q. Turning to claim 8 of the '322 patent, what 3 conclusion did you reach concerning claim 8 of the '322 4 patent? 5 A. My conclusion is that Claim 8 of the '322 patent 6 is obvious in view of Kim with Hong and Takahashi. 7 Q. And how does the analysis compare to the 8 analysis you described earlier with respect to claim 8 of 9 the '595 patent? 10 A. The same analysis applies. 11 Q. At slide 58, we see claim 5 of the '322 patent. 12 Do you see that it recites at least one bracket which 13 connects the posterior surface with the constricted 14 convection plate? 15 A. Yes, I see that. 16 Q. And looking at Figure 2 from the Kim reference 17 on slide 59, how is Kim's shield cover 140 attached to the 18 posterior surface of Kim's display? 19 A. Kim provides a pair of brackets formed on the 20 left and right edges viewed from behind of shield cover 21 140. These elements are brackets that attach to the 22 backlight unit itself. 23 Q. And I mentioned Mr. Credelle earlier. Are you 24 aware that Mr. Credelle has argued that the Kim reference 25 does not disclose brackets that connect its shield cover

958 1 140 to the posterior surface of the backlight? 2 A. Yes, I'm aware of that. 3 Q. Do you agree with Mr. Credelle? 4 A. No, I disagree. 5 Q. Why is that? 6 A. Well, the way this would attach, based on what I 7 see in the exploded view, is that screws would go in 8 through a frame, which goes directly into the rear case of 9 the backlight assembly. 10 And the rear case of the backlight assembly is 11 the posterior surface of the display. So we're connecting 12 to the posterior surface of the display. 13 Q. Let me ask a very basic question. What's a 14 bracket? 15 A. A bracket is an element, an interstitial element 16 that basically combines or provides fixation for a 17 component to a larger, typically, fixed component. 18 Q. Were brackets commonly used in the assembly of 19 electronic displays prior to March 2008? 20 A. Oh, yes, there were many examples of brackets. 21 Q. And from your analysis, does the '322 patent 22 restrict in any way the form of the claimed bracket to any 23 special kind? 24 A. No, there's no specific limitations called out 25 in the '322 patent.	960 1 in the cabinet. 2 Q. In your view, Mr. Smith-Gillespie, would the 3 teachings of this Tachikawa reference have motivated a 4 person of ordinary skill in the art in the 2008 time frame 5 to make any change concerning the mounting brackets of the 6 Kim system we looked at earlier? 7 A. Yes, I think that there's -- one could take the 8 teachings of this, maybe not the exact configuration that's 9 shown here, but certainly the concept that's disclosed in 10 Tachikawa to add extra support in the central span if the 11 display device were larger and required support for that 12 sheet metal component that forms the shield casing. 13 Q. And why might a person of ordinary skill in the 14 art at the time looking to improve Kim's display have been 15 motivated to look to Tachikawa for its brackets? 16 A. Tachikawa, as I pointed out, is addressed to 17 plasma display panels. Plasma display panels are very 18 heavy. The glass is thick. And -- relative to like an LCD 19 panel. So as display sizes would grow to even just large 20 desktop monitors, it would be necessary to support that 21 shield casing to keep it from warping or flexing in the 22 housing. So this would be an easy-to-implement approach. 23 Q. And would a person of ordinary skill in the art 24 in the 2008 time frame have had any difficulty in 25 substituting Kim's brackets with those disclosed by
959 1 Q. Are you aware of any express disclosure in the 2 art of brackets used in electronic display assemblies? 3 A. I'm aware of several disclosures in the art, 4 but, yes. 5 Q. In mind, any examples? 6 A. Yes, there is another one of the "Tak"-somebody 7 ones, if you will show me the next slide. 8 Q. Thank you. Yes, we see here on slide 60, and I 9 believe you have in the binder in front of you at RX-1353, 10 a Japanese published patent application. What is this 11 document? 12 A. This is a document to Tachikawa for a plasma 13 television and image display device published December 7th, 14 2006. 15 Q. And if we look at slide 61, Figure 1 from 16 Tachikawa, what are we looking at here? 17 A. So Tachikawa is addressed to a plasma display 18 panel, which in this case has a cabinet that houses the 19 plasma display panel. The plasma display panel is shown in 20 Figure 1 as item 10. The cabinet, at least the front 21 portion of the cabinet that is shown, is item 30. 22 And then Takeuchi also discloses a set of 23 brackets that secure to the rear of the plasma display 24 panel and then have bent elements that engage the cabinet 25 to support the -- better support the plasma display panel	961 1 Tachikawa? 2 A. No, they would not. I mean, Kim's shield cover, 3 as you can see in the view that we looked at, is a very 4 complex sheet metal part. This is just the addition of one 5 or two elements to that part. 6 Q. Turning to slide 62, we see claim 3 of the '322 7 patent, which depends from claim 1. Do you see that? 8 A. Yes, I do. 9 Q. Did you reach any conclusions concerning claim 3 10 of the '222 [sic] patent? 11 A. Yes, claim 3 is obvious in view of Kim and 12 Tachikawa. 13 Q. So claim 1 of the '322 patent requires a 14 constricted convection plate placed posterior to the 15 display surface covering the majority of the posterior 16 display surface. 17 Do you see that? 18 A. I do. 19 Q. Does Kim's shield cover, 140, cover the majority 20 of its rear-facing surface? And it might help you to look 21 at slide 64, which includes Figure 2 of Kim. 22 A. Yes. So looking at this, I have already talked 23 about how the side flanges or brackets of shield cover 140 24 nest into the backlight assembly at its left and right 25 edges, again, viewed from behind. So that means at least

962 1 that the shield cover is the full width of the backlight 2 assembly or display surface, the same. 3 The only thing that's not obvious here is 4 whether or not it goes all the way from the bottom to the 5 top, but I would say based on this view it's covering at 6 least 75 percent to 80 percent of the vertical height as 7 well. So it is covering the majority of the posterior 8 surface. 9 Q. I would like to turn to the Kimura reference 10 next, Mr. Smith-Gillespie, and how it relates to claims 9, 11 12, and 13 of the '322 patent. 12 Shown here at slide 66 is the cover sheet, and I 13 believe you'll find in the binder in front of you at 14 RX-1373, a copy of the reference, what is the document 15 we're looking at? 16 A. This is a published patent application to Kimura 17 for a cooling fan and image apparatus published on 18 September 7th of 2006. 19 Q. And next we see at slide 67, Figure 9 from 20 Kimura. What are we looking at here? 21 A. This is a cross-section view of Kimura taken 22 from Figure -- or presented in Figure 9. And this shows 23 the main elements. There is a liquid crystal panel with a 24 backlight unit, a housing, driving circuit that forms part 25 of a channel and a fan with a driving motor.	964 1 unit is part of the LCD, so it's the rear-facing surface of 2 the display assembly. 3 Q. Does Kimura's display include any electronics 4 mounted to its posterior surface? 5 A. No, it does not. 6 Q. Does Kimura show any figures of a display with 7 electronics mounted to its posterior surface? 8 A. No, it does not. 9 Q. Does the specification of Kimura discuss 10 mounting electronics to the posterior surface of its 11 display? 12 A. It does not. 13 Q. At slide 71, we see the element "a constricted 14 convection plate. And of course the Court has construed 15 that term. 16 With that in mind, does Kimura disclose a 17 constricted convection plate? 18 A. Yes. Driving circuit 19 is positioned in, 19 behind the backlight unit in a manner that causes it to 20 form a constricted convection channel. So, therefore, it 21 meets the requirement for a constricted convection plate. 22 Q. Where is Kimura's driving circuit 19 located? 23 A. It's behind the backlight assembly, rear 24 surface, and spaced apart from it sufficiently to create a 25 channel for the air to flow up.
963 1 Q. And at slide 68, we see claim 9 of the '322 2 patent in a format you have used before. Is that right? 3 A. That's correct. 4 Q. So stepping through those elements, at slide 69, 5 does Kimura disclose an electronic display? 6 A. Yes, Kimura discloses at paragraph 77 a liquid 7 crystal display panel, which is an electronic display. 8 Q. Does Kimura disclose a system for cooling its 9 electronic display? 10 A. Yes. Kimura discloses a cooling fan for cooling 11 the backlight unit. That's a high temperature region of 12 the flat panel display apparatus, so yes. 13 Q. That electronic display in Kimura, does it 14 include a front display surface and a posterior surface? 15 A. Yes, the front display surface would be the 16 image forming surface of the liquid crystal panel, and -- 17 17, and then the posterior surface of the display, the 18 electronic display is the rear surface of backlight unit 19 18. 20 Q. And -- 21 A. Shown here in pink. 22 Q. Did you reach that conclusion with the Court's 23 claim construction in mind? 24 A. Yes. The Court's claim construction is a 25 rear-facing surface of the display assembly. Backlight	965 1 Q. Does Kimura's driving circuit 19 cover a 2 majority of the posterior display surface? 3 A. In Figure 9, it appears to cover the majority of 4 the display surface. And I think that there's additional 5 support that it would need to cover the entire display 6 surface because it says in Kimura at paragraph 78 that the 7 backlight unit is cooled uniformly. 8 If the constricted -- if the driving circuit or 9 constricted plate that it forms did not cover the whole 10 backlight, then the thermal transfer would be different 11 between places where the backlight was or where the driving 12 circuit is, and where it's not. And, as a result, you 13 would have non-uniform cooling, which also results in 14 non-uniform display characteristics. It would be visible. 15 Q. At slide 72, we see a means for forcing air 16 between the constricted convection plate and the posterior 17 surface of the electronic display. 18 Does Kimura disclose such a means for forcing 19 air as the Court has construed the term? 20 A. Yes. Kimura discloses fan 20 with driving motor 21 22, and states that the circulating wind generated by 22 rotationally driving the cooling fan 20 in the form of -- 23 in the form of film of the rear surface of the backlight. 24 The entire backlight is cooled uniformly. 25 Q. Does Kimura's cooling fan force air between the

966 1 constricted convection plate and the posterior surface of 2 the electronic display? 3 A. Yes, it does. And that's most evident by 4 figure -- the lower part of Figure 9, where you see the 5 first arrow, that's an airflow arrow coming out of the fan 6 unit, entering the channel between the driving circuit and 7 the rear surface of the backlight. Then there are 8 additional arrows as this airflow progresses up behind the 9 backlight. 10 Q. Please summarize for us then the conclusion that 11 you reached concerning Kimura and claim 9 of the '322 12 patent? 13 A. Yes. Claim 9 of the '322 patent is obvious in 14 view of Kimura because Kimura discloses each of the claim 15 elements of claim 9. 16 Q. Let's turn to claim 12, which depends from claim 17 9 and refers to a housing which contains the electronic 18 display constricted convection plate and means for forcing 19 air. 20 Does Kimura disclose a housing? 21 A. Yes, Kimura discloses housing 16, element 16. 22 Q. What if anything is contained within Kimura's 23 display housing 16? 24 A. The liquid crystal panel, the backlight unit, 25 and a driving circuit and a fan with a fan motor.	968 1 the entire width of the display, the display assembly, 2 thereby create the film along the entire backlight. 3 Q. Now, are you aware that Mr. Credelle has argued 4 that Kimura does not disclose a plurality of fans? 5 A. Yes, I'm aware of that. 6 Q. Do you agree with him? 7 A. I disagree. 8 Q. Why? 9 A. I believe these fans are like additive. You can 10 put these elements in together. Each one constitutes a fan 11 by itself. The fact that there's only one motor driving 12 them, I guess the best example is if this were to grow 13 bigger, would a person of ordinary skill in the art know to 14 add one of these flipped so that you then have the whole 15 width again of a display. So if not, then it is obvious to 16 a person of ordinary skill in the art to include additional 17 fans. 18 Q. So can you summarize your opinions concerning 19 Kimura as it relates to claims 12 and 13 of the '322 20 patent? 21 A. Yes. It is my opinion that claim 12 and 13 are 22 obvious in view of Kimura. 23 MR. KLINE: Your Honor, I am happy to move on to 24 the '287 patent, unless -- 25 JUDGE BHATTACHARYYA: We're almost at lunchtime,
967 1 Q. If we look at slide 75, how does the air flow in 2 Kimura's display? 3 A. I'm sorry, I had trouble hearing part of that. 4 Q. How does the air flow into Kimura's display? 5 A. Oh, the air -- the air flows in through entry -- 6 air intake hole, 16a. 7 Q. And what does the specification tell us about 8 that? 9 A. That air is sucked into the cooling fan, 20, 10 from an air intake hole, 16a, formed the base of the 11 display housing 16. 12 Q. Is it fair to call the air intake hole, 16a, an 13 entrance aperture? 14 A. Yes, it is. 15 Q. Does that air intake hole, 16a, permit external 16 ambient air to enter into the housing? 17 A. Yes, it does. 18 Q. Let's take a look at claim 13 of the '322 19 patent. At slide 76, we see some figures from the Kimura 20 patent. How many fans does Kimura disclose? 21 A. In my opinion, Kimura discloses four fan 22 elements. They are driven by a single motor in this case, 23 but you can see that there are these vane assemblies that 24 are separated by support bearings and other elements to 25 form a number of fan elements, so that it can reach across	969 1 so perhaps it is a good time to take an early lunch. 2 MR. KLINE: It seems to me it might be, Your 3 Honor. Thank you. 4 MR. STOCKWELL: Your Honor, before we go off the 5 record. Apologies, Your Honor. 6 Before we go off the record, when we return from 7 lunch, we have some objections to some of the slides. And 8 the character of the objections is such that I would prefer 9 to have this discussed outside of the witness' presence. 10 And rather than interrupt -- these are the upcoming slides 11 in the next section counsel will be going over. 12 Rather than interrupt the examination, if we 13 could just start without the witness in the courtroom, make 14 the argument about scope on the slides, get a ruling and 15 then bring him in, I would prefer that. 16 JUDGE BHATTACHARYYA: Is that all right with 17 you? 18 MR. KLINE: It's fine with me, Your Honor. 19 JUDGE BHATTACHARYYA: Okay. I guess it would be 20 nice if you could give me a preview of what your objection 21 is, so that I can think about it a bit over lunch. Perhaps 22 we can have the witness leave the room now and you could 23 give me a preview of what the objection is. 24 MR. STOCKWELL: You want us to excuse the 25 witness now?

970 1 JUDGE BHATTACHARYYA: Yes, why don't we excuse 2 the witness now. 3 (The witness exited the hearing room.) 4 MR. STOCKWELL: Your Honor, by the way, I am 5 Mitch Stockwell representing the Complainant. 6 So, first off, there's sort of two categories of 7 objections. The first is with respect to slide 102. So 8 there's two references listed in here about, you know, heat 9 exchangers known in the art. I am not even sure how to 10 pronounce this, the Muellejeans and Olmstead references. 11 When we went back and looked at the materials in 12 the case, these are not cited in their invalidity 13 contentions. They are not cited in the expert report for 14 the proposition that, you know, heat exchangers are 15 well-known in the art, and, in fact, the expert's report 16 only relies upon a different reference, not these, to make 17 the point about whether heat exchangers are known in the 18 art. 19 So that's the overall context. That's the first 20 objection. 21 The more substantive or the more complicated 22 objection has to do with some slides that appear -- hang 23 on, let me look at my notes here -- at pages 129 through 24 34, 136, 139 through 40, 143 through 45. 25 And this has to do with the Yare reference. And	972 1 discussion last night certainly about the arrows and we 2 explained that Mr. Smith-Gillespie is going to testify as 3 described in the patent and as referred to in his report, 4 the dotted arrows show movement of air in the atmospheric 5 zone 40 whilst solid arrows show movement of air in the 6 sealed zone 30. 7 That's a direct quote from the reference. It is 8 disclosed in his report. It's in our contentions. That's 9 generally going to be his testimony. 10 I don't think there is a reasonable concern 11 about the slide itself. I take at face value the express 12 concern regarding the scope of the testimony and I can just 13 say it certainly is our intention to have 14 Mr. Smith-Gillespie testify consistently and within the 15 bounds of his expert report. 16 JUDGE BHATTACHARYYA: All right. How about 17 slide 102 regarding the heat exchangers? 18 MR. KLINE: Same thing, Your Honor. Those are 19 all -- it literally comes. Can we call that up, for 20 example? His expert report, at paragraph 147. Oh, page 21 63. Sure. There you go. 22 Do you happen to have 102 in front of you, Your 23 Honor? 24 JUDGE BHATTACHARYYA: Yes, I have 102 in front 25 of me.
971 1 we -- basically, we met and conferred last night about 2 this. There are new annotations and figures here that are 3 just totally absent from the expert reports, the prehearing 4 brief, and we believe they have completely changed their 5 theory of invalidity on this. 6 We don't know what the theory is going to be and 7 we're objecting to that. So that's the preview. I don't 8 want to get too far into the argument, just to let you know 9 where the objection stands. 10 JUDGE BHATTACHARYYA: Mr. Kline, could you give 11 me a preview of your response? 12 MR. KLINE: I can, Your Honor. To our view, the 13 objection isn't to the slides. It's to the scope of the 14 testimony that the witness gives. The witness is going to 15 testify in a manner that is consistent with his expert 16 report and the theories that he already has advanced. 17 I can tell you, for example, that slide 18 RDX-007.0012 is referred to literally at paragraph 146 and 19 147, I believe, of Mr. Smith-Gillespie's report. 20 Similarly, the Yare reference which everyone has 21 their own way of pronouncing, is addressed in 22 Mr. Smith-Gillespie. 23 At one point counsel last night mentioned some 24 arrows and we pointed out, and if we look, for example, at 25 this slide 130, for example, Your Honor. We did have a	973 1 MR. KLINE: This is just an example. It comes 2 right out of his report. And he is not going to -- 3 JUDGE BHATTACHARYYA: Is there a reference to -- 4 sounded like the objection was to using these particular 5 references, the Muellejeans and Olmstead references? 6 MR. KLINE: We're not offering any new 7 combination. He is not going to argue that the patent 8 claims are invalid in view of any combination that he has 9 not already disclosed in his report and that is consistent 10 with our contentions. This slide, 102, is consistent with 11 his report where he simply notes that heat exchangers were 12 known in the art. 13 JUDGE BHATTACHARYYA: All right. Is there any 14 paragraph in his report where he talks about these two 15 references illustrating what's known in the art? 16 MR. KLINE: Olmstead? 17 What's that? Right. 18 146, Your Honor. Here they are heat exchangers. 19 There is a cite at the bottom of page 62 that goes to the 20 top of 63, with a reference to the Olmstead heat exchangers 21 and those are in the reference to the patent and that's 22 what's shown on slide 102. 23 JUDGE BHATTACHARYYA: I see, okay. All right. 24 Okay. Thank you. 25 MR. KLINE: Should we have Mr. Smith-Gillespie

974 1 out of the room when we come back in an hour? 2 JUDGE BHATTACHARYYA: Yes. 3 MR. KLINE: Okay. Very good. Thank you. 4 MR. STOCKWELL: Thank you, Your Honor. 5 JUDGE BHATTACHARYYA: Thank you. 6 (Whereupon, at 12:44 p.m., a lunch recess was 7 taken.) 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	976 1 back to the annotations in his report. So we don't 2 understand why they're just not using the annotations in 3 his report. 4 If we go to the next slide, we see something 5 similar here in slide 3 on the left. That's what -- we see 6 this drawn-in display, it's also in the prehearing brief, 7 and then we see the disclosure on the right from his 8 demonstrative on page 131, and then we see it again on the 9 next slide, I believe, something similar with respect to 10 element 1d, the disclosures we received in the prehearing 11 -- both the prehearing brief and the expert report, versus 12 the new disclosures, where the annotations. And, 13 apparently, the contentions about what the reference is 14 disclosing are being changed. 15 And as my friend on the other side said, you 16 know, we haven't heard his testimony yet, but given that we 17 objected and said just go back to what was in his report, 18 and they're insisting on these new annotations, we believe 19 the objection is proper and, you know, we should not be 20 receiving these sorts of surprises. 21 Is there another -- I think there's one more 22 slide after this. This is another example. 23 And is there one more? Sorry. 24 So with that, Your Honor, I'll answer any of 25 your questions or let you confer with Mr. Kline on this.
975 1 A F T E R N O O N S E S S I O N 2 (1:46 p.m.) 3 JUDGE BHATTACHARYYA: Please be seated. 4 Shall we resume with discussing the objections 5 to demonstratives? 6 MR. STOCKWELL: So, Your Honor, in light of 7 counsel's representation that slide 102 is only being shown 8 as state of the art and has -- is not going to be used for 9 an obviousness combination whatsoever, I think that 10 objection is resolved. 11 I think what's left, though, is the Yare slides. 12 And, Ms. Gray, if you could pull up the summary 13 slides on this. And if you can go to the next slide. 14 So this is a comparison of, on the left, what we 15 saw in his expert report; and on the right, what we first 16 received last night. And you can see in his expert report, 17 he basically sort of drew a new box around what he 18 considered to be the display, extended that line, 30, and 19 created what we thought was the display, what he was going 20 to contend to be the display. 21 What we received at 7 p.m. last night was a 22 figure that was annotated differently. And we objected 23 that this was a new theory. They pointed out, well, he 24 cites the reference in these paragraphs and discusses these 25 items. And we're like: Well, fine, go back to your -- go	977 1 JUDGE BHATTACHARYYA: All right. I'd like to 2 hear from Mr. Kline. 3 MR. STOCKWELL: Thank you. 4 MR. KLINE: Thank you, Your Honor. What the 5 objection comes down to, as much as anything else, is they 6 don't like that some of the colors are different. There's 7 no objection to the -- that the slides disclosed last night 8 misrepresent the patent in any way. In fact, as I gave one 9 example earlier, Mr. Smith-Gillespie is really just going 10 to keep quoting the patent. 11 Could you put that slide up that you just had? 12 MR. STOCKWELL: Sure. 13 MR. KLINE: Just the one that you just had. 14 Part of what's happening, Your Honor, is it is correct that 15 the image on the left, it might come from the 16 Smith-Gillespie report, and they objected to that. So we 17 removed the thing they objected to and went just with the 18 image itself on the right, where all Mr. Smith-Gillespie's 19 demonstratives do is color-code things that are in the 20 specification itself. And he's going to quote from the 21 specification. 22 They're certainly free to cross-examine him 23 regarding -- if they feel as though his opinion has 24 changed. It hasn't. But if they feel as though it has 25 changed in some way that is detrimental to his credibility,

978 1 they are certainly free to cross-examine on that. But his 2 opinion that the patents are invalid in view of Yare is 3 fully disclosed and supported by the testimony that he is 4 going to give. So... 5 JUDGE BHATTACHARYYA: I guess my concern is the 6 alleged closed loop shouldn't change between what he said 7 in his expert report and what he's going to say now. The 8 alleged display shouldn't change between what he said in 9 his expert report, what he identified in his expert report, 10 and now. 11 And based on my very brief skimming, I was 12 concerned that there might be a change in the contentions 13 between what was the alleged display and alleged closed 14 loop that were being analyzed for invalidity in his expert 15 report and what is being relied upon now. 16 So if there's no discrepancy between those two, 17 there's no problem. But if there is discrepancy, then I -- 18 MR. KLINE: There should not be a discrepancy, 19 Your Honor. There should not be a discrepancy. The patent 20 itself notes that 20 is the display system. And you can 21 see there's also a fan at the top of that area. So it's 22 clear from the patent itself that the physical display 23 itself doesn't fill that entire space. There needs to be 24 room for the fan. 25 This annotation that he made in connection with	980 1 that the alleged closed loop is both the green area and the 2 blue area -- 3 MR. KLINE: Yes. 4 JUDGE BHATTACHARYYA: -- is that correct? 5 MR. KLINE: Yes. The patent describes that as, 6 I think, the sealed atmospheric zone -- 7 JUDGE BHATTACHARYYA: Okay. 8 MR. KLINE: -- is literally the term that the 9 patent uses and that Mr. Smith-Gillespie has used and will 10 use. 11 JUDGE BHATTACHARYYA: And was that the alleged 12 closed loop in his expert report? 13 MR. KLINE: Yes. 14 JUDGE BHATTACHARYYA: Do you agree with that, 15 Mr. Stockwell? 16 MR. STOCKWELL: Unfortunately, you asked the 17 same questions we did, because we thought that -- sorry. 18 So we thought that he was saying this is the loop right 19 here (indicating), which is why he drew the display here 20 (indicating). And now, you know, it looks like he's saying 21 this is the loop (indicating), like -- like it looks like a 22 change in theory to us. And he didn't discuss the display 23 in this manner in his report. He discussed the display as 24 being here (indicating) and these arrows as indicating the 25 loop.
979 1 his expert report simply indicates one area within that 2 space where that display might be, depending on the kind of 3 display it was. He removed that, and he's just indicating 4 now solely the area of the figure that says this is the 5 display system. 6 And he will say on his testimony that the patent 7 notes that the display system is at area 20, which is 8 exactly what he said in his report and at his deposition. 9 It's not going to be different, Your Honor. 10 JUDGE BHATTACHARYYA: And how about the closed 11 loop? Right now, it looks like the -- I'm not sure what is 12 being alleged as the closed loop on the right. It looks 13 like it's the green, because -- 14 MR. KLINE: It's both, Your Honor, because it's 15 -- it's the solid arrows. The specification itself notes 16 that it's the solid arrows that show airflow in the closed 17 loop. And Mr. Smith-Gillespie will refer to that sentence 18 in the specification. And that's consistent with the 19 opinion he has expressed since this matter began. So it's 20 the solid arrows. 21 You can see some come down through the green 22 area, some pass to the left, transitioning from green to 23 blue, and some have an L shape and move up through the blue 24 area. 25 JUDGE BHATTACHARYYA: So you're saying right now	981 1 So, I mean, I hear counsel saying we need to 2 hear his testimony in context. But if it's not a change, 3 why are they changing to a new annotation and new 4 disclosure? 5 JUDGE BHATTACHARYYA: Well, what's -- 6 MR. STOCKWELL: So that's where we're losing 7 track. 8 JUDGE BHATTACHARYYA: What's your understanding, 9 Mr. Stockwell, of what the contention was in the expert 10 report regarding where the closed loop is? 11 MR. STOCKWELL: This area right here 12 (indicating). 13 JUDGE BHATTACHARYYA: Around the blue? 14 MR. STOCKWELL: This is the display. And then 15 this is the -- (indicating). 16 JUDGE BHATTACHARYYA: All right. And now, in 17 your view, the contention has been changed to include the 18 blue as part of the closed loop? 19 MR. STOCKWELL: Well, I don't know, Your Honor. 20 JUDGE BHATTACHARYYA: You don't know. Okay. 21 MR. STOCKWELL: I'm sorry. I honestly wish I 22 could -- 23 JUDGE BHATTACHARYYA: Okay. 24 MR. STOCKWELL: -- answer your question. I 25 don't know.

982 1 JUDGE BHATTACHARYYA: I mean, what I -- 2 MR. STOCKWELL: And that's -- I mean, in 3 fairness, that's kind of like -- I mean, I don't know how 4 to cross him. I don't know how to prepare, like I don't 5 know what our expert is going to say about this, given this 6 is what -- we're hearing this for the first time, so... 7 JUDGE BHATTACHARYYA: Mr. Kline, I want to ask 8 you about paragraph 1534 of Mr. Smith-Gillespie's report. 9 I wonder if we could pull that up. 10 MR. KLINE: I have it, Your Honor. 11 JUDGE BHATTACHARYYA: Okay. So, in 1534, I 12 believe this is talking about the Yare reference. 13 MR. KLINE: It is. 14 JUDGE BHATTACHARYYA: And it says that the 15 sealed zone 30, the closed loop is highlighted green in the 16 annotated figure. 17 MR. KLINE: Yes. 18 JUDGE BHATTACHARYYA: So it looks like, 19 according to the expert report, the closed loop is the area 20 highlighted green, which is the area in and around the 21 blue? 22 MR. KLINE: Yes. 23 JUDGE BHATTACHARYYA: Okay. And is that -- 24 you're not claiming to change that contention, are you? 25 MR. KLINE: We are not. I should add, Your	984 1 That has been his position throughout. And that's been 2 Respondents' position throughout. 3 JUDGE BHATTACHARYYA: Thank you. 4 Mr. Stockwell, do you have anything to add at 5 this point? 6 MR. STOCKWELL: Well, only that -- sorry -- only 7 that it seems to us that what he's really arguing now is 8 that there is a new -- so he's switching between display 9 and display system. And he's -- originally, he was saying 10 the air went around what he contended to be the display 11 here. And now he's trying to account for the display 12 system and changing where the air is flowing. 13 So that -- again, we don't fully understand what 14 the new -- what these new slides are amounting to, so it's 15 a little difficult to. 16 JUDGE BHATTACHARYYA: Okay. 17 MR. STOCKWELL: -- fully formulate the objection 18 here. 19 JUDGE BHATTACHARYYA: Mr. Kline, is there -- are 20 the contentions changing between the alleged -- to the 21 extent that the claim calls for a display, are the 22 contentions changing between what the alleged display was 23 in the expert report and what Mr. Smith-Gillespie will 24 testify to as to today? 25 MR. KLINE: No, Your Honor. The patent -- the
983 1 Honor, now, closed loop refers to an area within which air 2 circulates. Within the closed loop, the patent describes 3 there is the display system 20. 4 So if we could see the figure -- could we see 5 the figure? 6 It's the solid arrows, Your Honor, designate the 7 closed loop, the airflow. And you can see -- I would like 8 the figure. It may be the slide we just had from before. 9 Yes, thank you. Pardon me. Oh, thank you. 10 Your Honor, these solid arrows, the patent notes 11 expressly that they delineate the closed loop. They talk 12 about air traveling in the closed loop with these solid 13 arrows. And that is consistent with Mr. Smith-Gillespie's 14 opinion in his expert report and it's consistent with the 15 testimony that he's going to give today. 16 Now, the patents note that in the space within 17 which the closed loop circulates, part of that space is the 18 space for the display system 20. So in this image, we have 19 colored -- Mr. Smith-Gillespie has colored that portion of 20 the space within which the closed loop circulates, that the 21 patent notes is the display system 20. 22 So he'll say that's the display system and refer 23 to place in the specification that notes that, which is 24 consistent with his expert report. But the closed loop is 25 the solid arrows. The open loop are these dashed arrows.	985 1 Yare reference says that cabinet 10 is arranged to contain 2 a display 20 for displaying information. The display is 3 sealed within the cabinet in the sealed zone 30. And the 4 components of the display 20 create heat inside the 5 display. Mr. Smith-Gillespie has always said display 20. 6 Now, you'll hear through the testimony, it can't 7 be the entire space because, as we've seen in that figure, 8 there's a fan above. So where in the space -- and there 9 are different kinds of displays that the patent discloses 10 that take different forms, and they might occupy that space 11 differently. There has been reports on this and deposition 12 testimony on this. 13 Mr. Smith-Gillespie identified in his expert 14 report an area where a display might go, consistent with 15 the disclosure in the Yare reference. He's going to 16 testify that it's -- as the reference describes, it's 17 display 20. And we've delineated the space that the patent 18 refers to as display 20 in the color that we've chosen, 19 which is a portion of the space within which the closed 20 loop air circulates as designated by the solid arrows, 21 which is entirely consistent with Mr. Smith-Gillespie's 22 testimony and opinions since the case began. 23 JUDGE BHATTACHARYYA: All right. Thank you. 24 I'm not going to preclude any demonstratives at this time. 25 However, I -- to the extent that it becomes clear that any

986 1 contentions have changed between what is being testified as 2 to today and what was in the expert report, then I would 3 entertain a motion to strike as to those elements. And I'd 4 also ask that counsel for both sides be very clear on the 5 record exactly which portions of the demonstrative are 6 being designated as certain elements that correspond to the 7 claim. 8 MR. KLINE: Yes. Certainly, Your Honor. 9 MR. STOCKWELL: Thank you, Your Honor. 10 JUDGE BHATTACHARYYA: Thank you. 11 MR. KLINE: Thank you, Your Honor. 12 (Witness reenters the courtroom.) 13 BY MR. KLINE: 14 Q. Welcome back, Mr. Smith-Gillespie. 15 A. Thank you. 16 Q. I'd like to take -- pick up at slide 78 and 17 consider invalidity of the '287 patent, claim 12, in view 18 of Karppanen. 19 A. Okay. 20 Q. Do you understand that claim 12 is asserted in 21 this investigation? 22 A. Yes, I do. 23 Q. And did you analyze the claim in view of the 24 prior art? 25 A. I did.	988 1 is designed to be a sealed unit that contains a closed loop 2 of air. 3 Q. What are the cooling elements 32? 4 A. The cooling elements are a set of heat transfer 5 elements that have a part that's within the closed loop 6 system and a part that's in the open air space that's 7 formed in what's called the cooling space, 20. 8 Q. And what is cooling space 20? 9 A. Cooling space 20 is an ambient air zone, where 10 air is brought in from outside through some ventilator 11 slots and driven up behind the display casing or, I'm 12 sorry, the device casing, and exit at the top through 13 another set of slots, 34. 14 Q. Does air move in the cooling space 20? 15 A. Yes, it does. 16 Q. How so? 17 A. It moves from the bottom through the fans along 18 the back of the device casing and the cooling elements, and 19 then out the top at 34. 20 Q. Mr. Smith-Gillespie, the next slide happens to 21 be numbered 82, not 81. It's Figure 2 of the Karppanen 22 reference. What are we looking at here? 23 A. This is a cross-section view of the closed 24 assembly of the Karppanen display. It includes the display 25 element 26, which is highlighted in blue. There's a set of
987 1 Q. Did you reach any conclusions? 2 A. I concluded that claim 12 of the '287 patent is 3 obvious in view of Karppanen. 4 Q. I think you can find in your binder on your 5 table RX-1351, and shown here is the cover sheet of that 6 document at slide 79. 7 Do you recognize the document? 8 A. Yes. This is an international patent 9 publication for -- from October 18th, 2007 for an 10 electronic information board with the inventor, Karppanen. 11 Q. Let's look at slide 80 at Figure 1. 12 What does Figure 1 of Karppanen show? 13 A. This shows the display device of Karppanen, 14 which includes a casing, which is shown in an open 15 position. You'll see there's some hinges that are numbered 16 14 that allow the case to open. And this shows the 17 internal members that comprise the cooling system. 18 Q. So if maybe we could take this an element at a 19 time, Mr. Smith-Gillespie, what is the display casing 10? 20 A. It's just a housing frame that's broken into two 21 parts. There's a front section 10 and a rear section 10. 22 It's enclosed -- it's closeable to create the full system, 23 the weatherproof system. 24 Q. What is the device casing 12? 25 A. The device casing houses the display element and	989 1 cooling elements, which are highlighted in green, and they 2 include a pair of heat transfer parts that I'll talk about 3 in coming slides. 4 There's a green area that is highlighting a 5 closed loop system in the front portion that surrounds the 6 display element 26, and then there's an open loop system in 7 the rear section that just draws ambient air in from 8 outside -- or through which the ambient air that's drawn in 9 from outside passes. 10 Q. Mr. Smith-Gillespie, did I hear you mention it's 11 a cross-section? 12 A. I did say that, yes. It's actually a partial 13 cross-section. You see the little break lines around where 14 the number 20 is that shows that it's not the full width or 15 height of the display. 16 Q. Now, if I return quickly to Figure 1 of 17 Karppanen shown at 80, do you have that in mind? 18 A. Yes, I see it. 19 Q. Can we go back to Figure 2 at slide 82 of 20 Karppanen. Where's that cross-section taken? Are we 21 looking down from above or toward it from the side? 22 A. In this case, I would say that we're looking 23 down from above, so it's a horizontal cross-section based 24 on the orientation of the cooling elements that are shown 25 on slide 80.

990 1 Q. So a viewer who was looking at the display 2 element, where would that viewer be standing? 3 A. I would be standing over top of it looking down. 4 Q. I meant the display element itself. 5 A. I'm sorry. I misinterpreted. Of the display? 6 Q. Right. 7 A. I'd be standing off to the left, and you'd be 8 seeing the top of my head. 9 Q. Right. Thank you. 10 So claim 12 of the '287 patent, we see here a 11 familiar format. It appears you've divided it into 12 elements. 13 A. Yes. We've broken it into three claim elements 14 and the preamble. 15 Q. Turning to slide 84, the '287 patent, claim 12, 16 the preamble, "an electronic display assembly comprising a 17 housing." Does Karppanen disclose an electronic display 18 assembly? 19 A. Yes. Karppanen discloses a flat panel display 20 element, 26, such as a TFT LCD or a plasma display. 21 Q. Does the Karppanen LCD display have a housing? 22 A. Yes. Display casing 10 is disclosed as acts as 23 a housing. It's in two parts. And that's -- okay. 24 Q. Sorry. 25 A. I was going to say that it comprises a back wall	992 1 and then supported by the text at the right, which I'll get 2 to, a pathway 66, which is called the ducting. This is an 3 element which is a space between the front glass and the 4 display element. And that proceeds around to the back. 5 At column 4, 29 through 26, it says, "ducting 6 has been arranged between the walls of the casing and the 7 display element for directing the circulation of air flow 8 around the display element." 9 And then it also states that this closed loop 10 has been made weatherproof, so, therefore, it's not 11 transferring air in from the outside. 12 Q. What would a person of ordinary skill in the art 13 in the 2008 time frame have taken away from these 14 disclosures of Karppanen? 15 A. That Karppanen is able to cool both the front 16 surface of the display with this closed loop of air, as 17 well as the roof surface, especially when coupled to the 18 heat transfer mechanisms that bring the air into the 19 ambient zone -- or transfer the heat into the ambient zone. 20 Q. The air traveling through that closed loop 21 you've designated, is that a complete loop? 22 A. Yes, it is. 23 Q. Is that loop essentially isolated? 24 A. Yes. I -- I guess I said that too soon. The 25 display casing and device casing have been made
991 1 and then also a front -- a front -- transparent front plate 2 that's not shown in this view. 3 Q. Thank you. Turning to slide 85, we see element 4 12b, "a liquid crystal display positioned within the 5 housing and having a backlight." 6 Does the Karppanen LCD have a backlight? 7 A. Yes. First, you know, a person of ordinary 8 skill in the art would clearly understand that an LCD 9 display requires a backlight for transilluminating the 10 display element. It does not emit its own light, the TFT 11 portion, but then again Karppanen talks about having power 12 supplies for the background light of the display. 13 So this confirms, if there was any doubt, 14 whether or not there's a backlight. 15 Q. The next element is "a closed loop of isolated 16 gas which circulates within the housing." 17 Do you understand the Court has issued a 18 tentative claim construction for the term "closed loop"? 19 A. Yes, it's a gas pathway forming a complete loop 20 within a display housing. 21 Q. Does Karppanen disclose a closed loop as that 22 term has been tentatively construed? 23 A. Yes, Karppanen does. 24 Q. Where? 25 A. You'll see highlighted in the Figure 2 in green,	993 1 weatherproof to enable the performance. Anyway, so, yeah, 2 weatherproof means that basically it seals out, you know, 3 dust, dirt, and humidity. So, therefore, it's a closed 4 loop. I mean, a sealed system. 5 Q. Next on slide 87, we see that element 12c of the 6 '287 patent refers to an open loop of ambient air which 7 passes through the housing. Does Karppanen disclose an 8 open loop of ambient air? 9 A. Yes. Karppanen discloses a cooling space 20, 10 which is a space in which the ambient air flows to cool the 11 rear portion of the heat transfer elements. 12 Q. How does the air get into that ambient loop? 13 A. Ventilator slots in the bottom allow airflow 14 into the device cooling space from the back and outside of 15 the display. There are fans, 36, which draw the air in 16 from the bottom of the display system, and then it transits 17 through and passes out the ventilator slots at the top. 18 Q. Where is this cooling space 20 located? 19 A. It is located behind the closed loop system. 20 And there's a partition plate that's formed. It's called 21 the device casing. 22 Q. Does the open loop of ambient air that you've 23 identified in the Karppanen reference pass along the 24 backlight of Karppanen's LCD display? 25 A. Yes. Karppanen discloses that the heating --

994 1 the heat transfer part 60 contacts and should be attached 2 to the rear of the backlight assembly. This element 3 comprises a number of cooling fins or conduction elements 4 or both. And then there's a -- like a flange portion, if 5 you will, which are the -- which seal the circulating gas 6 portion, and extending from that flange portion is the 7 second heat transfer part that projects into the ambient 8 air space. 9 So it's my opinion that because the heat 10 transfer -- first heat transfer part is made part of the 11 backlight assembly, that air is caused to flow across -- 12 along the backlight in this case. 13 Q. At slide 89, we see that element 12c refers to 14 coolable, that it's coolable by a combination of the closed 15 and open loop. Is Karppanen's display coolable by a 16 combination of the closed and open loops? 17 A. Yes, it is. As I described, the fans 64 of the 18 inner casing cause flow to flow past the front plate of the 19 device. That's a portion of the circulating gas. And then 20 there's also a -- and there's heat transfer parts 60 that 21 are in that closed loop. And then there's a second set of 22 fans and another set of heat transfer parts that reside in 23 the open loop, as I've already discussed. 24 Q. So can you summarize for us, please, the 25 conclusion you reached with respect to claim 12 of the '287	996 1 Q. Were heat exchangers known in the art prior to 2 2008? 3 A. Yes, they were, for quite a number of years. 4 Q. Were solar energy reduction layers known in the 5 art prior to 2008? 6 A. They were as well, yes. 7 Q. So we'll come back to that in a little more 8 detail, but let's start with claim 1 of the '740 patent. 9 Again, you've divided it -- 10 A. Yes. It's -- 11 Q. -- into the preamble and elements a through f; 12 is that right? 13 A. That's correct. 14 Q. So at slide 95, starting at the beginning, does 15 Karppanen disclose an electronic display and an electronic 16 image assembly? 17 A. Yes. Karppanen discloses display element 26, 18 which is recited to be -- preferably be a TFT LCD display. 19 Q. And is that an electronic image assembly? 20 A. Yes, it is. 21 Q. Does the electronic image assembly have front 22 and rear portions? 23 A. Yes, it does. The front portion is like the 24 image-forming layer on the front of the LCD, and the rear 25 portion is the rear portion of the backlight.
995 1 patent in view of the Karppanen reference? 2 A. Yes. It's my opinion that the Karppanen 3 reference discloses each of the elements of claim 1, so, 4 therefore -- or claim 12, pardon me. So, therefore, claim 5 12 of the '287 patent is obvious in view of Karppanen. 6 Q. Let's turn next to the '740 and '142 patents. 7 At slide 92, summarize for us, please, any 8 conclusions that you reached concerning the claims of the 9 '740 and '142 patents. 10 A. Yes. Okay. So with regard to the '740, claims 11 1 and 5 are obvious in view of Karppanen, as well claims 1 12 and 5 are additionally obvious in view of Yare. And then 13 with respect to the '142, claims 6 and 10 are obvious in 14 view of Karppanen plus Larson, and as well as being obvious 15 in view of Yare and Larson. 16 Q. How do the claims of the '740 and '142 patents 17 compare to the claims of the '287 patent that you've 18 already talked about? 19 A. So the '287 patent discusses open and closed 20 loop cooling. This is found in both the '740 and the '142 21 patents. 22 The '740 and '142 add a heat exchanger 23 requirement or element. And then the '142 patent 24 additionally introduces a solar energy reduction layer on 25 the front of the display.	997 1 Q. Next, the claim 1b of the '740 patent refers to 2 an open loop ambient airflow path. 3 A. Yes. 4 Q. Behind the rear portion of the electronic image 5 assembly. Do you see that? 6 A. I do. 7 Q. Does Karppanen disclose an open loop ambient 8 airflow path behind the rear portion of the electronic 9 image assembly? 10 A. Yes, as I discussed in -- with respect to claim 11 12, claim element 12c of the '287, there's a cooling space, 12 20, which is an open loop cooling zone, which draws in 13 ambient air and passes it along the cooling members and 14 transits it out of the cooling space. 15 Q. At slide 97, the '740 patent, claim 1 element c 16 refers to a closed loop gas circulation path about the 17 electronic image assembly. Is that disclosed by Karppanen? 18 A. Yes. Karppanen discloses this for the same 19 reasons I argued in claim 12c. It is my opinion that the 20 Karppanen discloses this element as shown in Figure 2 with 21 the highlighted arrows. 22 Q. Can you tell us what color those arrows are? 23 A. Those are green arrows. 24 Q. And then slide 98 includes the claim element "a 25 common heat exchanger located in the pathway of both the

998 1 closed loop gas circulation path and the open loop ambient 2 air flow path." 3 Is that shown in Karppanen? 4 A. Yes. Karppanen discloses a second heat transfer 5 part 62, which resides in the open loop area called the 6 cooling space 20. And then a first heat transfer part 60, 7 which resides in the closed loop portion. And the air 8 circulates around the display in the closed loop portion 9 and transfers heat to the first heat transfer part that 10 gets conducted to the second heat transfer part and then 11 gets carried away in the ambient air stream. 12 Q. What would a person of ordinary skill in the art 13 in the 2008 time frame have understood the '740 patent to 14 mean by "heat exchanger"? 15 A. I would understand it to mean a device that 16 transfers heat from a hot source to another cold sink, if 17 you will. Could be an airflow or it could be some larger 18 cooler solid mechanism. 19 Q. Does the '740 patent limit the heat exchanger 20 referred to in this claim to any specific type of heat 21 exchanger? 22 A. No, it does not. 23 Q. And how would a person of ordinary skill in the 24 art in 2008 have taken the term "common heat exchanger"? 25 What would that have meant?	1000 1 actually comprise the first heat transfer part 62 that is a 2 fin array that sits in an airflow in the ambient section or 3 the open loop section, and part -- heat transfer part 60, 4 which resides in the closed loop portion of the display. 5 Q. What do you mean by "fin array"? 6 A. These -- there's -- fin arrays are essentially 7 tall, thin plates that are designed to provide a very large 8 surface area per volume, so that heat can be transferred to 9 an air stream as the air stream moves between the fins. 10 Q. How does the Karppanen heat exchanger work? 11 A. The operation of the Karppanen talks about that 12 in column 8, 13 through 22, that the -- first of all, that 13 the second heat transfer part -- and it actually applies to 14 both the first heat transfer part and the second heat 15 transfer part -- comprising a number of plate-like cooling 16 fins placed side-by-side. The operation of the cooling 17 fins is based on the phenomenon that when the cooling air 18 flows between the fins, heat is transferred from the 19 cooling fins to the air in the cooling space. The task of 20 the cooling elements is to transfer excess thermal energy 21 from the display casing to the cooling space. 22 Q. Is Karppanen's heat exchanger common to both the 23 open and closed loops that you mentioned? 24 A. Yes, it is. 25 Q. Does Karppanen describe any other embodiments?
999 1 A. Could I revise my previous answer? 2 Q. Sure. 3 A. It does -- the limitation in the '740 is that 4 it's an air-to-air heat exchanger. I should probably have 5 said that. 6 Q. Okay. 7 A. Yes. 8 Q. And what would a person have taken from the 9 expression "common heat exchanger"? 10 A. Common heat exchanger would mean that there's a 11 set of elements, wherein -- that comprise the heat 12 exchanger, wherein one of the elements resides in a 13 separate airpath, a hot airpath, and one resides in a 14 cooler airpath. And the way the heat transfer mechanism 15 works is the element in the hot airflow absorbs heat from 16 the hot airflow and transfers it to the element that's in 17 the cool airflow. 18 So that single heat transfer element resides in 19 both of them. 20 Q. And with those thoughts in mind, does Karppanen 21 disclose a heat exchanger? 22 A. Yes, it does. 23 Q. What are the parts of the heat exchanger shown 24 in Figure 2 of Karppanen? 25 A. The main parts are the cooling elements which	1001 1 A. Yes. Karppanen, in Figures 3 and 4, discloses 2 an embodiment that includes a ducting system to constrain 3 the air to flow over the cooling fin set or, you know, the 4 cooling element 62 that are residing in the ambient 5 section. So this figure -- or this slide shows Figures 3, 6 which is a partial exploded view, where these ducting 7 elements called flow controllers or flow ducts 72 are -- 8 the flow controllers 70 are taken away from their actual 9 position. They're shown in their actual position in the 10 cross-section view. 11 This is a vertical cross-section through the 12 upper portion of the display, where the flow controllers 13 would be housed. 14 Q. And you're referring to Figure 4 there, I 15 believe? 16 A. That's correct, yes. 17 Q. Does Karppanen disclose a gas circulation device 18 in the closed loop? 19 A. Yes. In the closed loop is fan 64, is 20 disclosed, and it's a air circulation device to circulate 21 air in the space between the display element and the walls 22 of the display casing. 23 Q. Is the fan -- are the fans positioned to force 24 the circulating gas in the closed loop through the common 25 heat exchanger?

1002 1 A. Yes, they are. 2 Q. How do you know that? 3 A. The operation of the cooling fins -- sorry. I 4 was reading in the wrong space there. 5 The airflow circulating display and equalizing 6 temperatures can be arranged by means of fans. The fans 7 force the air of the inner casing to flow past plate 46 of 8 the device. That's the front, but it makes a complete loop 9 and, therefore, the air, as I read on a previous slide, 10 passes through the fins of the first heat transfer part as 11 well. 12 Q. Do you see the reference on slide 100 to 13 Karppanen column 8, lines 17 through 19, to cooling 14 airflows between the fins? 15 A. Yes. 16 Q. How do you take that? 17 A. That's -- that applies in both places. 18 Q. Now, does Karppanen, at slide 101, claim 1f 19 refers to an air circulation device positioned to force 20 ambient air through the common heat exchanger. Does 21 Karppanen disclose an air circulation device that 22 circulates ambient air? 23 A. Yes. Karppanen discloses cooling fans 36, which 24 -- by which circulation of air through the cooling space is 25 regulated. 36 is shown in Figure 1 at the right, at the	1004 1 Q. Why not? 2 A. It's not stated in the claim element, first of 3 all. It just says a heat exchanger to force ambient air 4 through a common heat exchanger. 5 Q. And in any event, were the types of heat 6 exchangers described by Dr. Pokharna known in the art by 7 March of 2008? 8 A. Yes. Much earlier than March of 2008, I would 9 add. 10 Q. Are you aware of any examples of that? 11 A. Yes. There's a few that I have on the next 12 slide, I believe. So starting from a patent in 1982 to 13 Muellejeans, this looks like a thin plate cross flow heat 14 exchanger. It's Figure 2 out of Muellejeans. It's kind of 15 a large boxy thing with multiple inlets and outlets. Then 16 the Olmstead patent in 1991 shows what looks like a dual 17 cross flow heat exchanger in Figure 2A. Figure 2B is just 18 the back side of it. Again, just highlighting the numbers 19 of inlets and outlets that it has to transfer air across 20 these thin plates. 21 Q. Are you aware of any other examples in the prior 22 art to 2008 disclosing heat exchangers in the context of 23 electronic displays? 24 A. Yes, there's an example from Williams, which is 25 a display system. This patent focuses mostly on the
1003 1 lower portion. And these reside in the cooling space, 2 which is the ambient air space. So they pull air in from 3 the bottom ventilation slots, 34, pass them along the back 4 of the heat transfer parts over the device case, and it 5 exits through 34, the ventilator slots at the top. 6 Q. Do those fans 36 force ambient air through the 7 common heat exchanger? 8 A. Yes, they do. 9 Q. Is that described in the patent? 10 A. Yes, it is. It says that cooling fans 36, by 11 which regulation of air through the cooling space is 12 regulated, and it says that air -- cooling airflows between 13 the fins, heat transferred -- is transferred from the 14 cooling fins to the air space. 15 Q. Now, Dr. -- sorry, pardon me, 16 Mr. Smith-Gillespie, are you familiar with Dr. Pokharna who 17 has offered testimony in connection with some of MRI's 18 arguments in this matter? 19 A. Yes, I'm aware of that testimony. 20 Q. And are you aware that Dr. Pokharna has argued 21 that claim 1 of the '740 patent requires a heat exchanger 22 configuration with dedicated channel or overlapping plates? 23 A. I'm aware that he said that, yes. 24 Q. Do you agree with him? 25 A. No, I don't.	1005 1 cooling of a backlight unit for an entertainment display. 2 Q. And if I may, Mr. Smith-Gillespie, just to keep 3 us all on the same page, you have in your binder RX-1397, 4 and I believe shown at slide 103. Is that the Williams 5 reference you just referred to? 6 A. That is the Williams reference, yes. 7 Q. And what does Williams disclose as may be 8 relevant here? 9 A. Williams discloses a backlight assembly that has 10 a -- that is the height of power that it needs to be 11 cooled, first, that has a mechanism that channels heated 12 air on one side of a plenum. You can see this in -- it's 13 numbered 128, the plenum, with the closed loop. So it has 14 got a closed loop of circulating air around these backlight 15 elements and through the bottom zone of a plate heat 16 exchanger. 17 And then there's additionally a top portion, 18 which -- oh, excuse me -- the bottom portion is highlighted 19 in green. And then you can see there's a top portion 20 highlighted in pink, Number 146 of the heat exchanger, 21 where ambient air is brought in and caused to absorb the 22 heat that transfers across the plate formed by a portion of 23 128. 24 Q. How does the Williams heat exchanger compare to 25 the Karppanen heat exchanger?

1006 1 A. Very closely. I mean, there's an array of fins 2 in the recirculated air highlighted in green. I show that 3 up in Karppanen, in Figure 4, as well. Then there's 4 another array of fins that reside in the ambient flow path. 5 There's a plate between the two that prevents the airflows 6 from mixing. 7 So it comes down to the differences are probably 8 the thickness and number of fins that are in each of the 9 respective airflow paths. 10 Q. So if we were to assume for sake of argument 11 that Dr. Pokharna were right that Karppanen's heat 12 exchanger is not the same as is claimed in the asserted 13 patent, have you considered the question what 14 modifications, if any, a person of ordinary skill in the 15 art in 2008 time frame might have made to Karppanen's heat 16 exchanger in view of known heat exchangers like Williams? 17 A. Well, so, first of all, I think that it would 18 make sense to -- looking at Karppanen, for a person of 19 ordinary skill in the art to consider a higher fin density, 20 meaning more fins, in both airflows, and then perhaps, if 21 need be, adapt something, you know, though this is rather 22 large, into the rear cooling space or into the rear 23 electronics assembly space by adapting this large doghouse 24 system into that portion of the display. So there's room 25 to grow this backward to where the additional electronics	1008 1 Karppanen? 2 A. Yes, it's spaced apart by a distance of a -- of 3 this ducting 66. It says here suitable ducting has been 4 arranged between the display casing and the display 5 element, so that airflow can pass the display element 6 equalizing temperatures. And this is pointed out in Figure 7 2, to exist not only in the rear and around the edges but 8 also in the front. 9 Q. Is the space between the front plate 46 and the 10 LCD panel a front channel that forms part of the closed 11 loop path? 12 A. Yes, it does. 13 Q. Let's turn to claims 6 and 10 of the '142 patent 14 in view of Karppanen and Larson. 15 How do the asserted claims of the '142 patent 16 compare to the asserted claims of the '740 patent? 17 A. Claims -- the '142 patent includes claims of 18 both open loop and closed loop and a heat exchanger, same 19 as -- well, not same as -- as in the '740 patent. The '142 20 patent adds an additional requirement for a solar energy 21 reduction layer. 22 Q. What is a solar energy reduction layer? 23 A. A solar energy reduction layer is simply a 24 optical element that will absorb a certain amount, a 25 specified amount, of incident solar radiation, preventing
1007 1 are. 2 Q. Would a person -- pardon me. Would a person of 3 ordinary skill in the art in 2008 time frame have had a 4 reasonable expectation of success in using the Williams 5 type of heat exchanger in the Karppanen system? 6 A. Yes, they would, since they're using something 7 that's very, very close to it already. It's an incremental 8 change. So I think the chance of success there is high. 9 Q. So could you summarize for us, please, the 10 conclusions that you have reached concerning Karppanen as 11 it relates to claim 1 of the '740 patent? 12 A. In my opinion, claim 1 of the '740 patent is 13 obvious in view of Karppanen, because it discloses each 14 element of the claim. 15 Q. Does Karppanen disclose -- turning to claim 5, 16 pardon me, turning to claim 5 of the '740 patent, again, 17 you've divided it into elements, a preamble and two 18 elements, a and b. 19 Do you see that? 20 A. I do, yes. 21 Q. Does Karppanen disclose a front display surface 22 shown at the top of slide 107? 23 A. Yes. Karppanen discloses front plate 46. 24 Q. Is Karppanen's front plate 46 spaced apart from 25 the front of the electronic image assembly shown in	1009 1 it to get to the display in this application. 2 Q. Were solar energy reduction layers known in the 3 art by 2008? 4 A. Yes. Solar energy reduction layers were known 5 probably since the first use of CRTs in outdoor, like, 6 military electronics, that sort of thing, so dating back at 7 least to the '50s. They primarily used neutral density 8 filters, but other types have become available. 9 Q. And in 2008, would that person of ordinary skill 10 in the art have been aware of the benefits of using a solar 11 energy reduction layer? 12 A. Yes, they would. It's -- it was well-known by 13 that time that there are two primary areas that having a 14 solar energy reduction layer helps. First is improvement 15 in display contrast, because it prevents washout of the 16 display from sunlight. And second is reducing the heat 17 load on the display. 18 Q. So let's turn to claim 6 of the '142 patent, 19 which we've got a preamble and elements a through j. Is 20 that right? 21 A. That's correct. 22 Q. Starting with the preamble and element A, does 23 Karppanen disclose a cooling system for an electronic image 24 assembly and a housing? And I know you've talked about 25 these elements before, but if you could remind us.

1010 1 A. Yes. Karppanen discloses a cooling system for 2 an electronic image display, as I discussed in the '740 3 analysis for claim 1a. And Karppanen additionally 4 discloses a housing for the electronic image display, as I 5 discussed at '287, claim element 2a. 6 Q. I think you meant 12a there. 7 A. I meant 12a. Sorry. 8 Q. Thank you. Next, at slide 112, we see the 9 reference to a transparent cover panel in the claim? 10 A. Yes, I do. 11 Q. Where is the -- does Karppanen disclose a 12 transparent cover panel? 13 A. Yes. Karppanen discloses a transparent front 14 plate 46. 15 Q. How do you know it's transparent? 16 A. Well, it says it's transparent and it's in front 17 of the display, so you would like the light to get through 18 the display, so it makes sense that it's transparent. 19 Q. Does Karppanen disclose the open loop airflow 20 pathway recited in claim 6 of the '142 patent? 21 A. Yes. Karppanen discloses a pathway through 22 cooling space 20, as discussed in my analysis of the '740 23 patent, claim element 1b. 24 Q. Does Karppanen disclose the closed loop recited 25 in claim 6 of the '142 patent?	1012 1 A. They drive the air across the cooling -- the 2 heat transfer parts that reside in the open cooling space. 3 Q. How about in the closed loop, does Karppanen 4 disclose a gas circulation device in the closed loop? 5 A. Yes. Karppanen discloses fans 64 in the closed 6 loop space. 7 Q. What do those fans, 64, do? 8 A. They drive air around the circulation path in 9 front of the display and then along the back and through 10 the fins of the heat transfer part. 11 Q. Does Karppanen disclose the heat exchanger 12 recited in claim 6 of the '142 patent and referred to here 13 on slide 118? 14 A. Yes. As I described in claim 1, claim element 15 1d of the '740, that Karppanen discloses a heat exchanger 16 comprised of cooling elements 32 and their parts, their 17 heat transfer parts 60 and 62. 18 Q. What is your view, therefore, whether Karppanen 19 discloses all of the elements of claim 6 of the '142 20 patent? 21 A. My view is that Karppanen discloses all of the 22 claim elements of claim 6 of the '142 patent, with the 23 exception of one or more solar energy reduction layers. 24 Q. And circling back to the discussion we had a 25 moment ago, are you aware of examples in the prior art
1011 1 A. Yes. This I also discussed in the '740 patent, 2 that both claims 1c and -- claim element 1c and claim 5, 3 this open -- this closed loop is a circulation path around 4 the front of the display, display element 46, through 5 ducting 66, which resides behind front plate 46. 6 Q. Turning to slide 115, are there inlets and 7 outlets that allow airflow through the open loop airflow 8 pathway in Karppanen? 9 A. Yes. The open loop air path way includes 10 ventilator slots, 34, which enable air movement from the 11 outside of the device into the cooling space and from the 12 cooling space back to the outside of the device. 13 Q. At slide 116, does Karppanen disclose an air 14 circulation device along its open loop airflow pathway? 15 A. Yes. Karppanen discloses cooling fans 36 by 16 which the circulation of air through the cooling space is 17 regulated. 18 Q. Where are those cooling fans located relative to 19 ventilator slots 34? 20 A. They're located, the fans -- the fans are 21 located between the exhaust ventilator slots and the inlet 22 ventilator slots closer to the bottom by the inlet slots, 23 though, in this case. 24 Q. And I see a reference here on slide 116 to 25 cooling fans 36. What do they do?	1013 1 before 2008 of an LCD system including a solar energy 2 reduction layer? 3 A. Yes, I am. 4 Q. And if you could look at slide 120, and in your 5 binder you'll find RX-1386. Do you recognize this 6 document? 7 A. Yes. This is the Larson patent entitled Reduced 8 Reflectance Polarized Display, issued on May 21st, 2002. 9 Q. What does Larson disclose with respect to solar 10 energy reduction layers? 11 A. Larson discloses a cover glass with an auxiliary 12 polarizer, meaning that the auxiliary polarizer is a 13 polarizer in addition to the standard front polarizer 14 that's made part of the LCD. 15 So this is shown in Figure 2 and highlighted 16 right here. 17 Q. And if you wouldn't mind, Mr. Smith-Gillespie, 18 what's a polarizer? 19 A. A polarizer is an optical element that helps 20 select from randomly polarized light, which is 21 electromagnetic waves vibrating in many directions to a 22 very narrowed or, sometimes we called it, linear 23 polarization. So there's only one polarization of the 24 random electromagnetic waves passing through the device. 25 Q. Where does the prior art Larson patent locate

1014 1 its solar energy reduction layer? 2 A. The auxiliary polarizer is located on the 3 rear-facing surface of cover glass 4 next to an air space 4 9. 5 Q. Is Larson's auxiliary polarizer 20 configured to 6 prevent a portion of solar energy entering the transparent 7 cover panel from thermally interacting with gas? 8 A. Yes. The auxiliary polarizer 20 in Larson -- 9 there's a couple different kinds of polarizers. There's 10 reflective polarizers. There's absorptive polarizers. 11 Larson discloses a very standard polarizer, an absorbing 12 polarizer, which will absorb roughly 50 percent of the 13 incident solar radiation, while allowing, if properly 14 oriented, close to 95 percent of the light coming out of 15 the LCD to pass through. 16 Q. Based on the teachings of Larson, how, if at 17 all, would a person of ordinary skill in the art in the 18 2008 time frame have modified Karppanen? 19 A. Very simply, the cover panel 46, I believe it 20 is, would just need to have a polarizer laminated to its 21 rear surface. Lamination of polarizers to glass is 22 routine. Every LCD we're looking at here has a polarizer 23 laminated to the front, as well as the back. So it's not a 24 difficult task at all to implement this. 25 Q. And why would such a person have been motivated	1016 1 thousands. 2 So, yeah, they would have a reasonable 3 success -- chance of success. The only issue would be just 4 making sure that the polarization axes were aligned to that 5 of the LCD. 6 Q. Let's turn to claim 10, which is shown on slide 7 123. Do you see that the claim adds the requirement of a 8 solar energy reduction layer that comprises a film having 9 anti-reflection properties? 10 A. I see that, yes. 11 Q. Does Karppanen in combination with Larson 12 disclose a film having anti-reflection properties? 13 A. Yes. Larson discloses that anti-reflection 14 material may be added to the polarizer to reduce the 15 reflectance. Every air-to-glass or plastic interface has 16 roughly 4 percent reflectance. So Larson understood and so 17 did -- the person of ordinary skill in the art would 18 understand it at this time, that those extra reflectances 19 produce what's called ghost images. If you have two 20 layers, you would see like two reflections offset from one 21 another. 22 So it would make sense for a person of ordinary 23 skill in the art to include this as part of the polarizer. 24 Q. So if you could, Mr. Smith-Gillespie, summarize 25 for us, please, your conclusions concerning Karppanen and
1015 1 to do that? 2 A. For reasons I discussed before. The reduction 3 in transmitted energy to the display, so solar energy is 4 captured, kept from heating up -- being absorbed in the 5 front polarizer of the LCD, which would heat the LCD up. 6 Additionally, one would get the benefit of improved 7 contrast and also reduced reflectances. 8 Q. Returning to slide 122, Mr. Smith-Gillespie, 9 what are we looking at here? 10 A. This is a modification of a cross-section from 11 Karppanen that I put together to try and highlight the 12 location of the polarizer as it would be applied in 13 Karppanen. So what you see here is kind of a light orange 14 color line that goes down through the cross-section. That 15 would represent a polarizer that's attached to the 16 inward-facing surface of the front plate. And then also 17 shown is the closed loop airpath, the ducting 66, and 18 display element 26. 19 Q. Would a person of ordinary skill in the art in 20 2008 seeking to make this combination have had a reasonable 21 expectation of success? 22 A. Yes. This technique was well known in a number 23 of areas already. And as I mentioned, placing polarizers 24 on glass is very straightforward. It's a machine 25 operation. It's done, you know, daily by tens of	1017 1 Larson as they relate to claims 6 and 10 of the '142 2 patent? 3 A. Yes. Okay. So claims 6 and 10 of the '142 4 patent are both obvious in view of Karppanen with Larson. 5 Q. Next, Mr. Smith-Gillespie, I'd like to talk 6 about claims 1 and 5 of the '740 patent in the context of 7 the Yare reference. 8 I believe you have in your binder at RX-1398, 9 and you can see here on slide 127, the front cover of the 10 document. Do you recognize it? 11 A. Yes, I do. This is a published patent 12 application from the U.K. published in December -- on 13 December 1st of 2004. The named inventor is Yare. 14 Q. You can see, at slide 128, Figure 4 of the 15 reference. Do you see that? 16 A. Yes, I do. 17 Q. What are we looking at here? 18 A. This is a schematic cross-section of the device 19 described in detail in Yare. This is Yare Figure 4. And 20 it has a number of arrows showing various airflow rates or 21 airflow orientations and locations and circulations, which 22 I'll discuss in the coming slides. 23 Q. So let's go through the elements of the '740 24 patent, claim 1. We see here, having in mind the system 25 you used earlier of the preamble and element A. Does Yare

1018 1 disclose an electronic display system? 2 A. Yes. Yare discloses display system 20, and it 3 states that the display cabinet may include a display 4 system such as a plasma display, an LCD, a TFT display or 5 CRT or an LED or projector display. 6 Q. Does -- is that -- in the case of that display 7 being an LCD display, would a person of ordinary skill in 8 the art at the time have taken that to be an electronic 9 image assembly? 10 A. Yes, they would. 11 Q. Why is that? 12 A. The LCD display receives an electronic signal 13 and basically adjusts the image presented on the display by 14 energizing, partially energizing, the plates across -- the 15 transferring plates across the cell to let light pass 16 through. 17 JUDGE BHATTACHARYYA: Mr. Stockwell? 18 MR. STOCKWELL: Objection, objection, Your 19 Honor, the witness just changed theories from his report. 20 They're now mapping the display system to element 1a, 21 whereas before they were mapping just the display item 20, 22 the panel, to this claim element, Your Honor. And that's 23 in his report, paragraph 1243, at page 25 -- I'm sorry -- 24 461. 25 MR. KLINE: There are a few places we could	1020 1 THE WITNESS: Display, the display system called 2 out in Yare. 3 JUDGE BHATTACHARYYA: Okay. Is that actually in 4 the patent? Can we look at the patent and see where 20 is? 5 MR. KLINE: You can, Your Honor. 6 THE WITNESS: Display 20, display 20 -- 7 MR. KLINE: Your Honor, if I have -- this is 8 just the front cover, Your Honor. "Display cabinet 10 has 9 a sealed air-tight compartment 30 for mounting a display 10 system 20." 11 THE WITNESS: So the word "display" and "display 12 system" are both used in the patent to refer to item 20 or 13 referred to by item 20. 14 JUDGE BHATTACHARYYA: Mr. Stockwell, are you -- 15 MR. STOCKWELL: Your Honor, the witness in his 16 report testified -- in his report, sets out that it's the 17 display 20, not the display system. He points to a 18 different display 20. In his deposition, he actually 19 testified that display 20 is not shown in this figure. 20 That's why he had to annotate it. 21 JUDGE BHATTACHARYYA: All right. I'm not going 22 to -- I don't have time to sift through everything right 23 now, so you can do a motion to strike with respect to this. 24 MR. STOCKWELL: Well, what I would suggest, so 25 we can preserve this issue, is can we have a running
1019 1 look, Your Honor. Mr. Smith-Gillespie's opinion that Yare 2 discloses an electronic display can be found at paragraph 3 1238 of his report. That display is an electronic image 4 assembly, can be found at paragraphs 1240 through 1243 of 5 his report. And he's simply reading the patent that says 6 display system at 20, which is designated by 20 in the 7 reference. 8 JUDGE BHATTACHARYYA: If you could put the 9 demonstrative back on? 10 MR. KLINE: Pardon me, Your Honor? 11 JUDGE BHATTACHARYYA: Could you please put the 12 demonstrative back on? 13 MR. KLINE: Oh, the demonstrative? Yes. Did I 14 turn the demonstrative off? I didn't mean to. Okay. 15 JUDGE BHATTACHARYYA: I'm going to ask 16 Mr. Smith-Gillespie a question. 17 Mr. Smith-Gillespie, you just testified about 18 display system, item 20. Is that right? Is item 20 an 19 element described in the patent? 20 THE WITNESS: I'm not sure I'm following the 21 question, I'm sorry. 22 JUDGE BHATTACHARYYA: You referred to the Number 23 20. 24 THE WITNESS: Yes. 25 JUDGE BHATTACHARYYA: What is 20?	1021 1 objection to these figures, and to the extent we need to 2 move to strike afterwards, we can make a motion then so 3 that you can get the testimony in and we can proceed? 4 Otherwise, I don't want to keep popping up and interrupting 5 counsel's examination over this issue. 6 JUDGE BHATTACHARYYA: All right. In general, 7 that's okay, but I would like you to identify on the record 8 which elements you believe are being changed as it goes 9 forward. So I know that display 20 is an issue, so you 10 don't have to say that again. But if there's a different 11 issue for some other element, mention it the first time. 12 MR. STOCKWELL: Yes. Yes, Your Honor. So make 13 an objection and just mention what the elements are, just 14 so you know? 15 JUDGE BHATTACHARYYA: Yes. 16 MR. STOCKWELL: Thank you, Your Honor. We will 17 do that. 18 JUDGE BHATTACHARYYA: Thank you. 19 MR. KLINE: I have to find my place, Your Honor. 20 Just give me a moment. 21 JUDGE BHATTACHARYYA: Sure. 22 MR. KLINE: Oh, I think it's here. So let's try 23 slide 129. Very good. 24 BY MR. KLINE: 25 Q. Mr. Smith-Gillespie, does Yare's display system

1022 1 have a front portion and a rear portion? 2 A. Yes, it does. These are shown basically as the 3 extensive -- the highlighted blue zone, which constitutes 4 display 20. 5 Q. Does Yare disclose -- 6 MR. STOCKWELL: Same objection, Your Honor. 7 JUDGE BHATTACHARYYA: Thank you. You may 8 proceed. 9 BY MR. KLINE: 10 Q. Does Yare disclose an open loop ambient air flow 11 path behind the rear portion of the electronic -- of the 12 display system? 13 A. Yes. Yare discloses atmospheric zone 40, which 14 is an open loop or open ambient air flow path, says that 15 air from outside cabinet 10 is drawn through vents 60 into 16 the atmospheric zone by fans 50 and then is expelled from 17 the cabinet 10 through fans 50. And that's the highlighted 18 in pink portion of the Figure 4 at left. 19 Q. Thank you. Does Yare disclose a closed loop gas 20 circulation path? 21 A. Yes, Yare discloses a sealed cabinet zone 30, 22 which includes a closed loop pathway. The -- Yare 23 discloses that the sealed zone 30 is cooled without ingress 24 of atmospheric air, and the pathway for the airflows in 25 this closed loop circulation path are shown by solid arrows	1024 1 can ask it again. Does Yare disclose a common heat 2 exchanger? 3 A. Yes. Yare discloses heat exchanger 70, which 4 appears to be, from Figure 5, a folded plate counterflow 5 heat exchanger which resides in both the sealed zone shown 6 in green in Figure 5 and also partly in Figure 6. 7 And there's additionally an atmospheric zone on 8 the opposite side of the folded plate heat exchanger. 9 That's highlighted in pink in both figures. 10 Q. Is Yare's heat exchanger 70 located in the 11 pathway of both the closed loop and open loop? 12 A. Yes, it is. And that was shown on the previous 13 slide with the airflow arrows passing through in opposite 14 directions, the dotted ones in the atmospheric zone or the 15 open loop, and the solid ones in the closed loop, sealed 16 zone. 17 Q. Does Yare disclose a gas circulation device? 18 A. Yes. Yare discloses fan 80 in the sealed 19 zone -- yes. 20 Q. What does the fan 80 do? 21 A. The fan -- due to the operation of the fans, fan 22 25 and 80, and the orientation of the baffle plate, air 23 within the sealed zone is directed along one or more 24 surfaces of the heat exchanger, 70, around the baffle 25 plate, and heat is transferred there. So it takes heat
1023 1 in the figure at left. 2 MR. STOCKWELL: Same objection, Your Honor. 3 JUDGE BHATTACHARYYA: All right. 4 MR. KLINE: Shall I just -- 5 JUDGE BHATTACHARYYA: Yeah. I -- 6 MR. KLINE: Sure thing. Happy to do it, Your 7 Honor. Thank you. 8 JUDGE BHATTACHARYYA: Thank you. 9 BY MR. KLINE: 10 Q. How does the closed loop gas circulation path in 11 Yare relate to the display system 20 in Yare? 12 A. In operation, the display 20 creates heat inside 13 display 20 in the sealed zone, so the airflow in this 14 sealed zone removes the heat by flowing through the -- a 15 heat exchanger that's formed in the rear portion of the 16 sealed -- the sealed circulation path. 17 Q. Is Yare's display system within Yare's sealed 18 zone 30? 19 A. Yes, it is. 20 Q. Does Yare disclose a common heat exchanger? 21 MR. STOCKWELL: Sorry, Your Honor, same 22 objection to the last question. 23 JUDGE BHATTACHARYYA: Thank you. 24 BY MR. KLINE: 25 Q. How about this one? Does Yare disclose -- well,	1025 1 from the sealed zone, including the display, and passes it 2 into the heat exchanger. 3 Q. Does Yare disclose an air circulation device 4 positioned to force ambient air through the common heat 5 exchanger? 6 A. Yes. Yare discloses fan 50. The fans 50 reside 7 in the atmospheric zone and draw air through the heat 8 exchanger. It says here that the fans 50 draw air up 9 through the atmospheric zone. And you can see that the air 10 pathway goes through the heat exchanger 70. 11 Q. So what conclusions, if any, did you reach 12 concerning claim 1 of the '740 patent and Yare? 13 A. It's my opinion that claim 1 of the '740 patent 14 is obvious in view of Yare, based on the fact that Yare 15 discloses each element of this claim. 16 Q. Let's take a look at claim 5 of the '740 patent, 17 and it's shown here at 136. 18 A. Okay. 19 Q. Does Yare disclose a front display surface 20 spaced apart from the front portion of the display system? 21 MR. STOCKWELL: Objection, scope. 22 THE WITNESS: Yes, Yare shows -- 23 MR. STOCKWELL: Same objection, Your Honor. 24 JUDGE BHATTACHARYYA: The same objection. All 25 right.

1026 1 MR. KLINE: Okay. Just the same one? 2 MR. STOCKWELL: Yes. 3 MR. KLINE: Okay. Thank you. 4 THE WITNESS: Yare discloses a front surface of 5 the cabinet 10, which would in such an outdoor display not 6 be for an LCD, at least the front glass of an LCD, since 7 LCDs are known to be fragile. A person of ordinary skill 8 in the art would understand there to be a protective cover 9 glass at that location. So the display itself would be 10 spaced back behind that. Yare does disclose that air 11 circulates completely around the display. So the front 12 portion must be spaced away from the front protective 13 glass. 14 BY MR. KLINE: 15 Q. You say Yare discloses that air would circulate 16 around the display. How does it make that disclosure in 17 the figure? And the figure is on your screen. 18 A. Dotted arrows -- no. That's moving atmosphere 19 from solid arrows that have the right-angle bend on them 20 would be passing along the front of the display. 21 Q. Are you aware of -- 22 MR. STOCKWELL: Same objection to that 23 testimony. 24 BY MR. KLINE: 25 Q. Are you aware of any other prior art showing	1028 1 Q. Does Yare disclose an open loop and closed loop 2 pathway as recited in claim 6 of the '142 patent? 3 A. Yes. With regard to the open loop claim element 4 6c, I discussed this already with regard to the '740 claim 5 element 1b, and Yare does disclose this. And then with 6 respect to claim element 60, a closed loop circulation path 7 contained within the housing, et cetera, I discussed this 8 relative to '740, claim 1c, and it's my opinion that Yare 9 discloses this as well. 10 Q. Does Yare disclose an inlet for its open loop 11 airflow pathway? 12 A. Yes. Yare discloses vents 60, which are 13 discussed at column 4, 1 through 11. Vents 60, air is 14 drawn in through vents 60 into the atmospheric zone 40 by 15 fans 50, and then also there's an exhaust, the air is then 16 expelled from the cabinet 10 through fans 50. So that's 17 shown in Figure 3 as well. 18 Q. Is that the Figure 3 shown at slide 142? 19 A. That's correct. 20 Q. And those vents 60 that you mentioned, are those 21 the vents 60 shown on slide 142 correlated with Figure 2 of 22 Yare? 23 A. Yes, that's correct. 24 Q. Does Yare disclose an air circulation device 25 positioned along its open loop airflow pathway between the
1027 1 displays spaced apart from the front surface of their 2 cabinets? 3 A. Yes, I am. There's several including -- we just 4 saw Larson as one of them, where the display was separated 5 by an air space, and then also Heady and Pandolfi are 6 located in here. 7 Q. Thank you. So let's turn to claims 6 and 10 of 8 the '142 patent. At slide 138, with a reference to the 9 preamble of claim 6 of the '142 patent, does Yare disclose 10 a cooling system for an electronic image assembly? 11 A. Yes, it does, based on the same reasoning I 12 applied for the electronic image assembly in the claim of 13 '740, claim element 1a. 14 Q. And how about a housing, does Yare disclose a 15 housing for its electronic image assembly? 16 A. Yes. Cabinet 10 is a cabinet for mounting the 17 display system, so that's a -- that constitutes a housing. 18 Q. Does Yare disclose a transparent cover panel 19 forming a front portion of the housing? 20 A. Yare discloses a front member to the cabinet, 21 which I believe a person of ordinary skill in the art would 22 understand to be a glass -- cover glass; otherwise, the 23 image of the display would not get through. Additionally, 24 Yare says this is a sealed zone. So it can't be just open 25 to the air.	1029 1 inlet and the outlet? 2 A. Yes, Yare discloses -- we're talking about the 3 fan now. All right. 4 Yare discloses exhaust fan -- or fan 50 at the 5 exhaust from the open loop of the atmospheric zone. The 6 fans 50 draw air up through the atmospheric zone 40. And 7 that's at paragraph -- or column 4, 11 through 16. 8 Q. Are the fans 50 positioned between the inlet and 9 exhaust that you mentioned a moment ago? 10 A. Yes. So the exhaust is on the outlet side of 11 the fan. So the fan is located downstream of the inlet and 12 upstream of the exhaust support. 13 Q. Do those fans 50 force ambient air through 14 Yare's open loop pathway? 15 A. Yes, they do. 16 Q. Turning to slide 144, does Yare disclose a gas 17 circulation device in the closed loop? 18 A. Yes. Air is circulated within the sealed zone 19 due to operation of fans 80. You see 80 highlighted in the 20 lower portion, lower portion of the figure, whatever, the 21 figure on the left. 22 Q. And does the fan 80 force air through the closed 23 loop? 24 A. Yes, it does. 25 Q. You see at slide 144 a reference to the heat

1030 1 exchanger from the claim. Does Yare disclose the claimed 2 heat exchanger? 3 A. Yes. Yare discloses a heat exchanger that 4 resides in both the atmospheric zone and the sealed closed 5 loop zone. This is heat exchanger 70. 6 Q. Does Yare disclose one or more solar energy 7 reduction layers located at the transparent cover panel? 8 A. No, Yare does not disclose the solar energy 9 reduction layer element. 10 Q. Would a person of ordinary skill in the art in 11 2008 have been motivated to add a solar energy reduction 12 layer such as disclosed by Larson, which you talked about 13 earlier, to Yare's cabinet? 14 A. Yes, I believe they would be for the same 15 reasons discussed, reduced heat load, better display 16 contrast, reduced reflectances. 17 Q. So looking -- would a person of ordinary skill 18 in the art have had a reasonable expectation of success 19 incorporating a solar energy reduction layer into Yare's 20 display? 21 A. Yes, they would. It's a straightforward 22 modification. There's already going to be a cover glass 23 that would be easy to modify by applying the principles 24 disclosed in Larson. 25 Q. So looking to claim 10 of the '142 patent, which	1032 1 weigh against a finding that its patent claims were 2 obvious. 3 Do you recall that? 4 A. I do recall that, yes. 5 Q. What secondary considerations of non-obviousness 6 did you consider that MRI has argued? 7 A. There are four here, long-felt but unmet need, 8 failures of others to solve the same problem, copying of 9 product, and industry praise. 10 Q. Did you reach any conclusions in that regard, 11 whether any of these considerations suggest that the claims 12 are not obvious? 13 A. Yes, I have. 14 Q. What conclusions have you reached? 15 A. It's my opinion that the information presented 16 by MRI was not convincing, that there were considerations 17 of non-obviousness primarily because they did not recite 18 any specific claim elements to which the evidence for 19 unfelt need or failures of others or industry praise and 20 copying could be applied. 21 Q. Now, I understand you've also considered whether 22 claim 9 is supported by an adequate written description of 23 the '322 patent; is that right? 24 A. That's correct. 25 Q. And did you form any opinions in that regard?
1031 1 is shown on slide 147, does Yare in combination with Larson 2 disclose at least one of, said one or more solar energy 3 reduction layers comprise a film having anti-reflection 4 properties? 5 A. Yes. Larson discloses an auxiliary polarizer, 6 which could have -- which Larson states could include an 7 anti-reflective layer on it. So, yes, Larson discloses 8 that as well. 9 Q. Would a person of ordinary skill in the art at 10 the time have been motivated to add that film with an 11 anti-reflection property to Yare's display? 12 A. Yes, as I stated before, the problem with, like, 13 ghosting, reflected images is a real issue. And adding 14 anti-reflection films to reduce those reflectances is a way 15 to solve that problem. So they would be motivated to do 16 so, yes. 17 Q. So could you summarize for us, please, 18 Mr. Smith-Gillespie, the conclusions that you reached 19 concerning Yare as it relates to the claims 6 and 10 of the 20 '142 patent? 21 A. Yes. It's my opinion that claims 6 and 10 of 22 the '142 patent are obvious in view of Yare with Larson. 23 Q. So I asked you what feels like hours ago now, 24 Mr. Smith-Gillespie, whether you were aware that MRI has 25 argued that there are certain secondary considerations that	1033 1 A. Yeah. It's my opinion that claim 9 of the '322 2 patent lacks sufficient written description. 3 Q. And what is your understanding of what is 4 required for a claim to have adequate written description? 5 A. The requirement is that a -- that the patent 6 disclose in the specification in such a fashion enough 7 information to show that they were in possession of the 8 invention at the time, or meaning that they actually 9 invented what they're claiming. 10 Q. And what is the basis of your conclusion that 11 claim 9 of the '322 patent lacks written description? 12 A. The claim element that lacks adequate written 13 description is, here highlighted from claim 9, a posterior 14 surface. This is of the electronic display, where no 15 electronics are mounted to the posterior surface of the 16 electronic display. 17 And it's my opinion that the patent doesn't 18 provide, either through figures or through discussion in 19 the specification, how that would be accomplished. In 20 fact, it seems to show otherwise in rear views of the 21 display. 22 Q. Shown at slide 153 is Figure 2 of the '322 23 patent. Is that the rear view of the display that you 24 referred to in your previous answer? 25 A. Yes, that's correct.

1034 1 Q. And what do you take from this image? 2 A. Well, I actually see an interface connector in a 3 little cutout in the back plate, and the electrical 4 interface is made to, you know, the outside controller 5 boards through this location. 6 Q. Are we looking at the posterior surface of the 7 display here? 8 A. Oh, this is the posterior surface, yes. 9 Q. And you mentioned, if I heard you correctly, an 10 interface. Is that right? 11 A. I did, yes. There's a connector shown in the 12 little cutout box on the right-hand side. 13 Q. Would you mind looking over your right shoulder 14 and tell me if I have that right? 15 A. Narrow it down more to a little bit on the left. 16 Right there, yep. 17 Q. Okay. And what is that? 18 A. That's a signal connector. 19 Q. Is that an electronic? 20 A. Yes. It brings electronic signals in. Another 21 connector couples to it, brings in timing and image 22 information. 23 Q. And where is it mounted relative to the 24 posterior surface of the display shown in Figure 2? 25 A. It's on the posterior surface of the display.	1036 1 Q. And what does the patent specification tell us 2 about the second cooling pathway shown in Figure 9? 3 A. The second cooling pathway is a closed loop and 4 it is comprised of an isolated gas system 100. 5 Q. What does the patent specification tell us about 6 the third cooling pathway? 7 A. The third cooling pathway is an ambient air vent 8 system used to cool the refrigeration unit 110, which is 9 located at the bottom right of the display -- of the 10 figure. 11 Q. And what, if anything, does the patent say about 12 any embodiments concerning -- with respect to the isolated 13 gas cooling system 100? 14 A. That it comprises refrigerated air. 15 Q. So at slide 155, we see claim 9 of the '595 16 patent. Do you see that? 17 A. I do. 18 Q. And on the right, we see that Figure 9, correct? 19 A. Yes, with some annotations. 20 Q. How does Figure 9 compare to the subject matter 21 of claim 9 of the '595 patent? 22 A. Claim 9 of the '595 patent calls out an 23 electronic display. That's shown as number 10. It also 24 calls for -- well, I'm sorry -- with a posterior surface, 25 which is -- we don't see. A constricted convection plate
1035 1 Q. Are you aware of any portion of the patent 2 specification that describes an electronic display with no 3 electronics mounted on its posterior surface? 4 A. No, there's no examples given. 5 Q. So what do you take from that, from the figure 6 that you looked at and your review of the specification? 7 A. Well, this is at best misleading, but it 8 suggests that the inventor was not in possession of this 9 element of the claim, at least. 10 Q. So turning to slide 154, we see Figure 9 of the 11 '595 patent. Do you recognize that? 12 A. Yes, I do. 13 Q. You have reviewed the patent, right? 14 A. I have. 15 Q. How does the patent specification of the '595 16 patent describe Figure 9? 17 A. I'm just going to read if you don't mind. 18 "Figure 9 is a display using exemplary embodiment of the 19 constricted convection cooling system, where the three -- 20 where three cooling pathways are used." 21 Q. And can I ask you, what is the first cooling 22 pathway described? 23 A. The first cooling pathway is a convective -- or 24 a constricted convection pathway where plate 30 is the 25 constricted convection plate.	1037 1 that's shown as item 30, with a pair of sidewalls. You can 2 see the sidewalls where the arrows are going down and 3 around the outside. Which defines a constricted convection 4 channel. 5 There's a gaseous closed loop traveling across 6 the front display surface and behind the constricted 7 convection plate. This is a set of arrows that are passing 8 over the front of the highlighted blue display portion 9 along the top through a frame member and through the -- 10 above the constricted convection plate and down and back 11 around again. 12 Q. Is there -- I'm sorry. Were you done? 13 A. It also calls out a means for propelling gas, 14 it's not shown in the figure, around the closed loop and a 15 means for cooling the gas. That's the refrigeration unit 16 at the bottom. 17 Q. Do you have an understanding of whether the 18 systems shown in Figure 9 would have a means for propelling 19 gas? 20 A. There must be fans in here. Otherwise, it's not 21 disclosed. 22 Q. Does the Figure 9 show an entrance and an exit? 23 A. It does show an entrance and an exit to the 24 constricted flow path. It looks like there's -- up by the 25 number 80, there's an exit for one of the airflow arrows.

1038 1 And the entrances, hard to say, could be coming in from the 2 back, but entering a constricted convection channel at the 3 very bottom of the green zone there. 4 Q. So do you take claim 9 to cover Figure 9? 5 A. Generally yes, with the exception of showing 6 actual fans that are propelling gas. 7 Q. Based on your review of the '595 patent, do any 8 of the other figures in the '595 patent show the elements 9 of claim 9 as are shown in Figure 9? 10 A. No, no other figures disclose this information. 11 MR. KLINE: I pass the witness, Your Honor. 12 JUDGE BHATTACHARYYA: Why don't we take a 13 15-minute break now before the cross begins. 14 MR. STOCKWELL: Very good. Thank you, Your 15 Honor. 16 (A recess was taken at 3:23 p.m., after which 17 the proceedings resumed at 3:39 p.m.) 18 JUDGE BHATTACHARYYA: Please be seated. 19 20 CROSS-EXAMINATION 21 BY MR. STOCKWELL: 22 Q. Good morning, Mr. Smith-Gillespie. I don't 23 think we have met yet. I am Mitch Stockwell. I represent 24 MRI. 25 A. Nice to meet you.	1040 1 A. There was an example that I talked about during 2 my consulting work probably in 2004 time frame for an 3 air-cooled backlight for a simulator, a fighter simulator 4 LCD. 5 Q. Okay. Can we bring up CX-1893. You were 6 deposed in this case, correct? 7 A. What? 8 Q. You were deposed in this case? 9 A. That's correct. 10 Q. You recognize the front cover of this as your 11 deposition? 12 A. I do, yes. 13 Q. And you have testified as an expert before, 14 haven't you? 15 A. I'm sorry, I am still having trouble. 16 Q. You have testified as an expert before, have you 17 not? 18 A. I have, yes. 19 Q. If we go to page 68, question starting on line 20 2. "Other than your work as an expert witness, when was 21 the last" -- I'm sorry, I am on the wrong page. Go to page 22 66, please. 23 66, line 21. The question is: 24 "Question: Looking through your background, 25 what do you consider to be the most relevant prior" -- if
1039 1 Q. So other than your work as an expert, the last 2 position you had designing an LCD display was in 2013, 3 correct? 4 A. I'm having trouble hearing you. 5 Q. Sure. Is this better? 6 A. That's a little better, yes. 7 Q. Is this better? 8 A. That's better, thank you. 9 Q. So other than your work as an expert, the last 10 position you had designing an LCD display was in 2013, 11 right? 12 A. That's probably correct, yes. 13 Q. And you consider your most relevant experience 14 for this case the work you did for Honeywell, recent work 15 you did on a dehumidifier and a drying system using an 16 array of fans, correct? 17 A. No, well, relative to this case, I was just 18 asked about -- when I disclosed that, I was asked for 19 examples of cooling systems that use airflow. 20 Q. I understand that. But listen to my question 21 carefully, okay, see if we can agree, that your most 22 relevant experience that you consider for this case is the 23 work you did for Honeywell, recent work you did on a 24 dehumidifier, and work you did on a drying system using an 25 array of fans?	1041 1 we go to the next page -- "experience to your work on this 2 -- the patents that are at issue in this case?" 3 Do you see at line 5, can you not blow it up, 4 Ms. Gray? I am having to read that. Thank you. 5 Do you see at line 5, you answered, "Probably 6 some of the work that I did at Honeywell, more recent work 7 I've done for a solid-state dehumidifier design -- it's not 8 listed on my CV -- and then a drying system that I 9 developed that uses both fans -- uses an array of fans set 10 in different orientations." 11 Did I read that correctly? 12 A. Yes. That was specifically about the use of 13 coolant. 14 Q. Sir, this will go much faster if you do yes or 15 no or I don't know. And my question was did I read that 16 correctly? 17 A. You read that correctly. 18 Q. Okay. So with respect to Honeywell, I want to 19 look at your RDX-7, slide 2. That's the demonstrative 20 slides that were used with you on direct. 21 So this is what you presented on direct and you 22 worked with Honeywell from 1985 to 1997, correct? 23 A. That's correct. 24 Q. And this does not mention large displays? 25 A. This is not what?

1042 1 Q. This does not mention any work on large 2 displays? 3 A. No. It mentions work on displays in rugged 4 environments. 5 Q. Are you saying the slide we're looking at says 6 something about work on rugged environments, sir? Because 7 all I see is Honeywell, principal engineer, 1985 to 1997. 8 Did I read that correctly? 9 A. You read that correctly. 10 Q. Okay. So your Honeywell experience used a 11 system with a backlight with an aluminum fin array, 12 correct? 13 A. That's correct. 14 Q. And cool air would pass over that aluminum fin 15 array, right? 16 A. Yes. 17 Q. And the drying system you mentioned as having 18 worked on, that did not have an LCD, did it? 19 A. No, it didn't. 20 Q. And the solid-state dehumidifier you worked on 21 did not have an LCD to cool but instead just used 22 electronics, right? 23 A. Yes. 24 Q. So let me ask you about -- you can take that 25 down, Ms. Gray.	1044 1 in this case discuss cooling certain portions of the 2 display, right? 3 A. That's correct. 4 Q. And you have to do that with open and closed 5 loops and constricted convection plates, right? 6 A. What do you mean you have to -- you have to do 7 that with? I'm sorry. 8 Q. So generally the claims -- I'm not talking about 9 every little detail of the claims, but generally they talk 10 about open and closed loops or constricted convection 11 plates and channels, right? 12 A. That's correct. 13 Q. Okay. Now, you didn't present during direct any 14 testing concerning the prior art patents and publications 15 you presented to show whether or not those features in 16 those materials would actually cool or constrict 17 convection, correct? 18 A. I did not. 19 Q. And you didn't look at any actual products or 20 try to mock up any of that prior art, correct? 21 A. No, I did not. 22 Q. You didn't ask the Respondents to do any kind of 23 CAD drawings and computational fluid dynamics with respect 24 to those prior art products? 25 A. No, I did not.
1043 1 You testified on direct about validity or 2 invalidity, I should say. You didn't offer any opinions on 3 infringement. And you have not developed any opinions on 4 infringement in this case, right? 5 A. I have not been involved in, yes. 6 Q. And you didn't consider whether the -- either 7 whether the accused products from the Samsung Respondents 8 or my client's domestic industry products, you didn't 9 consider whether any of those practice the claims? 10 A. I didn't consider those, no. 11 Q. No. And when you presented on secondary 12 considerations, you did not present any opinion concerning 13 commercial success, correct? 14 A. I believe I did not. 15 Q. And you were hired in this case to support the 16 invalidity analysis, right? 17 A. To offer opinions on the invalidity analysis, 18 yes. 19 Q. I'm sorry. I didn't hear you. 20 My question was: You were hired in this case to 21 support the invalidity analysis, correct? 22 A. I was hired to provide opinions relative to 23 invalidity, correct. 24 Q. And I want to understand a couple of things you 25 did not do when you investigated invalidity. So the claims	1045 1 Q. And is it fair to say, in your view, you don't 2 need to do that kind of testing to determine whether or not 3 something is within the four corners of the claim? 4 A. That's correct. 5 Q. So let me ask you a little bit about the prior 6 art generally, okay, because you presented a lot of art. 7 And you talked a lot about the figures and there were 8 annotations in the figures. 9 Can we agree that the figures you presented 10 throughout your testimony, they were schematic figures, 11 they weren't to scale? 12 A. I believe that's correct. 13 Q. And these schematic figures, they don't tell you 14 dimensions of the air passages or the casings or the 15 separation distances between what you call plates and the 16 backs of the LCDs, right? 17 A. No, they don't. But generally you don't vary 18 scales in schematic-type drawings. 19 Q. I'm sorry. 20 A. You don't vary -- vary the scales. 21 Q. You can vary the scales? 22 A. Not. Generally -- so, first of all, I think I'm 23 going to correct my last answer because in Karppanen, it is 24 very much a design document the way it's shown, not that 25 that's a requirement in my analysis, but I do understand

1046 1 that generally we see more schematic-type views. 2 Q. Okay. And those schematic-type views, they 3 don't have dimensions for the skilled person to look at? 4 A. That's correct. 5 Q. Okay. Now, I want to go to Takeuchi? How do 6 you pronounce that? 7 A. That's close to the way I do it. 8 Q. Let's go to your slide 21 from Respondent's 9 Demonstrative Number 7. Slide 21. 10 You identified as the side panels in this slide 11 the items 52 and you colored them in yellow, right? 12 A. Yes. 13 Q. And Takeuchi says that that's insulating 14 material? 15 A. That's correct. 16 Q. And you noted the entrances and exits were, I 17 think you said, at 55a and up at the top, there's an exit. 18 It is kind of the arrow coming out sort of near 56. 19 Do you see that? 20 A. That's correct, yes. 21 Q. And would we -- and can we agree that the 22 entrances and the exits that you identified there, those 23 are defined in what you consider to be the constricted 24 convection plate, you have kind of labeled it over there to 25 the right, 53?	1048 1 LCD. 2 Q. Fair enough. 3 A. I'm sorry, not the LCD, but the panel. 4 Q. The panel, okay, the back of the backlight. And 5 then this arrow (indicating) is sort of even yellower and 6 then it goes out the exit, right? 7 A. Correct. 8 Q. So your figure is incomplete, isn't it, as to 9 the airflow? 10 A. No, it is not. 11 Q. Oh, it is not? Okay. Let me -- 12 MR. STOCKWELL: May I approach, Your Honor? I 13 forgot to hand you our demonstrative cross slides. 14 JUDGE BHATTACHARYYA: Yes, that's fine. 15 MR. STOCKWELL: While I am doing that, if you 16 could bring up CDX-10, Ms. Gray. 17 And if we can go to slide 3. 18 So here is another -- this is Figure 5 that we 19 were looking just a minute ago with Takeuchi, right? And 20 we got the airflow at the bottom, it comes into the outer 21 housing, goes in through 55a, sort of warms up as it goes. 22 Wouldn't you agree, sir, that your figure was 23 incomplete because you left off this arrow at 55b, didn't 24 you? 25 THE WITNESS: No, I didn't leave off the arrow.
1047 1 A. Yeah, the partition plate 53. 2 Q. Okay. So the openings for entrances and exits 3 appear in that plate, right? 4 A. Yes. 5 Q. And can we agree that the openings are not 6 defined by both the plate and the sidewalls? 7 A. The openings -- the openings exist -- are shown 8 to reside in partition plate 53. 9 Q. Okay. Now, I want to ask you about Figure 5, if 10 we go forward one to slide 22 in your demonstrative number 11 7. This is where you highlighted the airflow. You have a 12 filter in 55a and you sort of labeled that entrance. 13 Do you see that? 14 A. Yes. 15 Q. And air flows through the filter -- the air 16 flows through an outer housing -- let me do this, because 17 it will be easier if we can all follow along. 18 So air flows through this outer housing 19 entrance, then through the filter, and then through this 20 inlet 55a, right? 21 A. That's correct. 22 Q. And then it comes up and you have kind of shown 23 it gets sort of hot there with the yellow, I take it? 24 A. I'm not sure that's the intent of that, but it 25 would be picking up heat as it is moving up the back of the	1049 1 The arrow was there and I talked about the arrow. 2 BY MR. STOCKWELL: 3 Q. The arrow was there and you talked about it, but 4 I just asked you about your annotated figure and you said 5 that was complete and you didn't have any more airflows, 6 correct? 7 A. No, you said this is -- this is all the 8 airflows. And I said no, that's not. 9 Q. Okay. Well the record will reflect -- 10 A. This is also not correct either. 11 Q. Okay. Well, let's talk about this airflow in 12 the center, what Takeuchi says about that. 13 Would you agree with me that what he says is air 14 flows up through this plenum, it gets warmer, do we agree 15 on that? 16 A. Yes, I see. 17 Q. Do we agree that Takeuchi says that since the 18 additional intake vent with the fine filter 55b right here 19 in the center is arranged in the middle portion of the 20 partition plate and fresh ambient air is supplied, it's 21 possible to cool the back sides of the light guide plate 22 and the panels 16, 17 substantially uniformly? 23 Do we agree it says that? 24 A. It says that, yes. 25 Q. So can we agree that Takeuchi is saying, well,

1050 1 look, you need vents more than just on the bottom, you have 2 got to put them here (indicating), right, in the middle? 3 A. That's correct. 4 Q. And he doesn't tell us the size of the vents, 5 does he? 6 A. No. 7 Q. And can we agree that there's something known as 8 impedance with respect to fans pulling air through plenums? 9 A. Okay. 10 Q. Did I get that right? 11 A. Yeah, there's viscous drag. 12 Q. It is drag or resistance, sometimes called 13 impedance? Is that -- 14 A. That's correct. 15 Q. Is that fair? 16 And you can reduce the impedance or the drag of 17 the air flowing through something by opening the vents up 18 more, right? 19 A. Reducing the resistance of the entry paths, yes. 20 Q. And that makes the fan sort of not work as hard 21 to pull air through a plenum? 22 A. Okay. 23 Q. Do we agree? Do you agree? 24 A. Yep, yep. 25 Q. And so when I look at Takeuchi, he is saying we	1052 1 question is before you ask it, I guess. 2 Q. Well that's not how this works, sir. 3 A. I know it. So, yes, we don't know the size of 4 the fans. 5 Q. So you don't know the size of the fans. And you 6 would agree that the skilled artisans who are making 7 something like Takeuchi, they may use different size fans, 8 they may use different size plenums, they may put that 9 plate closer or further away. 10 Can we agree on that? 11 A. Yes. 12 Q. And depending on how far away the plate is, how 13 big the through openings 55a and 55b is and how big the fan 14 is, you may or may not have a constricted channel. 15 Can we agree on that? 16 A. That's not what Takeuchi is disclosing so I 17 don't agree with that. He is disclosing a constricted 18 channel because he says it greatly reduces the volume 19 relative to if there's none there and 51 was the space. 20 Q. Okay. So I want to understand your testimony. 21 You're telling this Court that every single time a skilled 22 artisan looks at Takeuchi that says add more air, not only 23 at the bottom but also at the top, every single 24 implementation they ever will make will have a constricted 25 channel; is that your testimony?
1051 1 must have more openings in the middle in order to cool that 2 back side. We agree on that, correct? 3 A. Takeuchi is saying that the air will -- the 4 temperature will increase and continue to increase so the 5 cooling efficiency will be less as you move towards the top 6 so he introduces additional air to keep it uniform, 7 substantially uniform across the back of the panels. 8 Q. Right. And you cannot say that a skilled person 9 would necessarily and always look at Takeuchi and say: 10 Well, that's definitely going to be sized in a manner that 11 a constricted channel is going to be formed, right? 12 A. What is the "that" that is going to be sized? 13 Q. So your testimony, as I understand it, is this 14 plate is a constricted convection plate, right? 15 A. That's correct. 16 Q. We don't know the dimensions of the plenum, we 17 don't know the dimensions of the entry holes, 55a and 55b, 18 right? 19 A. No, we don't know the dimensions. But we know 20 the relative positions. 21 Q. And we don't know the sizes of the fans and the 22 power of the fans? 23 A. Okay. 24 Q. You agree with that? 25 A. I am just kind of wondering what the next	1053 1 A. Takeuchi discloses a constricted channel with 2 additional venting to allow air in and to maintain 3 uniformity. 4 Q. That's not my question, sir. Are you -- are you 5 saying every implementation of Takeuchi will always have a 6 constricted channel? 7 A. If you implement Takeuchi, you'll have -- as 8 Takeuchi discloses, you'll have a constricted channel, yes. 9 Q. Notwithstanding that some skilled artisans may 10 make these entrances larger and put more powerful fans in, 11 you're always going to have a constricted channel, in your 12 view? 13 A. That's outside the scope of what Takeuchi is 14 showing here. 15 Q. I'm not asking about what Takeuchi is showing, 16 sir. I'm asking about your opinion. Your opinion is no 17 matter how big you make those openings, no matter what size 18 fan, no matter how close or far away the plate is, you're 19 always going to have a constricted convection channel. 20 That's your -- that's your view? 21 A. That's not my view. 22 Q. Okay. 23 A. That's your view. 24 Q. And I'm trying to understand your view, sir. 25 You're the one testifying. So in all cases, did you think

1054 1 Takeuchi implementations will always have a constricted 2 channel? 3 A. I -- I say that Takeuchi discloses a constricted 4 channel with a fan sufficient to pull air in through the 5 disclosed entry points and maintain a constricted channel 6 because that's what Takeuchi discloses. He discloses that 7 the display will be cooled uniformly. 8 Q. And I am just asking, is that true for every 9 single possible implementation of Takeuchi? That's a yes 10 or no or I don't know. 11 A. Well, I don't know what every single possible, 12 you know, implementation of Takeuchi is. 13 Q. Fair enough. Now, let's go to your -- let's go 14 to -- well, let me see if you would agree with this. 15 Would you say that the skilled artisan -- is it 16 part of your opinion that the skilled artisan would look at 17 this and think it's obvious to optimize this so that you do 18 get a constricted convection channel? 19 A. I think the skilled artisan would look at this 20 and realize that they have the option of optimizing to get 21 the cooling uniformity that they desire -- 22 Q. Okay. So let's go -- 23 A. -- and it will result -- and that results still 24 in a constricted channel. 25 Q. So let's go to Takeuchi -- well, let me just be	1056 1 A. For cooling the device, yes. 2 Q. Okay. So I want to shift grounds and talk a 3 little bit about Kim. And if we could go back to our 4 demonstrative, CDX-10, slide 5. Slide 5. 5 So this is a -- you recognize this is Kim's side 6 view, correct? 7 A. That's correct. I'm not sure that it is side 8 view. I think it might be actually a view down through the 9 display, a horizontal cross-section. 10 Q. Okay. Well, thank you for saying that, 11 horizontal cross-section. But this is -- this is from your 12 report, you recognize this as something that you annotated? 13 A. Yes. 14 Q. And you annotated the side panels in yellow; do 15 you see that? 16 A. I do. 17 Q. And then you annotated -- I can't always tell 18 what this big screen, but I think this is green, the shield 19 cover? 20 A. It's green. 21 Q. And the green part is what you consider to be 22 the constricted convection plate, right? 23 A. That's correct. 24 Q. And we can agree that -- well, let's go to the 25 next slide, 6. And this is something you showed, something
1055 1 clear. What you just said, that would -- that would 2 require the skilled artisan when they are implementing 3 Takeuchi to optimize it and make sure the plate and the 4 holes and the fan are all set up so you get this 5 constricted channel and this increased airflow, correct? 6 A. You will need to say that again. I didn't 7 follow the whole thing. 8 Q. Yeah. So your view is it is obvious to the 9 skilled artisan to optimize the placement of the partition 10 and the size of the holes and the fans so that you get the 11 constricted convection channel and the flow; is that fair? 12 A. That's fair. 13 Q. Okay. So let's go to Takeuchi, RX-1367, page 14 13. 15 You can take that down. And if we could blow up 16 paragraph 51. 17 Now, this paragraph says that "It will be 18 appreciated from the foregoing description that the present 19 invention provides an improved display system of the type 20 specified, which includes a cooling device for properly 21 cooling the display system." 22 Do you see that? 23 A. I do. 24 Q. So, in other words, Takeuchi explains his 25 invention will work for cooling; is that fair?	1057 1 similar to this. This is the nice exploded view of the Kim 2 reference, right? 3 A. That's correct. 4 Q. And we see in the center, the yellow side panels 5 and the green of the shield cover, correct? 6 A. Yes, that's correct. 7 Q. And can we agree that if we go to the next 8 slide, I have simplified this, this shield cover, the green 9 with the yellow side panels, gets placed over top of the 10 backlight. I don't know if that's purple or blue that you 11 originally meant that to be, right? 12 A. Right. 13 Q. If we go to the next slide, the resulting 14 construction looks something like what we have here on our 15 demonstrative slide 8 for Kim, right? 16 A. No. 17 Q. Okay. 18 A. That doesn't look like -- 19 Q. Well, let's back out then. Let's back out. Go 20 back to the slide 7. 21 So you can agree that these little slots right 22 here (indicating) go over top of the outer part of the 23 casing where I'm indicating on slide 7? Can we agree on 24 that? 25 A. That --

1058 1 Q. This yellow side panel right here (indicating) 2 is on the outside here (indicating), right? 3 A. No. In my opinion -- let's see if I can 4 actually drive. 5 Q. Yeah, sure. 6 A. -- is that this plate (indicating) slips 7 partially into this plate (indicating). 8 Q. I am not sure I am seeing your laser pointer? 9 A. It's a very tiny dot, sorry. Wait, there is 10 another laser pointer here. 11 Q. There we go. 12 A. A little brighter. So it's my opinion that this 13 plate here (indicating) slips partially between this plate 14 and the backlight (indicating). 15 Q. And then there is these little circles right 16 here (indicating). Do you see that? 17 A. Yes. 18 Q. They match up with these little channels here? 19 A. I believe so, yes (indicating). 20 Q. Okay. And the resulting construction is going 21 to -- you know, it is basically like a sandwich, right? 22 You just bring all those together and you have got a 23 sandwich? 24 A. That's correct. 25 Q. Okay. And when you had that sandwich -- if we	1060 1 A. Yeah, that could be a controller or a power 2 supply for just the LEDs. I would have to look it up. 3 Q. And we agree that this -- I am still not quite 4 sure on the color, I think it's blue. 5 The blue is the rear side of the backlight unit 6 and the circuit board 133 goes on top of the rear side of 7 the backlight, right? 8 A. That's correct. 9 Q. This controller 260, that's not -- do you 10 consider that also to be the rear side of the backlight 11 unit or is that more electronics that are kind of mounted 12 on the backlight unit? 13 A. I believe that's electronics that are behind the 14 main backlight case, and their own shield case. 15 Q. So they are sort of -- there is actually kind of 16 another layer here (indicating) around 260. Underneath of 17 that cover is the controller. And then underneath of the 18 controller, to the left, is the rear side of the backlight, 19 right? 20 A. Yes. 21 Q. Now, if we go to slide -- I want to get the 22 claim language up, claim 4. I don't know if you can put up 23 this slide, Ms. Gray, and RDX-7, page 39, put them up 24 side-by-side. Page 39 of RDX-7. Okay. 25 So your page 39 just has the elements of claim
1059 1 go to the next slide -- can we agree that the holes in the 2 sandwich are going to be along the green part here 3 (indicating) of what you call the shield cover, right? 4 These are the slits that let air in? 5 A. Or let air out. 6 Q. Or out, whichever flow you believe -- 7 A. I can't agree to anything based on this graphic 8 here because it is clearly mismatched. 9 Q. We will go back to the original exploded view. 10 So if we go back up, Ms. Gray, back up about three slides 11 to the exploded view that was -- one more forward, slide 7. 12 So this was from your report, slide, sorry, 6. 13 Right. This one (indicating), yeah, slide 6. 14 We can agree that these slits are right above 15 the yellow side panels, right? 16 A. That's correct. 17 Q. And the side panels are going to -- whether it's 18 inside or outside, they are going to be mated up with this 19 side of the backlight unit, right? 20 A. Correct. 21 Q. Okay. Now, within -- in this exploded view, 22 this item 133, what is that? 23 A. That's a circuit board. 24 Q. Circuit board. And what's this item right over 25 here, 260? Does a controller ring a bell?	1061 1 4. And claim 4 talks about the backlight assembly and then 2 it talks about the metal core or PCB, the LEDs and then it 3 says a posterior surface on the rear side of the PCB. 4 Do you see that? 5 A. I do. 6 Q. And then it says there's a constricted 7 convection plate placed behind the posterior surface of the 8 PCB. 9 Do you see that? 10 A. I do. 11 Q. And so you're pointing to the blue part of Kim 12 in slide 6 of our demonstratives, I believe, as the 13 posterior surface of the backlight, right? 14 A. Yes. 15 Q. And you're pointing to shield cover as the plate 16 and the space in between as the channel, right? 17 A. Yes. 18 Q. But in Kim's actual embodiment, a lot of the 19 posterior surface is going to be covered by these 20 electronics 133 and some of them are already covered by the 21 controller 260, correct? 22 A. I am not sure how much is in there, frankly. 23 When you say most of it's covered by, that's -- the board's 24 on stand off, obviously, so it doesn't short. 25 Q. Well, I'm not -- I don't want to characterize

1062 1 the amount. I am just -- I am just wondering can we agree 2 that there's going to be coverage of the posterior of the 3 backlight that holds the printed circuit board with the 4 circuit 133 in the controller 260. 5 Can we at least agree on that? 6 A. Yes. 7 Q. There is going to be intervening structures 8 between the rear of the PCB and the shield cover, right? 9 A. I agree, yes. 10 Q. And that intervening structure as air flows in 11 and out, that intervening structure is going to impact the 12 airflow. Fair enough? 13 A. Yeah, it will see the airflow. 14 Q. It will -- I'm sorry, what? 15 A. It will see the airflow also. 16 Q. See? 17 A. See, yeah. The airflow will contact, will be in 18 communication with those parts. 19 Q. And notwithstanding all that intervening 20 structure, you believe there's still a constricted 21 convection channel between the shield cover and the rear of 22 the PCB, right? 23 A. Yes, because the easiest way to answer that 24 question is what would happen if shield cover 140 wasn't 25 there? Then air would just expand out into the back of the	1064 1 was ever in that shielded box going in the left direction. 2 Q. Let's break that down a little bit. First, 3 let's start with what's -- what the Kim patent says, okay? 4 It says air is drawn in in an X direction. Do 5 you see that? So that is coming in through the fan. Is 6 that fair? 7 A. Yes. 8 Q. Then it says the air which flows through the 9 heat generating parts, that would be the circuit 133 we 10 looked at before and the controller 260, right? 11 It is not shown in the figure, but those are 12 heat generating parts? 13 A. Well, it is not shown in your figure either. 14 Q. Yeah. 15 A. So -- 16 Q. But do you agree that the circuit 133 and the 17 controller 260 we looked at a minute ago, those generate 18 heat? 19 A. Yes, it says light source 131 and circuit board 20 133 of the backlight unit. 21 Q. Sure. And then it says the air which flows 22 through the heat generating parts is discharged to the 23 outside in a Y or Z direction shown in Figure 2 through the 24 plurality of air slits 117 prime. 25 Do you see that?
1063 1 case and would not actually be forced to contact the back 2 of the -- the rear surface of the backlight assembly as 3 well as some of these other probably high-powered 4 components, I would think. 5 Q. So you're saying the rear of this case that I 6 have got the green arrow on (indicating)? 7 A. Yeah. That would -- the air would expand into 8 that case and would no longer be guided. 9 Q. So I want to understand the airflow issue. If 10 we can go to CDX-10, slide 8. Sorry, if we go to the next 11 slide, please. 12 So I understand you don't like my sandwich here, 13 but with respect to the airflow, can we agree that air is 14 going to flow in the X -- sorry, in the directions that I 15 have labeled here with these arrows, it is going to go left 16 to right and top to bottom through the slits along the 17 cover shield? 18 A. Yeah, I'm not sure I could agree with the -- you 19 know, if the size of arrows depict any amount of airflow. 20 First of all, there's no -- there's no way to show that 21 there's actually openings at the bottom along the sides. 22 Those are very small holes that are depicted. There's a 23 slot along the top edge and then numerous holes there. 24 So the predominant airflow would be in the 25 vertical direction. And maybe just enough air to cool what	1065 1 A. I see the text, yes. 2 Q. And the Y and the Z directions are as indicated 3 by these arrows like top to bottom and left to right, 4 correct? 5 A. I don't know. I need to look at the patent. 6 Q. Well, let's go back and look at the figure from 7 your report. Let's go back to slide 6. This is the 8 exploded view. 9 Do you see the Z axis at the top right here? 10 A. Yes. 11 Q. Do you see an X axis coming in right there 12 through the fan (indicating)? 13 A. Got it. 14 Q. And do we see a Y axis going left to right? 15 A. Okay. Thank you. 16 Q. So are we in agreement that air will flow top to 17 bottom, you know, out of the top, out of the bottom, along 18 the Z axis? 19 A. Can you go back to your previous slide? 20 Q. Sure, with the text, if we can jump back there. 21 This is the Kim patent at column 7, lines 53 through 65. 22 A. Okay. Now there was a question? 23 Q. Can you agree that air will flow out of the top 24 here and out of the bottom according to Kim's own text? 25 A. Kim doesn't have text that relates to the

1066 1 direction Z going downward. 2 Q. Okay. So can we agree that air flows out of the 3 top in the direction Z? 4 A. Yes. 5 Q. And you just said Kim does not flow air out of 6 the -- so you're taking issue with Kim not saying or 7 teaching that air flows out of the bottom; is that fair? 8 A. I didn't say that. 9 Q. Okay. You are saying -- 10 A. I'm saying in the upper -- the upward arrows, 11 there's no -- there's no disclosure that there's an airflow 12 pattern in the down direction. 13 Q. Okay. But there is a disclosure that the 14 airflow will flow upwards? 15 A. Correct. 16 Q. And can we agree that the air will also flow 17 left and right? 18 A. To some degree. 19 Q. Okay. And on the downward flow, I thought you 20 testified on direct that this fan was placed, according to 21 one of the other claim limitations, near the exit of the 22 air. 23 Did I not hear that testimony correctly? 24 A. No, I did say that. 25 Q. Okay. So are you changing your testimony and	1068 1 does the slide fairly demonstrate that the air is going to 2 flow out of the top, the bottom, the left, and the right? 3 Is that -- 4 A. There is no scale to this. There is no scale to 5 your arrows, but the directions -- the only thing I will 6 agree to is that the directions shown are possible 7 directions of airflow -- 8 Q. All right. 9 A. -- out of the -- out of the back plate. 10 Q. So I want to ask about one other possible 11 direction. Let's go to the next slide. 12 So this is a view of the fan, right? This is 13 the fan in Figure 4? 14 A. That's correct. 15 Q. Just for the record, I am on slide 10 of our 16 CDX-10. And there's some slits 117 prime over here to the 17 left (indicating). 18 Do you see that? 19 A. I do see 117 prime, yes. 20 Q. And I have got an excerpt from the Kim patent 21 here at column 4 where it says the shield cover may have a 22 plurality of air slits 117 prime through which flowing air 23 produced by the cooling fan comes in and out. 24 Do you see that? 25 A. I do.
1067 1 saying that there is no air coming out of the bottom now? 2 A. I will go back to another picture. 3 Q. Which picture do you want? 4 A. The one that shows slit 117 prime. 5 Q. The exploded view. Let's go back to the 6 exploded view picture. 7 Is that the picture you need? 8 A. Yeah, 117 prime along the top in the section 9 view picture, there's also some 117 prime in the certain 10 place at the bottom. 11 Q. So just go back one more slide, Ms. Gray, slide 12 5. There we go. 13 Are you saying there is air flowing through the 14 bottom? 15 A. I believe so, yes. 16 Q. Okay. All right. So we have established -- 17 let's go back to my air drawing. We have established that 18 at least there's air flowing that way. 19 In other words, the airflows are fair. You may 20 disagree with the amounts, but the directions are fair. Is 21 that -- is that your opinion? 22 A. It is my opinion the predominant airflow is 23 vertically and then there's some calibrated airflow, if you 24 will, to cool the other heated components. 25 Q. I am just trying to get the airflows down. So	1069 1 Q. So I have got the arrows coming out but there 2 will also be arrows coming in according to that, right? 3 A. In my opinion, there would be arrows going in 4 there, not out. 5 Q. Okay. So Kim is wrong about this? 6 A. Kim doesn't say that, the arrows point out at 7 that location. 8 Q. Okay. But I want to -- so you are disagreeing 9 with the Kim disclosure that says the air comes in and out 10 of slits 117 prime? 11 A. When air is flowing at high speed across these 12 openings, there would be a strong tendency to actually draw 13 air in, not push it out, similar to if you blew across a 14 straw, water would rise in the straw because it creates low 15 pressure. But Kim also discloses that the fan can be 16 operated in reverse to push air through. 17 Q. You are going way beyond my question. Like, I 18 am just wondering, you disagree with this disclosure in 19 Kim, yes or no? And your counsel can bring out why. 20 A. You're -- you're -- I disagree with your 21 depiction of the arrows. 22 Q. Okay. Now, if we go to Kim, who after -- if we 23 go to Kim, RX-1396, page 11. 24 I want to see what he says about his invention 25 after he describes it. If we go to column 8 on page 11,

1070 1 Ms. Gray. Let's see. 2 If you kind of go down to around the paragraph 3 right at line 20 through, say, 27 or so, if you can blow 4 that up a little bit. Thank you. 5 So he says -- after describing the invention, he 6 says that as apparent from above, the present invention 7 provides a cooling fan unit with improved cooling 8 efficiency by efficiently cooling heat-generating parts of 9 a backlight unit. 10 Do you see that? 11 A. I do. 12 Q. And so he's saying here that his invention is 13 going to work to cool things, correct? 14 A. That's correct. 15 Q. And he also talks about -- one of the things 16 that Kim discloses is this fan and he sandwiches the fan 17 between the shield cover and the outer cover, right? 18 A. I am not sure he used the word sandwiches in 19 between. The shield cover is mounted. It is mounted 20 recessed into the shield cover. 21 Q. And it's also -- there's also a mounting piece 22 to attach it to the outer cover so that you can reduce 23 vibration. Is that fair? 24 A. Yeah, but that's -- 25 Q. And that's -- that's this other sentence about	1072 1 A. That's correct. 2 Q. So you needed to go find that element in the 3 prior art and you found that in the Hong reference, 4 correct? 5 A. Yes, I did. 6 Q. And so knowing you needed to find that reference 7 in the prior art and looking at the Hong reference, you 8 then looked to see whether there is motivation to combine 9 them? 10 A. That's correct. 11 Q. And in all the cases of the combinations you 12 have testified about today, you did those combinations 13 understanding what the claims were and understanding where 14 the gaps were and where you needed to go find and fill 15 those gaps. 16 Is that fair? 17 A. Not exactly, no. 18 Q. Not exactly. So you did not -- you understand 19 that part of your -- part of the obviousness issue is to 20 consider the differences between the prior art and the 21 subject matter claimed? 22 A. That's correct. 23 Q. So you considered that, right? 24 You have to say yes? 25 A. Yes. Sorry.
1071 1 using the fan to prevent noise and vibration, right? 2 A. Okay, yes. 3 Q. And all -- this statement in Kim generally makes 4 clear that for his invention, his application, his cooling 5 system is sufficient. He is not saying I need to have a 6 different invention for cooling, right? 7 A. No, he's not. 8 Q. Okay. So I want to turn to some of the 9 combinations you have presented with Kim. Let's go to your 10 slide 27, demonstrative -- Respondents' Demonstrative 7. 11 This is -- we can pull that up. 12 I may have the wrong slide. 27, Ms. Gray. 13 You recall testifying on direct about this slide 14 which has a summary of your conclusions about Kim? 15 A. Yes, I do. 16 Q. And you presented a number of these prior art 17 combinations. And when you were conducting your analysis, 18 you looked at the Kim reference, right? 19 A. I did. 20 Q. And you recognized that, for example, Kim did 21 not teach metal core PCBs. You recognized that on direct, 22 right? 23 A. That's correct. 24 Q. And you knew that some of the patent claims that 25 are asserted in this case recite metal core PCBs, correct?	1073 1 Q. And you also went and looked for prior art to 2 fill those gaps, correct? 3 A. Yes, that's correct. 4 Q. Now, Hong -- I want to understand some of your 5 testimony about Hong. Let's go to slide 45 of RDX-7. You 6 showed this metal core PCB on direct and it has got a heat 7 sink on the back. 8 Do you see that? 9 A. Yes, I do. 10 Q. And in a real device, multiple of these are used 11 in a backlight, correct? 12 A. That's correct. And they would be probably 13 mounted to a plate, not a single heat sink. 14 Q. And you're generally familiar with LCDs, and I 15 just want to make sure we're on the same page for typical 16 components of a backlight. You have to have a light source 17 of some form, right? 18 A. Correct. 19 Q. You have got to have -- you could have an edge 20 lit or direct-lit backlight, correct? 21 A. That's correct. 22 Q. This patent -- the patents are agnostic as to 23 that? The asserted patents are agnostic as to whether it 24 is edge-lit or back-lit? 25 A. Okay.

1074 1 Q. I am asking if you agree. 2 A. I'm not sure that I agree with regard to the 3 prior art that I'm looking at. 4 Q. Okay. Well, just in terms of what the claims 5 would cover, they would cover something with an edge-lit or 6 a direct-lit backlight; is that fair? 7 A. I would tend to say no because they talk about 8 the heat source being distributed and the whole backlight 9 needing to be cooled, meaning the back surface. 10 Q. So you interpreted backlight as being restricted 11 to what kind of lighting then? 12 A. I didn't say that either. 13 Q. Okay. So you just don't have -- 14 A. I said I believe the '595 and '322 patent really 15 aim more towards cooling a large area backlight. Otherwise 16 the cooling system would be focused on the edges where the 17 LEDs were located in an edge-light. 18 Q. Thank you very much for that. I appreciate 19 that. 20 So the edge-lit backlights, they are going to 21 include a light guide, reflector sheets, and optical films, 22 right? 23 A. That's correct. 24 Q. And direct-lit backlights will include diffusers 25 and optical films?	1076 1 opening report, from your expert report. 2 I think you showed something like this on 3 direct, but here's the gate PCB and the source PCB that run 4 these metal core backlights for Hong, right? (Indicating) 5 you have annotated them? 6 A. What did you just say? I quote gate PCB, source 7 PCB and then something about -- 8 Q. I take it those drive the backlights? Let me 9 ask you this: What do those do? 10 A. The gate and source PCBs drive the thin film 11 transistors that make up the pixels of the liquid crystal 12 display. 13 Q. Thank you for that clarification. 14 And if we go to the next slide, what Hong did 15 was he moved this control PCB, moved it from the top to the 16 bottom of the casing. Do you see that? 17 That's the difference from the Figure 2 related 18 art that we looked at, right? 19 A. Okay. 20 Q. Or at least that's one difference, correct? 21 A. Yes. 22 Q. And he removed the heat sinks, those finned 23 elements that were on the back, correct? 24 A. Yes. 25 Q. But he put on another conductive heat sink which
1075 1 A. That's correct. 2 Q. And the typical backlight may include some 3 additional housings, right? 4 A. Yes. 5 Q. I want to go to Hong and see what he says about 6 using this. If we go to CDX-10, slide 20, please. 7 This is our set of demonstratives, Ms. Gray, 8 slide 20. 9 So Hong has this figure of related art and he 10 identifies a source PCB and a control PCB that runs the 11 backlight. Is that fair? 12 A. Yes. 13 Q. And he says in this art, you know, one of the 14 problems is these generate heat, so, you know, you may 15 have a -- at least in a related art, you could have a heat 16 sink along the back of the backlight. 17 Is that fair? 18 A. That's correct, yes. 19 Q. And as the heat rises up, it could affect these 20 electronic components, at least in what he calls the 21 related art, which I take to be the prior art. 22 Is that fair? 23 A. Um-hum. Yes. 24 Q. If we go to the next slide. So this is his 25 exploded view. I think you showed -- this is from your	1077 1 he labeled as element 162, correct? 2 A. That's correct. 3 Q. And this is -- what Hong is all about is case 4 cooling, right? But he doesn't have a fan, he just does it 5 through this conduction? 6 A. Yes. Hong is trying to get the -- use the metal 7 core PCBs to get the heat to the case 150, which then gets 8 also distributed to 162. 9 Q. But in both the related prior art that we saw in 10 Figure 2, there was a heat sink associated with these metal 11 core PCBs and in this Figure 4, there is also a heat sink, 12 right? 13 A. Yes. 14 Q. In the figure you showed, there was a heat sink 15 associated with the metal core PCBs, correct? 16 A. Yes. Which figure are we talking about? 17 Q. This -- well, I'll withdraw the question. I 18 think we have already gone over that. 19 So let's go to Hong at page 1374 -- sorry, at 20 RX-1374, page 8. 21 I'm sorry, let's go to page 9, actually. And if 22 you could blow up paragraph 35. 35. 23 So he explains here why he wants to put the 24 driving circuits such as the source PCB and the control PCB 25 near the lower portion, and he says it is because the heat

1078 1 produced by LEDs 124 may accumulate on the upper portion of 2 the LCD device through thermal convection. 3 Do you see that? 4 A. Yes, I do. 5 Q. And what he is talking about there is the LEDs, 6 124, those may be those metal core PCBs that you've 7 combined with Kim, right? 8 A. The LEDs are mounted on those. 9 Q. Okay. And if we go to -- so fair to say Hong is 10 saying use heat sinks when you're using these metal core 11 PCBs and put the driving circuit sort of at the bottom of 12 the casing; is that fair? 13 A. Yes, that's -- Hong does that. That's how you 14 would use a metal core PCB because eventually, if you 15 didn't sink the heat out or pull it away through 16 convection, that even if it was metal it would still heat 17 up. 18 Q. Okay. So let's go to your slide 36 on 19 Respondent's Demonstrative 7. Slide 36. 20 So your combination involves putting metal core 21 PCBs into this portion of the backlight, correct, for Kim? 22 A. I'm sorry, I need to see your laser pointer. 23 Q. The backlight unit 130. That's your proposed 24 combination, right? 25 A. Yes.	1080 1 cover -- I am not sure what this is, but I think it's 117, 2 correct? 3 A. Where are you pointing? 4 Q. 117, this outer cover? 5 A. No, it is 115. 6 Q. Okay, I'm sorry, I don't have my glasses on. 7 So they are going to have to take this off in 8 order to access this Takahashi access aperture that you 9 have combined into the shield cover, correct? 10 A. Yes, that's correct. 11 Q. And then they get to what I call the sandwich, 12 which is the shield cover combined with all the electronics 13 and the front casing and they can, you know, remove the 14 Takahashi seals and open the access aperture, correct? 15 A. Yes. 16 Q. So if you have already taken this off of the 17 stand 106 and you have already taken off the outer cover 18 115. As opposed to like cutting a new hole in the shield 19 cover and sticking Takahashi in there, why wouldn't the 20 skilled artisan just be satisfied with unscrewing the 21 screws that you said were right here on the sidewalls to 22 attach it to the case and then you can just pop the shield 23 cover off and see everything inside? Isn't that easy? 24 A. That's a great question for the '595 patent as 25 well.
1079 1 Q. But if you take Hong's teachings of using heat 2 sinks and putting driving circuits at the bottom, if you 3 combine Hong, you don't need this cooling fan unit anymore 4 and you're not going to have this vibration, correct? 5 A. I can't agree with that, no. 6 Q. So let's go to one of your other combinations, 7 slide 54. This was your combination with Takahashi. This 8 is where you talked about Takahashi. And I think Takahashi 9 has through-holes and it discloses how you can plug the 10 through-holes to seal off access apertures. 11 Do you recall that testimony on direct? 12 A. I do. 13 Q. So I want to go to slide 52 if you will back up 14 a couple, Ms. Gray. You didn't testify on direct where you 15 would put these access apertures and then plug them with 16 Takahashi. 17 Is it going to be on the shield cover? 18 A. It would be on the shield cover. 19 Q. In that combination with the Kim reference, for 20 somebody to access the electronics like 133, they still 21 have to take this off of the stand 105, right, right? 22 A. Okay. 23 Q. You agree with that? 24 A. Yes. 25 Q. They are going to have to remove the outer-most	1081 1 Q. Oh, okay. It's a great question, but 2 unfortunately I get to ask the questions, not you. So 3 isn't that pretty easy? 4 MR. KLINE: Your Honor, I would ask that he just 5 stick with questions. 6 MR. STOCKWELL: I would ask that the witness 7 stick with answers. So I will dial it back, Your Honor. 8 JUDGE BHATTACHARYA: Thank you. 9 BY MR. STOCKWELL: 10 Q. I get to ask the questions, sir. 11 A. Sure. 12 Q. I asked, isn't that relatively easy for the 13 skilled person? 14 A. I would say so, yes. 15 Q. So let's go to the Kimura reference. 16 Now -- you can take that down, Ms. Gray. 17 For Kimura, I want to go to our cross 18 demonstratives -- sorry, I don't have a number here, so I 19 believe there is a Kimura cross demonstrative. Will you 20 pull up our cross demonstratives, please, Ms. Gray. 21 And, actually, I have got it. Here we go. 22 Let's go to slide 13. 23 Okay. This is Kimura, right? 24 A. That's correct. 25 Q. This is right from your report. You annotated

1082 1 the Kimura reference with both Figures 9 and Figure 10 and 2 I just put them side-by-side so we can refer to that. 3 Do you see that? 4 A. Yes, I do. 5 Q. And can we agree that Figure 9 is a 6 cross-section, right? 7 A. That's correct. 8 Q. But what's a little odd about Figure 9 is it's 9 kind of a cross-section of Figure 10, but Figure 10 doesn't 10 have an outer casing around it, correct? 11 A. That's correct. 12 Q. So what Figure 9 is, is like inside of the case 13 is a cross-section of Figure 10 and then around that is a 14 case that is not actually shown in Figure 10, correct? 15 A. Yes. 16 Q. And we don't know where the cross-section is 17 taken? 18 A. No, but it is a vertical cross-section. 19 Q. Right. And for Kimura, it does not describe 20 what this housing is -- other than just saying it is a 21 housing, it doesn't tell us the dimensions of the housing 22 around Figure 10, correct? 23 A. No, there is no dimensions in Kimura. 24 Q. And you don't know -- because we don't have a 25 perspective view of the housing, we don't know if this back	1084 1 So paragraph 30 says, Figure 9 is a side 2 elevation of an internal construction showing the 3 arrangement of a cooling fan with respect to a flat panel 4 display. 5 Do you see that? 6 A. I do. 7 Q. There is no mention of the driving circuit 8 there? Right? 9 A. Not in 39, if that's the actual real end of 39. 10 Q. And then paragraph 78, this sentence in the 11 middle "a driving circuit for the flat panel display is 12 disposed behind the backlight unit 19 [sic]," that's the 13 only sentence we could find in Kimura that has text 14 explaining anything about the driving circuit. 15 Are you aware of anything else? 16 A. No. 17 Q. And if we go to the next slide, can we agree 18 that if there is no driving circuit in -- just 19 hypothetically, if there's no driving circuit within Figure 20 9's cross-section, this patent is not relevant to anything 21 in the case; is that fair? 22 A. If there's no driving circuit for driving the 23 LCD? 24 Q. No, I am just saying if it's not located where 25 you had it in the figure or where Kimura had it in the
1083 1 area of the housing here that kind of bulges out, do you 2 see where I am indicating on Figure 9? 3 A. I do see that, yes. 4 Q. You don't know whether that extends across the 5 whole width of the panel, do you? 6 A. Can't draw a conclusion at all about that. 7 Q. You don't know if it extends across the width, 8 you don't know if it sort of goes and has a little bulge 9 and then it comes -- 10 A. The first assumption is that it does. 11 Q. But it is an assumption, right? 12 A. It is my opinion that they would have a 13 different view if there was necessary change in the 14 structure. 15 Q. And Kimura doesn't tell us the size of the 16 driving circuit that you rely on here, this element 19? 17 A. Not the size of the driving circuit, no. 18 Q. And Kimura doesn't tell us the type of the 19 driving circuit, does it? 20 A. Just says a driving circuit. 21 Q. And hypothetically -- let's go to the next 22 slide. 14. 23 This is all we really see about an express 24 mention of the area about Figure 9 and the driving circuit. 25 And I want to just go over this.	1085 1 figure, if it is just not there, this patent is not 2 relevant to the case; is that fair? 3 A. Yeah, if you take the driving circuit out, it 4 looks like this. 5 Q. Okay. Thank you. That's actually the answer to 6 that question. 7 And if we go to the next slide, so this could 8 be, if you look at the figure on the right there, I have 9 had this created. It's Figure 10. And we have placed a 10 smaller driving circuit on the back or near the back of the 11 display. 12 Do you see that? 13 A. I do. 14 Q. And to the left we've got the figure you have 15 annotated, Figure 9. Do you see that? 16 A. I do. 17 Q. And if we move the slide forward, slide 17. 18 So in this hypothetical, you would agree that if 19 you took a cross-section through the center there, you 20 would end up with, you know, this Figure 9 with the driving 21 circuit, right? 22 A. No. 23 Q. No? 24 A. No. 25 Q. Okay. So you just disagree with that. Let's go

1086 1 forward one more slide. 2 So if I took a cross-section on this 3 hypothetical construction on the right, would you agree 4 that you would end up with the figure on the left -- 5 A. Again, no. 6 Q. -- on slide 18? 7 A. Again, no. 8 Q. Okay. 9 A. Do you want to know why? 10 Q. No, your counsel can bring that out. 11 You believe -- if we go back two slides, 12 Ms. Gray. 13 You believe this driving circuit here 14 (indicating) acts as a device that will cause the 15 constricted convection channel to be formed, right? 16 A. That's my opinion, yes. 17 Q. And you would agree that there are driving 18 circuits that are much smaller than an LCD display that 19 were known to skilled people, correct? 20 A. That's correct. 21 Q. So if we move forward or if we look at the right 22 side of this slide 17, the driving circuit could be smaller 23 than the width and height of the LCD backlight, correct? 24 A. But then the figure on the left would not be 25 accurate anymore.	1088 1 A. No, I didn't -- yeah, I agree that I didn't say 2 it. 3 Q. Okay. And this case is not the first time you 4 have worked for Samsung, is it? 5 A. Yes, it is. 6 Q. You don't recall working -- while you were 7 working with E-3 meeting with Samsung in Korea on a 8 project? 9 A. Oh. 10 Q. Pardon me? 11 A. Technically that wasn't working with Samsung. 12 That was interviewing Samsung for a paper. 13 Q. Do you recall giving Samsung a report on the 14 state of backlight systems in the mid-2005 to 2008 time 15 frame? 16 A. Technically they were a source for that report, 17 one of many. 18 Q. Let's turn in your deposition to page 16. 19 Ms. Gray, if you could bring up the transcript. 20 I believe this is CDX-1893. If we turn to page 16, line 21 15, I will start reading the question. 22 "Question: Have you ever worked with or had any 23 interaction with Samsung as part of any prior employment? 24 "Answer: Let me answer that as best I can. I 25 did meet with Samsung in Korea when I was doing a report on
1087 1 Q. Okay. I understand that. I am just saying 2 size-wise, it could be smaller, the driving circuit than 3 the backlight? 4 A. Okay, yes. 5 Q. Now, you can take that down, Ms. Gray. 6 You talked about -- we talked about this notion 7 that you can -- your view is the skilled person would sort 8 of optimize what you consider to be the constricted 9 convection plates and get them in the right location to 10 constrict that channel. 11 Do you recall that testimony? 12 A. Not exactly, no. 13 Q. Is that not your opinion? 14 A. That is my opinion. 15 Q. When you were active in this field, you never 16 used any kind of a constricted convection plate -- at least 17 on direct, you didn't testify that you used a constricted 18 convection plate in any of your projects, right? 19 A. I am not sure that is actually true. 20 Q. Listen to my question. On direct -- 21 A. On direct. 22 Q. -- you didn't testify that you in your prior 23 projects had used a constricted convection plate? 24 Did I say that accurately? Do you agree with 25 that?	1089 1 the state of backlight systems and displays in the mid" -- 2 if you go to the next page -- "like 2005 to 2008 time 3 frame, maybe, for a publication." 4 Do you see that? 5 A. I did see that. 6 Q. Now, that report -- you didn't say on direct 7 that that report discussed a constricted convection 8 channel, did you? 9 A. No, I did not. 10 Q. Now, your report in this case is -- it's about 11 700 pages long, right? 12 A. Roughly, yeah. 13 Q. And you looked at -- in that report, you 14 discussed 25 prior art references, right? Does that sound 15 about right? 16 A. Sounds about right, yeah. 17 Q. And you had a list of items considered and I 18 counted it, it had about 160 prior art references on it, 19 correct? 20 Does that sound about right? 21 A. Relative to what? 22 Q. On your list of items considered, before you put 23 your report together, you had looked at about 160 prior art 24 references. Is that fair? 25 A. I don't recall.

1090 1 Q. Well, is it fair to say you looked at more 2 references than you actually talked about in your report? 3 A. That's correct, yes. 4 Q. Okay. Now, I want to understand what the prior 5 art teaches about cooling with plenums behind backlights. 6 And I want to start by pulling up JX-1 on page 15. 7 If we could pull up -- there is a paragraph 8 under the background of art, if we could pull that up, 9 Ms. Gray. 10 So this is the '595 patent. And it says that 11 conductive and convective heat transfer systems for 12 electronic displays are known, right? 13 A. Yes. 14 Q. And it goes on to talk about, "Those systems try 15 to remove heat through as many sidewalls of the display as 16 possible, and in order to do this, the systems of the past 17 have relied primarily on fans for moving air past the 18 components to be cooled and out of the display." 19 Do you see that? 20 A. I do. 21 Q. And I want to look at the prior art, some of the 22 prior art you have looked at that you haven't talked about 23 on direct. And if we go to demonstrative slide 24 of our 24 cross demonstratives, Exhibit 10, slide 24. 25 We have talked about Takeuchi and we have talked	1092 1 Q. Okay. So just for the record, that's 2 RX-1359.28, at page 28, and RX-1359 at page 37. If we go 3 to the next slide, this is Tachikawa. If we go to slide -- 4 sorry, Ms. Gray, whatever the slide number is -- slide 28 5 for the record. 6 So this is Tachikawa. And it shows more -- 7 again, it shows a lot of holes in the back through which 8 air flows up and out of an exit or exit 41 with a fan, 9 right? 10 A. Yes, it does. 11 Q. And this is for the record RX-1353, page 15 and 12 RX-1353, page 18. 13 If we go to the next slide, this is Nagashima, 14 so if we go to slide 30. This is RX -- this is an 15 annotation from your report, RX-256, page 396. 16 You recognize this as an annotated version of 17 Nagashima's Figure 1, correct? 18 A. I do, yes. 19 Q. Just if you could go back a slide so I can get 20 the exhibit for the record. Ms. Gray, this is Nagashima 21 RX-1390. Now if you go to slide 30. 22 So you annotated this and -- you annotated this, 23 there's -- this is a computer monitor and there's a back 24 casing that you have annotated as cover 12. 25 Do you see that?
1091 1 about Kim. And we have talked about -- you talked a little 2 bit about Tachikawa but I want to ask about a couple other 3 details. If we move forward one slide, so I want to talk 4 about Na, which is RX-1359. If we go to slide 26. 5 MR. KLINE: Objection, Your Honor, by its terms 6 it's beyond the scope. 7 MR. STOCKWELL: Would you like me to respond, 8 Your Honor? 9 JUDGE BHATTACHARYYA: Yes, please. 10 MR. STOCKWELL: Your Honor, this is the state of 11 the art the witness looked at. Our contention is the state 12 of the art teaches putting lots of holes, just like the 13 patent says, not constricting convection. So I am crossing 14 the witness on the other art that shows the lots of holes. 15 JUDGE BHATTACHARYYA: The objection is 16 overruled. 17 BY MR. STOCKWELL: 18 Q. You would agree that Na discloses multiple holes 19 for entering into the back, the air goes into the plenum 20 and it goes out, correct? 21 A. That's correct, in this figure. 22 Q. And, in fact, I have also got this other Figure 23 2, it shows the holes all through the plate, right? 24 A. Yes. But, again, that refers to one embodiment. 25 I also discussed another embodiment.	1093 1 A. Yes, but it is actually a computer with a 2 display. 3 Q. Okay. Well, yeah, there's a display. This is 4 -- that is the blue part that you annotated? 5 A. Well, I wasn't watching. 6 Q. Sorry. The display is the blue part? 7 A. That's the display, correct. 8 Q. There is a CPU and the reference talked about 9 putting a fan on top of a heat sink on top of a CPU. Is 10 that fair? 11 A. That's correct, yes. 12 Q. And the reference doesn't tell you whether the 13 fan is -- which direction the fan is blowing so you have 14 got -- in your annotations, you have got the fan blowing in 15 or blowing out, right? 16 A. Correct. 17 Q. And you concluded that Nagashima discloses a 18 sealed main chassis with no open holes or vents in your 19 report, correct? 20 A. Yes, that's correct. 21 Q. But you also -- and in that case, when the fan 22 is blowing in that sealed container, your position is that 23 it is reasonable for a skilled person to conclude that the 24 fan is going to be moving the air within the enclosed space 25 and it is going to be circulating that air throughout the

1094 1 enclosed space; is that fair? 2 A. Predominantly, yes. 3 Q. So I want to go to the next slide. And this is 4 the slide we have annotated, slide 31. 5 There is little openings down here. Do you see 6 that (indicating)? 7 A. I do. 8 Q. So air is going to come in and out of those 9 openings, right? 10 A. There's some baffle plates along the bottom here 11 that form internal structures that are visible in other -- 12 other views where the covers are taken off and you'll see 13 that those would prevent quite a bit of airflow, but I will 14 admit that there's -- there will be air leaks but they are 15 not going to impact the flow inside. 16 Q. Okay. But there will be air -- there will be 17 ambient air that will get within the cover 12, right? 18 A. Yes. 19 Q. So I want to transition to discussing some of 20 your other references, and the other patents, the '287, the 21 '740, the '142. Now -- and you can take that down, 22 Ms. Gray. 23 In your direct testimony, you did not discuss 24 whether the prior art you considered was cumulative or 25 different from the references that the Patent Office	1096 1 after -- right before the Japanese. 2 A. There you go. Okay. I see that. 3 Q. That's the Yare reference, correct? 4 A. I don't know. I would have to look it up. 5 Q. That's a fair point. I'm not sure I would know 6 the number either. Let me find your slides where you talk 7 about Yare. If we go to Demonstrative 7 for Respondents, 8 slide 127. 9 Do you recognize that's the reference we just 10 looked at on the face of the patent? 11 A. Yes, I see that now. 12 Q. Okay. So if we go back to Exhibit 4 and go to 13 page 6 where we were before. 14 Exhibit JX-4, page 6. JX-4, the patent. And if 15 we go, there's an RU, and then there's a WO, and then 16 there's a WO2007116116. 17 Do you recognize that as Karppanen? Again, do 18 you not know the number? 19 A. I don't know the number. 20 Q. Well, again, that's a fair -- let's see -- I can 21 just pull up the -- let's just pull up the Karppanen 22 reference here, which is RX-1351. 23 WO116116. Do you see that? 24 A. I do. 25 Q. And that was on the reference we just looked at
1095 1 considered during prosecution of the asserted patents, 2 correct? 3 A. Say the first part of that again, please? 4 Q. Do you know what the term "cumulative" means in 5 the context of patent cases? 6 A. Yes. 7 Q. So you didn't analyze or address in your direct 8 whether all the prior art you referenced was cumulative or 9 different from the prior art the Patent Office considered 10 before they issued the asserted patents. 11 Is that fair? 12 A. I understood that the Patent Office had relied 13 on other art and I avoided using reference to that in my 14 report. 15 Q. Okay. Are you aware that Karppanen, Yare, and 16 Larson were considered by the examiner during prosecution 17 of the '740 and the '142 patents? 18 A. I might have missed that, I guess. I don't 19 know. 20 Q. Well, let's just cover that on the record. If 21 we go to JX-4, page 6. This is the '740 patent. If we 22 kind of zoom in on the left column, there's -- there is a 23 GB 2402205. 24 Do you see that in the list of foreign patent 25 documents? It is sort of right in the middle right	1097 1 on the patent? 2 A. Okay. 3 Q. And then if we go to JX-5, page 4, and we go to 4 the right column about a third up from the bottom, you'll 5 see a 6,392,727 Larson, et al., right there at the bottom. 6 Do you see that? 7 A. Okay. 8 Q. That's the Larson reference you relied on? 9 A. I believe so, yes. 2002. 10 Q. So let's go back to your demonstrative slides, 11 Exhibit 7, on page 88. 12 THE WITNESS: Your Honor, can I take a quick 13 break? 14 JUDGE BHATTACHARYYA: Yes, definitely. 15 THE WITNESS: Thank you. 16 JUDGE BHATTACHARYYA: Is five minutes 17 sufficient? Let's break for five minutes. 18 (A recess was taken at 5:01 p.m., after which 19 the proceedings resumed at 5:07 p.m.) 20 JUDGE BHATTACHARYYA: Please be seated. 21 MR. STOCKWELL: Thank you, Your Honor. 22 BY MR. STOCKWELL: 23 Q. I want to turn back to JX-4, page 9, that's the 24 '740 patent. 25 And if we could, Ms. Gray, if we could go over

1098 1 -- it's -- actually, I want to get to the text. It's the 2 first column. I want to get the statement between the 3 first and second columns of the text -- there you go -- 4 right at the bottom of column 1, going up to column 2. 5 If we could put that bottom part of column 1 6 next to the top part of column 2, please. Just pick up 7 that paragraph. 8 And then a little bit more, that's perfect. 9 That size. Thank you. 10 So this is JX-4, the '740 patent. And I want to 11 review some of the background on this patent with you. 12 Again, it talks about the systems of the past. And right 13 at the end of column 1, it says the systems of the past 14 rely primarily on fans. 15 And then it says, "these components are 16 typically power supplies. In some cases the heated air is 17 moved into convectively thermal communication with fins." 18 Do you see that? 19 A. Yes, I do. 20 Q. And then it goes on to say, "while such heat 21 transfer systems" -- and you understand that's referring to 22 both the moving air with fans through sidewalls with holes, 23 as well as the fins, correct? 24 A. Did you say "sidewalls with holes"? 25 Q. Yeah, okay. We will keep this simple. Where it	1100 1 Q. And you would agree that the heat exchanger 2 that's shown and described in the '740 patent, that does 3 not include the solid fins of the prior art, correct? 4 A. It includes fins, and they are solid. I guess 5 what are you trying to say? 6 Q. Is it your testimony that the heat exchanger 7 that's disclosed and pictured in the '740 patent has solid 8 fins? 9 A. The fins are made out of solid metal, yes. 10 Q. They are not hollowed to allow air to flow 11 through inside the fins? 12 A. I don't think that's the way they are 13 configured. I think they are configured as an array of 14 very thin plates. 15 Q. And is there not space inside of the fin plates 16 for air to flow? 17 A. There is. 18 Q. Okay. And the fins that the background was 19 talking about, you understood those to be solid metal fins, 20 right? 21 A. That the '740 background is talking about? 22 Q. Yes. 23 A. Okay. 24 Q. You understand the '740 background was talking 25 about, when it was describing the prior art, solid metal
1099 1 says "such heat transfer systems," you understand that's 2 referring, in part, to the system where heated air is moved 3 into convectively thermal communication with fins, right? 4 A. Yes. 5 Q. It says, those systems have enjoyed a measure of 6 success in the past, improvements to displays and new 7 display applications require even greater cooling 8 capability, correct? Do you see that? 9 A. I see that. 10 Q. Now, in the next section, the patent describes 11 embodiments of the invention that include a heat exchanger, 12 if we go look at column 2, lines 42. Do you see that, the 13 summary? Do you see the summary? 14 A. I do. I see that, yes. 15 Q. And it's describing exemplary embodiments with 16 two separate flow paths for gas through an electronic 17 display. This is talking about the closed loop and the 18 open loop. Do you see that? 19 A. I do. 20 Q. And it talks about the closed loop travels 21 across the front surface, continues to the rear, where it 22 may enter a heat exchanger, finally returning to the front 23 surface. 24 Do you see that? 25 A. I see that, yes.	1101 1 fins? 2 A. Well, it only described part of the prior art. 3 That's where I'm having a problem answering your question. 4 Q. We just went through the background section, 5 sir, and it talked about how there were fins in the prior 6 art. You understand that was solid metal fins, correct? 7 A. Yes. 8 Q. And those fins did not have any interior space 9 to allow air to be inside the three dimensions of the fins, 10 correct? 11 A. Air is between the fins. 12 Q. Yes. But it's not inside them? 13 A. It's inside the fin array. 14 Q. It's not inside any one particular fin; is that 15 fair? 16 A. I think it mischaracterizes it because in a 17 typical heat exchanger, there's a pair of fins that air 18 goes between. 19 Q. I'm not talking about between fins, sir. Let's 20 take one fin, okay? 21 A. Okay. 22 Q. The prior art they're talking about is a solid 23 metal one fin. There's no air inside that fin, right? 24 A. Okay. 25 Q. No. Do you agree with that? You can't just say

1102 1 "okay." 2 A. Well, the -- 3 JUDGE BHATTACHARYYA: Mr. Stockwell -- 4 THE WITNESS: Well, you're saying that that's 5 the case. And I'm saying if the fin is thin, and they are 6 attached to plates, then that's prior art. 7 BY MR. STOCKWELL: 8 Q. Okay. And I'm just trying to -- sorry, Your 9 Honor. I didn't mean to keep going. I will stop and let 10 you -- 11 JUDGE BHATTACHARYYA: I just thought that it was 12 a little bit -- just tone it back a little bit. 13 BY MR. STOCKWELL: 14 Q. I will do, Your Honor. Thank you. All I'm 15 trying to understand is the fins in the background are 16 solid. There's no air inside the fin, right? Not between 17 the fins, just inside the fin. 18 A. I disagree with that. This is referring 19 generally to prior art. 20 Q. Okay. That's not your understanding of what the 21 background is talking about? 22 A. Would you like to show me that section again? 23 Q. No, I think we've covered this. 24 I want to move to the Yare reference, which you 25 talked about today. If we go to your demonstratives, slide	1104 1 would agree the annotations of the figure on the left that 2 is from your expert report differ from the annotations of 3 the figure on the right that you presented today, correct? 4 A. Yes, I do. 5 Q. And the annotations in the figure on the left, 6 there's a rectangular blue box in there, correct? 7 A. That's correct. 8 Q. And you drew that box and put it in there, 9 correct? 10 A. Yes. And I explained in my report about that. 11 Q. That was not, this blue box -- there was no box 12 inside of the Yare reference, correct? 13 A. That's correct. 14 Q. And you took this arrow 20 and you kind of 15 extended it. There's some red there to point past the 16 front line of the drawing to the blue box, correct? 17 A. That's correct. 18 Q. And you shaded in, for the alternative 19 annotation on the right, you shaded in all of the -- I 20 don't know what this is, a trapezoidal-shaped blue, do you 21 see that? 22 A. Yes. 23 Q. You shaded all of that blue, instead of this 24 rectangular box, correct? 25 A. Correct.
1103 1 129. So this is -- you recall presenting this slide on 2 direct, correct? 3 A. Yes, I do. 4 Q. And, let's see, this is the front portion that 5 you presented today, correct? 6 A. That's correct. 7 Q. And the display system is everything that you 8 have labeled in blue, correct? 9 A. Yes. It's display 20. 10 Q. And you -- and you've got the front portion 11 right at the front of the blue, and the rear portion right 12 at the back of the blue, correct? 13 A. The rear portion, yes, of the -- yes. 14 Q. And you read Dr. Pokharna's expert report in 15 this case, correct? 16 A. Yes. 17 Q. And you compared your report to Dr. Pokharna's 18 report? 19 A. Okay. Yes. 20 Q. Now, I want to pull up and put next to this 21 slide page 461 of RX-256, which is your report. There's a 22 figure in your report. I want to put those side-by-side. 23 Not the text, the figure. It should be the next page. 24 461. That figure. 25 If you could blow up just that figure. So you	1105 1 Q. And the area labeled as 20 in the slide you 2 presented today is bigger than the rectangular box in your 3 report, correct? 4 A. That's correct. 5 Q. So if we go -- let's go to the RDX-7.131. Put 6 that on the right side of the screen, and have page -- the 7 image on page 464 of Exhibit 256 on the left side of the 8 screen. 9 If you could put that on the right. It is the 10 image on page 464. There we go. Thank you. 11 Okay. So you would agree the annotated figure 12 on the left differs from the annotated figure on the right 13 presented today at slide 131 of your demonstrative, 14 correct? 15 A. That's correct. 16 Q. And the green portion in your annotated figure 17 on the left that's in your report goes all the way around 18 the blue box, correct? 19 A. Yes, it does. 20 Q. And what you have presented today, the green 21 portion doesn't go all the way around the box, correct? 22 Sorry, it does not go all the way around the blue portion 23 in slide 131, correct? 24 A. It does not. 25 Q. Now, you labeled the green area in your report,

1106 1 this item 30, as the sealed zone closed loop, right? 2 A. That's correct. 3 Q. And that sealed zone closed loop shown on the 4 annotation on the left is different than the sealed zone 30 5 closed loop shown in the annotation on the right, correct? 6 A. No. 7 Q. I'm just talking about the images are not 8 different, these are the same? 9 A. These are just coloring difference. 10 Q. Okay. And the coloring difference is on the 11 left, it goes all the way around the display box that you 12 drew, correct? 13 A. The zone 30 is the same in both. 14 Q. Okay. Well, on the left there's a blue box, 15 right? 16 A. Yes. 17 Q. And you drew that and labeled it the display? 18 A. I did. 19 Q. Okay. And there's green that goes all the way 20 around the blue box, correct? 21 A. There's green all around it. 22 Q. And the slides -- the slide that you presented 23 on the left -- when did you render your report in this 24 case, do you remember? 25 A. No, I am having trouble with dates right now.	1108 1 unpictured LCD would be placed." 2 Do you see that? 3 A. I see that. 4 Q. And if we go to page 459, paragraph 1240, again, 5 you're talking about Yare's system, right at the first 6 sentence, "Yare individually and in view of the knowledge 7 of a POSITA discloses this claim element because Yare's 8 system includes a display 20 that may be an LCD display." 9 Do you see that? 10 A. I do. 11 Q. And if you go to the paragraph 1243, your 12 opinion was that Yare's LCD display 20 has a front portion 13 and a rear portion as shown in the annotated Figure 4 14 below. Do you see that? 15 A. I do. 16 Q. And you go on to say, "As discussed below for 17 claim element 1c, the front surface of the display 20 is 18 spaced apart from the front surface of the cabinet 10, to 19 allow circulation air through the gap between the front of 20 the display and the front surface of the cabinet 20 as 21 indicated by the L-shaped arrows in original Figure 4." 22 Do you see that? 23 A. I do, yes. 24 Q. So if we just go back to the annotated figure, 25 it's the next page. So you are saying this box is the
1107 1 Q. Well, you didn't have -- you didn't have the 2 slide on the right that you presented in Court at the time 3 of your report, correct? 4 A. No, I did not. 5 Q. You didn't have it at the time of your 6 deposition? 7 A. I didn't. 8 Q. And is this -- is this week the first time you 9 have put together the slide on the right? 10 A. Yes. 11 Q. Now, if we go to page 465, if you can blow up 12 paragraph 1254 in the report, if we could blow up that 13 first paragraph. It says, "In the annotated Figure 4 14 above, the display 20 is highlighted blue." That's what we 15 were just looking at, the figures on the left, correct? 16 A. Right. 17 Q. And you say "but is not actually illustrated in 18 Figure 4." Do you see that? 19 A. I do see that. 20 Q. And you go on to say, "However, a POSITA would 21 know that this is the most logical location for the 22 display." Do you see that? 23 A. I do. 24 Q. And you say, "From a design perspective, this is 25 seemingly the best, if not the only, option for where the	1109 1 display, and the airflow went all the way around the blue 2 box. Is that a fair summary of what your report stated? 3 A. Yes. And that's what Yare says as well. 4 Q. Well, I'm not asking you about what else you may 5 have said in court. I'm just saying that's what your 6 report stated? 7 A. Yes. 8 Q. So if we go to page 465 of the report -- I'm 9 sorry, I'm on the wrong page. Page 486 of the report, 10 paragraph 1296. 11 Here you are showing the alleged front channel 12 between the front of your box and the cabinet's front 13 surface with dotted lines, correct? 14 A. Yes. 15 Q. If we turn to your slides, demonstrative exhibit 16 7, slide 136, so these dotted lines are now what you're 17 indicating to be the display system, correct? 18 A. Roughly. These are very schematic, as we 19 discussed earlier. 20 Q. And you have no label here for the front 21 channel, do you? 22 A. No, I do not. 23 Q. So the original blue box is gone, and you've now 24 labeled these dotted lines as the front or -- sorry -- as 25 the display system, and you have no label for front

1110 1 channel. Is that fair? 2 A. That's correct. 3 MR. STOCKWELL: I will pass the witness. Thank 4 you, Your Honor. 5 JUDGE BHATTACHARYYA: Thank you. 6 Mr. Kline, it is 5:26. I would like to finish 7 with this witness, if possible, today, but -- 8 MR. KLINE: We are on the same page, Your Honor. 9 JUDGE BHATTACHARYYA: Okay. 10 MR. KLINE: Yes, thank you. And I think nobody 11 feels that way more strongly than Mr. Smith-Gillespie. 12 Could I ask to pull -- have your slides, 13 counsel, the demonstratives? 14 MR. STOCKWELL: Ask Ms. Gray for whatever you 15 need. Do you need a copy? 16 MR. KLINE: I was going to use the ELMO, but I 17 marked mine up. Thank you. Maybe we will try this and be 18 mindful of the time. 19 REDIRECT EXAMINATION 20 BY MR. KLINE: 21 Q. Mr. Smith-Gillespie, do you recall seeing this 22 figure during your direct examination? 23 A. My cross-examination? 24 Q. Thank you very much. During your cross -- it is 25 late -- your cross-examination?	1112 1 Q. This is another figure that counsel showed you. 2 Do you recall that? 3 A. I do, yes. 4 Q. And you mentioned the fan might go in either 5 direction. Do you recall that? 6 A. I do, yes. 7 Q. What would the effect of that be? 8 A. If the fan was, instead of blowing in, it would 9 -- well, first of all, my -- my opinion was that the arrows 10 can't be determined without actually, you know, measuring 11 some airflows, because they could be going in the opposite 12 direction, just by Bernoulli effect, but if they are 13 flowing in the other direction, if the fan was turning in 14 the opposite direction to be an exhaust fan, then for sure 15 they would be going in and there would be arrows over top 16 of the fan where the air is coming out. 17 Q. And you were referring -- and that's my fault -- 18 this is on CDX-10C, page 10, right? 19 A. That's correct. 20 Q. Thank you. This is CDX-10C, page 16. Do you 21 see that? 22 A. I do, yes. 23 Q. Do you recall being asked questions about this 24 on direct examination? 25 A. I do.
1111 1 A. Yes, I do. 2 Q. So you understand this is a figure that counsel 3 for MRI created? 4 A. I do, yes. 5 Q. And they placed these colored arrows? 6 A. That's correct, yes. 7 Q. If I understood correctly, you made the comment, 8 this figure is not correct. Did I hear you correctly? 9 A. Yes, you did. 10 Q. What did you mean by that? 11 A. There are arrows going through solid walls of 12 the plate 53, particularly the one right near the 54 label. 13 Q. Anything else? 14 A. Yeah. I think it's a mis-depiction of the 15 amount of heating that would be achieved in such a short 16 distance, and that it doesn't show -- it doesn't show that 17 the same sort of heating happens further on up, so it's a 18 crude representation. 19 Q. As configured in Figure 5 of Takeuchi, that 20 partition plate, do you recall that? 21 A. I do. 22 Q. Would it constrict airflow? 23 A. Yes, it will. 24 Q. Does Takeuchi describe that? 25 A. Yes, Takeuchi does.	1113 1 Q. And did I understand correctly that you 2 testified the figure on the left would be incorrect, based 3 on questions that you were asked? 4 A. I did say that, yes. 5 Q. And why? 6 A. Because the cross-section view actually not only 7 shows just a thin sliver, but it shows the depth starting 8 at the place where the cut was made. So what you would 9 actually be seeing in this is that the airflow arrows, 10 where it's no longer constrained, would be filling the 11 entire back cavity. 12 So the result of that in terms of a display 13 would be non-uniform cooling, because the airflow is 14 allowed to expand away from the backlight and, therefore, 15 would have less cooling effect. Takeuchi -- or, I'm sorry, 16 Kimura clearly teaches that the approach depicted or 17 disclosed provides for uniform cooling of the display. 18 Q. Thank you. And, similarly, looking at CDX-10, 19 slide 17, I believe you testified that that is inaccurate. 20 Is that right? 21 A. Can you go back to the previous one? I think it 22 is the -- it's essentially the same thing. They're just 23 showing where the cross-section is taken. And, as I 24 explained, the cross-section includes the depth beyond 25 where the slice is made.

1114 1 Q. And you were asked this hypothetical about 2 CDX-10C at slide 18, whether if the cross-section were 3 taken as indicated on the right-hand image, the left-hand 4 image would be a correct depiction of that cross-section. 5 Do you recall those questions? 6 A. Yes. 7 Q. And you indicated that it is incorrect? 8 A. It's incorrect because -- 9 Q. Why is that? 10 A. -- airflow arrows, which have also been deleted 11 when the driver board was taken out, would be flowing all 12 the way into the back of the case, 16, instead of -- 13 progressively more so as you moved away from the fan. So, 14 again, there would be non-uniform cooling in this view. 15 Q. Thank you. Mr. Smith, if we could have 16 RDX-0007. That was Mr. Smith's demonstrative deck. And I 17 would like to look at RDX-0007.0027, page 27, please. 18 You were asked questions about this slide during 19 cross-examination. Do you recall that? 20 A. Yes, I do. 21 Q. And you were asked specifically about heat 22 sinks. Do you remember that? 23 A. No, I don't. 24 Q. Do you recall what you relied upon in the Hong 25 reference?	1116 1 A. I do. 2 Q. Why don't we try 131. I'm sorry. 3 Do you recall your direct testimony about this 4 slide? 5 A. Yes, I do. 6 Q. And do you recall being asked questions about 7 this slide during counsel's cross-examination? 8 A. I do remember that, yes. 9 Q. The sealed zone that forms the closed loop 10 depicted on Figure 4 of slide 131, is the entire sealed 11 zone the same color? 12 A. No, it's not. The sealed zone in this view is 13 both green and blue. 14 Q. And what do the solid arrows represent? 15 A. The solid arrows represent airflow within the 16 sealed zone. 17 Q. And what do the dotted arrows represent? 18 A. The dotted arrows are airflows in the open loop 19 zone or the atmospheric zone, I think. Yes. 20 Q. And has that been your view since you began your 21 investigation? 22 A. That has not changed. 23 Q. Pardon me? 24 A. I said that's not changed. My view has not 25 changed.
1115 1 A. I relied upon metal core PCBs. 2 Q. You are correct, I misspoke. 3 Before -- when did you first become aware of 4 metal core printed circuit boards? 5 A. Oh, years ago. I probably would say 2002, 2003 6 time frame. 7 Q. So were you aware of metal core circuit boards 8 before you began your investigation in this case? 9 A. Oh, absolutely, yes. I deployed them in several 10 high-powered edge-lit backlights. 11 Q. You didn't discover the existence of metal core 12 printed circuit boards from the Hong reference; is that 13 right? 14 A. No, that's not correct. It was -- 15 Q. I asked a poor question. Let me rephrase the 16 question. 17 Did you discover the existence of metal core 18 printed circuit boards only upon reading the Hong 19 reference? 20 A. No, I did not. 21 Q. And you knew about them before that; isn't that 22 right? 23 A. That's correct. 24 Q. Thank you. If we could turn to page -- slide 25 129. Do you have that before you?	1117 1 Q. Do you recall being asked questions on 2 cross-examination about this image, either within or just 3 after paragraph 1243 of your expert report at page 461 of 4 that report? 5 A. Yes, I do. 6 Q. And you recall being directed to the blue box in 7 the middle of that figure? 8 A. Yes. 9 Q. Did you draw that blue box there? 10 A. Yes. 11 Q. Why? 12 A. To depict where an LCD module, not an entire 13 display system, could reside, I put it back where it 14 wouldn't impede the view of the L-shaped arrows because I 15 wanted to depict that airflow would be -- as depicted by 16 these arrows, would be across the front of the display 17 surface. 18 MR. KLINE: I have no further questions at the 19 moment, Your Honor. I pass the witness. 20 JUDGE BHATTACHARYYA: Okay. 21 MR. STOCKWELL: We have no further questions, 22 Your Honor. 23 JUDGE BHATTACHARYYA: All right. Thank you. 24 MR. KLINE: Your Honor, could I raise one issue? 25 JUDGE BHATTACHARYYA: Yes. Can I dismiss

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1 Mr. Smith-Gillespie or no? 2 MR. KLINE: I might ask you whether you can, 3 because my question is we don't have a ruling on the 4 objection concerning Mr. Smith-Gillespie's being tendered 5 as an expert. 6 JUDGE BHATTACHARYYA: Right. 7 MR. KLINE: So I would ask the Court how you 8 would like to handle that. 9 JUDGE BHATTACHARYYA: I would like to review the 10 transcript and make a ruling. I don't think we would need 11 Mr. Smith-Gillespie for that. 12 MR. KLINE: Very good. 13 JUDGE BHATTACHARYYA: Are you anticipating a 14 situation where we would need him? 15 MR. KLINE: No, we're fine. Thank you, Your 16 Honor. 17 JUDGE BHATTACHARYYA: Okay. 18 MR. STOCKWELL: Your Honor, before we adjourn, 19 is there anything else you would like to hear with respect 20 to our objection on the slides and motion to strike that 21 associated testimony or how would you like to handle that 22 issue? 23 JUDGE BHATTACHARYYA: Yes. I think I will need 24 some short briefing on it. And in connection with that, 25 it's not going to be enough to show that the demonstrative	1 conferring about that. And our expectation is to make a 2 joint proposal to you before we leave tomorrow. 3 JUDGE BHATTACHARYYA: All right. Sounds good. 4 Anything else pressing for today? 5 MR. KLINE: I don't believe so, Your Honor. 6 JUDGE BHATTACHARYYA: Thank you very much. 7 We're adjourned until tomorrow. 8 (Whereupon, at 5:40 p.m., the proceedings 9 recessed, to reconvene at 9:30 a.m. on Friday, June 30, 10 2023.)																									
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1 is different. There needs to be a showing that the 2 contention is different, that a contention relating to a 3 claim element is different. 4 MR. STOCKWELL: And is that something we should 5 work with our friends on the other side about a briefing 6 schedule? 7 JUDGE BHATTACHARYYA: Yes. Please work with the 8 other side to determine a briefing schedule for that. 9 MR. STOCKWELL: We will confer on that, Your 10 Honor, thank you. 11 JUDGE BHATTACHARYYA: All right. I know that 12 there was another outstanding objection yesterday, I 13 believe, on certain IR data. I should be able to make a 14 ruling, just upon reviewing the transcript. 15 MR. KLINE: Very good, Your Honor. 16 JUDGE BHATTACHARYYA: So I won't need briefing 17 on that. The only other issue, while we're talking, is the 18 page limit for post-hearing briefs. I don't know if 19 counsel has had a chance to meet and confer about that 20 issue. 21 MR. KLINE: I know there has been some back and 22 forth. I don't know that we discussed it or reached 23 agreement or have we? Maybe Mr. McCarthy might know more 24 than I about that. 25 MR. MCCARTHY: Your Honor, we have been	1 C O N T E N T S 2 <table><tr><td>3 WITNESS</td><td>DIRECT</td><td>CROSS</td><td>REDIRECT</td><td>RECROSS</td></tr><tr><td>4 CHRISTOPHER BOLTON</td><td>847</td><td>865</td><td>862</td><td>885</td></tr><tr><td>5 DWAYNE GAVEL</td><td>887</td><td>898</td><td></td><td></td></tr><tr><td>6 ROBERT</td><td>918</td><td>1038</td><td>1110</td><td></td></tr><tr><td>7 SMITH-GILLESPIE</td><td></td><td></td><td></td><td></td></tr></table> 8 9 AFTERNOON SESSION: 975 10 11 CONFIDENTIAL SESSIONS 12 NONE 13 EXHIBIT LISTS SUBMITTED FOR ADMISSION: 14 DIRECT EXAMINATION OF SUNGSU LEE 15 RPX-2 16 RPX-5 17 RPX-7 18 RPX-8 19 RPX-9 20 RX-1515C 21 RX-1263C 22 RX-1280C 23 RX-1222C 24 DIRECT EXAMINATION OF DEAN NEIKIRK 25 JX-0159C	3 WITNESS	DIRECT	CROSS	REDIRECT	RECROSS	4 CHRISTOPHER BOLTON	847	865	862	885	5 DWAYNE GAVEL	887	898			6 ROBERT	918	1038	1110		7 SMITH-GILLESPIE				
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1 CERTIFICATE OF REPORTER

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5 HEARING DATE: June 29, 2023

6 LOCATION: Courtroom A

7 NATURE OF HEARING: Evidentiary Hearing

8 I hereby certify that the foregoing/attached
9 transcript is a true, correct and complete record of the
10 above-referenced proceedings of the U.S. International
11 Trade Commission.

12 Date: June 29, 2023

13 SIGNED: LaShonne Robinson

14 Signature of the Contractor of the
15 Authorized Contractor's Representative
16 1220 L Street, N.W., Suite 206
17 Washington, D.C. 20005

18 I hereby certify that I am not the Court Reporter
19 and that I have proofread the above-referenced transcript
20 of the proceedings of the U.S. International Trade
21 Commission, against the aforementioned Court Reporter's
22 notes and recordings, for accuracy in transcription in the
23 spelling, hyphenation, punctuation and speaker
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25 substantive nature. The foregoing/attached transcript is a
true, correct and complete transcription of the
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26 SIGNED: Barbara Negley

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27 I hereby certify that I reported the above-referenced
28 proceedings of the U.S. International Trade Commission and
29 caused to be prepared from my tapes and notes of the
30 proceedings a true, correct and complete verbatim recording
31 of the proceedings.

32 SIGNED: Karen Brynteson

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117 [13] 944:2 952:15,18 1064:24 1067:4,8,9 1068: 16,19,22 1069:10 1080:1,4 118 [1] 1012:13 12 [18] 909:23 927:3 962:11 966:16 968:19,21 986:17, 20 987:2,24 990:10,15 994:	25 995:4,5 997:11 1092:24 1094:17 12:44 [1] 974:6 120 [2] 939:20 1013:4 122 [2] 950:9 1015:8 1220 [1] 1135:13 123 [1] 1016:7 1238 [1] 1019:3 124 [4] 950:4,12 1078:1,6 1240 [2] 1019:4 1108:4 1243 [4] 1018:23 1019:4 1108:11 1117:3 1254 [1] 1107:12 127 [2] 1017:9 1096:8 128 [3] 1005:13,23 1017:14 129 [4] 970:23 1021:23 1103:1 1115:25 1296 [1] 1109:10 12a [2] 1010:6,7 12b [1] 991:4 12c [4] 993:5 994:13 997: 11,19 13 [12] 873:25 874:2 909:24 911:14 927:3 962:11 967: 18 968:19,21 1000:12 1055:14 1081:22 130 [8] 939:21 940:24 941: 13 942:4 943:6 945:19 971:25 1078:23 131 [6] 976:8 1064:19 1105: 13,23 1116:2,10 133 [10] 943:18 953:16 1059:22 1060:6 1061:20 1062:4 1064:9,16,20 1079: 20 136 [3] 970:24 1025:17 1109:16 1374 [1] 1077:19 138 [1] 1027:8 139 [1] 970:24 13th [3] 863:16 864:17 879: 15 14 [3] 927:8 987:16 1083: 22 140 [16] 939:22 940:7 941:3, 12,16,19,24 942:12 943:4 956:21 957:17,21 958:1 961:19,23 1062:24 142 [32] 923:15 924:8 925: 14 995:6,9,13,16,20,22,23 1008:13,15,17,19 1009:18 1010:20,25 1012:12,19,22 1017:1,3 1027:8,9 1028:2, 18,21 1030:25 1031:20,22 1094:21 1095:17 1420 [2] 839:7,14 143 [1] 970:24 144 [2] 1029:16,25 146 [3] 971:18 973:18 1005: 20 147 [3] 971:19 972:20 1031: 1	15 [11] 869:17 906:14,15,22 917:6 927:17,18 928:14 1088:21 1090:6 1092:11 15-minute [1] 1038:13 150 [2] 951:5 1077:7 153 [1] 1033:22 1534 [2] 982:8,11 154 [1] 1035:10 155 [1] 1036:15 156 [2] 869:15,18 15th [2] 896:9 900:1 16 [21] 888:25 911:20,21 928:19 929:20 930:23,24 931:10 932:6 933:13 935: 19 966:21,21,23 967:11 1029:7 1049:22 1088:18, 20 1112:20 1114:12 160 [2] 1089:18,23 162 [2] 1077:1,8 16a [4] 967:6,10,12,15 16th [1] 939:11 17 [15] 911:21 928:19 929: 20 930:23,24 931:10 932:6 933:13 935:19 963:17 1002:13 1049:22 1085:17 1086:22 1113:19 174 [6] 877:10 881:4,11,21 911:1 912:16 17th [1] 896:21 18 [6] 911:25 930:13 963: 19 1086:6 1092:12 1114:2 18th [1] 987:9 19 [7] 931:1 964:18,22 965: 1 1002:13 1083:16 1084: 12 1900 [1] 841:12 197 [2] 907:15 909:18 1970s [1] 946:11 1980s [3] 866:9 888:2 905: 20 1981 [1] 919:7 1982 [1] 1004:12 1984 [1] 888:4 1985 [2] 1041:22 1042:7 1989 [1] 919:9 1991 [1] 1004:16 1997 [2] 1041:22 1042:7 1998 [2] 888:24 898:11 1999 [1] 954:6 1a [3] 1010:3 1018:20 1027: 13 1b [4] 942:7 997:1 1010:23 1028:5 1c [4] 1011:2,2 1028:8 1108:17 1d [2] 976:10 1012:15 1f [1] 1002:18 1st [1] 1017:13 2 2 [29] 883:25 892:4 901:6 918:25 927:21 939:12 953: 7 957:16 961:21 988:21	989:19 991:25 997:20 999: 24 1004:14 1008:7 1013: 15 1028:21 1033:22 1034: 24 1040:20 1041:19 1064: 23 1076:17 1077:10 1091: 23 1098:4,6 1099:12 20 [61] 906:1 911:25 931:19 965:20,22 967:9 978:20 979:7 983:3,18,21 985:2,4, 5,17,18 988:7,8,9,14 989: 14 993:9,18 997:12 998:6 1010:22 1014:5,8 1018:2, 21 1019:6,6,18,18,23,25 1020:4,6,6,10,12,13,17,18, 19 1021:9 1022:4 1023:11, 12,13 1070:3 1075:6,8 1103:9 1104:14 1105:1 1107:14 1108:8,12,17,20 200 [2] 944:2,7 20005 [1] 839:8 2001/2002 [1] 889:16 2002 [3] 1013:8 1097:9 1115:5 2003 [3] 927:13,16 1115:5 20036 [1] 841:13 2004 [2] 1017:13 1040:2 2005 [1] 1089:2 2006 [2] 959:14 962:18 2007 [15] 869:23 871:2,5,8 884:3 889:23 898:13,17,19 905:1,4,7 939:11 949:14 987:9 2008 [74] 848:6,7,15 850:3, 23 851:4,23,25 853:10,15 855:2 856:11,22 857:21 859:13 860:25 861:9 862: 10 869:23 870:7,13,19 875: 5 876:11,12,21 877:18 878: 6,19,25 883:8 893:3,5 895: 7,20 896:22,24 901:10 902: 23 908:14 914:12 915:4,17 921:8 946:9 947:23 948:9 949:5 950:15 951:2 953: 19 955:6,16 958:19 960:4, 24 992:13 996:2,5 998:13, 24 1004:7,8,22 1006:15 1007:3 1009:3,9 1013:1 1014:18 1015:20 1030:11 1088:14 1089:2 2008/2009 [1] 862:20 2009 [8] 863:16 864:17 871: 10 873:2,25 874:5 879:15 885:2 2013 [7] 860:24 880:6 881: 15 884:21 885:11 1039:2, 10 2014 [2] 898:25 899:3 2019 [1] 889:2 202-508-5800 [1] 839:9 2021 [1] 919:11 2023 [7] 838:17 867:19 900: 3 906:14 1120:10 1135:5,	10 20436 [1] 843:6 205 [1] 877:15 206 [3] 907:5,8 1135:13 209 [2] 907:22,23 21 [5] 912:5 932:19 1040: 23 1046:8,9 212 [1] 913:19 21st [1] 1013:8 22 [6] 912:5 913:6 935:3 965:21 1000:12 1047:10 222 [1] 961:10 224 [1] 915:8 23 [2] 912:9 913:5 235 [3] 878:3,5 908:24 23rd [1] 867:19 24 [2] 1090:23,24 2402205 [1] 1095:23 244 [1] 913:7 25 [5] 896:9 912:9 1018:23 1024:22 1089:14 2524 [3] 907:5 908:25 913: 19 256 [1] 1105:7 25th [3] 881:15 895:7 896: 24 26 [9] 912:12 949:14 988: 25 989:6 990:20 992:5 996:17 1015:18 1091:4 260 [7] 1059:25 1060:9,16 1061:21 1062:4 1064:10, 17 26th [2] 856:22 883:8 27 [5] 938:19 1070:3 1071: 10,12 1114:17 27101 [1] 840:10 28 [3] 939:3 1092:2,4 2800 [1] 839:21 287 [16] 923:13 924:8 925: 14 968:24 986:17 987:2 990:10,15 993:6 994:25 995:5,17,19 997:11 1010:5 1094:20 29 [5] 838:17 939:13 992:5 1135:5,10 2A [2] 1004:17 1010:5 2B [1] 1004:17 2nd [5] 859:13 860:25 861: 9 878:19,25 3 3 [19] 892:4 904:4 911:4 914:3 921:2 926:24 931:5 937:25 938:20 949:21 961: 6,9,11 976:5 1001:1,5 1028:17,18 1048:17 3:23 [1] 1038:16 3:39 [1] 1038:17 30 [18] 959:21 972:6 975:18 982:15 985:3 1020:9 1022: 21,23 1023:18 1035:24 1037:1 1084:1 1092:14,21 1106:1,4,13 1120:9
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30309 ^[1] 839:22 31 ^[2] 940:10 1094:4 31st ^[1] 875:5 32 ^[3] 872:2 988:3 1012:16 32-inch ^[1] 872:1 322 ^[36] 923:12 925:14 926:8,12,13,23 937:17,22,24 938:19,20 955:24 956:1,4,7,8,17 957:2,3,5,11 958:21,25 961:6,13 962:11 963:1 966:11,13 967:18 968:19 1032:23 1033:1,11,22 1074:14 33 ^[3] 857:14 903:23 904:1 337-TA-1331 ^[1] 1135:4 34 ^[9] 941:24 942:9 970:24 988:13,19 1003:3,5 1011:10,19 35 ^[3] 942:10 1077:22,22 36 ^[9] 993:15 1002:23,25 1003:6,10 1011:15,25 1078:18,19 36's ^[1] 942:21 37 ^[1] 1092:2 3700 ^[2] 839:7,14 39 ^[7] 856:23 944:21 1060:23,24,25 1084:9,9 396 ^[1] 1092:15 3D ^[4] 855:13 887:19 890:6 891:12	1117:3 464 ^[2] 1105:7,10 465 ^[2] 1107:11 1109:8 47 ^[1] 949:19 486 ^[1] 1109:9 49 ^[1] 951:23 4b ^[1] 947:1 4c ^[3] 947:6,12 956:16 4d ^[1] 947:12 4th ^[9] 851:23,25 853:10,14 855:2,10,21 856:11 870:7	6 6 ^[28] 867:17 869:20 911:5 924:4 995:13 1008:13 1009:18 1010:20,25 1012:12,19,22 1017:1,3 1024:6 1027:7,9 1028:2 1031:19,21 1056:25 1059:12,13 1061:12 1065:7 1095:21 1096:13,14 6,392,727 ^[1] 1097:5 60 ^[13] 959:8 994:1,20 998:6 1000:3 1012:17 1022:15 1028:6,12,13,14,20,21 601 ^[1] 841:24 61 ^[1] 959:15 61/039,454 ^[1] 856:19 62 ^[6] 961:6 973:19 998:5 1000:1 1001:4 1012:17 620 ^[1] 842:17 63 ^[3] 941:22 972:21 973:20 64 ^[5] 961:21 994:17 1001:19 1012:5,7 65 ^[4] 906:9,10 909:2 1065:21 66 ^[7] 962:12 992:2 1008:3 1011:5 1015:17 1040:22,23 67 ^[4] 900:22,24 901:2 962:19 68 ^[2] 963:1 1040:19 69 ^[1] 963:4 697 ^[1] 872:6 6c ^[1] 1028:4 6th ^[2] 927:13,16	76 ^[1] 967:19 77 ^[1] 963:6 78 ^[3] 965:6 986:16 1084:10 79 ^[1] 987:6 7th ^[5] 877:18 878:6 907:19 959:13 962:18	9 1120:9 AARTI ^[1] 839:5 ability ^[1] 900:14 able ^[8] 851:9,20 864:22,23 872:17 892:12 992:15 1119:13 above ^[9] 873:25 879:22 985:8 989:21,23 1037:10 1059:14 1070:6 1107:14 above-referenced ^[2] 1135:9,15 absent ^[1] 971:3 ABSHER ^[5] 840:5 898:1,5,8 916:25 Absolutely ^[3] 868:15 880:21 1115:9 absorb ^[4] 950:11 1005:21 1008:24 1014:12 absorbed ^[1] 1015:4 absorbing ^[1] 1014:11 absorbs ^[1] 999:15 absorptive ^[1] 1014:10 accepted ^[1] 923:22 access ^[15] 952:22,25 953:2,7,9,18,22 954:8,10 1079:10,15,20 1080:8,8,14 accomplished ^[1] 1033:19 according ^[4] 982:19 1065:24 1066:20 1069:2 account ^[1] 984:11 accredited ^[2] 864:6 879:17 accumulate ^[1] 1078:1 accurate ^[2] 922:3 1086:25 accurately ^[2] 895:23 1087:24 accused ^[4] 871:13 880:6,11 1043:7 achieve ^[2] 884:16 949:3 achieved ^[1] 1111:15 acronym ^[1] 887:18 across ^[18] 862:18,22 920:8 967:25 994:11 1004:19 1005:22 1012:1 1018:14,15 1037:5 1051:7 1069:11,13 1083:4,7 1099:21 1117:16 active ^[1] 1087:15 acts ^[3] 932:8 990:22 1086:14 actual ^[6] 1001:8,9 1038:6 1044:19 1061:18 1084:9 actually ^[34] 867:13 870:8 877:12 879:23 897:12 898:15 899:17 939:17 989:12 1000:1,13 1020:3,18 1033:8 1034:2 1044:16 1056:8 1058:4 1060:15 1063:1,21 1069:12 1077:21 1081:21 1082:14 1085:5 1087:19 1090:2 1093:1 1098:1
4 4 ^[51] 849:13 850:5 876:6 922:19 926:19,25 937:20 938:1,21 940:16 941:21 944:20,24 945:4 947:17,20 948:6 951:18,19,22 954:23 955:24 956:1,3,3,4,17 992:5 1001:1,14 1006:3 1014:3 1016:16 1017:14,19 1022:18 1028:13 1029:7 1060:22 1061:1,1 1068:13,21 1077:11 1096:12 1097:3 1107:13,18 1108:13,21 1116:10 40 ^[7] 932:3 944:24 970:24 972:5 1022:13 1028:14 1029:6 40-inch ^[1] 872:2 41 ^[3] 945:12 946:14 1092:8 42 ^[1] 1099:12 436 ^[1] 940:16 44 ^[1] 947:15 45 ^[4] 915:9 948:24 970:24 1073:5 452 ^[1] 941:18 454 ^[1] 860:19 459 ^[1] 1108:4 46 ^[9] 949:9 1002:7 1007:23,24 1008:9 1010:14 1011:4,5 1014:19 461 ^[4] 1018:24 1103:21,24	5 5 ^[36] 869:17 926:25 928:6,13,15 930:11 932:2,14 935:24 936:13,19 938:2,22 939:24 941:23 943:6,21 957:1,11 995:11,12 1007:15,16 1011:2 1017:6 1024:4,6 1025:16 1041:3,5 1047:9 1048:18 1056:4,4 1067:12 1111:19 5:01 ^[1] 1097:18 5:07 ^[1] 1097:19 5:26 ^[1] 1110:6 5:40 ^[1] 1120:8 50 ^[14] 898:24 952:3 1014:12 1022:16,17 1025:6,6,8 1028:15,16 1029:4,6,8,13 500 ^[2] 838:14 843:5 50s ^[1] 1009:7 51 ^[7] 896:9 931:10,16 952:7,20 1052:19 1055:16 52 ^[4] 933:2 953:7 1046:11 1079:13 53 ^[9] 932:3,14 935:21 954:1 1046:25 1047:1,8 1065:21 1111:12 54 ^[3] 933:7 1079:7 1111:12 55 ^[2] 941:18 956:2 55a ^[9] 933:7,17 935:25 1046:17 1047:12,20 1048:21 1051:17 1052:13 55b ^[6] 933:17 936:1 1048:23 1049:18 1051:17 1052:13 56 ^[3] 936:9 956:18 1046:18 57 ^[2] 928:17 936:7 58 ^[1] 957:11 59 ^[2] 941:22 957:17 595 ^[42] 923:12 925:14 926:13,17 928:23 930:4 936:13,20 937:7,8,17,19,20 940:11 942:7 944:16,17,20,24 947:7,10,14,18,20 951:18,19,24 952:8,21 956:4,5 957:9 1035:11,15 1036:15,21,22 1038:7,8 1074:14 1080:24 1090:10 5D ^[2] 936:13,20	7 7 ^[20] 924:13 926:20 929:12 930:10 937:20 951:23,25 954:23 975:21 1046:9 1047:11 1057:20,23 1059:11 1065:21 1071:10 1078:19 1096:7 1097:11 1109:16 70 ^[6] 1001:8 1024:3,10,24 1025:10 1030:5 70-inch ^[4] 852:3 915:12 916:6,8 700 ^[1] 1089:11 71 ^[1] 964:13 72 ^[2] 965:15 1001:7 740 ^[42] 923:15 924:8 925:14 995:6,9,10,16,20,22 996:8 997:1,15 998:13,19 999:3 1003:21 1007:11,12,16 1008:16,19 1010:2,22 1011:1 1012:15 1017:6,23 1025:12,13,16 1027:13 1028:4,8 1094:21 1095:17,21 1097:24 1098:10 1100:2,7,21,24 75 ^[2] 962:6 967:1	8 8 ^[19] 911:4 924:24 926:20 927:1 937:20 938:3,23 952:7,20 957:2,3,5,8 1000:12 1002:13 1057:15 1063:10 1069:25 1077:20 8,472,174 ^[1] 909:10 80 ^[11] 962:6 987:11 989:17,25 1024:18,20,22 1029:19,19,22 1037:25 81 ^[1] 988:21 82 ^[2] 988:21 989:19 84 ^[1] 990:15 847 ^[1] 1121:4 85 ^[1] 991:3 862 ^[1] 1121:4 865 ^[1] 1121:4 87 ^[1] 993:5 88 ^[1] 1097:11 885 ^[1] 1121:4 887 ^[1] 1121:5 89 ^[2] 919:25 994:13 898 ^[1] 1121:5 8th ^[1] 884:21	9 9 ^[51] 858:17 860:20 883:7 900:24 901:2 911:13,14 925:3 926:8 927:2 962:10,19,22 963:1 965:3 966:4,11,13,15,17 1014:4 1032:22 1033:1,11,13 1035:10,16,18 1036:2,15,18,20,21,22 1037:18,22 1038:4,4,9,9 1077:21 1082:1,5,8,12 1083:2,24 1084:1 1085:15,20 1097:23 9's ^[1] 1084:20 9:30 ^[3] 838:22 844:2 1120:9 90 ^[2] 852:9 942:13 918 ^[1] 1121:6 92 ^[1] 995:7 94025 ^[1] 840:15 94063 ^[1] 841:25 94111 ^[1] 841:18 95 ^[2] 996:14 1014:14 97 ^[1] 997:15 975 ^[1] 1121:9 98 ^[1] 997:24 98101 ^[1] 839:15 9th ^[1] 954:6
			A a.m ^[5] 838:22 844:2 917:8,	

1107:17 1112:10 1113:6,9 adapt ^[1] 1006:21 adapting ^[1] 1006:23 add ^[10] 902:15 960:10 968:14 982:25 984:4 995:22 1004:9 1030:11 1031:10 1052:22 added ^[6] 902:1 910:17,24 913:3 934:13 1016:14 adding ^[1] 1031:13 addition ^[2] 961:4 1013:13 additional ^[13] 894:14 925:4 945:9 956:8 965:4 966:8 968:16 1006:25 1008:20 1049:18 1051:6 1053:2 1075:3 additionally ^[10] 933:15 936:24 941:19 995:12,24 1005:17 1010:3 1015:6 1024:7 1027:23 additive ^[1] 968:9 address ^[1] 1095:7 addressed ^[3] 959:17 960:16 971:21 adds ^[3] 956:8 1008:20 1016:7 adequate ^[3] 1032:22 1033:4,12 adjacent ^[2] 932:20 942:8 adjourn ^[1] 1118:18 adjourned ^[1] 1120:7 adjusted ^[1] 929:25 adjusts ^[1] 1018:13 Administrative ^[2] 838:4 871:11 admission ^[5] 844:18 845:12,21 846:6 1121:13 admit ^[2] 844:15 1094:14 admitted ^[4] 844:22 845:6,16 846:10 advanced ^[1] 971:16 advantage ^[1] 950:12 advantages ^[3] 948:10,11,24 ADVISOR ^[1] 843:1 Aeronautical ^[1] 919:11 affect ^[1] 1075:19 afford ^[1] 885:11 aftermentioned ^[1] 1135:16 aforesaid ^[1] 955:2 AFTERNOON ^[1] 1121:9 afterwards ^[1] 1021:2 agnostic ^[2] 1073:22,23 ago ^[13] 860:19 874:13 881:17 883:1 923:5 942:1 950:17 1012:25 1029:9 1031:23 1048:19 1064:17 1115:5 agree ^[74] 868:3,6 876:10 877:8,23 881:3,21,24 902:14 914:12,16 915:3,5 916:	23 924:20 934:6 958:3 968:6 980:14 1003:24 1039:21 1045:9 1046:21 1047:5 1048:22 1049:13,14,17,23,25 1050:7,23,23 1051:2,24 1052:6,10,15,17 1054:14 1056:24 1057:7,21,23 1059:1,7,14 1060:3 1062:1,5,9 1063:13,18 1064:16 1065:23 1066:2,16 1068:6 1074:1,2 1079:5,23 1082:5 1084:17 1085:18 1086:3,17 1087:24 1088:1 1091:18 1100:1 1101:25 1104:1 1105:11 agreed ^[2] 858:25 924:10 agreed-upon ^[1] 924:14 agreement ^[5] 859:19 915:18 925:10 1065:16 1119:23 ahead ^[2] 844:8 885:15 aim ^[1] 1074:15 air ^[207] 850:16,20,20 854:4,6,8,11,11 882:15 904:15,19 928:15,16,21 932:10 933:12,16 934:20,20 936:7,11,21 937:3 941:4,20 943:10,15,17,19 944:3,9,9 947:13 952:17 954:17,18,19 955:2,3,13 964:25 965:15,19,25 966:19 967:1,4,5,5,6,9,10,12,15,16 972:4,5 983:1,12 984:10,12 985:20 988:2,6,9,10,14 989:7,8 992:7,11,16,18,20 993:6,8,10,12,15,22 994:8,11 997:13 998:2,7,11 1000:9,9,17,19 1001:3,20,21 1002:7,9,19,20,21,22,24 1003:2,2,6,11,12,14 1004:3,19 1005:12,14,21 1006:2 1011:9,10,13,16 1012:1,8 1014:3 1022:10,14,15,24 1024:22 1025:3,4,7,8,9 1026:10,15 1027:5,25 1028:13,15,24 1029:6,13,18,22 1036:7,14 1042:14 1045:14 1047:15,15,18 1049:13,20 1050:8,17,21 1051:3,6 1052:22 1053:2 1054:4 1059:4,5 1062:10,25 1063:7,13,25 1064:4,8,21,24 1065:16,23 1066:2,5,7,16,22 1067:1,13,17,18 1068:1,22,22 1069:9,11,13,16 1090:17 1091:19 1092:8 1093:24,25 1094:8,14,16,17 1098:16,22 1099:2 1100:10,16 1101:9,11,17,23 1102:16 1108:19 1112:16 air-conditioners ^[1] 853:7 air-cooled ^[1] 1040:3	air-tight ^[1] 1020:9 air-to-air ^[2] 882:13 999:4 air-to-glass ^[1] 1016:15 aircraft ^[1] 919:24 airflow ^[78] 849:16 853:22,24 854:3 886:3 894:15,24 897:5 899:19 902:1 906:12,16,24 920:8 930:12 932:17 933:9 934:18,20 936:3,24 942:15 944:2 952:17 954:13 966:5,8 979:16 983:7 993:13 997:2,8 998:17 999:15,16,17 1000:2 1002:5 1006:9 1008:5 1010:19 1011:7,7,14 1017:20,21 1023:13 1024:13 1028:11,25 1037:25 1039:19 1047:11 1048:9,20 1049:11 1055:5 1062:12,13,15,17 1063:9,13,19,24 1066:11,14 1067:22,23 1068:7 1094:13 1109:1 1111:22 1113:9,13 1114:10 1116:15 1117:15 airflow ^[1] 904:6 airflows ^[13] 850:10 954:14 1002:14 1003:12 1006:5,20 1022:24 1049:5,8 1067:19,25 1112:11 1116:18 airpath ^[17] 870:11,14,22 879:6 881:22 903:1,2,5,8,8,10,11,12 999:13,13,14 1015:17 airpaths ^[3] 860:2 878:21 905:25 al ^[1] 1097:5 aligned ^[1] 1016:4 alleged ^[10] 978:6,8,13,13 979:12 980:1,11 984:20,22 1109:11 allow ^[11] 932:17 936:11 944:3 950:23 987:16 993:13 1011:7 1053:2 1100:10 1101:9 1108:19 allowed ^[3] 874:14 883:3 1113:14 allowing ^[3] 939:18 955:13 1014:13 allows ^[1] 953:2 alluded ^[1] 880:4 Almost ^[2] 907:9 968:25 Alpharetta ^[1] 905:10 already ^[16] 938:11 951:7 955:18 961:22 971:16 973:9 994:23 995:18 1007:7 1015:23 1028:4 1030:22 1061:20 1077:18 1080:16,17 alternative ^[4] 852:3,5 879:4 1104:18 ALTON ^[3] 840:5 843:2	898:8 aluminum ^[3] 951:13 1042:11,14 Alveo ^[1] 919:15 Ambient ^[40] 850:20 854:6,7,11 928:21,22 944:9 967:16 988:9 989:7,8 992:19,19 993:6,8,10,12,22 994:7 997:2,7,13 998:1,11 1000:2 1001:4 1002:20,22 1003:2,6 1004:3 1005:21 1006:4 1022:10,14 1025:4 1029:13 1036:7 1049:20 1094:17 America ^[2] 841:3,4 American ^[2] 905:13,16 among ^[1] 943:18 amount ^[5] 1008:24,25 1062:1 1063:19 1111:15 amounting ^[1] 984:14 amounts ^[1] 1067:20 analysis ^[21] 922:21 923:3,23 924:18 927:4 935:12 947:10,14,25 949:8 957:7,8,10 958:21 1010:3,22 1043:16,17,21 1045:25 1071:17 analyze ^[2] 986:23 1095:7 analyzed ^[2] 925:12 978:14 ANDERSON ^[8] 840:6 844:20 845:3,14,19 846:13,22 847:2 ANDREA ^[1] 840:6 ANNAKA ^[1] 841:8 annotate ^[1] 1020:20 annotated ^[21] 975:22 982:16 1049:4 1056:12,14,17 1076:5 1081:25 1085:15 1092:16,22,22,24 1093:4 1094:4 1105:11,12,16 1107:13 1108:13,24 annotation ^[6] 978:25 981:3 1092:15 1104:19 1106:4,5 annotations ^[11] 971:2 976:1,2,12,18 1036:19 1045:8 1093:14 1104:1,2,5 annual ^[1] 920:15 another ^[22] 846:3 894:12 936:1 938:9 953:11 959:6 976:21,22 988:13 994:22 998:16 1006:4 1016:21 1034:20 1048:18 1058:10 1060:16 1067:2 1076:25 1091:25 1112:1 1119:12 Answer ^[14] 869:21 876:7 901:7 904:7 906:20 976:24 981:24 999:1 1033:24 1045:23 1062:23 1085:5 1088:24,24 answered ^[1] 1041:5	answering ^[1] 1101:3 answers ^[1] 1081:7 anti-reflection ^[6] 1016:9,12,13 1031:3,11,14 anti-reflective ^[1] 1031:7 anticipated ^[4] 925:14 926:18 937:9 944:17 anticipates ^[1] 937:18 anticipating ^[1] 1118:13 anticipation ^[1] 926:5 anybody ^[2] 856:11 870:7 Anyway ^[1] 993:1 apart ^[11] 932:17 939:17 941:13 942:4 945:8 964:24 1007:24 1008:2 1025:20 1027:1 1108:18 aperture ^[7] 952:25 953:1,9,14 967:13 1080:8,14 apertures ^[8] 952:22 953:8,18,23 954:9,10 1079:10,15 Apologies ^[1] 969:5 apologize ^[3] 874:3 946:4 948:23 apparatus ^[3] 939:10 962:17 963:12 apparent ^[1] 1070:6 Apparently ^[2] 916:1 976:13 appear ^[3] 857:22 970:22 1047:3 APPEARANCES ^[4] 839:1 840:1 841:1 842:1 appears ^[6] 857:20 907:12 940:11 965:3 990:11 1024:4 Application ^[41] 856:18 857:10 858:10,13,17,20,23 859:1 860:2,18,20 877:25 878:6,20 880:13,18,23 881:19 883:8 886:4 907:11,14 908:3 909:16,17 913:19 914:13 915:7,25 916:2,5,15 927:13 949:15,15 954:3 959:10 962:16 1009:1 1017:12 1071:4 applications ^[1] 1099:7 applied ^[3] 1015:12 1027:12 1032:20 applies ^[3] 957:10 1000:13 1002:17 apply ^[2] 924:17 925:5 applying ^[2] 893:8 1030:23 appreciate ^[1] 1074:18 appreciated ^[1] 1055:18 approach ^[8] 844:13 845:23 886:13 898:1 954:22 960:22 1048:12 1113:16 April ^[1] 875:5 architectural ^[1] 887:23 area ^[25] 927:20 928:20 933:8 936:22 978:21 979:1,4,7,22,24 980:1,2 981:11
--	---	---	--	---

982:19,20 983:1 985:14 989:4 998:5 1000:8 1074: 15 1083:1,24 1105:1,25 areas [4] 955:12,13 1009: 13 1015:23 argue [1] 973:7 argued [8] 925:19 934:3 957:24 968:3 997:19 1003: 20 1031:25 1032:6 arguing [1] 984:7 argument [4] 934:11 969: 14 971:8 1006:10 arguments [2] 925:22 1003:18 Arizona [1] 919:8 arm [1] 869:8 around [48] 854:4 860:7,16 861:9,13 864:11 882:15 884:1 889:14 898:11 901: 12 905:20 919:25 927:22, 23 929:17 931:5 953:19 975:17 981:13 982:20 984: 10 989:13 992:4,8 998:8 1005:14 1008:7 1011:3 1012:8 1024:24 1026:11, 16 1037:3,11,14 1060:16 1070:2 1082:10,13,22 1105:17,21,22 1106:11,20, 21 1109:1 arranged [6] 942:16 985:1 992:6 1002:6 1008:4 1049: 19 arrangement [3] 849:16, 17 1084:3 array [11] 1000:2,5 1006:1, 4 1039:16,25 1041:9 1042: 11,15 1100:13 1101:13 arrays [1] 1000:6 arrow [13] 894:14,23 966:5, 5 1046:18 1048:5,23,25 1049:1,1,3 1063:6 1104:14 arrows [60] 850:7,8,12,12, 14 906:16,23 930:12 936: 24 943:7 952:17 966:8 971:24 972:1,4,5 979:15, 16,20 980:24 983:6,10,13, 25,25 985:20 997:21,22,23 1017:20 1022:25 1024:13 1026:18,19 1037:2,7,25 1063:15,19 1065:3 1066: 10 1068:5 1069:1,2,3,6,21 1108:21 1111:5,11 1112:9, 15 1113:9 1114:10 1116: 14,15,17,18 1117:14,16 art [107] 911:6,10 912:6,10 918:20 920:24 921:4,6 922:23 923:5,25 924:6 925:15,18 927:5 946:1,7,9 947:22 949:4 950:15,22 951:2 953:19,21 955:6,15, 21 959:2,3 960:4,14,23 968:13,16 970:9,15,18 973:	12,15 975:8 986:24 991:8 992:12 996:1,5 998:12,24 1004:6,22 1006:15,19 1007:3 1009:3,10 1012:25 1013:25 1014:17 1015:19 1016:17,23 1018:8 1026:8, 25 1027:21 1030:10,18 1031:9 1044:14,20,24 1045:6,6 1071:16 1072:3,7, 20 1073:1 1074:3 1075:9, 13,15,21,21 1076:18 1077: 9 1089:14,18,23 1090:5,8, 21,22 1091:11,12,14 1094: 24 1095:8,9,13 1100:3,25 1101:2,6,22 1102:6,19 articles [1] 920:16 artisan [7] 1052:22 1054: 15,16,19 1055:2,9 1080:20 artisans [2] 1052:6 1053:9 artistry [1] 888:20 Arts [1] 919:6 aspect [2] 915:10 920:6 aspects [1] 861:7 assemblies [3] 887:16 959:2 967:23 assembly [48] 893:7 896: 20,23 897:4,6,20,22 930: 22 939:16 940:22 945:13, 18,23 946:15 951:6,8,14 958:9,10,18 961:24 962:2 963:25 964:2,23 968:1 988:24 990:16,18 994:2,11 996:16,19,21 997:5,9,17 1005:9 1006:23 1007:25 1009:24 1018:9 1019:4 1027:10,12,15 1061:1 1063:2 asserted [19] 918:13,19 922:22 923:20 925:12,13, 17 926:7,17,23 937:16 986: 20 1006:12 1008:15,16 1071:25 1073:23 1095:1, 10 assigned [1] 881:11 assignee [1] 909:12 assist [1] 918:23 associated [6] 885:6,8 922:7 1077:10,15 1118:21 association [1] 905:14 assume [1] 1006:10 assumed [1] 915:19 assuming [2] 860:10 864: 14 assumption [2] 1083:10, 11 Atlanta [1] 839:22 atmosphere [1] 1026:18 atmospheric [14] 972:4 980:6 1022:13,16,24 1024: 7,14 1025:7,9 1028:14 1029:5,6 1030:4 1116:19 attach [4] 957:21 958:6	1070:22 1080:22 attached [13] 844:24 845:8, 18 846:12 853:10,17 855: 10 870:6 939:22 957:17 994:1 1015:15 1102:6 attaches [3] 953:10,12 954: 13 attachment [2] 870:15 955: 1 attachments [1] 855:1 attempt [1] 871:16 attend [1] 848:8 attention [3] 859:23 900: 23 904:3 ATTORNEY [1] 843:1 Attorney-Advisor [1] 843: 3 audio [1] 913:22 authorize [1] 858:12 automotive [1] 887:23 auxiliary [6] 1013:11,12 1014:2,5,8 1031:5 available [6] 852:11 853:8 879:1 892:10 913:16 1009: 8 Avenue [4] 839:7,14 842:9, 17 avoided [1] 1095:13 aware [33] 858:4,6 860:6, 11,15 864:10 923:18,25 934:3,5 949:4 953:21 957: 24 958:2 959:1,3 968:3,5 1003:19,20,23 1004:10,21 1009:10 1012:25 1026:21, 25 1031:24 1035:1 1084: 15 1095:15 1115:3,7 away [10] 992:13 998:11 1001:8 1026:12 1052:9,12 1053:18 1078:15 1113:14 1114:13 axes [1] 1016:4 axis [4] 1065:9,11,14,18	1075:16 1076:23 1079:13 1081:7 1082:25 1085:10, 10 1086:11 1091:19 1092: 7,19,23 1096:12 1097:10, 23 1102:12 1103:12 1108: 24 1113:11,21 1114:12 1117:13 1119:21 back-lit [1] 1073:24 back-to-back [1] 853:6 background [13] 914:1 919:2,5 991:12 1040:24 1090:8 1098:11 1100:18, 21,24 1101:4 1102:15,21 backlight [100] 920:6 932: 11 934:18,21 939:21 940:6, 21,23 941:4,5,13,18 942:2, 3 943:5,18 944:4,11 945: 13,17,19,20,23 946:4,14, 20 947:4 950:1,2 951:6,8 957:22 958:1,9,10 961:24 962:1,24 963:11,18,25 964: 19,23 965:7,10,11,23,24 966:7,9,24 968:2 991:5,6,9, 14 993:24 994:2,11,12 996: 25 1005:1,9,14 1040:3 1042:11 1048:4 1057:10 1058:14 1059:19 1060:5,7, 10,12,14,18 1061:1,13 1062:3 1063:2 1064:20 1070:9 1073:11,16,20 1074:6,8,10,15 1075:2,11, 16 1078:21,23 1084:12 1086:23 1087:3 1088:14 1089:1 1113:14 backlighting [1] 920:18 backlights [6] 1074:20,24 1076:4,8 1090:5 1115:10 backs [1] 1045:16 backward [2] 929:22 1006: 25 bad [1] 952:11 baffle [3] 1024:22,24 1094: 10 bankruptcy [1] 871:10 Barbara [1] 1135:20 base [5] 854:8 875:12 932: 7 950:9 967:10 based [19] 877:7 890:11 892:2 894:6,21 915:19 925:8 935:14 958:6 962:5 978:11 989:23 1000:17 1014:16 1025:14 1027:11 1038:7 1059:7 1113:2 basic [3] 888:10 894:20 958:13 basically [10] 920:22 932: 12 947:25 958:16 971:1 975:17 993:2 1018:13 1022:2 1058:21 basis [1] 1033:10 beams [1] 891:4 bear [1] 866:25	bearings [1] 967:24 become [2] 1009:8 1115:3 becomes [1] 985:25 becoming [1] 863:12 began [8] 889:6,14 890:16 901:7 979:19 985:22 1115: 8 1116:20 begin [3] 862:12 901:4 911: 3 beginning [4] 864:4 879: 14 922:2 996:14 begins [3] 873:24 878:17 1038:13 behalf [1] 844:9 behind [29] 932:16 933:13 934:21 935:19 936:10 939: 20 940:6 941:13 942:20 945:13,21 948:23 957:20 961:25 964:19,23 966:8 988:11 993:19 997:4,8 1011:5 1022:11 1026:10 1037:6 1060:13 1061:7 1084:12 1090:5 believe [46] 871:15,18 872: 24 881:5 885:10 886:1 902:9 908:23 910:4 911:8 915:2 937:12 950:20 959: 9 962:13 968:9 971:4,19 976:9,18 982:12 1001:15 1004:12 1005:4 1014:19 1017:8 1021:8 1027:21 1030:14 1043:14 1045:12 1058:19 1059:6 1060:13 1061:12 1062:20 1067:15 1074:14 1081:19 1086:11, 13 1088:20 1097:9 1113: 19 1119:13 1120:5 believed [1] 863:24 bell [1] 1059:25 belonged [1] 880:24 below [4] 850:13 913:25 1108:14,16 bend [1] 1026:19 benefit [3] 864:3 948:8 1015:6 benefits [3] 954:21,24 1009:10 bent [4] 942:13 959:24 Bernoulli [1] 1112:12 best [6] 873:5 900:14 968: 12 1035:7 1088:24 1107: 25 better [11] 901:18 928:8 953:11 955:13,13 959:25 1030:15 1039:5,6,7,8 between [50] 850:16 854:3, 4 859:19 886:1 896:9 932: 4 941:5 943:4 948:6 965: 11,16,25 966:6 978:6,8,13, 16 984:8,20,22 986:1 992: 3,6 1000:9,18 1001:21 1002:14 1003:12 1006:5
--	--	--	---	--

1008:4,9 1011:21 1028:25 1029:8 1045:15 1058:13 1061:16 1062:8,21 1070: 17,19 1072:20 1098:2 1101:11,18,19 1102:16 1108:19 1109:12 beyond [3] 1069:17 1091:6 1113:24 BHATTACHARYYA [116] 838:3 844:3,7,14,21,25 845:4,9,15,24 846:9,19,23 847:3 857:2 865:2,5,7 882: 4 885:15,18 886:7,15,20 898:3 917:3,6,10,14,17,25 922:9,15 968:25 969:16,19 970:1 971:10 972:16,24 973:3,13,23 974:2,5 975:3 977:1 978:5 979:10,25 980:4,7,11,14 981:5,8,13, 16,20,23 982:1,7,11,14,18, 23 984:3,16,19 985:23 986: 10 1018:17 1019:8,11,15, 22,25 1020:3,14,21 1021:6, 15,18,21 1022:7 1023:3,5, 8,23 1025:24 1038:12,18 1048:14 1081:8 1091:9,15 1097:14,16,20 1102:3,11 1110:5,9 1117:20,23,25 1118:6,9,13,17,23 1119:7, 11,16 1120:3,6 bid [2] 890:2,7 big [5] 877:22 1052:13,13 1053:17 1056:18 bigger [2] 968:13 1105:2 Bill [14] 851:18 852:20 859: 8 860:6,13 863:11 871:1,5 873:20,20 878:19 879:1 886:2 897:19 binder [27] 849:3 851:11 867:3 868:20 872:4,17 874:22 875:25 877:4 886: 14 891:16 893:23 900:18 909:21 921:11,11,19 927:9 938:25 949:10 954:1 959: 9 962:13 987:4 1005:3 1013:5 1017:8 binders [3] 865:4 867:1 898:2 BIRBACH [1] 842:12 bit [15] 873:25 878:24 899:7 948:23 969:21 1034:15 1045:5 1056:3 1064:2 1070:4 1091:2 1094:13 1098:8 1102:12,12 bits [1] 872:13 black-and-white [2] 878:7 881:18 blew [1] 1069:13 block [1] 855:13 blow [7] 1041:3 1055:15 1070:3 1077:22 1103:25 1107:11,12	blower [1] 936:7 blowing [5] 1093:13,14,15, 22 1112:8 blue [35] 850:13,17 979:23, 23 980:2 981:13,18 982:21 988:25 1022:3 1037:8 1057:10 1060:4,5 1061:11 1093:4,6 1103:8,11,12 1104:6,11,16,20,23 1105: 18,22 1106:14,20 1107:14 1109:1,23 1116:13 1117:6, 9 board [25] 943:18 945:14, 24 946:2,6,16 947:21,24 948:5,7,7 949:6 950:10 951:11,12 953:16 956:6,7 987:10 1059:23,24 1060:6 1062:3 1064:19 1114:11 board's [1] 1061:23 boards [10] 946:8 948:9,12 950:5 951:9 1034:5 1115: 4,7,12,18 body [1] 915:6 BOLTON [67] 847:9,14,22 849:4 851:15 854:15 855: 5 856:14 857:7,15 859:5 863:8 865:10 866:8,19 867:9,16,17 868:3,10 869: 17 870:5 871:1 872:3,14 874:5,18 875:1,10,24 876: 14 877:4,12,17 878:5,12, 18,25 879:12,15,25 880:11, 24 881:3 882:7,19 885:21 886:8 889:8,9 893:8,21 894:7,25 895:3 899:14,15, 17,22 901:4,20 905:19,25 906:4 908:6,6 1121:4 Bolton's [2] 902:4,6 book [3] 866:8,11,15 booth [10] 848:12,13,14,15, 18,21,22,23,24 869:25 Boston [1] 842:10 both [43] 845:25 852:20 859:17 864:3 919:25 920: 18 922:24 926:19 931:6 936:20,21,24 937:2 947:9 952:15 976:11 979:14 980: 1 986:4 992:15 994:4 995: 20 997:25 999:19 1000:14, 22 1002:17 1006:20 1008: 18 1011:2 1017:4 1020:12 1024:5,9,11 1030:4 1041:9 1047:6 1077:9 1082:1 1098:22 1106:13 1116:13 bottom [43] 850:21 851:14 854:11 863:17 879:14 907: 8 936:22 943:8 952:16 962:4 973:19 988:17 993: 13,16 1003:3 1005:15,18 1011:22 1036:9 1037:16 1038:3 1048:20 1050:1 1052:23 1063:16,21 1065:	3,17,17,24 1066:7 1067:1, 10,14 1068:2 1076:16 1078:11 1079:2 1094:10 1097:4,5 1098:4,5 bounds [1] 972:15 BOVA [1] 841:9 box [21] 975:17 1034:12 1064:1 1104:6,8,11,11,16, 24 1105:2,18,21 1106:11, 14,20 1108:25 1109:2,12, 23 1117:6,9 boxy [1] 1004:15 bracket [8] 891:7 892:12 916:20 953:12 957:12 958: 14,15,22 brackets [20] 891:1,2,5,11 892:2,4,6,11 916:18 957: 19,21,25 958:18,20 959:2, 23 960:5,15,25 961:23 break [6] 846:21 989:13 1038:13 1064:2 1097:13, 17 brief [4] 971:4 976:6,11 978:11 briefing [4] 1118:24 1119: 5,8,16 briefly [2] 853:18 928:15 briefs [1] 1119:18 brighter [1] 1058:12 brightness [1] 949:3 brightness-enhanced [1] 915:12 bring [12] 866:18 868:22 909:6 910:8 969:15 992: 18 1040:5 1048:16 1058: 22 1069:19 1086:10 1088: 19 brings [2] 1034:20,21 broken [2] 987:20 990:13 brought [2] 988:10 1005: 21 Brynteson [1] 838:25 builder [1] 951:12 Building [2] 842:16 859:9 buildup [1] 946:11 bulge [1] 1083:8 bulges [1] 1083:1 bullet [5] 859:21,24 878:16 884:11,14 bunch [2] 949:25 950:4 business [6] 884:23 885:1 889:11 895:19 898:22 923: 2 busy [1] 852:20	20 cabinet's [1] 1109:12 cabinets [1] 1027:2 CAD [26] 857:23 858:16 859:15 883:7 887:15,17,18 888:20 890:6 893:7 894: 18 895:1 896:16 897:4,10 899:15 902:14,15,21 911: 18,20 912:1,6,7,10 1044: 23 calculate [1] 920:20 calibrated [1] 1067:23 call [26] 848:4 849:2 851:10 866:20 867:6 870:11 873: 23 874:1 875:2,8 878:15 879:13,21 880:9 882:17 883:12 886:12 891:1 897: 5,19 917:11 967:12 972:19 1045:15 1059:3 1080:11 called [23] 861:15 888:17 889:21 905:12 906:6 913: 22,25 936:7 938:7,9 948:6, 14 952:15 958:24 988:7 992:2 993:20 998:5 1001: 7 1013:22 1016:19 1020:1 1050:12 calling [3] 867:24 872:12 939:8 calls [5] 984:21 1036:22,24 1037:13 1075:20 came [6] 862:18,22 886:2 902:6 911:18 912:16 Canada [1] 885:2 Canadian [1] 883:18 CANNON [1] 840:4 cannot [1] 1051:8 capability [1] 1099:8 capable [1] 914:23 captured [1] 1015:4 career [1] 919:22 carefully [1] 1039:21 carried [1] 998:11 case [48] 900:3 918:14 933: 11 951:6,7 958:8,10 959: 18 967:22 970:12 985:22 987:16 989:22 994:12 1003:4 1011:23 1018:6 1039:14,17,22 1040:6,8 1041:2 1043:4,15,20 1044: 1 1060:14,14 1063:1,5,8 1071:25 1077:3,7 1080:22 1082:12,14 1084:21 1085: 2 1088:3 1089:10 1093:21 1102:5 1103:15 1106:24 1114:12 1115:8 cases [4] 1053:25 1072:11 1095:5 1098:16 casing [30] 939:18 940:3,4, 6 941:8 960:12,21 987:14, 19,24,25 988:11,12,18 990: 22 992:6,25,25 993:21 994: 18 1000:21 1001:22 1002:	7 1008:4 1057:23 1076:16 1078:12 1080:13 1082:10 1092:24 casings [2] 939:17 1045: 14 categories [1] 970:6 cause [3] 929:7 994:18 1086:14 caused [2] 994:11 1005:21 causes [1] 964:19 caveat [1] 915:5 cavity [1] 1113:11 CDX-0008C [1] 1134:1 CDX-10 [6] 1048:16 1056:4 1063:10 1068:16 1075:6 1113:18 CDX-10C [3] 1112:18,20 1114:2 CDX-1893 [1] 1088:20 cease [2] 871:12,15 cell [1] 1018:15 Center [7] 841:17 850:16 927:21 1049:12,19 1057:4 1085:19 central [4] 854:7 928:8 952: 5 960:10 CEO [1] 873:12 CERTAIN [14] 838:7 924: 10,22 925:17,19 937:15 948:15 986:6 1008:24 1031:25 1044:1 1067:9 1119:13 1135:2 Certainly [9] 872:10 877: 11 900:11 960:9 972:1,13 977:22 978:1 986:8 CERTIFICATE [1] 1135:1 certify [1] 1135:8 cetera [1] 1028:7 chamber [2] 933:4 936:3 chance [6] 852:16,22 853: 17 1007:8 1016:3 1119:19 change [11] 862:12 948:5 960:5 978:6,8,12 980:22 981:2 982:24 1007:8 1083: 13 changed [12] 892:7 971:4 976:14 977:24,25 981:17 986:1 1018:19 1021:8 1116:22,24,25 changes [3] 891:22 950:15 955:6 changing [6] 850:17 981:3 984:12,20,22 1066:25 channel [55] 928:18 931: 24 933:18,24 934:9 935:4, 9,16,23 936:2,8,22 937:3,4 942:22,25 943:3,10,22 952: 1,17,19 956:22 962:25 964: 20,25 966:6 1003:22 1008: 10 1037:4 1038:2 1051:11 1052:14,18,25 1053:1,6,8, 11,19 1054:2,4,5,18,24
--	---	--	---	---

C

C-1896C [1] 903:22
CA [3] 840:15 841:18,25
cabinet [21] 894:14 959:18,
20,21,24 960:1 985:1,3
1018:3 1020:8 1022:15,17,
21 1026:5 1027:16,16,20
1028:16 1030:13 1108:18,

1055:5,11 1061:16 1062:21 1086:15 1087:10 1089:8 1109:11,21 1110:1 channels [3] 1005:11 1044:11 1058:18 character [1] 969:8 characteristics [1] 965:14 characterize [2] 912:18 1061:25 chart [1] 912:14 chassis [1] 1093:18 CHENG [1] 841:20 Chilin [1] 884:25 chimney [4] 850:16,19 854:4,8 chose [1] 949:8 chosen [1] 985:18 Chris [12] 873:21 889:8,10 893:7,21,21 894:7,19,25 895:3 896:21 908:6 CHRISTIE [1] 842:5 CHRISTINA [1] 842:14 CHRISTINE [2] 842:13 886:12 Christmas [1] 869:23 CHRISTOPHER [2] 847:9 1121:4 circles [1] 1058:15 circling [1] 1012:24 circuit [59] 943:18 945:14,24 946:2,6,8,16 947:21,23 948:5,7,7,9,12 949:5 950:5,10 951:8,11 956:6,7 962:24 964:18,22 965:1,8,12 966:6,25 1059:23,24 1060:6 1062:3,4 1064:9,16,19 1078:11 1083:16,17,19,20,24 1084:7,11,14,18,19,22 1085:3,10,21 1086:13,22 1087:2 1115:4,7,12,18 circuits [3] 1077:24 1079:2 1086:18 circulate [2] 1001:20 1026:15 circulated [1] 1029:18 circulates [8] 983:2,17,20 985:20 991:16 998:8 1002:22 1026:11 circulating [7] 965:21 994:5,19 1001:24 1002:5 1005:14 1093:25 circulation [23] 992:7 997:16 998:1 1001:17,20 1002:19,21,24 1011:3,14,16 1012:4,8 1022:20,25 1023:10,16 1024:17 1025:3 1028:6,24 1029:17 1108:19 circulations [1] 1017:21 circumference [2] 929:17 931:5 cite [1] 973:19	cited [2] 970:12,13 cites [1] 975:24 citing [1] 950:12 City [1] 841:25 claim [176] 864:5 879:16 922:23 924:10,15,22 925:9,10 926:8,12,18,19,20,20,24,25,25 927:1 928:23 929:2 930:3,13 931:1,17 932:19 935:4 937:7,8,10,10,18,20,25 938:1,2,3,20,21,22,23 940:10 942:21 944:16,17,18,20,24,24 947:6,10,14,17,19,19 951:18,19,21,22,23,25 952:7,20,21 955:24 956:1,3,3,4,16,17 957:2,3,5,8,11 961:6,7,9,11,13 963:1,23,24 966:11,13,14,15,16,16 967:18 968:21 984:21 986:7,17,20,23 987:2 990:10,13,15 991:18 994:25 995:3,4,4 996:8 997:1,10,11,15,19,24 998:20 1002:18 1003:21 1004:2 1007:11,12,14,15,16 1009:18 1010:3,5,9,20,23,25 1011:2,2 1012:12,14,14,19,22,22 1016:6,7 1017:24 1018:22 1025:12,13,15,16 1027:9,12,13 1028:2,3,4,6,8 1030:1,25 1032:18,22 1033:1,4,11,12,13 1035:9 1036:15,21,22 1038:4,9 1045:3 1060:22,22,25 1061:1 1066:21 1108:7,17 1119:3 claimed [6] 864:13 930:4 958:22 1006:12 1030:1 1072:21 claiming [3] 860:9 982:24 1033:9 claims [42] 909:17 923:19 925:12,13,17 926:7,17,23 927:2 937:16,20 956:6 962:10 968:19 973:8 995:8,10,11,13,16,17 1008:13,15,16,17,17 1011:2 1017:1,3,6 1027:7 1031:19,21 1032:1,11 1043:9,25 1044:8,9 1071:24 1072:13 1074:4 clarification [3] 846:14 899:21 1076:13 clear [7] 860:8 864:13 978:22 985:25 986:4 1055:1 1071:4 clearly [3] 991:8 1059:8 1113:16 client [1] 898:15 client's [1] 1043:8 clients [1] 898:14 close [5] 906:1 1007:7	1014:14 1046:7 1053:18 closeable [1] 987:22 closed [83] 854:3 903:13 904:10,14,18 923:14 978:6,13 979:10,12,16 980:1,12 981:10,18 982:15,19 983:1,2,7,11,12,17,20,24 985:19 988:1,5,23 989:5 991:15,18,21 992:9,16,20 993:3,19 994:14,16,21 995:19 997:16 998:1,7,8 1000:4,23 1001:18,19,24 1005:13,14 1008:10,18 1010:24 1011:3 1012:3,4,5 1015:17 1022:19,22,25 1023:10 1024:11,15 1028:1,6 1029:17,22 1030:4 1036:3 1037:5,14 1044:4,10 1099:17,20 1106:1,3,5 1116:9 closely [3] 862:4 911:1 1006:1 closer [2] 1011:22 1052:9 Co [2] 841:2,3 co-founder [3] 908:9 910:20 913:3 coarse [1] 933:16 Coates [2] 841:4,5 cofounders [1] 889:7 cold [2] 914:9 998:16 collaborate [3] 899:23,25 901:9 collaborated [1] 899:15 collaborating [3] 851:3 895:3 901:5 collaboration [3] 899:14,18 901:11 collaborative [1] 851:2 collapsed [1] 901:23 collection [1] 892:23 collective [1] 894:22 college [1] 888:5 color [6] 945:9 985:18 997:22 1015:14 1060:4 1116:11 color-code [1] 977:19 colored [4] 983:19,19 1046:11 1111:5 coloring [2] 1106:9,10 colors [2] 893:8 977:6 column [23] 924:16 940:16 941:18,21 943:21 945:4 992:5 1000:12 1002:13 1028:13 1029:7 1065:21 1068:21 1069:25 1095:22 1097:4 1098:2,4,4,5,6,13 1099:12 columns [1] 1098:3 combination [13] 951:21 973:7,8 975:9 994:14,16 1015:20 1016:11 1031:1 1078:20,24 1079:7,19 combinations [5] 1071:9,	17 1072:11,12 1079:6 combine [2] 1072:8 1079:3 combined [3] 1078:7 1080:9,12 combines [1] 958:16 come [18] 860:11 862:19,25 863:7 865:15 882:20 888:18 889:5,9 926:4 928:1 946:13 949:20 974:1 977:15 979:21 996:7 1094:8 comes [11] 850:20 928:21 972:19 973:1 977:5 1006:7 1047:22 1048:20 1068:23 1069:9 1083:9 coming [14] 854:11 865:21 966:5 989:3 1014:14 1017:22 1038:1 1046:18 1064:5 1065:11 1067:1 1069:1,2 1112:16 commenced [1] 838:21 comment [1] 1111:7 commercial [2] 919:24 1043:13 commercially [1] 913:15 COMMISSION [5] 838:1,13 843:4 1135:16,22 committee [1] 920:14 common [15] 852:7 904:22 916:21 997:25 998:24 999:9,10 1000:22 1001:24 1002:20 1003:7 1004:4 1023:20 1024:1 1025:4 commonly [1] 958:18 communicated [1] 905:3 communication [3] 1062:18 1098:17 1099:3 community [1] 887:9 companies [3] 851:8 864:21 889:11 company [11] 861:7,15 865:23 866:1 888:15,16,17,24 889:21 905:12 906:6 compare [6] 936:12 957:7 995:17 1005:24 1008:16 1036:20 compared [1] 1103:17 comparison [2] 936:16 975:14 compartment [1] 1020:9 compensated [1] 865:20 compete [3] 863:20,25 866:3 competing [2] 862:15,20 competitor [1] 862:17 competitors [1] 863:12 Complainant [4] 839:3 840:3 845:20 970:5 Complainant's [3] 845:22 846:1,4 Complainants [1] 922:10 complementary [1] 884:5	complete [7] 895:4 939:1 991:19 992:21 1002:8 1049:5 1135:23 completed [1] 896:23 completely [3] 931:8 971:4 1026:11 completing [1] 896:10 complex [1] 961:4 complicated [1] 970:21 component [9] 884:4 890:19 896:22 897:21,23,23 958:17,17 960:12 COMPONENTS [12] 838:9 854:2 891:8 939:19 954:20 985:4 1063:4 1067:24 1073:16 1075:20 1090:18 1098:15 comprise [5] 945:7 987:17 999:11 1000:1 1031:3 comprised [3] 931:4 1012:16 1036:4 comprises [5] 940:17 990:25 994:3 1016:8 1036:14 comprising [5] 884:4 944:25 945:14 990:16 1000:15 computational [1] 1044:23 computer [2] 1092:23 1093:1 computer-aided [2] 854:21 887:18 computer-generated [1] 890:5 concept [6] 849:21,22 870:14,22 894:3 960:9 concepts [3] 869:22 870:6 896:5 conceptual [8] 849:1,12 850:15 852:23 869:25 892:23 893:19 901:19 concern [4] 863:19 972:10,12 978:5 concerned [1] 978:12 concerning [26] 920:11 925:11,24 926:16,22 927:4 937:15 944:15 947:17 951:18 955:25 956:19 957:3 960:5 961:9 966:11 968:18 995:8 1007:10 1016:25 1025:12 1031:19 1036:12 1043:12 1044:14 1118:4 conclude [4] 930:20 955:10 956:19 1093:23 concluded [5] 934:16 950:19 955:11 987:2 1093:17 conclusion [10] 925:20 932:7 937:6 957:3,5 963:22 966:10 994:25 1033:10 1083:6 conclusions [25] 918:15,18 925:11,16,24 926:10,16,22 937:15,22 947:7,16 951:
--	--	---	--	--

17 955:23,25 961:9 987:1 995:8 1007:10 1016:25 1025:11 1031:18 1032:10, 14 1071:14 conditions [2] 875:19 925: 19 conduct [1] 923:3 conducted [1] 998:10 conducting [3] 922:21 924:17 1071:17 conduction [2] 994:3 1077:5 conductive [2] 1076:25 1090:11 confer [5] 846:16 882:1 976:25 1119:9,19 conferences [2] 862:18,23 conferred [1] 971:1 conferring [1] 1120:1 CONFIDENTIAL [1] 1121: 11 configuration [7] 852:7,14 853:5,6 932:13 960:8 1003:22 configurations [1] 879:4 configured [6] 931:23 956: 22 1014:5 1100:13,13 1111:19 confirm [2] 901:9 910:6 confirmed [1] 878:18 confirms [1] 991:13 connect [2] 891:3 957:25 connected [2] 891:6 892: 13 connecting [1] 958:11 connection [5] 918:10 922: 20 978:25 1003:17 1118: 24 connector [4] 1034:2,11, 18,21 connectors [3] 953:3,15, 16 connects [1] 957:13 consider [19] 870:13,15 922:20 926:6 955:4 986: 17 1006:19 1032:6 1039: 13,22 1040:25 1043:6,9,10 1046:23 1056:21 1060:10 1072:20 1087:8 considerably [1] 885:1 consideration [1] 935:12 considerations [6] 925:25 1031:25 1032:5,11,16 1043:12 considered [20] 870:17 918:21 922:25 924:6 925: 8,22 928:22 934:11,15 950: 13 975:18 1006:13 1032: 21 1072:23 1089:17,22 1094:24 1095:1,9,16 consistent [10] 937:13 971:15 973:9,10 979:18	983:13,14,24 985:14,21 consistently [1] 972:14 constitutes [3] 968:10 1022:3 1027:17 constrain [1] 1001:2 constrained [1] 1113:10 constrict [3] 1044:16 1087: 10 1111:22 constricted [86] 924:7 928: 18 931:18,21,22,24,25 932: 8,20 933:21 934:9 935:4,9, 14,15,23 936:2,8,22 937:4 941:10 942:8,17,22,24 943: 3,22 944:10 947:11 952:1, 19,22 955:14 956:9,20,22, 23 957:13 961:14 964:13, 17,20,21 965:8,9,16 966:1, 18 1035:19,24,25 1036:25 1037:3,6,10,24 1038:2 1044:5,10 1046:23 1051: 11,14 1052:14,17,24 1053: 1,6,8,11,19 1054:1,3,5,18, 24 1055:5,11 1056:22 1061:6 1062:20 1086:15 1087:8,16,17,23 1089:7 constricting [2] 923:13 1091:13 construction [11] 922:24 924:10 925:1 935:11 963: 23,24 991:18 1057:14 1058:20 1084:2 1086:3 constructions [8] 924:15, 17,21,22 925:1,5,10,11 constructive [2] 864:18, 23 construed [11] 930:17 931: 21,22 932:1 935:8 940:20 941:11 942:25 964:14 965: 19 991:22 consultancy [3] 888:15 898:11,14 consultant [2] 889:18 908: 21 consulting [3] 908:15 920: 5 1040:2 contact [3] 929:21 1062:17 1063:1 contacted [1] 863:4 contacts [1] 994:1 contain [1] 985:1 contained [4] 880:18 931: 2 966:22 1028:7 container [1] 1093:22 CONTAINING [1] 838:9 contains [3] 940:22 966:17 988:1 contend [1] 975:20 contended [1] 984:10 contention [6] 981:9,17 982:24 1091:11 1119:2,2 contentions [8] 970:13 972:8 973:10 976:13 978:	12 984:20,22 986:1 context [8] 890:4 894:3 920:25 970:19 981:2 1004: 22 1017:6 1095:5 continue [2] 850:24 1051: 4 CONTINUED [5] 840:1,3 841:1 842:1,2 continues [1] 1099:21 contract [7] 889:23 890:11, 12,14,15 905:15 915:21 Contractor [1] 1135:12 contracts [1] 895:17 contrast [3] 1009:15 1015: 7 1030:16 control [4] 955:14 1075:10 1076:15 1077:24 controller [10] 1034:4 1059:25 1060:1,9,17,18 1061:21 1062:4 1064:10, 17 controllers [3] 1001:7,8, 12 controlling [1] 946:11 convection [72] 923:13 924:7 931:18,21,22,24 932: 1,8,20 933:21 934:9 935:4, 9,15,16,23 936:2,8 937:4 941:10 942:8,17,22,25 943: 3,22 947:12 952:1,19,23 955:14 956:9,20,22,23 957: 14 961:14 964:14,17,20,21 965:16 966:1,18 1035:19, 24,25 1036:25 1037:3,7,10 1038:2 1044:5,10,17 1046: 24 1051:14 1053:19 1054: 18 1055:11 1056:22 1061: 7 1062:21 1078:2,16 1086: 15 1087:9,16,18,23 1089:7 1091:13 convective [2] 1035:23 1090:11 convectively [2] 1098:17 1099:3 convenient [1] 849:4 conversations [1] 894:22 convincing [2] 926:2 1032: 16 cool [14] 886:3 943:20 992: 15 993:10 999:17 1036:8 1042:14,21 1044:16 1049: 21 1051:1 1063:25 1067: 24 1070:13 coolable [3] 994:14,14,15 coolant [1] 1041:13 cooled [7] 965:7,24 1005: 11 1022:23 1054:7 1074:9 1090:18 cooler [2] 998:18 999:14 cooling [137] 849:17 854:1, 13 860:7 861:25 862:3 904:22 920:8 923:12,14,16	924:7 927:14 928:11 929: 9,12,13 930:8,11 933:14 934:14,22,23,24 939:9,23 940:8,25 941:2,3,21 943:9, 16,17,19,20 944:1,5,7 954: 4 962:17 963:8,10,10 965: 13,22,25 967:9 987:17 988: 3,4,7,8,9,14,18 989:1,24 993:9,14,18 994:3 995:20 997:11,12,13,14 998:6 999: 25 1000:15,16,17,19,19,20, 21 1001:3,4 1002:3,13,23, 24 1003:1,10,11,12,14 1005:1 1006:22 1009:23 1010:1,22 1011:11,12,15, 16,18,25 1012:1,2,16 1027: 10 1035:19,20,21,23 1036: 2,3,6,7,13 1037:15 1039: 19 1044:1 1051:5 1054:21 1055:20,21,25 1056:1 1068:23 1070:7,7,8 1071:4, 6 1074:15,16 1077:4 1079: 3 1084:3 1090:5 1099:7 1113:13,15,17 1114:14 copies [3] 895:15,15 917: 12 copy [6] 878:7 891:21 921: 23 939:1 962:14 1110:15 copying [2] 1032:8,20 copyright [1] 876:16 core [32] 884:4 945:14 946: 2,8 947:20 948:7,9,12 949: 5 950:3,7,10,21 951:2 956: 6 1061:2 1071:21,25 1073: 6 1076:4 1077:7,11,15 1078:6,10,14,20 1115:1,4, 7,11,17 corner [1] 953:17 corners [1] 1045:3 Corporation [3] 841:5 889: 13 905:13 Corporation's [1] 905:17 correct [221] 847:4,5 848:5 866:7 867:11 870:8,9,23, 24 871:9 873:1 875:6 876: 23 878:13,21,22 880:7,13, 19,25 881:12,13 885:22,23 889:19 898:11,12,17,18 899:1,5,6,16,24 900:16 901:24 902:2,7,8,20,24 903:16 904:21 905:4,22 906:5,24,25 908:4,6,12,17 910:15 911:7,16,23 912:2, 6,23 916:13 929:1 938:7,8, 9,10,12,13,14,15 940:13 963:3 977:14 980:4 996: 13 1001:16 1009:21 1028: 19,23 1032:24 1033:25 1036:18 1039:3,12,16 1040:6,9 1041:22,23 1042: 12,13 1043:13,21,23 1044: 3,12,17,20 1045:4,12,23	1046:4,15,20 1047:21 1048:7 1049:6,10 1050:3, 14 1051:2,15 1055:5 1056: 6,7,23 1057:3,5,6 1058:24 1059:16,20 1060:8 1061: 21 1065:4 1066:15 1068: 14 1070:13,14 1071:23,25 1072:1,4,10,22 1073:2,3, 11,12,18,20,21 1074:23 1075:1,18 1076:20,23 1077:1,2,15 1078:21 1079: 4 1080:2,9,10,14 1081:24 1082:7,10,11,14,22 1086: 19,20,23 1089:19 1090:3 1091:20,21 1092:17 1093: 7,11,16,19,20 1095:2 1096: 3 1098:23 1099:8 1100:3 1101:6,10 1103:2,5,6,8,12, 15 1104:3,6,7,9,12,13,16, 17,24,25 1105:3,4,14,15, 18,21,23 1106:2,5,12,20 1107:3,15 1109:13,17 1110:2 1111:6,8 1112:19 1114:4 1115:2,14,23 1135: 23 correctly [23] 861:18 870:3 874:9,15,16 875:14,22 879: 8,18 901:13 904:12 914:10 915:1 1034:9 1041:11,16, 17 1042:8,9 1066:23 1111: 7,8 1113:1 correlated [1] 1028:21 correlates [2] 858:16,17 correspond [1] 986:6 counsel [18] 844:23 845:7, 17 846:11 882:8,20 883:13 884:19 969:11 971:23 981: 1 986:4 1069:19 1086:10 1110:13 1111:2 1112:1 1119:19 counsel's [4] 922:14 975:7 1021:5 1116:7 counted [1] 1089:18 counterflow [1] 1024:4 couple [10] 882:7,21 889: 10 919:21 943:13 945:8 1014:9 1043:24 1079:14 1091:2 coupled [1] 992:17 couples [1] 1034:21 course [6] 861:2 866:23 895:19 925:6 935:12 964: 14 Court [25] 887:6 900:5 917: 12 918:5 922:24 924:21 925:2 930:17,20 931:20,22 932:1 935:8 940:20 941: 11 942:25 964:14 965:19 991:17 1052:21 1107:2 1109:5 1118:7 1135:16,25 Court's [3] 925:9 963:22, 24
--	---	--	---	--

Courtroom [7] 838:21 866:15,19 878:8 969:13 986:12 1135:6 cover [85] 931:8,13 932:5 939:2,22,22 940:7 941:3,12,15,17,19,24 942:12,14 943:4,14,19 944:11 952:6 953:6,12,14 954:1 956:21,24 957:17,20,25 961:2,19,19,23 962:1,12 965:1,3,5,9 987:5 1010:9,12 1013:11 1014:3,7,19 1017:9 1020:8 1026:8 1027:18,22 1030:7,22 1038:4 1040:10 1056:19 1057:5,8 1059:3 1060:17 1061:15 1062:8,21,24 1063:17 1068:21 1070:17,17,19,20,22 1074:5,5 1079:17,18 1080:1,4,9,12,17,19,23 1092:24 1094:17 1095:20 coverage [1] 1062:2 covered [6] 888:9 953:1 1061:19,20,23 1102:23 covering [3] 961:15 962:5,7 covers [4] 896:4 931:9 939:16 1094:12 CPU [2] 1093:8,9 CRAIG [1] 840:4 create [14] 891:10 896:1 899:19 902:14,18 906:19 912:7 929:22 930:1 955:19 964:24 968:2 985:4 987:22 created [41] 849:23,24 854:23,24,25 855:12,13,14 862:17 870:1 891:5,7 893:20,21,21,22 894:5,6,19,23 895:21 896:12 897:22,23 899:15,17 901:18,25 906:11 911:6,7,10,17 912:6,23 916:21 941:4 944:10 975:19 1085:9 1111:3 creates [3] 932:9 1023:12 1069:14 creating [12] 855:23 856:4 859:1 864:11 888:20 890:1 893:4 894:17,21 905:23 911:19 916:17 creation [7] 850:4 901:10 902:11 911:15 912:13 915:6 916:20 Credelle [6] 934:1,3 957:23,24 958:3 968:3 Credelle's [1] 934:10 credibility [1] 977:25 credits [1] 883:20 cross [13] 898:2 982:4 1004:13,17 1038:13 1048:13 1081:17,19,20 1090:24 1110:24 1121:3 1133:14	cross-examination [14] 844:12 845:10,23 846:4 865:8 898:4 922:13 1038:20 1110:23,25 1114:19 1116:7 1117:2 1130:10 cross-examine [2] 977:22 978:1 cross-examined [1] 846:17 cross-section [31] 928:5 933:1,3 936:21 940:1 962:21 988:23 989:11,13,20,23 1001:10,11 1015:10,14 1017:18 1056:9,11 1082:6,9,13,16,18 1084:20 1085:19 1086:2 1113:6,23,24 1114:2,4 crossing [1] 1091:13 CRR [1] 838:25 CRT [1] 1018:5 CRTs [1] 1009:5 crude [1] 1111:18 crystal [22] 919:19 940:17,21 944:25 945:1,5,5,7,9,11,13,21 947:24 949:16,18,25 962:23 963:7,16 966:24 991:4 1076:11 CubicArt [4] 888:17,22 889:2 895:19 cumulative [3] 1094:24 1095:4,8 current [3] 866:15 889:11 919:12 currently [1] 919:14 custom [6] 891:7,10 892:1,11 916:18,20 customer [3] 870:21 889:3 896:1 customers [4] 851:6 852:22 862:16 889:1 cut [1] 1113:8 cutout [2] 1034:3,12 cutting [1] 1080:18 CV [2] 921:23 1041:8 CX-0029C [1] 1130:14 CX-0044C [1] 1130:15 CX-0245 [1] 1130:16 CX-0280 [1] 1130:17 CX-0325C [1] 1130:18 CX-0383C [1] 1130:19 CX-0420C [1] 1130:20 CX-1093C [1] 1130:21 CX-1095C [1] 1130:22 CX-1096C [1] 1130:23 CX-1106C [1] 1130:24 CX-1107C [1] 1130:25 CX-1141C [1] 1131:1 CX-1704C [3] 846:5 1131:2 1133:15 CX-1711 [1] 1131:3 CX-1711C [1] 1133:16 CX-1771C [1] 1131:4	CX-1772C [1] 1131:5 CX-1857C [1] 1133:17 CX-1893 [1] 1040:5 CX-1894 [1] 868:21 CX-1896C [1] 900:19 CX-2042 [1] 1131:6 CX-241 [1] 877:3 CX-2508 [1] 879:21 CX-2508C [1] 884:18 CX-2511 [2] 867:4 868:1 CX-2515 [1] 881:1 CX-2523 [1] 909:7 CX-2564 [2] 907:3,4 CX-29C [1] 846:2 D D.C [7] 838:2,15 839:8 841:13 843:6 865:15,21 d/b/a [1] 841:5 daily [1] 1015:25 damaged [1] 854:6 DARIO [1] 839:11 DARRYL [1] 841:15 dashed [1] 983:25 data [2] 909:16 1119:13 date [19] 851:22 856:21,21 867:19 871:14 875:5,13 877:18 895:8 897:23 898:16 901:10 902:11,18,18 907:18 923:22 1135:5,10 dated [3] 873:24 874:2 878:6 dates [3] 923:18,19 1106:25 dating [1] 1009:6 DAVID [1] 839:18 day [3] 866:8,11,15 days [1] 850:2 Dean [6] 844:11 845:1,23 846:4 1121:24 1133:14 December [9] 871:1,5,8 905:1,4,7 959:13 1017:12,13 deck [2] 919:23 1114:16 dedicated [1] 1003:22 deep [1] 954:17 defer [1] 846:25 define [3] 859:19 861:7 935:15 defined [2] 1046:23 1047:6 defines [1] 1037:3 defining [2] 935:4 942:22 definitely [4] 911:18 912:21 1051:10 1097:14 definition [3] 920:24 921:6 923:5 definitions [1] 921:3 degree [3] 866:4 888:6 1066:18 degrees [2] 852:9 942:13 dehumidifier [4] 1039:15,24 1041:7 1042:20 deleted [1] 1114:10	delineate [1] 983:11 delineated [1] 985:17 delivered [1] 882:12 demonstrate [2] 879:4 1068:1 demonstration [1] 879:2 demonstrative [23] 976:8 986:5 1019:9,12,13,14 1041:19 1046:9 1047:10 1048:13 1056:4 1057:15 1071:10,10 1078:19 1081:19 1090:23 1096:7 1097:10 1105:13 1109:15 1114:16 1118:25 demonstratives [11] 918:22 975:5 977:19 985:24 1061:12 1075:7 1081:18,20 1090:24 1102:25 1110:13 DENISE [2] 842:14 844:9 density [2] 1006:19 1009:7 depending [2] 979:2 1052:12 depends [2] 961:7 966:16 depict [3] 1063:19 1117:12,15 depicted [6] 932:13 948:24 1063:22 1113:16 1116:10 1117:15 depicting [2] 906:16,24 depiction [2] 1069:21 1114:4 depicts [1] 924:5 deployed [2] 871:24 1115:9 deposed [3] 868:10 1040:6,8 deposition [16] 867:14,22 868:17 869:11 877:21 900:2,12,16 903:16 922:24 979:8 985:11 1020:18 1040:11 1088:18 1107:6 depth [2] 1113:7,24 derived [3] 895:2 897:20 899:16 describe [7] 853:18 929:9 954:21 1000:25 1035:16 1082:19 1111:24 described [16] 870:14 915:4 924:4 947:10 955:7 957:8 972:3 994:17 1003:9 1004:6 1012:14 1017:19 1019:19 1035:22 1100:2 1101:2 describes [8] 884:15 942:22 980:5 983:2 985:16 1035:2 1069:25 1099:10 describing [3] 1070:5 1099:15 1100:25 description [9] 926:7,11 932:2 1032:22 1033:2,4,11,13 1055:18	descriptive [1] 896:1 design [32] 849:24 854:21,25 861:21 869:25 875:18 887:18,20,21 888:12,15,17,21 890:16,17 891:15 892:12,23 893:19 896:5 898:11,14,21 913:11,13 916:22 920:6,20 948:1 1041:7 1045:24 1107:24 designate [1] 983:6 designated [4] 985:20 986:6 992:21 1019:6 designed [2] 988:1 1000:7 designer [6] 887:12,13,14,25 888:1,7 designing [4] 890:18 892:1 1039:2,10 designs [8] 849:1 858:10,13,20 860:9 874:8 888:23 892:11 desire [1] 1054:21 desist [2] 871:12,16 desktop [1] 960:20 despite [1] 916:14 detail [4] 860:17 996:8 1017:19 1044:9 detailed [2] 890:16,17 detailing [1] 890:18 details [2] 930:10 1091:3 determine [4] 948:3,8 1045:2 1119:8 determined [2] 947:23 1112:10 detrimental [1] 977:25 develop [2] 884:3 887:15 developed [5] 848:20 888:12,19 1041:9 1043:3 developer [1] 919:16 developing [2] 859:11 861:7 development [5] 852:25 869:22 883:17,20,21 developments [1] 864:14 device [44] 904:23 919:15,16 927:14 929:12 948:20,21 949:16,18,23 954:16 959:13 960:11 987:13,24,25 988:12,18 992:25 993:14,21 994:19 998:15 1001:17,20 1002:8,19,21 1003:4 1011:11,12,14 1012:4 1013:24 1017:18 1024:17 1025:3 1028:24 1029:17 1055:20 1056:1 1073:10 1078:2 1086:14 devices [1] 860:7 diagnostic [2] 919:16,16 diagram [1] 910:3 dial [1] 1081:7 die [2] 920:21 948:14 differ [1] 1104:2 difference [4] 1076:17,20
---	--	--	--	---

1106:9,10 differences [3] 956:5 1006:7 1072:20 different [31] 860:16 866:25 868:24 872:13 893:11 903:3,11 911:24,24 912:19 965:10 970:16 977:6 979:9 985:9,10 1014:9 1020:18 1021:10 1041:10 1052:7,8 1071:6 1083:13 1094:25 1095:9 1106:4,8 1119:1,2,3 differently [2] 975:22 985:11 differs [1] 1105:12 difficult [3] 853:6 984:15 1014:24 difficulty [1] 960:24 diffusers [1] 1074:24 Digital [28] 841:6 847:24 848:2,16 849:11 850:2 851:6 852:8 855:8,20 861:22,22 864:12 870:18 875:18 879:25 881:11 884:3,9 887:22 893:1,9,12,19 909:13 914:5,14,23 dimensions [8] 1045:14 1046:3 1051:16,17,19 1082:21,23 1101:9 diodes [1] 946:18 dire [1] 922:12 direct [60] 844:11,16 845:1,21 846:1 847:12 867:11 868:5 870:10 871:4,20 876:4 878:18 882:9,19 887:3 888:25 889:6 898:10 899:8,14 900:23 901:19 902:11 904:3 906:20 914:8,15 915:13 916:17 918:1 922:14 934:18 972:7 1041:20,21 1043:1 1044:13 1066:20 1071:13,21 1073:6 1076:3 1079:11,14 1087:17,20,21 1089:6 1090:23 1094:23 1095:7 1103:2 1110:22 1112:24 1116:3 1121:3,14,24 1130:13 direct-lit [3] 1073:20 1074:6,24 directed [2] 1024:23 1117:6 Directing [2] 859:23 992:7 direction [13] 1063:25 1064:1,4,23 1066:1,3,12 1068:11 1093:13 1112:5,12,13,14 directions [10] 903:11 930:12 1013:21 1024:14 1063:14 1065:2 1067:20 1068:5,6,7 directly [3] 862:20 885:8 958:8	director [3] 863:4 866:6 873:5 dirt [1] 993:3 dirty [2] 933:15 934:19 disagree [8] 934:7 958:4 968:7 1067:20 1069:18,20 1085:25 1102:18 disagreeing [1] 1069:8 discharged [1] 1064:22 disclose [61] 929:4 931:3,25 934:4 935:22 940:15,25 945:3 957:25 963:5,8 964:16 965:18 966:20 967:20 968:4 990:17 991:21 993:7 996:15 997:7 999:21 1001:17 1002:21 1005:7 1007:15,21 1009:23 1010:11,19,24 1011:13 1012:4,11 1013:9 1016:12 1018:1 1022:5,10,19 1023:20,25 1024:1,17 1025:3,19 1026:10 1027:9,14,18 1028:1,5,10,24 1029:16 1030:1,6,8 1031:2 1033:6 1038:10 disclosed [21] 929:14 939:16 944:19 950:16 951:3 960:9,25 972:8 973:9 977:7 978:3 990:22 997:17 1001:20 1030:12,24 1037:21 1039:18 1054:5 1100:7 1113:17 discloses [81] 928:15 929:5,11 930:7,9,23 932:3 935:24 937:10 945:4,19 946:17 947:19 951:20,21 954:16 956:19,21 959:22 963:6,10 965:20 966:14,21 967:21 985:9 990:19 993:9,25 995:3 996:17 997:18,20 998:4 1001:1 1002:23 1005:9 1007:13,23 1010:1,4,13,21 1011:15 1012:5,15,19,21 1013:11 1014:11 1016:13 1018:2 1019:2 1022:13,21,23 1024:3,18 1025:6,15 1026:4,15 1027:20 1028:9,12 1029:2,4 1030:3 1031:5,7 1053:1,8 1054:3,6,6 1069:15 1070:16 1079:9 1091:18 1093:17 1108:7 disclosing [4] 976:14 1004:22 1052:16,17 disclosure [9] 959:1 976:7 981:4 985:15 1026:16 1066:11,13 1069:9,18 disclosures [4] 959:3 976:10,12 992:14 discover [2] 1115:11,17 discrepancy [4] 978:16,17,18,19 discuss [8] 852:16 853:17	870:5 964:9 980:22 1017:22 1044:1 1094:23 discussed [24] 855:19 894:20 899:8 909:18 933:6 969:9 980:23 994:23 997:10 1010:2,5,22 1011:1 1015:2 1028:4,7,13 1030:15 1089:7,14 1091:25 1108:16 1109:19 1119:22 discusses [3] 916:6 975:24 995:19 discussing [5] 880:5 901:8 902:25 975:4 1094:19 discussion [3] 972:1 1012:24 1033:18 dismiss [1] 1117:25 display [348] 848:19,25 849:11 855:20 859:10 864:22 870:21 882:12,15 884:3 886:3 890:22,24 891:1,3,13 892:8 893:12 913:23 914:6,23 923:1,15,17 927:14,20 928:7,8,9,19,20 929:4,5,6,8,10,12,13,14,16,17,19,21 930:2,5,8,14,14,21,22,25 931:3,9,9,19 932:12,15,16,21,22 933:1,4,14,22 934:22 936:4,23,25 937:1 939:9,16 940:3,15,16,17,18,19,19,22 941:1,7,9,25 942:24 943:11 944:3,10,25 945:5,5,21 947:24 948:2 949:16,18,23 950:16,23 954:4,11,13 955:7 957:18 958:11,12 959:2,13,17,19,19,23,25 960:11,14,17,17,19 961:15,16 962:2 963:5,7,7,9,12,13,14,15,17,18,25 964:2,3,6,11 965:2,4,5,14,17 966:2,18,23 967:2,4,11 968:1,1,15 975:18,19,20 976:6 978:8,13,20,22 979:2,3,5,7 980:19,22,23 981:14 983:3,18,21,22 984:8,9,10,11,21,22 985:2,2,4,5,5,14,17,18 987:13,19,25 988:11,24,24 989:6,15 990:1,4,5,16,17,19,20,21,22 991:4,9,10,12,20 992:4,7,8,16,25 993:15,16,24 994:15 995:25 996:15,17,18 998:8 1000:4,21 1001:12,21,22 1002:5 1004:25 1005:1 1006:24 1007:21 1008:4,4,5 1009:1,15,16,17 1010:2,4,17,18 1011:4,4 1012:9 1013:8 1015:3,18 1018:1,2,3,3,4,4,5,6,7,12,13,20,21 1019:2,3,6,18 1020:1,1,6,6,8,9,11,11,17,17,18,19 1021:9,25 1022:4,12 1023:11,12,13,17 1025:1,19,20	1026:5,9,11,16,20 1027:4,17,23 1030:15,20 1031:11 1033:14,16,21,23 1034:7,24,25 1035:2,18 1036:9,23 1037:6,8 1039:2,10 1044:2 1054:7 1055:19,21 1056:9 1076:12 1084:4,11 1085:11 1086:18 1090:15,18 1093:2,3,6,7 1099:7,17 1103:7,9 1106:11,17 1107:14,22 1108:8,8,12,17,20 1109:1,17,25 1113:12,17 1117:13,16 displayed [3] 876:21 892:24 929:8 displaying [3] 848:23 863:1 985:2 DISPLAYS [48] 838:8 848:18 850:16 851:7 852:3,8 854:2 860:16 861:22,22,24 862:6,8 864:12 871:23 880:1 881:12 884:9 891:6 892:13 897:7 909:13 914:5,14 919:19,23,25 920:1,2,7,11,13 922:7,8 946:12 953:18,22 958:19 985:9 1004:23 1027:1 1041:24 1042:2,3 1089:1 1090:12 1099:6 1135:3 disposed [1] 1084:12 disrupting [1] 934:22 dissipation [1] 948:4 distance [2] 1008:2 1111:16 distances [1] 1045:15 distributed [3] 946:19 1074:8 1077:8 diverging [2] 933:12 934:21 diverse [2] 941:20 943:15 divided [6] 928:24 940:11 944:21 990:11 996:9 1007:17 document [51] 849:7 856:23 857:6 863:8 867:21 872:14 873:19,24 874:3,25 875:1,8 876:3,17 877:1,16 878:4,23 881:14 883:14,22 887:15 891:14,18,20,24 893:15,24 894:1,9 895:12 897:1,3,8,18 899:11 909:9 921:14,22 927:11 939:1,5 954:1 959:11,12 962:14 987:6,7 1013:6 1017:10 1045:24 documentation [1] 892:6 documents [4] 866:23,24 867:22 1095:25 doghouse [1] 1006:23 doing [7] 883:21 889:11,14 890:16 902:6 1048:15 1088:25	domestic [1] 1043:8 done [4] 895:16 1015:25 1037:12 1041:7 dot [1] 1058:9 dotted [8] 972:4 1024:14 1026:18 1109:13,16,24 1116:17,18 double [1] 848:19 double-sided [1] 893:18 doubt [1] 991:13 DOUGLAS [1] 842:3 down [45] 850:22 852:22 863:5 870:25 874:2,17 878:10,24 879:10,20,23 880:15 886:8,10 892:16 901:3 904:24 909:6,16 910:8 914:3 917:4,5 928:7 977:5 979:21 989:21,23 990:3 1006:7 1015:14 1034:15 1037:2,10 1042:25 1055:15 1056:8 1064:2 1066:12 1067:25 1070:2 1081:16 1087:5 1094:5,21 downstream [1] 1029:11 downward [3] 943:8 1066:1,19 drag [3] 1050:11,12,16 draw [11] 858:7,8 928:17 947:13 993:15 1025:7,8 1029:6 1069:12 1083:6 1117:9 drawing [4] 858:23 937:3 1067:17 1104:16 drawings [8] 911:6,10 912:6,7,8,10 1044:23 1045:18 drawn [5] 928:16 989:8 1022:15 1028:14 1064:4 drawn-in [1] 976:6 draws [4] 936:8 944:9 989:7 997:12 drew [6] 858:5 975:17 980:19 1104:8 1106:12,17 drive [5] 1012:1,8 1058:4 1076:8,10 driven [3] 950:24 967:22 988:11 driver [1] 1114:11 driving [34] 962:24,25 964:18,22 965:1,8,11,20,22 966:6,25 968:11 1077:24 1078:11 1079:2 1083:16,17,19,20,24 1084:7,11,14,18,19,22,22 1085:3,10,20 1086:13,17,22 1087:2 drying [4] 1039:15,24 1041:8 1042:17 DSE [13] 848:4,6 850:23 851:4,19 852:1 857:21 869:23 876:11,21 893:1,5 895:5 dual [1] 1004:16 ducting [8] 992:2,5 1001:2,
--	---	--	--	---

6 1008:3,3 1011:5 1015:17 ducts [1] 1001:7 due [3] 861:2 1024:21 1029:19 duly [3] 847:10 886:25 917:21 Dunn [24] 851:18,24 853:10,14 855:2,23 856:11 857:7,13 858:4,15,19,22 863:15,23 864:16 871:1,5,7 873:20 878:19 879:1,16 886:2 Dunn's [1] 856:1 during [21] 866:20 867:11,22 868:5 870:10 876:3,11,12 877:20 878:18 891:14 905:15 922:13 1040:1 1044:13 1095:1,16 1110:22,24 1114:18 1116:7 dust [1] 993:3 Dwayne [7] 849:25 854:24 855:14 886:13,24 887:7 1121:5 dynamics [1] 1044:23 E E-3 [1] 1088:7 e-mail [21] 851:12,13,14,18,22,24 852:2,15 855:2,10,21 856:11 859:8 860:25 867:10,25 870:7,8,14 874:5 882:24 each [14] 852:9 891:1 923:19 937:10 944:18 947:19 951:20,21 966:14 968:10 995:3 1006:8 1007:13 1025:15 earlier [14] 855:19 909:3 919:22 934:1 937:12 955:8 957:8,23 960:6 977:9 1004:8 1017:25 1030:13 1109:19 earliest [1] 923:19 early [2] 947:25 969:1 ease [1] 954:10 easier [3] 874:19 929:1 1047:17 easiest [1] 1062:23 Eastern [1] 838:22 easy [5] 953:4 1030:23 1080:23 1081:3,12 easy-to-implement [1] 960:22 economically [1] 884:5 edge [2] 1063:23 1073:19 edge-light [1] 1074:17 edge-lit [4] 1073:24 1074:5,20 1115:10 edges [7] 933:23,23 942:19 957:20 961:25 1008:7 1074:16 educational [2] 919:1,5 effect [4] 944:16 1112:7,12	1113:15 effectively [1] 950:11 efficiency [4] 949:1 950:25 1051:5 1070:8 efficiently [5] 941:21 943:16,20 948:19 1070:8 Eighth [1] 842:17 either [10] 875:20 905:17 1033:18 1043:6 1049:10 1064:13 1074:12 1096:6 1112:4 1117:2 electrical [1] 1034:3 electrically [1] 930:1 electromagnetic [2] 1013:21,24 ELECTRONIC [65] 838:8 920:11 922:6,8 923:1,15,17 927:19 929:4,10,14 930:5,8 931:3 939:15 940:15,18 941:1 953:18,22 954:4 958:19 959:2 963:5,7,9,13,18 965:17 966:2,17 987:10 990:16,17 996:15,15,19,21 997:4,8,17 1004:23 1007:25 1009:23 1010:2,4 1018:1,8,12 1019:2,3 1022:11 1027:10,12,15 1033:14,16 1034:19,20 1035:2 1036:23 1075:20 1090:12 1099:16 1135:2 electronically [1] 929:21 Electronics [22] 841:2,3 851:7 854:5 920:17 939:21 946:12 953:16 964:3,7,10 1006:23,25 1009:6 1033:15 1035:3 1042:22 1060:11,13 1061:20 1079:20 1080:12 element [76] 904:22 913:7 937:1 942:7 944:6,25 945:12 947:1,19 948:5 951:5 958:15,15 964:13 966:21 976:10 987:18,25 988:25 989:6 990:2,4,20 991:3,10,15 992:3,4,7,8 993:5 994:2,13 995:23 996:17 997:11,15,20,24 999:15,16,18 1001:4,21 1004:2 1007:14 1008:5,5,24 1009:22 1010:5,23 1011:2,4 1012:14 1013:19 1015:18 1017:25 1018:20,22 1019:19 1021:11 1025:15 1027:13 1028:3,5,6 1030:9 1033:12 1035:9 1072:2 1077:1 1083:16 1108:7,17 1119:3 element-by-element [1] 940:14 elements [64] 927:21 928:19 929:2,3,20 930:10 933:3 937:10 939:17 940:4,12 942:13,14 944:18,22 945:3	947:6,8 951:21,22 957:21 959:24 961:5 962:23 963:4 966:15 967:22,24,25 968:10 986:3,6 988:3,4,5,18 989:1,24 990:12,13 993:11 994:3 995:3 996:11 999:11,12,25 1000:20 1001:7 1005:15 1007:17,18 1009:19,25 1012:16,19,22 1017:23 1021:8,13 1032:18 1038:8 1060:25 1076:23 elevation [1] 1084:2 ELIZABETH [1] 841:21 ELMO [1] 1110:16 Embarcadero [1] 841:17 embarked [1] 884:2 embodiment [5] 1001:2 1035:18 1061:18 1091:24,25 embodiments [4] 1000:25 1036:12 1099:11,15 Embry-Riddle [1] 919:10 emit [1] 991:10 emitted [1] 946:24 employ [1] 866:1 employee [3] 899:1,5 908:15 employees [1] 898:19 employer [2] 889:12,12 employment [2] 888:25 1088:23 enable [2] 993:1 1011:10 encased [1] 945:9 enclosed [5] 932:22,23 987:22 1093:24 1094:1 enclosure [25] 849:17 850:10,11 855:8 859:9 884:10 890:16,20,22 891:4,6 892:10,13 893:19 894:3,13,16,16,20,24 899:17 901:22 904:15,16 914:22 Enclosures [2] 841:5 893:12 end [13] 847:23 848:7 868:2 871:19 872:12 898:13,21 899:5 914:21 1084:9 1085:20 1086:4 1098:13 ending [2] 909:10,17 ends [6] 845:5,11 846:2,5 877:9 907:15 energizing [2] 1018:14,14 energy [23] 995:24 996:4 1000:20 1008:20,22,23 1009:2,4,11,14 1012:23 1013:1,10 1014:1,6 1015:3,3 1016:8 1030:6,8,11,19 1031:2 engage [1] 959:24 engineer [3] 854:25 919:15 1042:7 engineering [4] 888:6,10 919:8,10	engineers [1] 849:25 enjoyed [1] 1099:5 enough [8] 857:4 921:19 1033:6 1048:2 1054:13 1062:12 1063:25 1118:25 ensure [3] 866:22 875:17 948:18 enter [2] 967:16 1099:22 entered [1] 846:18 entering [5] 846:15 966:6 1014:6 1038:2 1091:19 entertain [1] 986:3 entertainment [1] 1005:1 entire [12] 847:6 877:1 914:18 965:5,24 968:1,2 978:23 985:7 1113:11 1116:10 1117:12 entirely [1] 985:21 entitled [3] 844:16 846:3 1013:7 entrance [11] 935:5,22,24 942:23 943:23 944:1 967:13 1037:22,23 1047:12,19 entrances [6] 933:18 1038:1 1046:16,22 1047:2 1053:10 entry [4] 967:5 1050:19 1051:17 1054:5 envelope [1] 892:10 environment [5] 897:13 898:24 914:6 920:19 948:1 environments [3] 914:15 1042:4,6 equalizing [2] 1002:5 1008:6 escape [1] 944:3 especially [2] 956:16 992:17 ESQ [28] 839:5,11,12,17,18,19 840:4,5,6,7,12 841:7,8,9,10,15,20,21,22 842:3,4,5,6,7,12,13,14 843:2 Essentially [6] 890:18 928:6 934:23 992:23 1000:6 1113:22 established [2] 1067:16,17 estate [2] 852:11 853:8 et [2] 1028:7 1097:5 Eugene [1] 918:9 Even [10] 874:12 883:1 905:6 911:9 936:10 960:19 970:9 1048:5 1078:16 1099:7 event [2] 954:25 1004:5 eventually [1] 1078:14 everyone [1] 971:20 everything [4] 879:22 1020:22 1080:23 1103:7 everywhere [1] 867:7 evidence [6] 844:24 845:8,	18 846:12 848:25 1032:18 evident [1] 966:3 EVIDENTIARY [2] 838:19 1135:7 exact [2] 857:23 960:8 exactly [8] 868:7 869:21 874:4 979:8 986:5 1072:17,18 1087:12 exam [5] 868:5 871:4,20 876:4 878:19 examination [21] 844:11,16 845:1,21 846:1 847:6,12 867:11 882:5 887:3 899:8 918:1 969:12 1021:5 1110:19,22 1112:24 1121:14,24 1130:13 1133:14 examined [3] 847:10 886:25 917:21 examiner [1] 1095:16 example [13] 949:10 953:6 968:12 971:17,24,25 972:20 973:1 976:22 977:9 1004:24 1040:1 1071:20 examples [10] 919:21 949:4 953:21 958:20 959:5 1004:10,21 1012:25 1035:4 1039:19 except [1] 933:18 exception [4] 933:5 947:20 1012:23 1038:5 excerpt [2] 927:8 1068:20 excess [1] 1000:20 exchanger [56] 882:13 904:23 923:16 995:22 997:25 998:14,19,21,24 999:4,9,10,12,21,23 1000:10,22 1001:25 1002:20 1003:7,21 1004:3,4,14,17 1005:16,20,24,25 1006:12,16 1007:5 1008:18 1012:11,15 1023:15,20 1024:2,3,5,8,10,24 1025:2,5,8,10 1030:1,2,3,5 1099:11,22 1100:1,6 1101:17 exchangers [11] 970:9,14,17 972:17 973:11,18,20 996:1 1004:6,22 1006:16 excuse [4] 907:5 969:24 970:1 1005:18 executive [1] 866:5 exemplary [2] 1035:18 1099:15 exhaust [9] 854:8 1011:21 1028:15 1029:4,5,9,10,12 1112:14 exhausted [1] 850:21 exhausting [2] 854:11 937:3 Exhibit [23] 844:17 846:2 867:14,16 868:1 869:20 899:7 901:6 902:25 906:8,
--	--	---	--	---

9,10 908:25 909:2 915:9 1090:24 1092:20 1096:12, 14 1097:11 1105:7 1109: 15 1121:13 exhibits [25] 844:10,12,15, 16,19,21,23 845:1,5,7,9,13, 15,17,20,21 846:1,3,7,9,11, 15,18 866:23 921:13 exist [2] 1008:7 1047:7 existence [2] 1115:11,17 exit [18] 935:5,22 942:23 943:7,23 952:1,13,14,18 988:12 1037:22,23,25 1046:17 1048:6 1066:21 1092:8,8 exited [1] 970:3 exiting [1] 952:17 exits [6] 928:20 933:19 1003:5 1046:16,22 1047:2 expand [3] 1062:25 1063:7 1113:14 expect [3] 847:6 865:20 879:5 expectation [5] 955:16 1007:4 1015:21 1030:18 1120:1 expected [1] 876:24 expelled [2] 1022:16 1028: 16 expenses [1] 865:21 experience [11] 894:22 919:2,18 920:3,9 923:1 925:9 1039:13,22 1041:1 1042:10 experiences [1] 888:13 Experimental [1] 883:19 expert [35] 904:11 922:6,25 970:13 971:3,15 972:15,20 975:15,16 976:11 978:7,9, 9,14 979:1 980:12 981:9 982:5,19 983:14,24 984:23 985:13 986:2 1039:1,9 1040:13,16,20 1076:1 1103:14 1104:2 1117:3 1118:5 expert's [1] 970:15 explained [5] 853:4 854: 10 972:2 1104:10 1113:24 explaining [4] 851:19 859: 17 863:11 1084:14 explains [2] 1055:24 1077: 23 explanation [1] 859:16 exploded [23] 849:15,21 855:20 894:14,23 897:11 899:19 901:25 905:24 939: 15 940:2 949:23 951:7 958:7 1001:6 1057:1 1059: 9,11,21 1065:8 1067:5,6 1075:25 Expo [3] 847:24 848:16 850:3	exposed [1] 914:7 Exposition [1] 893:1 exposures [1] 920:19 express [3] 959:1 972:11 1083:23 expressed [1] 979:19 expression [1] 999:9 expressly [1] 983:11 extended [2] 975:18 1104: 15 extending [1] 994:6 extends [2] 1083:4,7 extensive [2] 944:3 1022:3 extent [3] 984:21 985:25 1021:1 external [2] 854:6 967:15 extra [2] 960:10 1016:18 extract [1] 895:25 extracted [1] 850:18 extreme [2] 914:8,15 F F-22 [1] 920:4 face [3] 856:15 972:11 1096:10 facility [2] 905:9,17 fact [12] 896:8 905:6 906:3 916:11 921:5 949:7 968: 11 970:15 977:8 1025:14 1033:20 1091:22 failures [2] 1032:8,19 Fair [40] 857:4 905:8 908: 16 912:17 926:14,14 940: 12 967:12 1045:1 1048:2 1050:15 1054:13 1055:11, 12,25 1062:12 1064:6 1066:7 1067:19,20 1070: 23 1072:16 1074:6 1075: 11,17,22 1078:9,12 1084: 21 1085:2 1089:24 1090:1 1093:10 1094:1 1095:11 1096:5,20 1101:15 1109:2 1110:1 fairly [3] 951:4 953:13 1068: 1 fairness [1] 982:3 familiar [7] 847:24 904:5 928:10 933:25 990:11 1003:16 1073:14 fan [83] 928:17 933:8 936:7, 9,10 939:23 940:8 941:2,3, 21 943:9,16,20 944:1,5,7 947:12 951:25 952:4,13 953:10,11 962:17,25 963: 10 965:20,22,25 966:5,25, 25 967:9,21,25 968:10 978: 21,24 985:8 1001:19,23 1024:18,20,21,21 1025:6 1029:3,4,4,11,11,22 1050: 20 1052:13 1053:18 1054: 4 1055:4 1064:5 1065:12 1066:20 1068:12,13,23 1069:15 1070:7,16,16	1071:1 1077:4 1079:3 1084:3 1092:8 1093:9,13, 13,14,21,24 1112:4,8,13, 14,16 1114:13 fans [50] 937:2 967:20 968: 4,9,17 988:17 993:15 994: 17,22 1001:23 1002:6,6,23 1003:6,10 1011:15,18,20, 20,25 1012:5,7 1022:16,17 1024:21 1025:6,8 1028:15, 16 1029:6,8,13,19 1037:20 1038:6 1039:16,25 1041:9, 9 1050:8 1051:21,22 1052: 4,5,7 1053:10 1055:10 1090:17 1098:14,22 FAPR [1] 838:25 far [7] 880:16,21 902:4 944: 3 971:8 1052:12 1053:18 fashion [1] 1033:6 fasteners [1] 953:3 faster [1] 1041:14 fault [1] 1112:17 favor [1] 869:14 features [1] 1044:15 February [15] 848:7 850:23 867:19 868:10 869:12 893: 3 895:6 896:9,9,21,24 900: 1,3 902:22 903:16 feel [2] 977:23,24 feels [2] 1031:23 1110:11 felt [1] 863:12 few [7] 865:3 867:25 868: 24 883:13 884:19 1004:11 1018:25 fiberglass [1] 948:7 field [3] 922:6 925:9 1087: 15 Fifth [2] 839:7,14 fighter [2] 920:4 1040:3 figure [165] 854:23 858:17 860:20 881:18,18,22 883:7 910:1 911:13,20 912:12 913:6 928:3,6,13,15 930: 11 931:11 932:2,13 935:24 936:13,13,19,20 939:12,24 940:8 941:23 943:6 949: 20,20,21 950:6 952:3 953: 6 957:1,16 959:15,20 961: 21 962:19,22,22 965:3 966: 4,4 975:22 979:4 982:16 983:4,5,8 985:7 987:11,12 988:21 989:16,19 991:25 997:20 999:24 1001:5,14 1002:25 1004:14,17,17 1006:3 1008:6 1013:15 1017:14,19 1020:19 1022: 18 1023:1 1024:4,6,6 1026: 17,17 1028:17,18,21 1029: 20,21 1033:22 1034:24 1035:5,10,16,18 1036:2,10, 18,20 1037:14,18,22 1038: 4,9 1047:9 1048:8,18,22	1049:4 1064:11,13,23 1065:6 1068:13 1075:9 1076:17 1077:10,11,14,16 1082:1,5,8,9,9,12,13,14,22 1083:2,24 1084:1,19,25 1085:1,8,9,14,15,20 1086: 4,24 1091:21,22 1092:17 1103:22,23,24,25 1104:1,3, 5 1105:11,12,16 1107:13, 18 1108:13,21,24 1110:22 1111:2,8,19 1112:1 1113:2 1116:10 1117:7 figures [32] 909:20 911:3,4, 5,5,6,14,16,21,25 912:5,9, 16,22 928:17 964:6 967:19 971:2 1001:1,5 1021:1 1024:9 1033:18 1038:8,10 1045:7,8,9,10,13 1082:1 1107:15 file [9] 877:9,14,23 899:16 902:12,14,16,21 922:22 filed [3] 914:13 915:16 939: 10 files [2] 893:9 896:14 filing [3] 856:21 877:18 907:18 fill [3] 978:23 1072:14 1073: 2 filling [1] 1113:10 film [8] 950:1 965:23 968:2 1016:8,12 1031:3,10 1076: 10 films [5] 946:24 950:1 1031: 14 1074:21,25 filter [7] 933:17,17 935:25 1047:12,15,19 1049:18 filtered [1] 936:1 filters [4] 933:7,16 945:10 1009:8 filtration [1] 854:12 fin [16] 1000:2,5,6 1001:3 1006:19 1042:11,14 1100: 15 1101:13,14,20,23,23 1102:5,16,17 finagle [1] 868:24 finally [1] 1099:22 financing [1] 871:17 find [14] 863:13 864:2 921: 19 927:9 939:1 962:13 987:4 1013:5 1021:19 1072:2,6,14 1084:13 1096: 6 finding [1] 1032:1 fine [8] 874:23 898:3 933: 17 969:18 975:25 1048:14 1049:18 1118:15 finish [6] 846:19,24,25 893: 8 952:9 1110:6 finished [2] 895:6 956:12 finishes [1] 893:8 finned [1] 1076:22 fins [36] 994:3 1000:9,16,	17,18,19 1002:3,10,14 1003:13,14 1006:1,4,8,20 1012:10 1098:17,23 1099: 3 1100:3,4,8,9,11,18,19 1101:1,5,6,8,9,11,17,19 1102:15,17 first [70] 852:15 856:16 857: 12 860:23 867:4 868:23 869:19 871:7 874:25 875: 10 877:7 880:9 886:21,25 888:9 896:2 899:18 902: 19 906:10 908:5,5 909:8 910:9,10,13,13,17 914:4, 18 917:21 923:11 926:14, 17 946:10 954:11 966:5 970:6,7,19 975:15 982:6 991:7 994:10 998:6,9 1000:1,12,14 1002:10 1004:2 1005:11 1006:17 1009:5,14 1021:11 1035: 21,23 1045:22 1063:20 1064:2 1083:10 1088:3 1095:3 1098:2,3 1107:8,13 1108:5 1112:9 1115:3 five [6] 881:25 885:14 889: 1 920:15 1097:16,17 fixation [1] 958:16 fixed [1] 958:17 flange [2] 994:4,6 flanges [1] 961:23 flat [6] 914:23 932:4 963:12 990:19 1084:3,11 flexing [1] 960:21 flight [1] 919:23 Flip [3] 868:19 875:7 909: 20 flipped [1] 968:14 flow [38] 850:20 890:4 932: 10 943:10 964:25 967:1,4 992:7 994:11,18,18 998:2 1001:3,7,7,8,12 1002:7 1004:13,17 1006:4 1022: 10,14 1037:24 1055:11 1059:6 1063:14 1065:16, 23 1066:5,14,16,19 1068:2 1094:15 1099:16 1100:10, 16 flowing [11] 941:20 943:15 984:12 1023:14 1050:17 1067:13,18 1068:22 1069: 11 1112:13 1114:11 flows [14] 943:17 967:5 993:10 1000:18 1047:15, 16,18 1049:14 1062:10 1064:8,21 1066:2,7 1092:8 fluid [4] 932:10,10 945:9 1044:23 focused [1] 1074:16 focuses [1] 1004:25 Focusing [2] 851:13 864:2 folded [2] 1024:4,8 Follow [4] 869:18 929:1
--	---	---	--	---

1047:17 1055:7 followed [2] 884:11 933:17 following [4] 851:4,19 883:17 1019:20 follows [3] 847:11 887:1 917:22 force [9] 965:25 1001:23 1002:7,19 1003:6 1004:3 1025:4 1029:13,22 forced [3] 854:7 879:3 1063:1 forces [1] 932:9 forcing [3] 965:15,18 966:18 foregoing [1] 1055:18 foregoing/attached [2] 1135:8,18 foreign [1] 1095:24 forgot [3] 946:4 952:13 1048:13 form [18] 862:19 869:19 925:24 931:23 937:15 939:18 940:4 942:14 946:25 956:22 958:22 964:20 965:22,23 967:25 1032:25 1073:17 1094:11 formal [1] 861:1 formally [1] 844:15 format [3] 879:2 963:2 990:11 formed [15] 868:7 918:15,18 927:20 941:19 943:14 953:14 957:19 967:10 988:7 993:20 1005:22 1023:15 1051:11 1086:15 forming [3] 963:16 991:19 1027:19 forms [8] 932:25 933:4 960:12 962:24 965:9 985:10 1008:10 1116:9 formulate [1] 984:17 forth [1] 1119:22 forward [8] 929:24 1021:9 1047:10 1059:11 1085:17 1086:1,21 1091:3 forwarding [1] 851:13 found [5] 869:5 995:20 1019:2,4 1072:3 foundation [2] 857:1,3 four [4] 924:5 967:21 1032:7 1045:3 Fourth [1] 840:9 FR [1] 948:6 fragile [1] 1026:7 frame [28] 862:21 889:16 901:12 921:8 927:21,21,23 931:5 947:23 949:24,25 950:15 955:6,16 958:8 960:4,24 987:20 992:13 998:13 1006:15 1007:3 1014:18 1037:9 1040:2 1088:15 1089:3 1115:6	Francisco [1] 841:18 frankly [3] 866:11 867:7 1061:22 free [2] 977:22 978:1 freelance [1] 887:12 fresh [1] 1049:20 Friday [4] 846:15,20 847:1 1120:9 friend [1] 976:15 friends [1] 1119:5 front [89] 863:18 872:15 874:12,19 875:16 876:15 877:14,22 900:18 927:19 935:20 939:20 941:6 943:4 945:14,15 946:21,23 959:9,20 962:13 963:14,15 972:22,24 987:21 989:5 991:1,1,1 992:3,15 994:18 995:25 996:21,23,24 1002:8 1007:21,23,24,25 1008:8,9,10 1010:13,16 1011:4,5 1012:9 1013:13 1014:23 1015:5,16 1017:9 1020:8 1022:1 1025:19,20 1026:4,6,11,12,20 1027:1,19,20 1037:6,8 1040:10 1080:13 1099:21,22 1103:4,10,11 1104:16 1108:12,17,18,19,20 1109:11,12,12,20,24,25 1117:16 full [4] 888:24 962:1 987:22 989:14 fully [3] 978:3 984:13,17 furniture [2] 852:8,12 further [8] 882:2 886:5 896:22 917:1 1052:9 1111:17 1117:18,21	892:3 893:6 896:8 903:9 915:5 932:4 953:19 972:9 1038:5 1044:8,9 1045:6,17,22 1046:1 1071:3 1073:14 1102:19 generate [2] 1064:17 1075:14 generated [2] 943:19 965:21 generating [3] 1064:9,12,22 GENOVESE [1] 841:9 gentleman [2] 872:20 933:25 geometry [7] 888:20 894:15,24 899:20 902:1,15 912:4 Georgia [1] 905:10 gets [7] 954:12 998:10,11 1047:23 1049:14 1057:9 1077:7 GEYER [1] 839:12 ghost [1] 1016:19 ghosting [1] 1031:13 give [11] 866:9 883:6 903:4 919:21 931:13 969:20,23 971:10 978:4 983:15 1021:20 given [4] 863:25 976:16 982:5 1035:4 gives [1] 971:14 giving [5] 868:16 900:2 902:10 903:15 1088:13 glass [13] 945:8 960:18 992:3 1013:11 1014:3,21 1015:24 1026:6,9,13 1027:22,22 1030:22 glasses [1] 1080:6 Goodwin [5] 841:11,16,23 842:8,15 got [22] 852:16 869:7 871:16 873:9 907:9 1005:14 1009:19 1048:20 1050:2 1058:22 1063:6 1065:13 1068:20 1069:1 1073:6,19 1081:21 1085:14 1091:22 1093:14,14 1103:10 government [1] 883:18 graduated [1] 888:4 graphic [1] 1059:7 Gray [71] 867:5,6,13,24 868:2 870:25 872:11 873:23 874:3,17,24 875:7,24 876:2,6 877:3,15,16 878:3,10,11,16,23 879:10,13,20,21,22 880:9,15 881:1 899:9 901:3,15 904:24 906:9 907:4,14,19 908:1 909:6,22,25 910:8,12 913:6,20 914:18 915:8 975:12 1041:4 1042:25 1048:16 1059:10 1060:23 1067:11 1070:	1 1071:12 1075:7 1079:14 1081:16,20 1086:12 1087:5 1088:19 1090:9 1092:4,20 1094:22 1097:25 1110:14 Great [4] 902:3 909:5 1080:24 1081:1 greater [1] 1099:7 greatly [1] 1052:18 green [30] 940:7,9 943:5 979:13,21,22 980:1 982:15,20 989:1,4 991:25 997:23 1005:19 1006:2 1024:6 1038:3 1056:18,20,21 1057:5,8 1059:2 1063:6 1105:16,20,25 1106:19,21 1116:13 Greg [4] 873:13 874:13 883:2 908:20 Greystoke [3] 865:24 866:1 867:10 GROGAN [1] 842:7 grounds [1] 1056:2 Group [4] 841:6 876:19 884:2 923:8 grow [3] 960:19 968:12 1006:25 guess [10] 892:3 901:12 906:1 968:12 969:19 978:5 992:24 1052:1 1095:18 1100:4 guessing [1] 898:24 guide [9] 927:24 929:18 930:23 931:10 932:5 933:13 955:3 1049:21 1074:21 guided [3] 941:21 943:16 1063:8 GUNN [1] 842:6	head [1] 990:8 header [2] 875:2,2 heading [2] 942:9,21 Heady [1] 1027:5 hear [10] 847:21 977:2 981:1,2 985:6 989:10 1043:19 1066:23 1111:8 1118:19 heard [7] 903:2 904:7 905:6,12 938:11 976:16 1034:9 HEARING [10] 838:19,21 865:15 967:3 970:3 982:6 1039:4 1135:5,7,7 heat [148] 850:18 882:13 904:23 914:8,15 920:17,22 923:16 932:12 936:4 943:11 946:11 948:18 950:11 970:8,14,17 972:17 973:11,18,20 985:4 988:4 989:2 992:18,19 993:11 994:1,7,9,10,20,22 995:22 996:1 997:25 998:4,6,9,9,10,14,16,19,20,24 999:4,9,10,11,14,15,18,21,23 1000:1,3,8,10,13,14,14,18,22 1001:25 1002:10,20 1003:4,7,13,21 1004:3,4,5,13,17,22 1005:15,20,22,24,25 1006:11,15,16 1007:5 1008:18 1009:16 1012:2,10,11,15,17 1015:5 1023:12,14,15,20 1024:1,3,5,8,10,24,25,25 1025:2,4,7,10 1029:25 1030:2,3,5,15 1047:25 1064:9,12,18,22 1073:6,13 1074:8 1075:14,15,19 1076:22,25 1077:7,10,11,14,25 1078:10,15,16 1079:1 1090:11,15 1093:9 1098:20 1099:1,11,22 1100:1,6 1101:17 1114:21 heat-generating [1] 1070:8 heated [4] 1005:11 1067:24 1098:16 1099:2 heating [4] 993:25 1015:4 1111:15,17 heavy [1] 960:18 height [4] 962:6 989:15 1005:10 1086:23 held [2] 848:3,3 help [8] 869:9,15 872:4 875:25 901:17 903:5 939:25 961:20 helped [1] 863:20 helpful [1] 950:20 helps [2] 1009:14 1013:19 hence [2] 945:6,11 hereby [1] 1135:8 high [5] 915:11 954:7 963:11 1007:8 1069:11 high-powered [2] 1063:3 1115:10
---	---	--	--	--

higher [3] 949:3 950:24 1006:19 highlight [3] 907:14,19 1015:11 highlighted [26] 930:25 935:20,21 940:7,9,23 943:4 950:4 982:15,20 988:25 989:1 991:25 997:21 1005:18,20 1006:2 1013:15 1022:3,17 1024:9 1029:19 1033:13 1037:8 1047:11 1107:14 highlighting [2] 989:4 1004:18 Hill [1] 865:12 Himanshu [6] 844:13 845:10,22 846:2 1130:10,13 hinges [1] 987:15 hired [4] 898:25 1043:15,20,22 historical [1] 863:20 histories [1] 922:23 history [4] 849:1 877:9,14,23 holds [1] 1062:3 hole [9] 953:1,1 954:15,17 967:6,10,12,15 1080:18 holes [15] 955:19 1051:17 1055:4,10 1059:1 1063:22,23 1091:12,14,18,23 1092:7 1093:18 1098:22,24 hollowed [1] 1100:10 honestly [1] 981:21 Honeywell [8] 919:23 1039:14,23 1041:6,18,22 1042:7,10 Hong [43] 926:20,21,25 927:1,2 937:19,21 938:1,2,3,22,23,24 949:7,10,20,21,24 950:7,9,14 951:3,20 956:15 957:6 1072:3,7 1073:4,5 1075:5,9 1076:4,14 1077:3,6,19 1078:9,13 1079:3 1114:24 1115:12,18 Hong's [1] 1079:1 Honor [94] 844:5,20 845:3,14,19 846:8,13 847:2,5 856:25 865:1,4,6 881:25 882:2 885:13,14,17 886:6,9,11 898:2 917:2,11 922:5,10,17 968:23 969:3,4,5,18 970:4 971:12,25 972:18,23 973:18 974:4 975:6 976:24 977:4,14 978:19 979:9,14 981:19 982:10 983:1,6,10 984:25 986:8,9,11 1018:19,22 1019:1,10 1020:5,7,8,15 1021:12,16,19 1022:6 1023:2,7,21 1025:23 1038:11,15 1048:12 1081:4,7 1091:5,8,10 1097:12,21	1102:9,14 1110:4,8 1117:19,22,24 1118:16,18 1119:10,15,25 1120:5 HONORABLE [1] 838:3 hopefully [1] 882:7 horizontal [4] 933:3 989:23 1056:9,11 hot [5] 998:16 999:13,15,16 1047:23 hotel [1] 866:17 hour [1] 974:1 hours [2] 896:9 1031:23 house [1] 859:10 housed [1] 1001:13 housekeeping [1] 844:6 houses [2] 959:18 987:25 housing [35] 931:2,3,4 941:7 960:22 962:24 966:17,20,21,23 967:11,16 987:20 990:17,21,23 991:5,16,20 993:7 1009:24 1010:4 1027:14,15,17,19 1028:7 1047:16,18 1048:21 1082:20,21,21,25 1083:1 housing [1] 1075:3 However [4] 875:17 894:13 985:25 1107:20 humidity [1] 993:3 hundred [1] 862:8 hyphenation [1] 1135:17 hypothetical [3] 1085:18 1086:3 1114:1 hypothetically [2] 1083:21 1084:19 idea [8] 850:15 868:7,8,9 869:20,21 886:2 901:5 ideas [7] 848:23 849:12 851:19 852:23 856:1 902:4,6 Idems [5] 873:11 889:8 910:17,20,24 identified [6] 937:12 978:9 985:13 993:23 1046:10,22 identifies [1] 1075:10 identify [1] 1021:7 IE [1] 888:11 ignoring [1] 867:9 III [1] 840:5 illuminate [3] 927:24 928:8 929:17 illustrate [2] 850:10 854:22 illustrated [1] 1107:17 illustrating [2] 850:18 973:15 illustration [7] 849:16,21 853:25 854:18 855:19 911:21 912:1 image [72] 849:23 850:5,7,13 854:25 855:12,14 857:20,22 858:5,7,8 868:3 870:	6,10 876:8,15,21 881:22 890:5 893:18 894:2,6,13,18 896:17 897:11 899:16 901:3,15,18 902:5,21 905:23 906:19 927:18 928:1 929:7,7 930:1 939:25 946:25 959:13 962:17 963:16 977:15,18 983:18 996:16,19,21 997:4,9,17 1007:25 1009:23 1010:2,4 1018:9,13 1019:3 1027:10,12,15,23 1034:1,21 1105:7,10 1114:3,4 1117:2 image-forming [1] 996:24 images [15] 849:15,18,19,20 862:23 863:1 874:14 883:3 890:2,3 893:5 911:18 1016:19 1031:13 1106:7 immediately [1] 890:15 impact [5] 933:9 937:16 951:15 1062:11 1094:15 impedance [3] 1050:8,13,16 impede [1] 1117:14 implement [2] 1014:24 1053:7 implementation [4] 1052:24 1053:5 1054:9,12 implementations [1] 1054:1 implementing [1] 1055:2 important [1] 948:17 improperly [1] 880:12 improve [1] 960:14 improved [4] 950:25 1015:6 1055:19 1070:7 improvement [1] 1009:14 improvements [1] 1099:6 inaccurate [1] 1113:19 inadequate [1] 926:11 inadvertently [2] 862:17 863:25 Inc [6] 839:4 841:3,4,5 875:3 909:13 incident [2] 1008:25 1014:13 include [37] 856:7 858:23 861:25 879:6,23 882:13,15 883:7 898:23 912:22 934:17 940:19 941:7,9 942:11,24 943:23 945:17,23 946:15 950:10 953:7,22 955:11 963:14 964:3 968:16 981:17 989:2 1016:23 1018:3 1031:6 1074:21,24 1075:2 1099:11 1100:3 included [8] 855:21 860:20 880:23 912:25 915:24 916:15 920:9 949:5 includes [20] 914:22 929:6,12 941:2,12 946:5 947:11	950:3 961:21 987:14 988:24 997:24 1001:2 1008:17 1011:9 1022:22 1055:20 1100:4 1108:8 1113:24 including [8] 854:2 880:12 887:22 922:7 924:6 1013:1 1025:1 1027:3 incomplete [2] 1048:8,23 incorporate [2] 853:7 950:21 incorporating [2] 923:13 1030:19 incorrect [3] 1113:2 1114:7,8 increase [2] 1051:4,4 increased [1] 1055:5 incremental [1] 1007:7 index [4] 844:24 845:8,18 846:12 indicated [4] 1065:2 1108:21 1114:3,7 indicates [1] 979:1 indicating [32] 876:18 979:3 980:19,20,21,24,24 981:12,15 1048:5 1050:2 1057:22,23 1058:1,2,6,7,13,14,16,19 1059:3,13 1060:16 1063:6 1065:12 1068:17 1076:4 1083:2 1086:14 1094:6 1109:17 individual [1] 908:18 individually [1] 1108:6 Industrial [2] 841:5 888:6 industry [8] 851:6 870:18 875:20 903:7 904:8 1032:9,19 1043:8 influx [1] 933:15 information [16] 853:11,16 856:7 863:25 892:2,9 895:25 897:6 920:13 921:20 985:2 987:10 1032:15 1033:7 1034:22 1038:10 infringement [6] 871:13 880:7,17,22 1043:3,4 ingress [1] 1022:23 initial [1] 883:23 initially [3] 889:5,25 890:1 initiative [1] 883:19 inlet [8] 936:1 1011:21,22 1028:10 1029:1,8,11 1047:20 inlets [6] 933:5,6 936:22 1004:15,19 1011:6 inner [2] 994:18 1002:7 Inova [12] 861:16,18,20,20,25 862:3,7 871:20,22 872:1 882:8,12 input [2] 853:19 894:25 inputted [1] 929:7 inside [22] 851:7 904:19 920:21 939:19 940:5 945:10 985:4 1023:12 1059:18	1080:23 1082:12 1094:15 1100:11,15 1101:9,12,13,14,23 1102:16,17 1104:12 insisting [1] 976:18 inspection [1] 954:25 Instead [5] 913:3 1042:21 1104:23 1112:8 1114:12 insulating [2] 932:25 1046:13 intake [5] 967:6,10,12,15 1049:18 integrated [3] 854:2 855:9 879:3 integration [1] 884:9 intellectual [3] 864:11 880:18,23 intended [3] 850:9 870:2 871:24 intent [2] 894:20 1047:24 intention [3] 864:5 879:16 972:13 interacting [1] 1014:7 interaction [2] 866:24 1088:23 interested [2] 852:13,14 interface [6] 891:1,5 1016:15 1034:2,4,10 interior [1] 1101:8 internal [4] 929:18 987:17 1084:2 1094:11 internally [1] 929:23 INTERNATIONAL [7] 838:1,13 839:3 843:4 987:8 1135:9,22 interpreted [1] 1074:10 interrupt [3] 922:13 969:10,12 interrupting [1] 1021:4 interstitial [1] 958:15 intervening [5] 906:15 1062:7,10,11,19 interviewing [1] 1088:12 introduce [2] 887:6 918:5 introduces [2] 995:24 1051:6 invalid [2] 973:8 978:2 invalidity [11] 918:13 970:12 971:5 978:14 986:17 1043:2,16,17,21,23,25 invent [1] 916:8 invented [1] 1033:9 inventing [1] 916:14 invention [13] 864:5 879:16 914:1 1033:8 1055:19,25 1069:24 1070:5,6,12 1071:4,6 1099:11 inventor [12] 856:24 857:12 881:6 908:11,19 910:13,14 911:11 913:1 987:10 1017:13 1035:8 inventors [4] 881:9 908:2 910:10,12
--	---	---	---	--

investigated ^[1] 1043:25 investigation ^[12] 896:22 918:11 920:25 922:21 923: 8 924:1,11 925:6 986:21 1115:8 1116:21 1135:4 investment ^[1] 859:17 invoicing ^[1] 896:1 involve ^[3] 872:1 890:17 903:10 involved ^[6] 871:22 889:10 890:1 898:21 920:12 1043: 5 involvement ^[5] 889:24 911:15 912:13 915:6 920: 10 involves ^[1] 1078:20 inward-facing ^[1] 1015:16 IP ^[4] 860:7,8 864:5 879:17 IR ^[1] 1119:13 isn't ^[6] 971:13 1048:8 1080:23 1081:3,12 1115: 21 isolated ^[4] 991:15 992:23 1036:4,12 issue ^[16] 920:25 926:6 1016:3 1020:25 1021:5,9, 11 1031:13 1041:2 1063:9 1066:6 1072:19 1117:24 1118:22 1119:17,20 issued ^[6] 881:15 924:21 939:9 991:17 1013:8 1095: 10 issues ^[2] 869:7 920:17 item ^[12] 860:1 959:20,21 1018:21 1019:18,18 1020: 12,13 1037:1 1059:22,24 1106:1 items ^[4] 975:25 1046:11 1089:17,22 itself ^[14] 928:2 931:7 950: 7 957:22 968:11 972:11 977:18,20 978:20,22,23 979:15 990:4 1026:9 IV ^[1] 838:19 J JACQUELINE ^[1] 841:9 Japanese ^[3] 954:3 959:10 1096:1 JEREMY ^[1] 841:10 JESSE ^[1] 841:20 jet ^[1] 920:4 job ^[3] 888:25 896:10 953:4 joined ^[1] 940:4 joint ^[1] 1120:2 JONATHAN ^[1] 840:7 JONES ^[1] 841:10 Judge ^[117] 838:4,22 844:3, 7,14,21,25 845:4,9,15,24 846:9,19,23 847:3 857:2 865:2,5,7 882:4 885:15,18 886:7,15,20 898:3 917:3,6, 10,14,17,25 922:9,15 968:	25 969:16,19 970:1 971:10 972:16,24 973:3,13,23 974: 2,5 975:3 977:1 978:5 979: 10,25 980:4,7,11,14 981:5, 8,13,16,20,23 982:1,7,11, 14,18,23 984:3,16,19 985: 23 986:10 1018:17 1019:8, 11,15,22,25 1020:3,14,21 1021:6,15,18,21 1022:7 1023:3,5,8,23 1025:24 1038:12,18 1048:14 1081: 8 1091:9,15 1097:14,16,20 1102:3,11 1110:5,9 1117: 20,23,25 1118:6,9,13,17, 23 1119:7,11,16 1120:3,6 July ^[4] 939:10,10 949:14, 14 jumble ^[1] 938:16 jump ^[4] 876:6 877:15 878: 3 1065:20 June ^[10] 838:17 859:13 860:25 861:9 878:19,25 881:15 1120:9 1135:5,10 JX-0021C ^[2] 883:12,25 JX-0052 ^[1] 863:6 JX-0062C ^[2] 851:10,14 JX-0063 ^[1] 854:14 JX-0064C ^[1] 855:4 JX-0065C ^[1] 855:15 JX-0079 ^[3] 856:13 857:14 860:19 JX-0100C ^[1] 1131:7 JX-0101C ^[1] 1131:8 JX-0102C ^[1] 1131:9 JX-0119C ^[1] 1131:10 JX-0120C ^[1] 1131:11 JX-0128C ^[1] 1131:12 JX-0132C ^[1] 1131:13 JX-0136C ^[1] 1131:14 JX-0137C ^[1] 1131:15 JX-0138C ^[1] 1131:16 JX-0139C ^[1] 1131:17 JX-0140C ^[1] 1131:18 JX-0141C ^[1] 1131:19 JX-0154C ^[1] 1131:20 JX-0156C ^[1] 1131:21 JX-0159C ^[1] 1121:25 JX-0160C ^[1] 1131:22 JX-0162C ^[1] 1131:23 JX-0169C ^[1] 1131:24 JX-0170C ^[1] 1131:25 JX-0171C ^[1] 1132:1 JX-0172C ^[1] 1132:2 JX-0173C ^[1] 1132:3 JX-0183C ^[1] 1122:1 JX-0185C ^[1] 1133:18 JX-0191C ^[1] 1122:2 JX-0198C ^[1] 1122:3 JX-0199 ^[1] 1132:4 JX-0200C ^[1] 1132:5 JX-0201C ^[1] 1132:6 JX-0203C ^[1] 1132:7	JX-0204C ^[1] 1132:8 JX-0206C ^[1] 1132:9 JX-0207C ^[1] 1132:10 JX-0208C ^[1] 1132:11 JX-0213C ^[2] 1132:12 1134:4 JX-0214C ^[1] 1132:13 JX-0215C ^[1] 1132:14 JX-0216C ^[1] 1132:15 JX-0225C ^[1] 1132:16 JX-0233C ^[1] 1132:17 JX-0234C ^[1] 1132:18 JX-0235C ^[1] 1132:19 JX-0238C ^[1] 1132:20 JX-0239C ^[1] 1132:21 JX-0240C ^[1] 1132:22 JX-0241C ^[1] 1132:23 JX-0242C ^[1] 1132:24 JX-0266C ^[1] 1132:25 JX-0303C ^[1] 1133:1 JX-0305C ^[1] 1122:4 JX-0307 ^[2] 1133:2,19 JX-1 ^[1] 1090:6 JX-159C ^[1] 845:2 JX-213C ^[1] 846:5 JX-21C ^[2] 874:20,24 JX-22 ^[3] 895:11,19 896:2 JX-35 ^[1] 891:16 JX-4 ^[5] 1095:21 1096:14, 14 1097:23 1098:10 JX-5 ^[1] 1097:3 JX-52 ^[1] 879:11 JX-63 ^[1] 893:13 JX-64 ^[1] 893:23 JX-65 ^[5] 894:8,18 896:17 897:11 899:8 JX-65C ^[1] 901:16 K KARA ^[1] 842:7 Karen ^[1] 838:25 Karppanen ^[85] 924:8 986: 18 987:3,10,12,13 988:21, 24 989:17,20 990:17,19,21 991:6,11,21,23 992:14,15 993:7,9,23,25 995:1,2,5,11, 14 996:15,17 997:7,17,18, 20 998:3,4 999:20,24 1000: 10,11,25 1001:1,17 1002: 13,18,21,23 1005:25 1006: 3,18 1007:5,10,13,15,21, 23 1008:1,14 1009:23 1010:1,3,11,13,19,21,24 1011:8,13,15 1012:3,5,11, 15,18,21 1014:18 1015:11, 13 1016:11,25 1017:4 1045:23 1095:15 1096:17, 21 Karppanen's ^[6] 993:24 994:15 1000:22 1006:11, 15 1007:24 Kaszycki ^[7] 872:21 873:2, 8,20 874:6,12 882:24	KATHLEEN ^[1] 839:12 keep ^[11] 868:2 872:12 911: 13 948:17 960:21 977:10 1005:2 1021:4 1051:6 1098:25 1102:9 keeping ^[1] 934:19 kept ^[1] 1015:4 Kilpatrick ^[5] 839:6,13,20 840:8,13 Kim ^[100] 924:6 926:19,20, 21,24,25 927:1,2 937:11, 16,18,19,21,25 938:1,2,3, 21,22,23,24 939:8,12,16, 24 940:14,25 941:2,2,15, 23 943:11,13,20 944:8,15, 15,18 945:3,4,19 946:3,3, 17 947:8,8,9,13,17,19 950: 16,20 951:3,7,20 952:3,4,5 953:7 955:7,17,18 956:15, 19,21,25 957:6,16,19,24 960:6 961:11,21 1056:3 1057:1,15 1061:11 1064:3 1065:21,25 1066:5,6 1068: 20 1069:5,6,9,15,19,22,23 1070:16 1071:3,9,14,18,20 1078:7,21 1079:19 1091:1 Kim's ^[21] 941:7,9 942:11, 12,24 943:22 945:17,23 946:14,22 947:2 953:6 957:17,18 960:14,25 961:2, 19 1056:5 1061:18 1065: 24 Kimura ^[40] 924:7 927:3 962:9,16,20,21 963:5,6,8, 10,13 964:6,9,16 965:6,18, 20 966:11,14,14,20,21 967: 19,20,21 968:4,19,22 1081: 15,17,19,23 1082:1,19,23 1083:15,18 1084:13,25 1113:16 Kimura's ^[7] 964:3,22 965: 1,25 966:22 967:2,4 kind ^[23] 861:6 907:13 947: 23 958:23 979:2 982:3 1004:14 1015:13 1044:22 1045:2 1046:18,24 1047: 22 1051:25 1060:11,15 1070:2 1074:11 1082:9 1083:1 1087:16 1095:22 1104:14 kinds ^[2] 985:9 1014:9 KLINE ^[84] 842:3 847:5,13, 20 857:2,4,5 865:1 869:1 878:16 880:5 882:6 885: 13 917:11 918:2 922:5,17, 18 968:23 969:2,18 971:10, 12 972:18 973:1,6,16,25 974:3 976:25 977:2,4,13 978:18 979:14 980:3,5,8, 13 982:7,10,13,17,22,25 984:19,25 986:8,11,13 1018:25 1019:10,13 1020:	5,7 1021:19,22,24 1022:9 1023:4,6,9,24 1026:1,3,14, 24 1038:11 1081:4 1091:5 1110:6,8,10,16,20 1117:18, 24 1118:2,7,12,15 1119:15, 21 1120:5 knowing ^[1] 1072:6 knowledge ^[9] 862:2,5 873:6 875:11,12 894:22 895:2 905:2 1108:6 known ^[18] 946:8,11 953: 19 970:9,17 973:12,15 996: 1,4 1004:6 1006:16 1009:2, 4 1015:22 1026:7 1050:7 1086:19 1090:12 Korea ^[2] 1088:7,25 KORN ^[1] 839:17 L L-shaped ^[2] 1108:21 1117:14 label ^[4] 881:19 1109:20,25 1111:12 labeled ^[10] 866:25 1046: 24 1047:12 1063:15 1077: 1 1103:8 1105:1,25 1106: 17 1109:24 lacks ^[3] 1033:2,11,12 laminated ^[2] 1014:20,23 Lamination ^[1] 1014:21 language ^[1] 1060:22 large ^[13] 846:24 877:14 920:1,6 953:13 960:19 1000:7 1004:15 1006:22, 23 1041:24 1042:1 1074: 15 larger ^[5] 955:19 958:17 960:11 998:17 1053:10 LAROCHELLE ^[1] 842:5 Larson ^[26] 995:14,15 1008:14 1013:7,9,11,25 1014:8,11,16 1016:11,13, 16 1017:1,4 1027:4 1030: 12,24 1031:1,5,6,7,22 1095:16 1097:5,8 Larson's ^[1] 1014:5 Las ^[3] 848:3 852:25 853:4 laser ^[3] 1058:8,10 1078:22 LaShonne ^[1] 1135:11 last ^[16] 846:23 868:19 869: 20 875:17 908:18 971:1,23 972:1 975:16,21 977:7 1023:22 1039:1,9 1040:21 1045:23 late ^[8] 850:23 888:2 889: 23 893:3 898:19 902:22 905:20 1110:25 later ^[4] 859:18 871:14 926: 3 930:10 Law ^[1] 838:4 lawyers ^[2] 865:17 898:9 lay ^[1] 857:2 layer ^[15] 995:24 996:24
--	--	---	--	---

1008:21,22,23 1009:11,14 1013:2 1014:1 1016:8 1030:9,12,19 1031:7 1060: 16 layers [8] 996:4 1009:2,4 1012:23 1013:10 1016:20 1030:7 1031:3 LCD [50] 852:3 884:4 891:9, 23 914:24 915:11 919:25 920:19 939:20 940:5 945: 17 946:25 949:5 960:18 964:1 990:20,21 991:6,8 993:24 996:18,24 1008:10 1013:1,14 1014:15,22 1015:5,5 1016:5 1018:4,7, 12 1026:6,6 1039:2,10 1040:4 1042:18,21 1048:1, 3 1078:2 1084:23 1086:18, 23 1108:1,8,12 1117:12 LCDs [3] 1026:7 1045:16 1073:14 leading [1] 850:2 leafed [1] 910:3 leak [4] 954:17,18,19 955:2 leakage [1] 931:6 leaks [1] 1094:14 learn [2] 888:7 896:19 learned [2] 862:25 896:20 least [18] 898:17 903:10 905:20 953:9 957:12 959: 20 961:25 962:6 1009:7 1026:6 1031:2 1035:9 1062:5 1067:18 1075:15, 20 1076:20 1087:16 leave [4] 866:17 969:22 1048:25 1120:2 led [13] 877:9,25 901:5 920: 6,18,21 948:3,13,14,17,20 949:1 1018:5 LEDs [19] 929:16 931:7 943:20 945:15 946:5,15,18, 19,21 948:19,19 950:4,11 1060:2 1061:2 1074:17 1078:1,5,8 LEE [4] 841:22 844:11,17 1121:14 left [43] 847:23 881:8 885:2 924:16,25 936:19 953:17 957:20 961:24 975:11,14 976:5 977:15 979:22 990: 7 1022:18 1023:1 1029:21 1034:15 1048:23 1060:18 1063:15 1064:1 1065:3,14 1066:17 1068:2,17 1085: 14 1086:4,24 1095:22 1104:1,5 1105:7,12,17 1106:4,11,14,23 1107:15 1113:2 left-hand [3] 927:18 956:1 1114:3 left-most [1] 942:19 less [3] 949:2 1051:5 1113:	15 letter [6] 859:8 863:11,15 864:16 880:17,22 letters [2] 871:12,16 level [5] 860:8 864:22 896: 22 897:21 954:7 levels [2] 949:3 950:24 life [1] 948:19 lifetime [1] 948:20 light [27] 923:1 927:22,24 929:18,18,24 930:23 931:6, 9 932:5,11 933:13 946:18, 24 950:2 975:6 991:10,12 1010:17 1013:20 1014:14 1015:13 1018:15 1049:21 1064:19 1073:16 1074:21 light-emitting [3] 929:16 946:18 948:14 lighting [1] 1074:11 likely [1] 904:10 limit [3] 930:4 998:19 1119: 18 limitation [2] 956:7 999:3 limitations [2] 958:24 1066:21 Limited [2] 841:4 875:12 line [18] 879:22,23 900:24 901:2 904:3 911:6,10 912: 5,10 975:18 1015:14 1040: 19,23 1041:3,5 1070:3 1088:20 1104:16 linear [1] 1013:22 lines [9] 869:17 876:22 989: 13 1002:13 1065:21 1099: 12 1109:13,16,24 liquid [22] 919:19 940:17, 21 944:25,25 945:4,5,7,8, 11,13,21 947:24 949:15,18, 24 962:23 963:6,16 966:24 991:4 1076:11 list [7] 860:1 884:6,11,14 1089:17,22 1095:24 listed [5] 856:24 857:12 924:15 970:8 1041:8 listen [2] 1039:20 1087:20 listing [1] 908:2 lists [3] 859:21,24 1121:13 lit [1] 1073:20 literally [3] 971:18 972:19 980:8 litigation [1] 885:11 little [33] 869:2 873:25 878: 24 899:7 901:18 911:1 948:23 951:14,15 953:12 984:15 989:13 996:7 1034: 3,12,15 1039:6 1044:9 1045:5 1056:3 1057:21 1058:12,15,18 1064:2 1070:4 1082:8 1083:8 1091:1 1094:5 1098:8 1102:12,12 live [4] 865:12 887:9 918:8,	9 living [1] 887:11 LLP [10] 839:6,13,20 840:8, 13 841:11,16,23 842:8,15 load [2] 1009:17 1030:15 locate [1] 1013:25 located [21] 933:20 945:21 952:4,5,14,18 964:22 993: 18,19 997:25 1011:18,20, 21 1014:2 1024:10 1027:6 1029:11 1030:7 1036:9 1074:17 1084:24 location [8] 954:16 1015: 12 1026:9 1034:5 1069:7 1087:9 1107:21 1135:6 locations [2] 914:7 1017: 21 logical [1] 1107:21 long [6] 881:17 887:24 888: 22 929:20 948:19 1089:11 long-felt [1] 1032:7 longer [3] 929:23 1063:8 1113:10 look [63] 849:4 854:22 874: 21,21 875:25 877:5,21,24 896:11,13,16 908:24 909:8, 15 910:10 911:1,3,13,14 912:9 913:5,6 914:3,20 918:25 921:18 923:7 928: 23 938:25 939:12,24 952:7 953:25 959:15 960:15 961: 20 967:1,18 970:23 971:24 987:11 1013:4 1019:1 1020:4 1025:16 1041:19 1044:19 1046:3 1050:1,25 1051:9 1054:16,19 1057: 18 1060:2 1065:5,6 1085:8 1086:21 1090:21 1096:4 1099:12 1114:17 looked [27] 854:19 860:18 869:17 897:10,21 902:22 909:2 942:19 950:16 955: 8 960:6 961:3 970:11 1035:6 1064:10,17 1071: 18 1072:8 1073:1 1076:18 1089:13,23 1090:1,22 1091:11 1096:10,25 looking [49] 850:5 853:5, 19,25 854:1 859:21 860:15 869:11 877:8 881:4,5 883: 20 884:8 911:25 936:18 939:14 941:23 947:15 948: 1 949:9,22 952:3 954:2 957:16 959:16 960:14 961: 22 962:15,20 988:22 989: 21,22 990:1,3 1006:18 1014:22 1015:9 1017:17 1030:17,25 1034:6,13 1040:24 1042:5 1048:19 1072:7 1074:3 1107:15 1113:18 looks [14] 851:12 877:11	910:17 979:11,12 980:20, 21 982:18 1004:13,16 1037:24 1052:22 1057:14 1085:4 loop [118] 869:25 882:15 903:13 904:10,14,18 923: 14 928:11,22 978:6,14 979: 11,12,17 980:1,12,18,21, 25 981:10,18 982:15,19 983:1,2,7,11,12,17,20,24, 25 985:20 988:1,5 989:5,6 991:15,18,19,21 992:9,16, 20,21,23 993:4,6,8,12,19, 22 994:15,21,23 995:20 997:2,7,12,16 998:1,1,5,7, 8 1000:3,4 1001:18,19,24 1002:8 1005:13,14 1008: 11,18,18 1010:19,24 1011: 3,7,9,14 1012:3,4,6 1015: 17 1022:10,14,19,22,25 1023:10 1024:11,11,15,15 1028:1,1,3,6,10,25 1029:5, 14,17,23 1030:5 1036:3 1037:5,14 1099:17,18,20 1106:1,3,5 1116:9,18 loops [6] 854:4 904:18 994: 16 1000:23 1044:5,10 losing [1] 981:6 lot [10] 852:21,21 862:23 866:24,24 878:8 1045:6,7 1061:18 1092:7 lots [2] 1091:12,14 LOW [2] 841:21 1069:14 lower [10] 940:8 949:2 952: 5,14 953:17 966:4 1003:1 1029:20,20 1077:25 Ltd [2] 841:2,3 luminance [2] 948:2 950: 24 lunch [4] 969:1,7,21 974:6 lunchtime [1] 968:25	majority [6] 852:12 961:15, 19 962:7 965:2,3 management [4] 850:11 884:9 922:7,12 manner [4] 964:19 971:15 980:23 1051:10 manufactured [1] 862:6 manufacturer [2] 890:21 919:17 Manufacturing [2] 839:3 898:24 many [9] 866:25 898:19 906:18 943:14 958:20 967: 20 1013:21 1088:17 1090: 15 mapping [2] 1018:20,21 March [29] 851:23,25 853: 10,14 855:1,10,21 856:11, 22 863:16 864:17 870:7,13, 19 873:25 874:2 879:15 880:3,6 883:8 884:3,21 885:11 927:13,16 954:6 958:19 1004:7,8 marked [4] 868:21 900:19 907:3 1110:17 market [3] 852:14 853:5 887:22 marketing [1] 906:19 markets [3] 863:21 864:1 887:22 markings [1] 876:16 Marsh [1] 840:14 Marshall [1] 841:24 Master's [1] 919:9 match [1] 1058:18 mated [1] 1059:18 material [5] 897:20 928:9 951:11 1016:14 1046:14 materials [6] 922:20 925:8 932:25 945:6 970:11 1044: 16 mathematics [1] 920:22 Matter [13] 838:6 844:6 918:16 923:3 925:6 951: 10 979:19 1003:18 1036: 20 1053:17,17,18 1072:21 MATTHEW [1] 840:12 MCCARTHY [3] 841:7 1119:23,25 mean [27] 849:18 850:19 852:5,19 853:3,24 854:9 860:14,15 864:9 904:10 931:23 961:2 981:1 982:1, 2,3 993:4 998:14,15 999: 10 1000:5 1006:1 1019:14 1044:6 1102:9 1111:10 meaning [4] 1006:20 1013: 12 1033:8 1074:9 meanings [1] 903:3 means [11] 903:5 961:25 965:15,18 966:18 993:2 1002:6 1037:13,15,18
--	--	--	---	---

M

MA [1] 842:10
machine [1] 1015:24
MACHLEIDT [11] 839:11
856:25 865:3,6,9 869:3
881:25 885:14,16,20 886:5
made [16] 862:8 870:22
890:19 923:18 955:6 978:
25 992:10,25 994:10 1006:
15 1013:14 1034:4 1100:9
1111:7 1113:8,25
magnify [1] 910:11
main [4] 962:23 999:25
1060:14 1093:18
maintain [5] 864:17,23 895:
18 1053:2 1054:5
maintained [2] 929:20 948:
15
maintaining [1] 914:24
maintenance [4] 953:4
954:11,25 955:12

1095:4 meant [6] 894:15 990:4 998:25 1010:6,7 1057:11 measure [1] 1099:5 measuring [1] 1112:10 mechanical [10] 887:12,13, 14,24 888:1,7,12 891:13, 22 919:8 mechanism [4] 935:25 998:18 999:14 1005:11 mechanisms [1] 992:18 medical [2] 887:23 919:15 meet [6] 846:16 871:1 889: 9 1038:25 1088:25 1119: 19 meeting [1] 1088:7 meets [1] 964:21 member [2] 1027:20 1037: 9 members [2] 987:17 997: 13 memorandum [1] 861:6 memory [1] 872:2 Menlo [1] 840:15 mention [9] 946:4 952:13 989:10 1021:11,13 1041: 24 1042:1 1083:24 1084:7 mentioned [18] 865:23 871:19 885:21 894:19 926: 5 930:9 934:19 944:5 950: 6 957:23 971:23 1000:23 1015:23 1028:20 1029:9 1034:9 1042:17 1112:4 mentions [1] 1042:3 message [2] 873:24 874:1 met [2] 971:1 1038:23 metadata [3] 896:14,16 897:7 metal [40] 887:21 945:14 946:2,8 947:20 948:7,9,12 949:5 950:3,7,10,21 951:2 956:6 960:12 961:4 1061: 2 1071:21,25 1073:6 1076: 4 1077:6,10,15 1078:6,10, 14,16,20 1100:9,19,25 1101:6,23 1115:1,4,7,11, 17 method [1] 854:13 methods [2] 854:1 860:16 MEYER [1] 840:12 microphone [1] 847:18 mid [1] 1089:1 mid-2005 [1] 1088:14 mid-February [1] 901:10 mid-sized [1] 920:1 middle [12] 877:17 878:16 882:23 884:1 907:13 928: 7 1049:19 1050:2 1051:1 1084:11 1095:25 1117:7 midway [1] 873:25 might [18] 850:11 854:22 859:18 863:12 960:13 961:	20 969:2 977:15 978:12 979:2 985:10,14 1006:15 1056:8 1095:18 1112:4 1118:2 1119:23 military [1] 1009:6 mind [14] 861:5 868:8 869: 19 899:9 944:14 959:5 963:23 964:16 989:17 999: 20 1013:17 1017:24 1034: 13 1035:17 mindful [1] 1110:18 mine [2] 898:15 1110:17 minute [2] 1048:19 1064: 17 minutes [3] 917:7 1097:16, 17 mis-depiction [1] 1111:14 mischaracterizes [1] 1101:16 misinterpreted [1] 990:5 misleading [1] 1035:7 mismade [1] 1059:8 misrepresent [1] 977:8 missed [1] 1095:18 misspeak [1] 938:14 misspoke [2] 882:18 1115: 2 Mitch [2] 970:5 1038:23 MITCHELL [1] 839:19 mixing [1] 1006:6 mobility [1] 869:7 mock [1] 1044:20 model [24] 854:21 858:16 859:18 890:6 891:13 893: 21,22 894:18,20 895:1 896: 11,16,20,23 897:4,6,10,13, 20 899:17,19 901:11,19 948:4 modeling [2] 887:19 890: 18 models [12] 854:24 855:13, 13 859:15,16 893:7,10 894: 6 895:4 896:13 911:18 912:7 modification [4] 902:11 955:17 1015:10 1030:22 modifications [1] 1006:14 modified [3] 893:22 899: 18 1014:18 modify [1] 1030:23 modifying [1] 893:6 module [1] 1117:12 moment [12] 860:19 868:2 882:20 923:5 938:6 941: 25 946:14 950:17 1012:25 1021:20 1029:9 1117:19 moments [1] 865:3 Monday [1] 866:19 MONICA [1] 838:3 monitor [6] 914:25 915:11, 12 916:6,9 1092:23 monitors [1] 960:20	morning [18] 844:3,5 845: 19 847:14,15,19 865:11 886:11,16,17,19 887:5,7 898:6,7 918:3,4 1038:22 most [9] 875:20 919:24 930:24 966:3 1039:13,21 1040:25 1061:23 1107:21 mostly [1] 1004:25 motion [4] 986:3 1020:23 1021:2 1118:20 motivated [8] 950:14 955: 5 960:3,15 1014:25 1030: 11 1031:10,15 motivation [1] 1072:8 motor [5] 962:25 965:20 966:25 967:22 968:11 mounted [18] 891:2 945:15 946:5,6,15,21,23 950:5 964:4,7 1033:15 1034:23 1035:3 1060:11 1070:19, 19 1073:13 1078:8 mounting [6] 949:25 960:5 964:10 1020:9 1027:16 1070:21 mounts [1] 953:11 move [15] 879:20 932:10, 11,17 941:4 944:20 968:23 979:23 988:14 1021:2 1051:5 1085:17 1086:21 1091:3 1102:24 moved [7] 929:22 949:24 1076:15,15 1098:17 1099: 2 1114:13 movement [6] 904:15,15 906:11 972:4,5 1011:10 moves [2] 988:17 1000:9 moving [5] 1026:18 1047: 25 1090:17 1093:24 1098: 22 MRI [66] 848:13,14,15,20 850:24 851:3,6 856:4,8,11 858:9,12,13 859:9 860:2,6, 9,11,18 861:10,12 862:2, 12,15,19,25 863:20 864:6, 10,18,24 866:3 870:7 871: 12,15 873:3,5 874:6 878: 20 879:2,5,17 880:6,11,12, 17,22,22,23 883:6,10 886: 1 902:7 904:25 905:4,6,15 915:11,17 923:19 925:18 1031:24 1032:6,16 1038: 24 1111:3 MRI's [9] 853:20 880:16 883:8 898:8 905:9 915:24 916:3 922:25 1003:17 MS [86] 844:5,9,20 845:3,14, 19 846:8,13,22 847:2 867: 5,6,13,24 868:2 870:25 872:11 873:23 874:3,17,24 875:7,24 876:2,6 877:3,15, 16 878:3,10,11,16,23 879: 10,13,20,21,22 880:9,15	881:1 886:11,18 887:4 897:25 899:9 901:3,15 904:24 906:9 907:4,14,19 908:1 909:6,22,25 910:8, 12 913:6,20 914:18 915:8 917:1 975:12 1041:4 1042: 25 1048:16 1059:10 1060: 23 1067:11 1070:1 1071: 12 1075:7 1079:14 1081: 16,20 1086:12 1087:5 1088:19 1090:9 1092:4,20 1094:22 1097:25 1110:14 much [13] 847:21 867:8 916:24 927:6 977:5 1004: 8 1041:14 1045:24 1061: 22 1074:18 1086:18 1110: 24 1120:6 Muellejeans [2] 970:10 973:5 Mullejeans [2] 1004:13,14 multi-level [1] 897:19 multiple [3] 1004:15 1073: 10 1091:18 must [3] 1026:12 1037:20 1051:1 myself [1] 895:3	914:4,14,21 954:19 965:5 981:1 1006:21 1014:20 1021:1 1032:7,19 1045:2 1050:1 1055:6 1065:5 1067:7 1071:5 1078:22 1079:3 1110:15,15 1118: 10,14,23 1119:16 needed [5] 915:4 949:2 1072:2,6,14 needing [2] 955:3 1074:9 needs [3] 978:23 1005:10 1119:1 Negley [1] 1135:20 Neikirk [6] 844:11 845:1,23 846:4 1121:24 1133:14 nest [1] 961:24 nested [1] 927:23 network [1] 861:23 neutral [1] 1009:7 never [9] 852:16 870:21 880:17,22 904:25 905:3,6 906:23 1087:15 Nevertheless [2] 934:10 947:1 New [23] 842:16,18,18 861: 23 862:24 870:16,17 874:6 902:14 919:7 971:2 973:6 975:17,23 976:12,18 981:3, 3 984:8,14,14 1080:18 1099:6 next [49] 845:9 846:25 853: 9 864:4 867:25 886:13 914:17 917:12 931:17 937: 11 945:12 959:7 962:10,19 969:11 975:13 976:4,9 988:20 991:15 993:5 995: 6 997:1 1004:11 1010:8 1014:3 1017:5 1041:1 1051:25 1056:25 1057:7, 13 1059:1 1063:10 1068: 11 1075:24 1076:14 1083: 21 1084:17 1085:7 1089:2 1092:3,13 1094:3 1098:6 1099:10 1103:20,23 1108: 25 nice [3] 969:20 1038:25 1057:1 night [6] 971:1,23 972:1 975:16,21 977:7 nobody [1] 1110:10 noise [1] 1071:1 non-obviousness [3] 925: 20 1032:5,17 non-specific [1] 879:2 non-uniform [4] 965:13,14 1113:13 1114:14 nondisclosure [1] 915:18 none [2] 1052:19 1121:12 Nope [1] 858:21 normally [1] 954:15 north [1] 887:10 Northern [2] 842:9 865:12
--	--	---	--	---

note [2] 938:5 983:16 notebook [2] 866:11 907:2 noted [2] 853:21 1046:16 notes [10] 896:1 932:19 970:23 973:11 978:20 979:7,15 983:10,21,23 nothing [2] 916:21 917:1 notice [5] 838:22 852:2 909:24 910:1 953:13 notification [1] 891:21 notion [1] 1087:6 Notwithstanding [2] 1053:9 1062:19 Number [37] 846:2 849:20 851:5 853:18 856:18 903:7,25 904:1 907:14 909:10 920:13 922:23 926:2 931:13,15 940:23 955:19 967:25 989:14 994:3 996:3 1000:15 1005:20 1006:8 1015:22 1017:20 1019:22 1036:23 1037:25 1046:9 1047:10 1071:16 1081:18 1092:4 1096:6,18,19 numbered [3] 987:15 988:21 1005:13 numbers [2] 877:10 1004:18 numeric [1] 920:1 numerous [1] 1063:23 O oath [4] 868:13,16 900:8 903:20 object [1] 922:10 objected [4] 975:22 976:17 977:16,17 objecting [1] 971:7 objection [33] 844:18 845:6,12 856:25 922:9 969:20,23 970:20,22 971:9,13 973:4 975:10 976:19 977:5,7 984:17 1018:18,18 1021:1,13 1022:6 1023:2,22 1025:21,23,24 1026:22 1091:5,15 1118:4,20 1119:12 objections [9] 844:20 845:3,14 846:6,8 969:7,8 970:7 975:4 objectives [1] 884:15 obvious [47] 918:20 925:15,17 926:19,21,24,25 927:1,2,3 934:17 937:9,20,21,25 938:1,2,3,21,21,22,23 944:18 947:9,13 951:19 956:17 957:6 961:11 962:3 966:13 968:15,22 987:3 995:5,11,12,13,14 1007:13 1017:4 1025:14 1031:22 1032:2,12 1054:17 1055:8 obviously [3] 879:5 927:22 1061:24 obviousness [4] 925:20	926:5 975:9 1072:19 occasion [1] 866:18 occupation [1] 919:13 occupy [1] 985:10 occurring [1] 891:23 October [1] 987:9 odd [1] 1082:8 off-the-shelf [1] 913:16 offer [4] 922:5 948:10 1043:2,17 offered [1] 1003:17 offering [1] 973:6 office [4] 898:23 1094:25 1095:9,12 offset [1] 1016:20 Okay [143] 844:7,15,21 845:4 846:9,22 869:4 873:20 877:6 886:7 891:17 893:14 897:15 899:21 900:21 902:3 903:15 904:2 905:19 906:8 907:9,24 908:21 909:5 910:5,7 911:9 912:15 913:5 914:17 915:23 916:5 919:22 921:17 926:15 927:7 938:20 969:19 973:23,24 974:3 980:7 981:20,23 982:11,23 984:16 986:19 990:23 995:10 999:6 1017:3 1019:14 1020:3 1021:7 1025:18 1026:1,3 1034:17 1039:21 1040:5 1041:18 1042:10 1044:13 1045:6 1046:2,5 1047:2,9 1048:4,11 1049:9,11 1050:9,22 1051:23 1052:20 1053:22 1054:22 1055:13 1056:2,10 1057:17 1058:20,25 1059:21 1060:24 1064:3 1065:15,22 1066:2,9,13,19,25 1067:16 1069:5,8,22 1071:2,8 1073:25 1074:4,13 1076:19 1078:9,18 1079:22 1080:6 1081:1,23 1085:5,25 1086:8 1087:1,4 1088:3 1090:4 1092:1 1093:3 1094:16 1095:15 1096:2,12 1097:2,7 1098:25 1100:18,23 1101:20,21,24 1102:1,8,20 1103:19 1105:11 1106:10,14,19 1110:9 1117:20 1118:17 Olmstead [5] 970:10 973:5,16,20 1004:16 once [3] 845:25 874:18 890:15 one [84] 845:20,22 849:15,18,24 851:8 855:1 857:20 861:15 864:21 867:21 872:7 879:12 881:4 885:16 889:1 894:11 895:18 898:8,14 903:2,8,10 904:14,19,	19 910:17 915:10 933:2,12 934:19 938:7 949:7 955:19 957:12 959:6 960:7 961:4 968:10,11,14 971:23 976:21,23 977:8,13 979:1 999:12,13 1005:12 1012:23 1013:23 1015:6 1016:20 1023:25 1024:23 1026:1 1027:4 1030:6 1031:2,2 1037:25 1047:10 1053:25 1059:11,13 1066:21 1067:4,11 1068:10 1070:15 1075:13 1076:20 1079:6 1086:1 1088:17 1091:3,24 1101:14,20,23 1111:12 1113:21 1117:24 ones [4] 949:8 959:7 1024:14,15 only [21] 851:8 864:21 881:4 954:18 962:3 968:11 970:16 975:7 984:6,6 1008:7 1013:23 1016:3 1052:22 1068:5 1084:13 1101:2 1107:25 1113:6 1115:18 1119:17 open [55] 850:20 854:4,10 868:25 874:7 897:6,13 923:14 928:11,22 936:11 983:25 987:14,16 988:6 989:6 993:6,8,22 994:15,16,23 995:19 997:2,7,12 998:1,5 1000:3,23 1008:18 1010:19 1011:3,7,9,14 1012:2 1022:10,14,14 1024:11,15 1027:24 1028:1,3,10,25 1029:5,14 1044:4,10 1080:14 1093:18 1099:18 1116:18 open-frame [1] 915:12 opening [5] 866:20 885:22 955:2 1050:17 1076:1 openings [11] 1047:2,5,7,7 1051:1 1052:13 1053:17 1063:21 1069:12 1094:5,9 operate [2] 948:19 949:1 operated [3] 888:24 948:2 1069:16 operating [2] 948:15,21 operation [7] 1000:11,16 1002:3 1015:25 1023:12 1024:21 1029:19 opinion [46] 918:19 925:13 926:1 934:5,6,11 935:1 937:8,18,25 938:18,20 944:15 953:17 967:21 968:21 977:23 978:2 979:19 983:14 994:9 995:2 997:19 1007:12 1019:1 1025:13 1028:8 1031:21 1032:15 1033:1,17 1043:12 1053:16,16 1054:16 1058:3,12 1067:21,22 1069:3 1083:	12 1086:16 1087:13,14 1108:12 1112:9 opinions [8] 918:12 968:18 985:22 1032:25 1043:2,3,17,22 opportunity [1] 900:15 opposed [1] 1080:18 opposite [4] 1024:8,13 1112:11,14 optical [6] 946:24 949:25 1008:24 1013:19 1074:21,25 optimize [4] 1054:17 1055:3,9 1087:8 optimizing [1] 1054:20 option [2] 1054:20 1107:25 orange [1] 1015:13 order [4] 891:10 1051:1 1080:8 1090:16 ordinary [37] 895:19 920:24 921:4,5 923:4 934:12 946:1,6 947:22 950:14,22 951:1 955:5,15 960:4,13,23 968:13,16 991:7 992:12 998:12,23 1006:14,19 1007:3 1009:9 1014:17 1015:19 1016:17,22 1018:7 1026:7 1027:21 1030:10,17 1031:9 Oregon [1] 918:9 organization [1] 920:14 organizations [1] 920:10 organized [1] 941:3 organizing [2] 920:14 929:25 orientation [2] 989:24 1024:22 orientations [2] 1017:21 1041:10 oriented [2] 956:24 1014:14 original [6] 851:14 854:24 877:24 1059:9 1108:21 1109:23 originally [2] 984:9 1057:11 other [46] 852:9 854:12 861:12 879:1 887:15 892:19 894:25 906:16,18,23 914:8 953:21 954:20 967:24 976:15 1000:25 1004:21 1009:8 1021:11 1026:25 1038:8,10 1039:1,9 1040:20 1055:24 1063:3 1066:21 1067:19,24 1068:10 1070:25 1079:6 1082:20 1091:2,14,22 1094:11,12,20,20 1095:13 1112:13 1119:5,8,17 others [2] 1032:8,19 Otherwise [5] 1021:4 1027:22 1033:20 1037:20 1074:	15 out [75] 865:3 867:6,24 872:12 873:23 874:1 875:8 878:15 879:13,22 880:9 934:19,21 936:11 937:4 944:3 948:18 949:1 954:17 958:24 960:16 966:5 971:24 973:2 974:1 975:23 988:19 993:2,17 997:14 1004:14 1008:6 1014:14 1020:2,16 1036:22 1037:13 1046:18 1048:6 1057:19,19 1059:5,6 1062:11,25 1065:17,17,23,24 1066:2,5,7 1067:1 1068:2,9,9,23 1069:1,4,6,9,13,19 1078:15 1083:1 1085:3 1086:10 1090:18 1091:20 1092:8 1093:15 1094:8 1100:9 1112:16 1114:11 out-of-home [3] 851:6 887:22 893:12 OUTDOOR [18] 838:7 848:19 852:7 854:3 884:10 889:21,22 890:7,13 892:13,18 905:15 913:22 914:7 915:20 1009:5 1026:5 1135:2 outer [9] 1047:16,18 1048:20 1057:22 1070:17,22 1080:4,17 1082:10 outer-most [1] 1079:25 outlet [3] 933:5 1029:1,10 outlets [4] 933:7 1004:15,19 1011:7 outline [1] 883:23 outlined [1] 892:6 outlining [1] 891:22 output [5] 893:9,22 911:21 912:1 915:11 outside [27] 894:16 904:16,19 927:23 928:16,21,22 934:25 935:1 944:9 945:11 955:20 969:9 988:10 989:8,9 992:11 993:14 1011:11,12 1022:15 1034:4 1037:3 1053:13 1058:2 1059:18 1064:23 outstanding [1] 1119:12 outward [1] 933:12 over [22] 875:11 896:9 898:24 944:4 969:11,21 990:3 1001:3 1003:4 1021:5 1034:13 1037:8 1042:14 1046:24 1057:9,22 1059:24 1068:16 1077:18 1083:25 1097:25 1112:15 overall [2] 890:19 970:19 overheating [1] 950:24 overlapping [1] 1003:22 overruled [1] 1091:16 own [7] 859:1 864:14 888:
--	--	--	---	---

15 971:21 991:10 1060:14 1065:24 P p.m [8] 974:6 975:2,21 1038:16,17 1097:18,19 1120:8 package [1] 887:19 page [102] 849:13 850:5 851:14 856:15,16,23 857: 14 863:18 866:22 869:15, 18,20 875:7 876:6 877:1,7, 15,24 878:3,5 879:14 880: 10 883:25 884:2 896:2 900:22,24 901:2 903:23,25 904:1 907:5,7,8,8,22,23 908:24 909:8,23,24 910:9, 11 911:3,14 913:5,19,21 914:17 915:8 972:20 973: 19 976:8 1005:3 1018:23 1040:19,21,21 1041:1 1055:13 1060:23,24,25 1069:23,25 1073:15 1077: 19,20,21 1088:18,20 1089: 2 1090:6 1092:2,2,11,12, 15 1095:21 1096:13,14 1097:3,11,23 1103:21,23 1105:6,7,10 1107:11 1108: 4,25 1109:8,9,9 1110:8 1112:18,20 1114:17 1115: 24 1117:3 1119:18 pages [8] 867:25 868:1 892:4 911:4 970:23 1089: 11 pair [8] 933:2,5 942:12 945: 10 957:19 989:2 1037:1 1101:17 Palmer [1] 841:6 Pandolfi [1] 1027:5 panel [43] 891:23 905:13, 16 914:23 920:1 929:6 931:6,7 932:6 939:20 940: 5,17 945:5,6,17,22 949:25 959:18,19,19,24,25 960:19 962:23 963:7,12,16 966:24 990:19 1008:10 1010:9,12 1014:7,19 1018:22 1027: 18 1030:7 1048:3,4 1058:1 1083:5 1084:3,11 panels [33] 890:22 891:3 930:1,23,23 931:10 932:20 933:9,11,13,20 934:4,8,13, 17,25 935:2,15,19 942:7, 11,14,16 960:17,17 1046: 10 1049:22 1051:7 1056: 14 1057:4,9 1059:15,17 paper [3] 920:14,14 1088: 12 papers [1] 920:20 paragraph [39] 853:9 863: 17 864:4 875:8,16 879:13 880:9,11 882:23 884:1 914:3,19 915:9 929:11 930:10 932:3 963:6 965:6 971:18 972:20 973:14 982: 8 1018:23 1019:2 1029:7 1055:16,17 1070:2 1077: 22 1084:1,10 1090:7 1098: 7 1107:12,13 1108:4,11 1109:10 1117:3 paragraphs [3] 954:23 975:24 1019:4 parallel [2] 956:10 957:1 Pardon [11] 857:7 931:12 942:5 983:9 995:4 1003: 15 1007:2,16 1019:10 1088:10 1116:23 Park [1] 840:15 part [55] 875:20 877:8 904: 22 911:19 931:23 936:1 950:1 954:18,19 955:2 961:4,5 962:24 964:1 966: 4 967:3 977:14 981:18 983:17 988:5,6 994:1,7,10, 10 998:5,6,9,10 1000:1,3,3, 13,14,15 1002:10 1008:10 1012:10 1013:14 1016:23 1054:16 1056:21 1057:22 1059:2 1061:11 1072:19, 19 1088:23 1093:4,6 1095: 3 1098:5,6 1099:2 1101:2 partial [2] 989:12 1001:6 partially [4] 894:13 1018: 14 1058:7,13 participate [1] 879:5 particular [17] 849:20 853: 4 859:18 876:17 896:3 901:11 909:22 911:2 914: 20 915:9 922:12 923:25 928:24 930:5 939:25 973: 4 1101:14 particularly [2] 859:10 1111:12 parties [5] 846:13,16 922: 24 924:9,20 parties' [1] 925:10 partition [10] 932:3,9,14 935:20 993:20 1047:1,8 1049:20 1055:9 1111:20 partly [1] 1024:6 partnership [1] 915:20 parts [19] 887:16 931:4 940: 2 987:21 989:2 990:23 994:20,22 999:23,25 1003: 4 1012:2,16,17 1062:18 1064:9,12,22 1070:8 Pass [16] 865:1,3 885:13 897:25 904:21 916:25 979: 22 993:23 1003:3 1008:5 1014:15 1018:15 1038:11 1042:14 1110:3 1117:19 passages [1] 1045:14 passes [6] 989:9 993:7,17 997:13 1002:10 1025:1 passing [6] 943:8 944:4 1013:24 1024:13 1026:20 1037:7 past [10] 858:4 920:10 994: 18 1002:7 1090:16,17 1098:12,13 1099:6 1104: 15 patent [232] 856:15 857:10 858:10,13,17,20,23 859:1 860:2,18 871:13 877:9 878:1,20 880:6,13,17,23 881:4,6,11,15,21,23 883:8 885:11 907:11 908:3 909: 9,10,21 910:2,9,11,14 911: 2,11 912:16 914:13 915:7, 25 916:2,5,15 923:12,14, 15 924:8 926:9,12,17,23 927:12 928:24 930:4 931: 1,13 935:3 936:13,20 937: 7,8,19,20,22 938:19,20 939:9 940:11 942:7 944: 16,20,24 947:7,18,20 949: 15 951:18,19,24 952:8,21 954:3 955:24 956:1,4,5,5, 17 957:2,4,5,9,11 958:21, 25 959:10 961:7,10,13 962: 11,16 963:2 966:12,13 967: 19,20 968:20,24 972:3 973: 7,21 977:8,10 978:19,22 979:6 980:5,9 983:2,10,21 984:25 985:9,17 986:17 987:2,8 990:10,15 993:6 995:1,5,17,19,23 996:8 997:1,15 998:13,19 1003:9, 21 1004:12,16,25 1006:13 1007:11,12,16 1008:13,15, 16,17,19,20 1009:18 1010: 20,23,25 1011:1 1012:12, 20,22 1013:7,25 1017:2,4, 6,11,24 1019:5,19 1020:4, 4,12 1025:12,13,16 1027:8, 9 1028:2 1030:25 1031:20, 22 1032:1,23 1033:2,5,11, 17,23 1035:1,11,13,15,16 1036:1,5,11,16,21,22 1038: 7,8 1064:3 1065:5,21 1068: 20 1071:24 1073:22 1074: 14 1080:24 1084:20 1085: 1 1090:10 1091:13 1094: 25 1095:5,9,12,21,24 1096: 10,14 1097:1,24 1098:10, 11 1099:10 1100:2,7 patents [27] 918:13,20 920: 25 922:22 923:7,11,20 924: 5,6,7 926:14 937:17,24 978:2 983:16 995:6,9,16, 21 1041:2 1044:14 1073: 22,23 1094:20 1095:1,10, 17 PATH [20] 861:23 932:10 997:2,8,16 998:1,2 1006:4 1008:11 1011:3,9 1012:8 1022:11,14,20,25 1023:10, 16 1028:6 1037:24 paths [3] 1006:9 1050:19 1099:16 pathway [24] 928:15 948: 13 991:19 992:2 997:25 1010:20,21 1011:8,14 1022:22,24 1024:11 1025: 10 1028:2,11,25 1029:14 1035:22,23,24 1036:2,3,6, 7 pathways [2] 942:15 1035: 20 PATRICK [1] 841:7 pattern [1] 1066:12 pause [1] 956:13 paying [1] 865:17 PCB [27] 945:16 946:22 947:2,3,5 950:9,21 951:3, 13 956:11,25 1061:2,3,8 1062:8,22 1073:6 1075:10, 10 1076:3,3,6,7,15 1077: 24,24 1078:14 PCBs [15] 950:3,3,7,8 951: 3 1071:21,25 1076:10 1077:7,11,15 1078:6,11,21 1115:1 Peachtree [1] 839:21 people [3] 852:21 882:1 1086:19 per [1] 1000:8 percent [5] 962:6,6 1014: 12,14 1016:16 Perfect [3] 874:4 877:16 1098:8 perform [1] 947:25 performance [1] 993:1 perhaps [6] 862:16 879:10 898:24 969:1,21 1006:20 period [5] 869:23 873:2,10 899:1,3 periphery [2] 931:6 933:1 permission [3] 858:22 883: 6 898:1 permit [2] 915:13 967:15 perpendicular [1] 852:9 person [45] 920:24 921:3,5 923:4 934:12 946:1,6 947: 22 950:14,21 951:1 955:5, 15,21 960:4,13,23 968:13, 16 991:7 992:12 998:12,23 999:8 1006:14,18 1007:2,2 1009:9 1014:17,25 1015: 19 1016:17,22 1018:7 1026:7 1027:21 1030:10, 17 1031:9 1046:3 1051:8 1081:13 1087:7 1093:23 personal [1] 866:11 perspective [4] 892:7 923: 4 1082:25 1107:24 Peter [3] 872:20 873:19 874:5 phase [1] 891:15 phenomenon [1] 1000:17 photo-realistic [1] 890:5 photo-realistically [1] 854:22 photocopy [1] 909:1 photos [1] 880:12 physical [1] 978:22 Physics [1] 919:6 pick [2] 986:16 1098:6 Picking [2] 847:23 1047:25 picture [5] 1067:2,3,6,7,9 pictured [1] 1100:7 piece [1] 1070:21 pieces [1] 872:13 pink [4] 963:21 1005:20 1022:18 1024:9 pixel [1] 927:20 pixels [1] 1076:11 place [6] 869:22 893:2 983: 23 1021:19 1067:10 1113: 8 placed [14] 890:24 931:18 932:4,20 942:8 952:1 961: 14 1000:16 1057:9 1061:7 1066:20 1085:9 1108:1 1111:5 placement [1] 1055:9 places [4] 943:13 965:11 1002:17 1018:25 placing [1] 1015:23 plane [2] 942:13 946:20 plasma [10] 959:12,17,19, 19,23,25 960:17,17 990:20 1018:4 plastic [1] 1016:15 plate [94] 923:13 924:7 927: 24 930:23 931:18,21,23,23 932:1,3,5,8,9,9,11,14,20 933:21 935:15,21 941:6,10 942:8,17 947:12 952:23 953:5,23 954:13 955:3 956:9,20,23 957:14 961:14 964:14,17,21 965:9,16 966: 1,18 991:1 993:20 994:18 1002:7 1004:13 1005:15, 22 1006:5 1007:23,24 1008:9 1010:14 1011:5 1015:16 1024:4,8,22,25 1034:3 1035:24,25 1036: 25 1037:7,10 1046:24 1047:1,3,6,8 1049:20,21 1051:14,14 1052:9,12 1053:18 1055:3 1056:22 1058:6,7,13,13 1061:7,15 1068:9 1073:13 1087:16, 18,23 1091:23 1111:12,20 plate-like [1] 1000:15 plates [14] 920:8 1000:7 1003:22 1004:20 1018:14, 15 1044:5,11 1045:15 1087:9 1094:10 1100:14, 15 1102:6

Plattsburgh ^[1] 919:7 play ^[1] 855:23 playing ^[1] 869:25 Please ^[75] 844:3,7,13 855:4,15 856:24 859:3 863:6 867:5 869:15,18 872:9,11 875:7,9 876:6 877:5,15 878:3 879:21,24 880:10 881:1 882:17 883:12,25 884:18 885:15,18 886:22 887:5 899:10 900:18,22,24 903:22 906:9,20 907:22,23 908:1 909:25 910:11,12 914:17 915:8 917:10,17 918:6 919:4 939:25 944:14 947:15 951:16 953:25 955:22 966:10 975:3 994:24 995:7 1007:9 1016:25 1019:11 1031:17 1038:18 1040:22 1063:11 1075:6 1081:20 1091:9 1095:3 1097:20 1098:6 1114:17 1119:7 plenum ^[7] 854:10 1005:12,13 1049:14 1050:21 1051:16 1091:19 plenums ^[3] 1050:8 1052:8 1090:5 plug ^[2] 1079:9,15 plurality ^[9] 945:15 946:5,15,17 952:22 953:22 968:4 1064:24 1068:22 plus ^[2] 898:23 995:14 point ^[11] 852:7 862:11 873:25 885:9 889:20 970:17 971:23 984:5 1069:6 1096:5 1104:15 pointed ^[5] 949:1 960:16 971:24 975:23 1008:6 pointer ^[3] 1058:8,10 1078:22 pointing ^[3] 1061:11,15 1080:3 points ^[2] 1020:17 1054:5 Pokharna ^[10] 844:13 845:10,22 846:2 1003:16,20 1004:6 1006:11 1130:10,13 Pokharna's ^[2] 1103:14,17 polarization ^[3] 1013:23,23 1016:4 Polarized ^[2] 1013:8,20 polarizer ^[19] 1013:12,12,13,13,18,19 1014:2,5,8,11,12,20,22 1015:5,12,15 1016:14,23 1031:5 polarizers ^[9] 945:10 1014:9,10,10,21 1015:23 poor ^[1] 1115:15 pop ^[1] 1080:22 popping ^[1] 1021:4 portion ^[61] 859:20 873:23	895:6 930:24 932:12 936:9 940:8 948:14 952:6,14 959:21 983:19 985:19 989:5 991:11 993:11 994:4,6,6,19 996:23,25,25 997:4,8 998:7,8 1000:4 1001:12 1003:1 1005:17,18,19,22 1006:24 1014:6 1022:1,1,11,18 1023:15 1025:20 1026:12 1027:19 1029:20,20 1035:1 1037:8 1049:19 1077:25 1078:1,21 1103:4,10,11,13 1105:16,21,22 1108:12,13 portions ^[5] 929:6 931:9 986:5 996:22 1044:1 ports ^[1] 943:7 POSITA ^[2] 1107:20 1108:7 position ^[10] 885:11 947:13 984:1,2 987:15 1001:9,9 1039:2,10 1093:22 positioned ^[7] 964:18 991:4 1001:23 1002:19 1025:4 1028:25 1029:8 positions ^[1] 1051:20 possession ^[3] 866:9 1033:7 1035:8 possible ^[9] 912:3 955:1 1049:21 1054:9,11 1068:6,10 1090:16 1110:7 post ^[1] 875:12 post-hearing ^[1] 1119:18 posterior ^[53] 930:14,21,24,25 931:18,19 932:15,16,21 933:21 936:4 940:19,22 941:25 942:3,3,9 943:11 947:2,3,5,11 956:10,25 957:13,18 958:1,11,12 961:14,15 962:7 963:14,17 964:4,7,10 965:2,16 966:1 1033:13,15 1034:6,8,24,25 1035:3 1036:24 1061:3,7,13,19 1062:2 potential ^[2] 849:16 874:7 potentially ^[1] 880:4 POTKAY ^[7] 842:13 886:11,12,18 887:4 897:25 917:1 power ^[10] 946:12 948:3 949:2,3 950:23 991:11 1005:10 1051:22 1060:1 1098:16 powerful ^[1] 1053:10 PowerPoint ^[1] 849:10 powers ^[1] 948:17 practice ^[1] 1043:9 Praever ^[4] 866:1,3,5 906:6 praise ^[2] 1032:9,19 preamble ^[10] 930:3 944:24 990:14,16 996:11 1007:	17 1009:19,22 1017:25 1027:9 precise ^[1] 888:19 preclude ^[1] 985:24 predominant ^[2] 1063:24 1067:22 Predominantly ^[1] 1094:2 prefer ^[4] 846:25 849:4 969:8,15 preferably ^[1] 996:18 preference ^[1] 846:19 prehearing ^[4] 971:3 976:6,10,11 prepare ^[1] 982:4 prepared ^[9] 883:22,23 892:11 896:21 897:8 901:22 918:22 921:24,25 prepping ^[1] 893:6 presence ^[2] 848:10 969:9 present ^[4] 1043:12 1044:13 1055:18 1070:6 presentation ^[4] 876:11,12 877:2 917:13 presented ^[17] 962:22 1018:13 1032:15 1041:21 1043:11 1044:15 1045:6,9 1071:9,16 1103:5 1104:3 1105:2,13,20 1106:22 1107:2 presenting ^[1] 1103:1 preserve ^[1] 1020:25 pressing ^[1] 1120:4 pressure ^[1] 1069:15 presume ^[1] 916:11 pretty ^[1] 1081:3 prevent ^[6] 933:12,15 953:4 1014:6 1071:1 1094:13 preventing ^[2] 934:20 1008:25 prevention ^[3] 954:18,19 955:2 prevents ^[4] 931:5 954:17 1006:5 1009:15 preview ^[4] 969:20,23 971:7,11 previous ^[7] 853:25 999:1 1002:9 1024:12 1033:24 1065:19 1113:21 previously ^[5] 847:10 854:10,19 863:24 934:19 primarily ^[4] 1009:7 1032:17 1090:17 1098:14 primary ^[3] 944:1 948:11 1009:13 prime ^[13] 853:11,15 944:2 952:15,18 1064:24 1067:4,8,9 1068:16,19,22 1069:10 principal ^[1] 1042:7 principles ^[3] 853:21 888:10 1030:23 print ^[1] 875:12 printed ^[19] 876:17 945:14,	23 946:2,6,8,15 947:21 948:9 949:5 950:5,10 951:8,11 956:6 1062:3 1115:4,12,18 prior ^[51] 885:2 898:15 918:20 922:23 923:25 924:6 925:15,18 927:5 946:9 949:4 953:19 958:19 986:24 996:1,5 1004:21 1012:25 1013:25 1026:25 1040:25 1044:14,20,24 1045:5 1071:16 1072:3,7,20 1073:1 1074:3 1075:21 1077:9 1087:22 1088:23 1089:14,18,23 1090:4,21,22 1094:24 1095:8,9 1100:3,25 1101:2,5,22 1102:6,19 priority ^[2] 909:17 923:19 probably ^[12] 919:25 946:10 953:10 999:4 1006:7 1009:5 1039:12 1040:2 1041:5 1063:3 1073:12 1115:5 problem ^[6] 846:24 978:17 1031:12,15 1032:8 1101:3 problems ^[1] 1075:14 procedure ^[1] 846:14 proceed ^[5] 865:6 885:18 922:16 1021:3 1022:8 proceedings ^[8] 917:9 1038:17 1097:19 1120:8 1135:9,19,22,23 proceeds ^[1] 992:4 process ^[2] 853:11,15 Procter ^[5] 841:11,16,23 842:8,15 produce ^[1] 1016:19 produced ^[5] 941:20 943:15 950:11 1068:23 1078:1 888:21 890:2,3 892:23 896:5 912:20 913:16 920:21 1032:9 PRODUCTS ^[8] 838:8 849:12 880:12 887:21 1043:7,8 1044:19,24 professional ^[3] 919:18 920:9,10 professionally ^[1] 873:9 program ^[6] 883:18 884:16,17 888:9,11 913:17 progress ^[2] 936:25 943:7 progresses ^[3] 928:18,21 966:8 progressively ^[1] 1114:13 project ^[24] 861:15,20,25 862:3,7 871:20,22 872:1 882:8,13 884:2,7 889:21,24 890:13 892:14 895:9,15 896:3,7 899:23 911:24 920:5 1088:8 projected ^[1] 885:24	projector ^[1] 1018:5 projects ^[11] 861:12,24 892:19 906:4,16,18,23 912:20 994:7 1087:18,23 promise ^[1] 938:15 Promotions ^[10] 848:19 852:7 889:21,23 890:8,14 892:14,18 905:15 915:21 pronounce ^[3] 872:23 970:10 1046:6 pronounced ^[1] 872:25 pronouncing ^[2] 861:18 971:21 proofread ^[1] 1135:15 propelling ^[3] 1037:13,18 1038:6 proper ^[1] 976:19 properly ^[3] 929:13 1014:13 1055:20 properties ^[3] 1016:9,12 1031:4 property ^[6] 864:11 876:19,23 880:18,23 1031:11 proposal ^[5] 859:15 890:2,7,11 1120:2 proposals ^[1] 851:5 proposed ^[1] 1078:23 proposition ^[1] 970:14 prosecution ^[2] 1095:1,16 protection ^[1] 860:12 protective ^[2] 1026:8,12 provide ^[9] 864:22 894:25 914:4,22 918:12 954:10 1000:7 1033:18 1043:22 provided ^[8] 870:21 892:2 911:9 925:2 928:6 930:12 941:17 947:14 provides ^[5] 957:19 958:16 1055:19 1070:7 1113:17 providing ^[3] 851:7 899:4 954:12 provisional ^[11] 856:15 857:9 877:25 878:5 881:19 907:11 908:3 909:17 913:18,22 915:7 Pty ^[1] 841:4 public ^[2] 847:4,6 Publication ^[3] 927:13 987:9 1089:3 publications ^[1] 1044:14 publish ^[3] 907:23 927:15 949:13 published ^[13] 920:16 927:13 949:14,15 954:3,5,6 959:10,13 962:16,17 1017:11,12 publishing ^[1] 899:9 pull ^[22] 874:24 879:11 881:1 907:4 909:23 913:6,20 915:9 975:12 982:9 1003:2 1050:21 1054:4 1071:11
---	---	--	---	--

1078:15 1081:20 1090:7,8 1096:21,21 1103:20 1110:12 pulling [2] 1050:8 1090:6 pulls [1] 936:7 punctuation [1] 1135:17 purchased [2] 884:25 913:16 purple [1] 1057:10 purpose [1] 869:24 purposes [2] 920:20 923:23 pursuant [1] 838:21 pursuing [1] 860:12 push [2] 1069:13,16 put [33] 847:17 854:5 867:1,5 872:7 874:20 877:3 878:11 901:15 968:10 977:11 1015:11 1019:8,11 1050:2 1052:8 1053:10 1060:22,23 1076:25 1077:23 1078:11 1079:15 1082:2 1089:22 1098:5 1103:20,22 1104:8 1105:5,9 1107:9 1117:13 putting [5] 892:22 1078:20 1079:2 1091:12 1093:9 Q qualifications [1] 922:11 qualify [1] 904:11 question [35] 866:14 869:19 876:7 901:4 904:5 906:21 934:12 958:13 981:24 1006:13 1019:16,21 1023:22 1039:20 1040:19,23,24 1041:15 1043:20 1052:1 1053:4 1062:24 1065:22 1069:17 1077:17 1080:24 1081:1 1085:6 1087:20 1088:21,22 1101:3 1115:15,16 1118:3 questions [21] 860:21 882:2,21 883:13 884:19 885:16 886:5 898:9 976:25 980:17 1081:2,5,10 1112:23 1113:3 1114:5,18 1116:6 1117:1,18,21 quick [4] 879:12 882:7 885:16 1097:12 quicker [1] 877:13 quickly [2] 913:18 989:16 quite [3] 996:3 1060:3 1094:13 quote [3] 972:7 977:20 1076:6 quoting [1] 977:10 R radiation [2] 1008:25 1014:13 rail [1] 861:23 Rainford [1] 889:12	raise [4] 871:16 886:22 917:17 1117:24 Ralph [8] 873:10,12 874:13 883:2 889:7 910:17,20,24 Random [2] 866:14 1013:24 randomly [1] 1013:20 range [5] 849:11 854:1 861:21 914:24 948:16 rate [1] 865:18 rates [1] 1017:20 rather [5] 886:2 922:13 969:10,12 1006:21 ratio [1] 920:7 RDX-0007 [1] 1114:16 RDX-0007.0027 [1] 1114:17 RDX-007 [1] 924:4 RDX-007.0012 [1] 971:18 RDX-7 [4] 1041:19 1060:23,24 1073:5 RDX-7.131 [1] 1105:5 re-recross [1] 882:3 reach [12] 920:22 925:11 926:10 937:22 947:7 957:3 961:9 963:22 967:25 987:1 1025:11 1032:10 reached [14] 875:19 926:16,22 947:16 951:18 955:23,25 966:11 994:25 995:8 1007:10 1031:18 1032:14 1119:22 read [24] 869:17 870:3 874:9,15,16 875:14,22 877:18 879:8,18 901:2,13 904:12 914:10 915:1 1002:9 1035:17 1041:4,11,15,17 1042:8,9 1103:14 reading [4] 1002:4 1019:5 1088:21 1115:18 reads [1] 875:17 real [6] 852:11 853:7 885:16 1031:13 1073:10 1084:9 realize [2] 862:15 1054:20 really [7] 846:25 864:25 913:18 977:9 984:7 1074:14 1083:23 realm [1] 955:20 rear [55] 931:8,13 932:5 936:25 941:5,17 942:2 944:11 947:2,3,4,5 951:6,7 953:5,14 954:13 958:8,10 959:23 963:18 964:23 965:23 966:7 987:21 989:7 993:11 994:2 996:22,24,25 997:4,8 1006:22,22 1008:7 1014:21 1022:1,11 1023:15 1033:20,23 1060:5,6,10,18 1061:3 1062:8,21 1063:2,5 1099:21 1103:11,13 1108:13	rear-facing [6] 930:21 943:5 961:20 963:25 964:1 1014:3 rearward [1] 942:2 reason [2] 850:17 885:10 reasonable [7] 955:16 972:10 1007:4 1015:20 1016:2 1030:18 1093:23 reasoning [1] 1027:11 reasons [5] 926:2 934:18 997:19 1015:2 1030:15 reassembled [1] 940:2 rebooting [1] 889:1 recall [41] 856:10,12 860:19 867:10 868:16 882:9,20 883:13 884:19 889:14 890:21 891:13 892:22 900:2 901:7 902:10 903:15 904:8 905:5 916:18 1032:3,4 1071:13 1079:11 1087:11 1088:6,13 1089:25 1103:1 1110:21 1111:20 1112:2,5,23 1114:5,19,24 1116:3,6 1117:1,6 receive [2] 891:24 929:6 received [9] 844:24 845:8,18 846:12 856:8 901:19 975:16,21 976:10 receivership [1] 871:11 receives [1] 1018:12 receiving [3] 856:10 891:14 976:20 recent [3] 1039:14,23 1041:6 recently [2] 903:3 919:9 recess [6] 917:6,8 954:18 974:6 1038:16 1097:18 recessed [3] 936:9 1070:20 1120:9 recirculated [1] 1006:2 recite [2] 1032:17 1071:25 recited [5] 996:18 1010:20,24 1012:12 1028:2 recites [1] 957:12 recognize [42] 849:7 851:15 854:15 855:5,16 856:13 857:9,17 859:5 860:2,14 863:8 878:17,20 891:18 893:15,24 894:9 895:11 896:25 897:16 899:11 905:14 907:10 909:9 912:3 921:14,22 924:13,24 927:10 939:5 987:7 1013:5 1017:10 1035:11 1040:10 1056:5,12 1092:16 1096:9,17 recognized [2] 1071:20,21 reconvene [1] 1120:9 record [14] 845:5 847:4,7 969:5,6 986:5 1021:7 1049:9 1068:15 1092:1,5,11,20 1095:20	recording [1] 1135:23 RECROSS [1] 1121:3 RECROSS-EXAMINATI ON [1] 885:19 rectangular [3] 1104:6,24 1105:2 red [6] 850:13,17 930:25 935:20 940:23 1104:15 REDDY [1] 842:4 REDIRECT [3] 882:5 1110:19 1121:3 redirecting [1] 903:10 reduce [5] 948:12 1016:14 1031:14 1050:16 1070:22 Reduced [4] 1013:7 1015:7 1030:15,16 reduces [1] 1052:18 reducing [3] 934:22 1009:16 1050:19 reduction [20] 995:24 996:4 1008:21,22,23 1009:2,4,11,14 1012:23 1013:2,10 1014:1 1015:2 1016:8 1030:7,9,11,19 1031:3 Redwood [1] 841:25 REED [1] 839:18 reenters [1] 986:12 refer [4] 979:17 983:22 1020:12 1082:2 reference [73] 927:5 928:1 931:13,15 937:11,16 939:8,13 943:12 944:15,19 947:8,10,17 949:7,11 950:16,21 953:7 955:7 957:16,24 960:3 962:9,14 970:16,25 971:20 972:7 973:3,20,21 975:24 976:13 982:12 985:1,15,16 988:22 993:23 995:1,3 1002:12 1005:5,6 1010:9 1011:24 1017:7,15 1019:7 1027:8 1029:25 1057:2 1071:18 1072:3,6,7 1079:19 1081:15 1082:1 1093:8,12 1095:13 1096:3,9,22,25 1097:8 1102:24 1104:12 1114:25 1115:12,19 referenced [3] 892:4,5 1095:8 references [15] 922:23 923:25 924:3 938:6 970:8,10 973:5,5,15 1089:14,18,24 1090:2 1094:20,25 referred [10] 941:25 949:11 971:18 972:3 998:20 1005:5 1012:12 1019:22 1020:13 1033:24 referring [9] 860:5 884:7 892:5 950:6 1001:14 1098:21 1099:2 1102:18 1112:17 refers [14] 887:19 930:13 931:17 935:4 947:1 966:	17 983:1 985:18 993:6 994:13 997:1,16 1002:19 1091:24 reflect [5] 895:23 896:6 897:10 919:1 1049:9 Reflectance [3] 1013:8 1016:15,16 reflectances [4] 1015:7 1016:18 1030:16 1031:14 reflected [8] 844:23 845:7,17 846:11 856:1 870:6 929:23 1031:13 reflection [1] 929:19 reflections [1] 1016:20 reflective [2] 950:1 1014:10 reflector [1] 1074:21 reflects [3] 870:11 896:8 916:21 refrigerated [1] 1036:14 refrigeration [2] 1036:8 1037:15 regard [14] 859:9 926:10 934:16 937:24 946:3 950:19 955:10 956:16 995:10 1028:3,4 1032:10,25 1074:2 regarding [7] 846:17 902:11 925:10 972:12,17 977:23 981:10 regardless [1] 915:23 region [2] 928:8 963:11 registering [2] 860:6,7 regularly [1] 903:3 regulated [3] 1002:25 1003:12 1011:17 regulation [1] 1003:11 relate [8] 888:19 896:3 902:5 923:12,16 928:13 1017:1 1023:11 related [10] 909:16 920:18,18 946:12 948:20 1075:9,15,21 1076:17 1077:9 relates [8] 923:14 937:6 947:17 962:10 968:19 1007:11 1031:19 1065:25 relating [2] 920:17 1119:2 relation [1] 853:19 relationship [6] 850:24 851:1 861:10 862:11 864:18,24 relationships [1] 889:7 Relative [17] 874:6 883:21 918:12 932:14 933:20 941:24 942:16 956:24 960:18 1011:18 1028:8 1034:23 1039:17 1043:22 1051:20 1052:19 1089:21 relatively [1] 1081:12 relevant [7] 924:1 1005:8 1039:13,22 1040:25 1084:20 1085:2
--	--	--	--	--

relied [7] 938:6 978:15 1090:17 1095:12 1097:8 1114:24 1115:1 relies [1] 970:16 rely [3] 922:20 1083:16 1098:14 remember [13] 866:5 868: 11,12,13 871:20 876:3,8 878:12 881:17,20 1106:24 1114:22 1116:8 remind [3] 938:17 956:18 1009:25 remove [8] 932:12 936:4 943:10 955:1,3 1079:25 1080:13 1090:15 removed [3] 977:17 979:3 1076:22 removes [1] 1023:14 render [1] 1106:23 rendered [16] 854:19,21 890:1,3,4 893:4,9,18,22 894:2,13,18 896:17 897:11 902:21 956:16 rendering [5] 857:24 858: 16 868:4 883:7 909:2 renderings [6] 855:24 856: 2,5,8 857:21 892:23 renders [1] 937:19 repeat [1] 880:20 rephrase [1] 1115:15 replace [1] 891:8 replacing [1] 951:10 report [81] 883:17,24 895:9 970:13,15 971:16,19 972:3, 8,15,20 973:2,9,11,14 975: 15,16 976:1,3,11,17 977: 16 978:7,9,9,15 979:1,8 980:12,23 981:10 982:8,19 983:14,24 984:23 985:14 986:2 1018:19,23 1019:3,5 1020:16,16 1056:12 1059: 12 1065:7 1076:1,1 1081: 25 1088:13,16,25 1089:6,7, 10,13,23 1090:2 1092:15 1093:19 1095:14 1103:14, 17,18,21,22 1104:2,10 1105:3,17,25 1106:23 1107:3,12 1109:2,6,8,9 1117:3,4 Reported [1] 838:25 REPORTER [4] 847:17 900:5 1135:1,25 Reporter's [1] 1135:16 reports [3] 922:25 971:3 985:11 repositioned [1] 892:8 represent [10] 850:8,9,14 894:15 911:5 1015:15 1038:23 1116:14,15,17 representation [4] 857:23 890:6 975:7 1111:18 representing [2] 894:24	970:5 require [3] 903:8 1055:2 1099:7 required [6] 879:3 920:8 925:1 955:12 960:11 1033: 4 requirement [8] 901:8 956: 9 964:21 995:23 1008:20 1016:7 1033:5 1045:25 requirements [1] 948:3 requires [5] 951:25 952:21 961:13 991:9 1003:21 Research [1] 883:19 reside [8] 951:9 994:22 1003:1 1006:4 1012:2 1025:6 1047:8 1117:13 resides [1] 940:5 941:13 998:5,7 999:12,13,18 1000: 4 1011:5 1024:5 1030:4 residing [1] 1001:4 resistance [4] 948:5,13 1050:12,19 resolution [1] 864:2 resolve [1] 863:13 resolved [1] 975:10 Resources [1] 839:3 respect [25] 896:7 922:11 925:16 926:7,8 937:6 938: 18 947:8 954:8 957:8 970: 7 976:9 994:25 995:13 997:10 1013:9 1020:23 1028:6 1036:12 1041:18 1044:23 1050:8 1063:13 1084:3 1118:19 respective [1] 1006:9 respond [1] 1091:7 Respondent's [2] 1046:8 1078:19 Respondents [11] 841:2 842:2 844:10 886:12,12 917:1,11 922:5 1043:7 1044:22 1096:7 Respondents' [2] 984:2 1071:10 response [5] 856:10,12 880:16,21 971:11 rest [1] 874:3 restrict [1] 958:22 restricted [1] 1074:10 result [4] 889:6 965:12 1054:23 1113:12 resulting [2] 1057:13 1058: 20 results [2] 965:13 1054:23 resume [1] 975:4 Resumed [4] 847:12 917:9 1038:17 1097:19 return [2] 969:6 989:16 Returning [2] 1015:8 1099: 22 reverse [1] 1069:16 review [6] 900:15 920:14	1035:6 1038:7 1098:11 1118:9 reviewed [5] 894:3 895:9 922:22 925:23 1035:13 reviewing [1] 1119:14 revise [1] 999:1 right-angle [1] 1026:19 right-hand [3] 928:4 1034: 12 1114:3 right-most [1] 942:19 ring [1] 1059:25 rise [1] 1069:14 rises [1] 1075:19 RMR [1] 838:25 Road [1] 840:14 Robert [4] 917:11,20 918:7 1121:6 Robinson [1] 1135:11 role [5] 855:23 856:4 890: 13 893:4 894:17 roof [1] 992:17 room [5] 969:22 970:3 974: 1 978:24 1006:24 rotationally [1] 965:22 roughly [5] 953:15 1014:12 1016:16 1089:12 1109:18 routine [1] 1014:22 RPX-2 [2] 844:17 1121:15 RPX-5 [1] 1121:16 RPX-7 [1] 1121:17 RPX-8 [1] 1121:18 RPX-9 [1] 1121:19 RU [1] 1096:15 rugged [2] 1042:3,6 ruggedization [1] 920:19 ruling [4] 969:14 1118:3,10 1119:14 run [1] 1076:3 running [1] 1020:25 runs [1] 1075:10 RUSSELL [1] 839:17 RX [1] 1092:14 RX-0019 [2] 845:11 1130: 11 RX-0025 [2] 845:11 1130: 12 RX-0254 [1] 921:13 RX-0548 [3] 859:3,5,20 RX-069 [1] 882:17 RX-0697C [1] 882:18 RX-069C [1] 882:17 RX-0762 [2] 849:2,13 RX-0762C [1] 850:5 RX-0856C [1] 1122:5 RX-0860 [1] 1122:6 RX-0897C [1] 1122:7 RX-0899C [1] 1122:8 RX-0905C [1] 1122:9 RX-0906C [1] 1122:10 RX-0907C [1] 1122:11 RX-0908C [1] 1122:12 RX-0914C [1] 1122:13	RX-1085C [2] 1122:14 1133:20 RX-1104 [1] 1122:15 RX-1105 [1] 1122:16 RX-1106 [1] 1122:17 RX-1107 [1] 1122:18 RX-1108 [1] 1122:19 RX-1108C [1] 1133:3 RX-1109 [1] 1122:20 RX-1109C [2] 1133:4,21 RX-1117 [1] 1122:21 RX-1118 [1] 1122:22 RX-1119 [1] 1122:23 RX-1120 [1] 1122:24 RX-1121 [1] 1122:25 RX-1122 [1] 1123:1 RX-1123 [1] 1123:2 RX-1124 [1] 1123:3 RX-1125 [1] 1123:4 RX-1126 [1] 1123:5 RX-1127 [1] 1123:6 RX-1128 [2] 1123:7 1133:5 RX-1129 [1] 1123:8 RX-1130 [1] 1123:9 RX-1131 [1] 1123:10 RX-1132 [1] 1123:11 RX-1133 [1] 1123:12 RX-1134 [1] 1123:13 RX-1135 [1] 1123:14 RX-1136 [1] 1123:15 RX-1137 [1] 1123:16 RX-1138 [1] 1123:17 RX-1139 [1] 1123:18 RX-1140 [1] 1123:19 RX-1141 [2] 1123:20 1133: 6 RX-1142 [1] 1123:21 RX-1143 [1] 1123:22 RX-1144 [1] 1123:23 RX-1145 [1] 1123:24 RX-1146 [1] 1123:25 RX-1147 [1] 1124:1 RX-1147C [1] 1134:2 RX-1148 [1] 1124:2 RX-1148C [1] 1134:3 RX-1149 [1] 1124:3 RX-1150 [1] 1124:4 RX-1151 [1] 1124:5 RX-1152 [1] 1124:6 RX-1153 [1] 1124:7 RX-1154 [1] 1124:8 RX-1155 [1] 1124:9 RX-1156 [1] 1124:10 RX-1157 [1] 1124:11 RX-1158 [1] 1124:12 RX-1159 [1] 1124:13 RX-1160 [1] 1124:14 RX-1161 [1] 1124:15 RX-1162 [1] 1124:16 RX-1163 [1] 1124:17 RX-1164 [1] 1124:18 RX-1165 [1] 1124:19	RX-1166 [1] 1124:20 RX-1167 [1] 1124:21 RX-1168 [1] 1124:22 RX-1169 [1] 1124:23 RX-1170 [1] 1124:24 RX-1171 [1] 1124:25 RX-1171C [2] 1133:7,22 RX-1172 [1] 1125:1 RX-1173 [1] 1125:2 RX-1174 [1] 1125:3 RX-1175 [1] 1125:4 RX-1176 [1] 1125:5 RX-1177 [1] 1125:6 RX-1178 [1] 1125:7 RX-1179 [1] 1125:8 RX-1180 [1] 1125:9 RX-1181 [1] 1125:10 RX-1182 [1] 1125:11 RX-1183 [1] 1125:12 RX-1184 [1] 1125:13 RX-1185 [1] 1125:14 RX-1186 [1] 1125:15 RX-1187 [1] 1125:16 RX-1188 [1] 1125:17 RX-1189 [1] 1125:18 RX-1190 [1] 1125:19 RX-1191 [1] 1125:20 RX-1192 [1] 1125:21 RX-1193 [1] 1125:22 RX-1193C [1] 1133:8 RX-1194 [1] 1125:23 RX-1195 [1] 1125:24 RX-1196 [1] 1125:25 RX-1197 [1] 1126:1 RX-1198 [1] 1126:2 RX-1199 [1] 1126:3 RX-1200 [1] 1126:4 RX-1201 [1] 1126:5 RX-1202 [1] 1126:6 RX-1203 [1] 1126:7 RX-1204 [1] 1126:8 RX-1205 [1] 1126:9 RX-1206 [1] 1126:10 RX-1207 [1] 1126:11 RX-1208 [1] 1126:12 RX-1209 [1] 1126:13 RX-1210 [1] 1126:14 RX-1211 [1] 1126:15 RX-1212 [1] 1126:16 RX-1213 [1] 1126:17 RX-1214 [1] 1126:18 RX-1215 [1] 1126:19 RX-1216 [1] 1126:20 RX-1217 [1] 1126:21 RX-1218 [1] 1126:22 RX-1219 [1] 1126:23 RX-1220 [1] 1126:24 RX-1221 [1] 1126:25 RX-1222 [1] 1127:1 RX-1222C [2] 844:17 1121: 23 RX-1223 [1] 1127:2
---	--	--	--	--

RX-1224 ^[1] 1127:3	RX-1283 ^[1] 1129:11	947:14 949:3 957:10 962:	972:12 1025:21 1053:13	18 910:18 913:7,21,22,23
RX-1225 ^[1] 1127:4	RX-1284 ^[1] 1129:12	2 972:18 980:17 997:18	1091:6	914:1 915:14 916:6 925:3
RX-1226 ^[1] 1127:5	RX-1285 ^[2] 1129:13 1133:	1005:3 1006:12 1008:18,	screen ^[28] 849:5,11 860:	927:24 928:24 930:14 931:
RX-1227 ^[1] 1127:6	11	19 1022:6 1023:2,21 1025:	25 863:7 867:2,6 868:4,8,	17 933:2,16 935:3,6 936:
RX-1228 ^[1] 1127:7	RX-1286 ^[2] 1129:14 1133:	23,24 1026:1,22 1027:11	22 870:23 872:8,15 874:11,	10 939:18 940:3 942:18
RX-1229 ^[1] 1127:8	12	1030:14 1032:8 1073:15	19,20 876:14,15 877:13	943:6 945:1 949:24 951:5,
RX-1230 ^[1] 1127:9	RX-1286C ^[1] 1133:24	1106:8,13 1110:8 1111:17	899:11 907:5 909:23 921:	25 952:2,16,20,21 953:15
RX-1231 ^[1] 1127:10	RX-1287 ^[1] 1129:15	1113:22 1116:11	16,20 927:20 1026:17	957:11,12,15 958:7 959:8
RX-1232 ^[1] 1127:11	RX-1288 ^[1] 1129:16	Samsung ^[23] 841:2,2,3,4	1056:18 1105:6,8	961:3,6,7,17 962:19 963:1
RX-1233 ^[1] 1127:12	RX-1289 ^[1] 1129:17	890:23,24 891:11,14,22,24	screens ^[13] 848:25 851:8	964:13 965:15 966:4 967:
RX-1234 ^[1] 1127:13	RX-1290 ^[1] 1129:18	892:2 915:12 916:6,9,11	852:9,12 853:20 854:4,5	19,23 973:23 975:16 976:4,
RX-1235 ^[1] 1127:14	RX-1291 ^[1] 1129:19	1043:7 1088:4,7,11,12,13,	864:11 872:1,2 879:3,4	5,7,8 978:21 979:21 983:4,
RX-1236 ^[1] 1127:15	RX-1292 ^[1] 1129:20	23,25	885:24	4,7 987:15 989:13,18 990:
RX-1237 ^[1] 1127:16	RX-1293 ^[1] 1129:21	Samsung's ^[1] 865:17	screenshot ^[1] 897:12	10 991:3,25 993:5 994:13
RX-1238 ^[1] 1127:17	RX-1294 ^[1] 1129:22	San ^[1] 841:18	screw ^[2] 954:15 955:1	997:5 1002:12 1005:12,19
RX-1239 ^[1] 1127:18	RX-1295 ^[1] 1129:23	sandwich ^[6] 1058:21,23,	screws ^[3] 953:3 958:7	1007:19 1010:8 1011:24
RX-1240 ^[1] 1127:19	RX-1296 ^[1] 1129:24	25 1059:2 1063:12 1080:	1080:21	1015:13 1016:7,10,20
RX-1241 ^[1] 1127:20	RX-1297 ^[1] 1129:25	11	scroll ^[4] 867:14 878:24	1017:9,14,15,24 1020:4
RX-1242 ^[1] 1127:21	RX-1298 ^[1] 1130:1	sandwiches ^[2] 1070:16,	879:23 914:3	1025:9 1029:19,25 1034:2
RX-1243 ^[1] 1127:22	RX-1299 ^[1] 1130:2	18	scrolling ^[2] 848:25 849:	1035:10 1036:15,16,18,25
RX-1243C ^[2] 1133:9,23	RX-1313 ^[1] 1130:3	sat ^[1] 920:13	10	1037:2 1039:21 1041:3,5
RX-1244 ^[1] 1127:23	RX-1314 ^[1] 1130:4	satisfied ^[1] 1080:20	SDS ^[2] 841:3,4	1042:7 1046:1,19 1047:13
RX-1245 ^[1] 1127:24	RX-1314C ^[1] 1133:25	save ^[1] 902:15	seal ^[3] 955:20 994:5 1079:	1049:16 1054:14 1055:22
RX-1246 ^[1] 1127:25	RX-1315 ^[1] 1130:5	saved ^[1] 902:19	10	1056:15 1057:4 1058:3,16
RX-1247 ^[1] 1128:1	RX-1316 ^[1] 1130:6	savings ^[1] 950:23	sealed ^[35] 933:4,18 954:	1061:4,9 1062:13,15,16,17
RX-1248 ^[1] 1128:2	RX-1317 ^[1] 1130:7	saw ^[6] 860:23 923:5 951:6	12 972:6 980:6 982:15	1064:5,25 1065:1,9,11,14
RX-1249 ^[1] 1128:3	RX-1318 ^[1] 1130:8	975:15 1027:4 1077:9	985:3,3 988:1 993:4 1020:	1068:18,19,24 1069:24
RX-1250 ^[1] 1128:4	RX-1351 ^[2] 987:5 1096:22	saying ^[27] 979:25 980:18,	9 1022:21,23 1023:13,14,	1070:1,10 1072:8 1073:8
RX-1251 ^[1] 1128:5	RX-1353 ^[3] 959:9 1092:11,	20 981:1 984:9 1042:5	16,16,17 1024:5,15,18,23	1075:5 1076:16 1078:3,22
RX-1252 ^[1] 1128:6	12	1049:25 1050:25 1051:3	1025:1 1027:24 1029:18	1080:23 1082:3 1083:2,3,
RX-1253 ^[1] 1128:7	RX-1356 ^[1] 954:2	1053:5 1056:10 1063:5	1030:4 1093:18,22 1106:1,	23 1084:5 1085:12,15
RX-1254 ^[1] 1128:8	RX-1359 ^[2] 1091:4 1092:2	1066:6,9,10 1067:1,13	3,4 1116:9,10,12,16	1089:4,5 1090:19 1092:25
RX-1255 ^[1] 1128:9	RX-1359.28 ^[1] 1092:2	1070:12 1071:5 1078:10	seals ^[2] 993:2 1080:14	1094:5,12 1095:24 1096:2,
RX-1256 ^[1] 1128:10	RX-1367 ^[2] 927:9 1055:13	1082:20 1084:24 1087:1	seated ^[5] 844:4 917:10	11,20,23 1097:5,6 1098:18
RX-1257 ^[1] 1128:11	RX-1373 ^[1] 962:14	1102:4,5 1108:25 1109:5	975:3 1038:18 1097:20	1099:8,9,12,13,14,18,24,
RX-1258 ^[1] 1128:12	RX-1374 ^[2] 949:10 1077:	says ^[58] 867:16 875:2 877:	Seattle ^[1] 839:15	25 1103:4 1104:21 1107:
RX-1259 ^[1] 1128:13	20	18 881:9 883:5 907:8 914:	second ^[17] 852:24 859:23	18,19,22 1108:2,3,9,14,22
RX-1260 ^[1] 1128:14	RX-1386 ^[1] 1013:5	4,21 915:10 965:6 979:4	868:19 880:10 908:11 914:	1112:21
RX-1262 ^[1] 1128:15	RX-1390 ^[1] 1092:21	982:14 985:1 992:5 1003:	20 915:10 994:7,21 998:4,	seeing ^[6] 928:4 948:25
RX-1263 ^[1] 1128:16	RX-1396 ^[2] 939:1 1069:23	10,12 1004:3 1008:3 1010:	10 1000:13,14 1009:16	990:8 1058:8 1110:21
RX-1263C ^[1] 1121:21	RX-1397 ^[1] 1005:3	16 1019:5 1022:14 1025:8	1036:2,3 1098:3	1113:9
RX-1264 ^[1] 1128:17	RX-1398 ^[1] 1017:8	1027:24 1042:5 1046:13	secondary ^[5] 925:19,25	seeking ^[1] 1015:20
RX-1265 ^[1] 1128:18	RX-1499 ^[1] 896:25	1049:12,13,17,23,24 1052:	1031:25 1032:5 1043:11	seemingly ^[1] 1107:25
RX-1266 ^[1] 1128:19	RX-1515C ^[1] 1121:20	18,22 1055:17 1061:3,6	seconds ^[2] 881:25 885:14	seems ^[4] 912:15 969:2
RX-1267 ^[1] 1128:20	RX-1516 ^[4] 845:5 846:3	1064:3,4,8,19,21 1068:21	section ^[13] 913:25 936:10	984:7 1033:20
RX-1268 ^[1] 1128:21	1130:9 1133:13	1069:9,24 1070:5,6 1075:5,	969:11 987:21,21 989:7	seen ^[5] 852:21 857:6,15
RX-1269 ^[1] 1128:22	RX-256 ^[2] 1092:15 1103:	13 1077:25 1083:20 1084:	1000:2,3 1001:5 1067:8	894:18 985:7
RX-1270 ^[1] 1128:23	21	1 1090:10 1091:13 1098:	1099:10 1101:4 1102:22	select ^[1] 1013:20
RX-1271 ^[1] 1128:24	RX-548 ^[1] 878:11	13,15 1099:1,5 1107:13	sections ^[1] 928:25	SEMI-OUTDOOR ^[2] 838:
RX-1272 ^[2] 1128:25 1133:	RX-697 ^[2] 872:5,11	1109:3	secure ^[2] 914:22 959:23	7 1135:2
10	RX-762 ^[1] 876:2	scale ^[3] 1045:11 1068:4,4	secured ^[1] 890:15	send ^[6] 851:24 853:16 859:
RX-1273 ^[1] 1129:1	RX-812 ^[1] 897:14	scales ^[3] 1045:18,20,21	see ^[223] 849:6 850:7 852:3,	12,14 863:15 871:12
RX-1274 ^[1] 1129:2	Ryerson ^[2] 888:4,8	scatter ^[1] 929:24	17,24,25 853:12,22 856:18	senior ^[1] 919:14
RX-1275 ^[1] 1129:3	S	schedule ^[2] 1119:6,8	859:20 860:3 861:3 863:	sense ^[4] 955:11 1006:18
RX-1276 ^[1] 1129:4	S.W ^[2] 838:14 843:5	schematic ^[8] 849:16 894:	21 864:7 865:10 867:13,14,	1010:18 1016:22
RX-1277 ^[1] 1129:5	sake ^[2] 934:11 1006:10	21 897:5 906:11 1017:18	16,25 868:8,20 869:20 870:	sent ^[3] 859:8,15 870:8
RX-1278 ^[1] 1129:6	sales ^[2] 863:4 873:5	1045:10,13 1109:18	22 872:14 873:19 875:1,5	sentence ^[12] 852:15,24
RX-1279 ^[1] 1129:7	SAME ^[46] 838:9 855:8 860:	schematic-type ^[3] 1045:	876:15,18,19,25 877:17	875:10,17 914:4,21 915:10
RX-1280 ^[1] 1129:8	10 864:15 866:22 868:16	18 1046:1,2	878:6,9 879:25 880:14	979:17 1070:25 1084:10,
RX-1280C ^[1] 1121:22	877:16 878:23 881:22 894:	Science ^[2] 919:8,10	881:8,14 882:23,25 883:4,	13 1108:6
RX-1281 ^[1] 1129:9	2,12 903:13 904:10 909:2,	Scientific ^[1] 883:19	5 884:12,21 885:24 896:11	separate ^[4] 852:25 904:15
RX-1282 ^[1] 1129:10	17 925:4 933:2 939:10	scope ^[6] 969:14 971:13	901:6 907:13,16,20 909:12,	999:13 1099:16

separated [2] 967:24 1027:4 separation [1] 1045:15 September [1] 962:18 series [2] 850:9 933:16 service [1] 953:4 services [1] 899:4 SESSION [1] 1121:9 SESSIONS [1] 1121:11 set [16] 918:22 920:6 928:16 952:17 959:22 988:4,13,25 994:21,22 999:11 1001:3 1037:7 1041:9 1055:4 1075:7 sets [1] 1020:16 several [9] 862:8 903:3,11 912:19 924:2,3 959:3 1027:3 1115:9 severe [1] 875:18 shaded [3] 1104:18,19,23 SHAH [1] 839:5 Shall [2] 975:4 1023:4 shape [3] 852:10 932:4 979:23 shapes [2] 941:20 943:15 shared [2] 874:13 883:2 sheet [8] 895:9,16 896:3,6 960:12 961:4 962:12 987:5 sheets [5] 895:18,21,23 945:8 1074:21 shelter [2] 855:9 894:4 shield [51] 939:22,22 940:7 941:3,6,12,15,17,19,24 942:12,14 943:4,14,19 944:11 952:6 953:6,12,14 956:21,24 957:17,20,25 960:12,21 961:2,19,23 962:1 1056:18 1057:5,8 1059:3 1060:14 1061:15 1062:8,21,24 1063:17 1068:21 1070:17,19,20 1079:17,18 1080:9,12,18,22 shielded [1] 1064:1 shift [1] 1056:2 short [3] 1061:24 1111:15 1118:24 shorthand [1] 945:7 shortly [1] 852:1 shoulder [1] 1034:13 shouldn't [2] 978:6,8 show [55] 848:2,6,8,11 850:23 851:4,19,21 852:1,20 857:21 869:23,24 874:12 876:10,11,12,13,22 883:1 892:24,25 893:5 895:5 896:5 902:18 906:16,23 907:5,25 909:24 930:12 936:21,24 941:23 952:17 956:16 959:7 964:6 972:4,5 979:16 987:12 1006:2 1033:7,20 1037:22,23	1038:8 1044:15 1063:20 1102:22 1111:16,16 1118:25 showed [7] 849:11 1056:25 1073:6 1075:25 1076:2 1077:14 1112:1 showing [18] 848:25 850:15 857:21 894:2 906:11 927:20 939:2,2 949:24 1017:20 1026:25 1038:5 1053:14,15 1084:2 1109:11 1113:23 1119:1 shown [72] 870:14 882:19 896:17 927:18 928:17 931:10 933:2 938:19 939:13 940:16 942:9 944:19,21 945:12 953:7,11 956:1 957:1 959:19 960:9 962:12 963:21 973:22 975:7 987:5,14 989:17,24 991:2 997:20 998:3 999:23 1001:9 1002:25 1005:4 1007:22,25 1013:15 1015:17 1016:6 1020:19 1022:2,25 1024:5,12 1025:17 1028:17,18,21 1031:1 1033:22 1034:11,24 1036:2,23 1037:1,14,18 1038:9 1045:24 1047:7,22 1064:11,13,23 1068:6 1082:14 1100:2 1106:3,5 1108:13 shows [23] 854:1 856:21 894:13 896:14 897:21 903:1 930:11 933:18 936:19 962:22 987:13,16 989:14 1001:5 1004:16 1025:22 1067:4 1091:14,23 1092:6,7 1113:7,7 sic [2] 961:10 1084:12 side [54] 847:18 924:25 925:1 927:18 928:4 932:19 933:9,11,20,23 934:4,8,13,17 935:15 942:7,11,14,16 945:16 947:2,4,5 956:2 961:23 976:15 989:21 1004:18 1005:12 1024:8 1029:10 1034:12 1046:10 1051:2 1056:5,7,14 1057:4,9 1058:1 1059:15,17,19 1060:5,6,10,18 1061:3 1084:1 1086:22 1105:6,7 1119:5,8 side-by-side [4] 1000:16 1060:24 1082:2 1103:22 sides [5] 932:5 945:15 986:4 1049:21 1063:21 sidewalls [7] 1037:1,2 1047:6 1080:21 1090:15 1098:22,24 sift [1] 1020:22 Signage [10] 847:24 848:3,16 850:3 855:8 870:18	875:12,18 893:1,19 signal [3] 929:7 1018:12 1034:18 signals [1] 1034:20 Signature [2] 1135:12,25 Signco [1] 841:4 SIGNED [2] 1135:11,20 significant [1] 891:3 similar [8] 878:15 921:3 956:3,4 976:5,9 1057:1 1069:13 similarly [3] 925:3 971:20 1113:18 simple [2] 951:10 1098:25 simplified [1] 1057:8 simply [6] 948:4 973:11 979:1 1008:23 1014:19 1019:5 simulator [4] 920:4,7 1040:3,3 since [15] 866:9 888:2 905:20 906:14,15,22 928:20 937:9 979:19 985:22 1007:6 1009:5 1026:6 1049:17 1116:20 single [8] 861:22 967:22 999:18 1052:21,23 1054:9,11 1073:13 sink [11] 948:18 998:16 1073:7,13 1075:16 1076:25 1077:10,11,14 1078:15 1093:9 sinks [4] 1076:22 1078:10 1079:2 1114:22 Sinnott [1] 873:17 sir [12] 904:1 907:8 1041:14 1042:6 1048:22 1052:2 1053:4,16,24 1081:10 1101:5,19 sit [1] 852:22 sits [2] 936:9 1000:2 situation [2] 863:14 1118:14 situations [1] 914:8 six [1] 920:15 size [12] 953:14 1050:4 1052:3,5,7,8 1053:17 1055:10 1063:19 1083:15,17 1098:9 size-wise [1] 1087:2 sized [2] 1051:10,12 sizes [2] 960:19 1051:21 sketch [1] 883:7 skill [37] 920:24 921:4,5 923:4 934:12 946:1,7 947:22 950:14,22 951:1 955:5,15,20 960:4,13,23 968:13,16 991:8 992:12 998:12,23 1006:14,19 1007:3 1009:9 1014:17 1015:19 1016:17,23 1018:7 1026:7 1027:21 1030:10,17 1031:9	skilled [15] 1046:3 1051:8 1052:6,21 1053:9 1054:15,16,19 1055:2,9 1080:20 1081:13 1086:19 1087:7 1093:23 skills [1] 888:12 skimming [1] 978:11 slice [2] 928:7 1113:25 slide [199] 917:13 918:25 919:1 921:2 922:19 924:4,13,24 925:3 926:2 927:8,17,18 928:14 930:13 931:1,19 932:19 935:3 937:12 938:19 939:2,13 940:10 941:24 942:9,21 944:21 945:12 946:14 947:15 948:24 949:9,19 951:23 952:3,7,20 953:7 954:1 956:2,18 957:11,17 959:7,8,15 961:6,21 962:12,19 963:1,4 964:13 965:15 967:1,19 970:7 971:17,25 972:11,17 973:10,22 975:7,13 976:4,5,9,22 977:11 983:8 986:16 987:6,11 988:20 989:19,25 990:15 991:3 993:5 994:13 995:7 996:14 997:15,24 1001:5 1002:9,12,18 1004:12 1005:4 1007:22 1010:8 1011:6,13,24 1012:13 1013:4 1015:8 1016:6 1017:9,14 1021:23 1024:13 1027:8 1028:18,21 1029:16,25 1031:1 1033:22 1035:10 1036:15 1041:19 1042:5 1046:8,9,10 1047:10 1048:17 1056:4,4,25 1057:8,13,15,20,23 1059:1,11,12,13 1060:21,23 1061:12 1063:10,11 1065:7,19 1067:11,11 1068:1,11,15 1071:10,12,13 1073:5 1075:6,8,24 1076:14 1078:18,19 1079:7,13 1081:22 1083:22 1084:17 1085:7,17,17 1086:1,6,22 1090:23,24 1091:3,4 1092:3,3,4,4,13,14,19,21 1094:3,4,4 1096:8 1102:25 1103:1,21 1105:1,13,23 1106:22 1107:2,9 1109:16 1113:19 1114:2,18 1115:24 1116:4,7,10 slides [21] 969:7,10,14 970:22 971:13 975:11,13 977:7 984:14 989:3 1017:22 1041:20 1048:13 1059:10 1086:11 1096:6 1097:10 1106:22 1109:15 1110:12 1118:20 slips [2] 1058:6,13 slit [1] 1067:4	slits [9] 944:2 952:15 1059:4,14 1063:16 1064:24 1068:16,22 1069:10 sliver [1] 1113:7 slot [1] 1063:23 slots [13] 952:15 988:11,13 993:13,17 1003:3,5 1011:10,19,21,22,22 1057:21 small [6] 848:12 887:9 919:25 929:22 955:19 1063:22 smaller [5] 885:1 1085:10 1086:18,22 1087:2 smaller-scale [1] 914:5 smarter [1] 882:1 smidge [1] 867:14 Smith [7] 849:2 850:22 851:10 856:17 859:3 892:16 1114:15 Smith's [1] 1114:16 Smith-Gillespie [49] 917:12,15,20 918:3,7 919:12 922:6,19 938:5 944:13 948:22 951:17 954:7 956:18 960:2 962:10 971:22 972:2,14 973:25 977:9,16 979:17 980:9 983:19 984:23 985:5,13 986:14 987:19 988:20 989:10 1003:16 1005:2 1013:17 1015:8 1016:24 1017:5 1019:16,17 1021:25 1031:18,24 1038:22 1110:11,21 1118:1,11 1121:7 Smith-Gillespie's [7] 971:19 977:18 982:8 983:13 985:21 1019:1 1118:4 Smrke [2] 873:13 908:20 Society [1] 920:12 software [1] 887:15 solar [23] 995:24 996:4 1008:20,22,23,25 1009:2,4,10,14 1012:23 1013:1,9 1014:1,6,13 1015:3 1016:8 1030:6,8,11,19 1031:2 sold [1] 862:6 solely [1] 979:4 solid [25] 972:5 979:15,16,20 983:6,10,12,25 985:20 998:18 1022:25 1024:15 1026:19 1100:3,4,7,9,19,25 1101:6,22 1102:16 1111:11 1116:14,15 solid-state [2] 1041:7 1042:20 SolidWorks [4] 896:13,14 897:5,13 solve [2] 1031:15 1032:8 somebody [1] 1079:20 someone [1] 903:6 Sometimes [4] 848:4 921:19 1013:22 1050:12 somewhat [1] 942:4
---	---	--	---	---

somewhere [2] 866:15 928:7 soon [1] 992:24 Sorry [52] 847:17 854:20 857:7 869:7 880:20 882: 18 885:4 903:25 911:23 952:10,11 967:3 976:23 980:17 981:21 984:6 988: 12 990:5,24 1002:3 1003: 15 1010:7 1018:23 1019: 21 1023:21 1036:24 1037: 12 1040:15,21 1043:19 1044:7 1045:19 1048:3 1058:9 1059:12 1062:14 1063:10,14 1072:25 1077: 19,21 1078:22 1080:6 1081:18 1092:4 1093:6 1102:8 1105:22 1109:9,24 1113:15 1116:2 sort [19] 907:25 909:1 911: 4 953:3 970:6 975:17 1009:6 1046:18 1047:12, 23 1048:5,21 1050:20 1060:15 1078:11 1083:8 1087:7 1095:25 1111:17 sorts [1] 976:20 sound [2] 1089:14,20 sounded [1] 973:4 sounds [3] 871:4 1089:16 1120:3 source [12] 946:19 950:3 998:16 1064:19 1073:16 1074:8 1075:10 1076:3,6, 10 1077:24 1088:16 sources [1] 927:23 space [60] 867:8 892:9 929: 22 935:19 936:11 941:4 943:3,6,18 978:23 979:2 983:16,17,18,20 985:7,8, 10,17,19 988:6,7,8,9,14 992:3 993:9,10,14,18 994: 8 997:11,14 998:6 1000:19, 21 1001:21 1002:4,24 1003:1,2,11,14 1006:22,23 1008:9 1010:22 1011:11, 12,16 1012:2,6 1014:3 1027:5 1052:19 1061:16 1093:24 1094:1 1100:15 1101:8 spaced [12] 932:17 941:13 942:4 945:8 964:24 1007: 24 1008:2 1025:20 1026: 10,12 1027:1 1108:18 span [1] 960:10 speaker [1] 1135:17 speaking [4] 887:14 892:3 893:6 903:9 special [1] 958:23 specialized [1] 888:11 specific [8] 860:17 894:17 895:8,10 911:17 958:24 998:20 1032:18	specifically [12] 892:3,22 894:23 895:3 896:4,20 898:21 904:8 912:18 915: 21 1041:12 1114:21 specification [16] 926:12 950:7 964:9 967:7 977:20, 21 979:15,18 983:23 1033: 6,19 1035:2,6,15 1036:1,5 specified [3] 913:17 1008: 25 1055:20 specify [1] 951:13 speculation [1] 903:4 speed [1] 1069:11 spelling [1] 1135:17 spend [1] 848:15 spent [1] 896:8 split [18] 853:21,24 854:3 860:2 870:11,13,22 878:20 879:6 881:22 886:3 903:1, 2,4,7,10,12 904:6 spoke [1] 904:25 SR&ED [1] 883:18 SRIKANTH [1] 842:4 stack [8] 877:22 939:19 945:1,6,7,10,11,13 stacks [1] 928:9 staff [2] 898:23 919:14 stage [1] 948:1 stand [5] 846:17 868:14 1061:24 1079:21 1080:17 standard [3] 948:6 1013: 13 1014:11 standing [3] 990:2,3,7 stands [1] 971:9 start [11] 874:4 875:11 877: 24 891:12 927:4 955:24 969:13 996:8 1064:3 1088: 21 1090:6 started [9] 862:15 888:24 896:21 898:10 899:23,25 901:8 905:23 946:10 starting [8] 874:1 877:24 901:2 996:14 1004:12 1009:22 1040:19 1113:7 starts [5] 844:17 845:2,10 846:2,4 state [10] 884:23 901:23,25 919:7,9 975:8 1088:14 1089:1 1091:10,11 stated [4] 1004:2 1031:12 1109:2,6 statement [6] 876:22,25 884:11 915:24 1071:3 1098:2 statements [2] 866:20 885: 22 STATES [12] 838:1 875:10 884:2 927:12 943:13,21 950:9 952:5 965:21 992:9 1018:3 1031:6 stay [3] 847:6 856:16 881:2 staying [2] 896:2 946:14	step [3] 880:3 886:8 917:4 stepping [1] 963:4 stick [4] 874:25 877:12 1081:5,7 sticker [1] 867:15 Sticking [4] 873:10 874:11 876:14 1080:19 still [17] 865:12,17 875:16 885:6 886:1 895:21 902: 15 906:3 912:25 915:23 916:15 1040:15 1054:23 1060:3 1062:20 1078:16 1079:20 stock [2] 891:8 892:7 Stockton [5] 839:6,13,20 840:8,13 STOCKWELL [60] 839:19 922:10 969:4,24 970:4,5 974:4 975:6 977:3,12 980: 15,16 981:6,9,11,14,19,21, 24 982:2 984:4,6,17 986:9 1018:17,18 1020:14,15,24 1021:12,16 1022:6 1023:2, 21 1025:21,23 1026:2,22 1038:14,21,23 1048:12,15 1049:2 1081:6,9 1091:7,10, 17 1097:21,22 1102:3,7,13 1110:3,14 1117:21 1118: 18 1119:4,9 stood [2] 886:10 917:5 stop [2] 867:24 1102:9 straightforward [4] 951:4 955:18 1015:24 1030:21 strategic [1] 955:12 straw [2] 1069:14,14 stream [3] 998:11 1000:9,9 Street [9] 838:14 839:21 840:9 841:12,24 843:5 852:8,12 1135:13 street-level [1] 914:6 strike [5] 902:9 986:3 1020: 23 1021:2 1118:20 strong [1] 1069:12 strongly [1] 1110:11 structure [5] 890:25 1062: 10,11,20 1083:14 structures [4] 920:8 923: 12 1062:7 1094:11 struggling [1] 868:25 struts [3] 913:9,11,13 styles [1] 893:11 sub-assembly [1] 890:19 sub-claims [1] 929:2 sub-element [1] 953:10 subject [6] 852:2 879:22, 23 882:3 1036:20 1072:21 submit [1] 890:7 submitted [5] 844:23 845: 7,17 846:11 1121:13 substantially [3] 956:10 1049:22 1051:7 substantive [2] 970:21	1135:18 substituting [2] 951:2 960: 25 substrate [2] 951:13 955:1 subway [1] 871:23 success [9] 955:17 1007:4, 8 1015:21 1016:3,3 1030: 18 1043:13 1099:6 sucked [1] 967:9 sufficient [5] 863:25 1033: 2 1054:4 1071:5 1097:17 sufficiently [2] 932:17 964: 24 suggest [2] 1020:24 1032: 11 suggesting [1] 863:13 suggests [1] 1035:8 suitable [4] 914:5,14,24 1008:3 Suite [4] 839:7,14,21 1135: 13 summaries [2] 895:16 938: 18 summarize [13] 919:4 937: 5 944:14 947:16 951:17 955:22 966:10 968:18 994: 24 995:7 1007:9 1016:24 1031:17 summarizes [1] 897:22 summary [7] 895:9 924:14 975:12 1071:14 1099:13, 13 1109:2 sun [2] 914:8,15 Sungsu [3] 844:11,16 1121:14 sunlight [2] 915:13 1009: 16 supplied [4] 891:8 893:7 894:7 1049:20 supplier [2] 862:18,23 supplies [2] 991:12 1098: 16 supply [2] 861:21 1060:2 support [13] 891:4 926:12 934:7 959:25,25 960:10,11, 20 965:5 967:24 1029:12 1043:15,21 supported [3] 978:3 992:1 1032:22 surface [88] 891:2 930:14, 21,22,25 931:19 932:15,16, 21 933:22 936:4,25 940:20, 22 941:5,6,25 942:3,9 943: 5,11 944:11 947:2,3,5 956: 10,25 957:13,18 958:1,11, 12 961:15,16,20 962:2,8 963:14,14,15,16,17,18,25 964:1,4,7,10,24 965:2,4,6, 17,23 966:1,7 992:16,17 1000:8 1007:21 1014:3,21 1015:16 1025:19 1026:4 1027:1 1033:14,15 1034:6, 8,24,25 1035:3 1036:24 1037:6 1061:3,7,13,19 1063:2 1074:9 1099:21,23 1108:17,18,20 1109:13 1117:17 surfaces [1] 1024:24 surprises [1] 976:20 surrounds [1] 989:5 swear [1] 886:20 switching [1] 984:8 swore [1] 900:10 sworn/affirmed [3] 847: 10 886:25 917:21 symposium [1] 920:15 system [103] 850:10,18 852:6 854:3,19 859:9 860: 8 861:25 862:3 890:16,20, 22 903:13 904:10,14,18, 913:23 914:22 915:4 927: 14 929:5,6,9,12,13 930:4,8, 11 932:22 934:14,24 940: 25 941:7,9 942:11,24 950: 16 954:4 960:6 963:8 978: 20 979:5,7 983:3,18,21,22 984:9,12 987:17,22,23 988: 6 989:5,6 993:4,16,19 1001:2 1004:25 1006:24 1007:5 1009:23 1010:1 1013:1 1017:24 1018:1,2,4, 20 1019:6,18 1020:1,10,12, 17 1021:25 1022:12 1023: 11,17 1025:20 1027:10,17 1035:19 1036:4,8,13 1039: 15,24 1041:8 1042:11,17 1055:19,21 1071:5 1074: 16 1099:2 1103:7 1108:5,8 1109:17,25 1117:13 systems [16] 861:8 884:5, 10 919:10 1037:18 1039: 19 1088:14 1089:1 1090: 11,14,16 1098:12,13,21 1099:1,5
---	--	--	--

T

tab [8] 867:4 868:20,20 872:
4 874:19 900:19 903:22
907:3
table [8] 844:10,12,16,25
845:9 846:3 927:9 987:5
tables [3] 845:20,25 846:
10
Tachikawa [18] 926:24
927:1 938:2,7,21,23 959:
12,16,17 960:3,10,15,16
961:1,12 1091:2 1092:3,6
tagged [1] 901:10
tail [1] 871:19
Taiwan [2] 885:3,5
Tak"-somebody [1] 959:6
Takahashi [23] 926:21 927:
2 937:21 938:1,4,9,24 954:
4,5,6,8,16,16,21 955:5 957:
6 1079:7,8,8,16 1080:8,14,

19 Takeuchi ^[64] 924:6 926: 18 927:5,14 928:1,3,6 929: 4,5,9,11,15 930:7,9,12,22 931:2,25 932:3,13,25 934: 4,8,24 935:22,24 936:13, 19 937:6,9 938:11 959:22 1046:5,13 1048:19 1049: 12,17,25 1050:25 1051:3,9 1052:7,16,22 1053:1,5,7,8, 13,15 1054:1,3,6,9,12,25 1055:3,13,24 1090:25 1111:19,24,25 1113:15 Takeuchi's ^[5] 927:19 932: 22 934:13 935:14 936:3 talked ^[25] 852:21 867:22 868:5 871:7 877:20 961: 22 995:18 1009:24 1030: 12 1040:1 1045:7 1049:1,3 1079:8 1087:6,6 1090:2,22, 25,25 1091:1,1 1093:8 1101:5 1102:25 talks ^[8] 973:14 991:11 1000:11 1061:1,2 1070:15 1098:12 1099:20 tall ^[1] 1000:7 Tap ^[1] 847:18 task ^[3] 895:10 1000:19 1014:24 tax ^[1] 883:20 teach ^[3] 863:20 954:8 1071:21 teaches ^[3] 1090:5 1091: 12 1113:16 teaching ^[2] 955:4 1066:7 teachings ^[5] 950:13 960: 3,8 1014:16 1079:1 technical ^[5] 859:10 864: 22 888:3 891:14,21 Technically ^[2] 1088:11,16 technique ^[1] 1015:22 Technologies ^[1] 919:15 technology ^[7] 848:23 860: 12 875:13,17 884:25 888:5 915:24 television ^[1] 959:13 tells ^[1] 942:21 temperature ^[7] 875:19 914:24 920:21 948:16,21 963:11 1051:4 temperatures ^[3] 949:2 1002:6 1008:6 tend ^[1] 1074:7 tendency ^[1] 1069:12 tendered ^[1] 1118:4 tens ^[1] 1015:25 tentative ^[1] 991:18 tentatively ^[1] 991:22 term ^[18] 903:2 904:5,7 928: 10 930:18 931:21 932:1 935:9 940:20 941:10 942: 25 964:15 965:19 980:8	991:18,22 998:24 1095:4 terms ^[11] 867:1 924:10,15, 22,24,25 925:4 951:14 1074:4 1091:5 1113:12 testified ^[19] 847:11 858:5 887:1 898:10 899:13 916: 17 917:22 934:1 986:1 1019:17 1020:16,19 1040: 13,16 1043:1 1066:20 1072:12 1113:2,19 testify ^[8] 971:15 972:2,14 984:24 985:16 1079:14 1087:17,22 testifying ^[2] 1053:25 1071:13 testimony ^[36] 857:3 900:3, 6 901:19 902:10 903:16 918:23 922:25 971:14 972: 9,12 976:16 978:3 979:6 981:2 983:15 985:6,12,22 1003:17,19 1021:3 1026: 23 1045:10 1051:13 1052: 20,25 1066:23,25 1073:5 1079:11 1087:11 1094:23 1100:6 1116:3 1118:21 testing ^[2] 1044:14 1045:2 text ^[14] 867:7 873:24 874: 1 876:18 915:6 992:1 1065:1,20,24,25 1084:13 1098:1,3 1103:23 TFT ^[5] 920:7 990:20 991: 10 996:18 1018:4 Thanks ^[1] 907:10 themes ^[1] 869:22 theories ^[2] 971:16 1018: 19 theory ^[4] 971:5,6 975:23 980:22 there's ^[116] 846:24 851:12, 13 863:17 867:19 874:19 884:1,5 901:9 904:14 923: 11,11 924:2 927:21,22 933: 16 936:9,11 939:17 940:5, 7 943:6 951:5,7 952:16 953:9,10 954:12 956:6 958:24 960:7 965:4 968: 11 970:6,8 976:21 977:6 978:16,17,21 985:8 987:15, 21 988:25 989:4,6 991:14 993:20 994:4,20,20,21 997: 11 999:10 1000:6 1004:11, 24 1005:17,19 1006:1,3,5, 24 1013:23 1014:9,9,10 1021:10 1024:7 1027:3 1028:15 1030:22 1034:11 1035:4 1037:5,24,25 1046: 17 1050:7,11 1052:19 1061:6 1062:2,20 1063:20, 20,21,22 1066:11,11,11 1067:9,18,23 1068:16 1070:21 1084:19,22 1092: 23,23 1093:3 1094:10,14	1095:22 1096:15,15,16 1101:17,23 1102:16 1103: 21 1104:6,15 1106:14,19, 21 thereby ^[2] 933:14 968:2 therefore ^[13] 914:21 943: 20 952:18 956:15,23 964: 20 992:10 993:3 995:4,4 1002:9 1012:18 1113:14 THEREOF ^[1] 838:10 thermal ^[15] 850:11 884:8 904:11 920:19 922:7,11 948:5,13,25 950:25 965:10 1000:20 1078:2 1098:17 1099:3 thermally ^[1] 1014:7 thick ^[1] 960:18 thickness ^[1] 1006:8 thin ^[7] 1000:7 1004:13,20 1076:10 1100:14 1102:5 1113:7 thinking ^[2] 869:25 947:6 third ^[7] 860:1 875:7 908: 18 911:2 1036:6,7 1097:4 though ^[6] 911:9 975:11 977:23,24 1006:21 1011: 23 thoughts ^[3] 852:16 853: 19 999:20 thousands ^[1] 1016:1 Three ^[9] 841:17 848:25 874:13 883:1 990:13 1035: 19,20 1059:10 1101:9 through-hole ^[1] 954:12 through-holes ^[2] 1079:9, 10 throughout ^[6] 850:10 877: 1 984:1,2 1045:10 1093:25 throw ^[1] 906:9 Thursday ^[1] 838:17 tick ^[1] 867:25 timestamp ^[1] 897:7 timestamps ^[1] 896:15 timing ^[1] 1034:21 tiny ^[2] 879:13 1058:9 title ^[4] 866:5 913:21 949: 17 1135:2 today ^[13] 918:23 983:15 984:24 986:2 1072:12 1102:25 1103:5 1104:3 1105:2,13,20 1110:7 1120: 4 together ^[11] 862:4 866:24 892:22 905:20 926:21 940: 4 968:10 1015:11 1058:22 1089:23 1107:9 Tom ^[3] 873:17 874:13 883: 2 tomorrow ^[2] 1120:2,7 tone ^[1] 1102:12 took ^[9] 868:14 869:22 888: 25 910:16,16,23 1085:19	1086:2 1104:14 tools ^[1] 887:15 top ^[49] 850:14,21 854:8,12 865:12 867:9 873:19 875: 8 881:8,14 907:25 928:18 937:2 943:8 952:16 962:5 973:20 978:21 988:12,19 990:3,8 993:17 1003:5 1005:17,19 1007:22 1037: 9 1046:17 1051:5 1052:23 1057:9,22 1060:6 1063:16, 23 1065:3,9,16,17,23 1066: 3 1067:8 1068:2 1076:15 1093:9,9 1098:6 1112:15 Toronto ^[2] 887:10 888:5 total ^[1] 929:18 totally ^[2] 929:23 971:3 touch ^[1] 904:19 toward ^[5] 850:13,14 851: 14 863:17 989:21 towards ^[3] 943:7 1051:5 1074:15 Townsend ^[5] 839:6,13,20 840:8,13 trace ^[1] 857:25 traced ^[3] 857:20,22 858:2 track ^[1] 981:7 TRADE ^[7] 838:1,13 843:4 848:2 892:24,25 1135:22 training ^[1] 888:3 transcribing ^[1] 900:5 transcript ^[7] 869:11 900: 16 1088:19 1118:10 1119: 14 1135:15,18 transfer ^[36] 920:17,22 950: 11 965:10 988:4 989:2 992:18,19 993:11 994:1,7, 10,10,20,22 998:4,6,9,10 999:14,18 1000:1,3,13,14, 15,20 1002:10 1003:4 1004:19 1012:2,10,17 1090:11 1098:21 1099:1 transferred ^[5] 1000:8,18 1003:13,13 1024:25 transferring ^[2] 992:11 1018:15 transfers ^[4] 998:9,16 999: 16 1005:22 transilluminating ^[1] 991: 9 transistors ^[1] 1076:11 transit ^[2] 855:9 894:4 transition ^[1] 1094:19 transitioning ^[1] 979:22 transits ^[2] 993:16 997:14 transmitted ^[1] 1015:3 transparent ^[11] 927:25 991:1 1010:9,12,13,15,16, 18 1014:6 1027:18 1030:7 trapezoidal-shaped ^[1] 1104:20 travel ^[1] 865:20	traveling ^[3] 983:12 992: 20 1037:5 travels ^[2] 929:18 1099:20 trials ^[1] 879:6 trouble ^[5] 869:2 967:3 1039:4 1040:15 1106:25 true ^[3] 1054:8 1087:19 1135:23 truth ^[3] 900:10,12 903:18 try ^[8] 864:2 868:24 1015: 11 1021:22 1044:20 1090: 14 1110:17 1116:2 trying ^[10] 864:17 869:24 884:16 984:11 1053:24 1067:25 1077:6 1100:5 1102:8,15 turn ^[48] 849:13 854:14 855: 4,15 856:13,23 857:14 859: 3 863:6 867:3 869:15 883: 25 884:18 891:16 893:13, 23 894:8 895:11 896:25 897:14 900:18,22 903:22 907:2,7,22 911:2 914:17 915:8 921:10,10 926:13 937:11 951:23 962:9 966: 16 995:6 1008:13 1009:18 1016:6 1019:14 1027:7 1071:8 1088:18,20 1097: 23 1109:15 1115:24 Turning ^[20] 922:19 927:17 930:13 931:1,17 932:19 935:3 940:10 949:19 956: 18 957:2 961:6 990:15 991:3 1007:15,16 1011:6 1029:16 1035:10 1112:13 two ^[33] 845:20,25 846:10 850:16 852:12 859:21 885: 16 904:18 917:12 921:3 923:11 931:4 932:19 933: 11 934:20 939:17 940:4 942:7,11 961:5 970:6,8 973:14 978:16 987:20 990: 23 1006:5 1007:17 1009: 13 1016:19,20 1086:11 1099:16 two-thirds ^[1] 909:15 type ^[7] 850:11 930:5 956:7 998:20 1007:5 1055:19 1083:18 types ^[4] 848:2 884:8 1004: 5 1009:8 typical ^[3] 1073:15 1075:2 1101:17 typically ^[3] 896:14 958:17 1098:16
---	--	---	--	---

U

U.K. ^[2] 865:13 1017:12
U.K.-based ^[1] 889:10
U.S. ^[7] 843:4 909:9,10,16
939:9 1135:9,22
ultimately ^[2] 877:25 901:
5

Um-hum [2] 914:2 1075:23 uncovered [1] 953:2 under [8] 900:8 903:20 909:16 915:17 921:6 923:5 928:17 1090:8 undercut [1] 925:20 underground [1] 871:23 Underneath [2] 1060:16, 17 understand [46] 867:21 901:17 903:12 909:1 920:3 924:9,12,21,23 925:18 930:17 935:8 936:12 939:25 946:2,7 950:22 976:2 984:13 986:20 991:8,17 998:15 1016:18 1026:8 1027:22 1032:21 1039:20 1043:24 1045:25 1051:13 1052:20 1053:24 1063:9, 12 1072:18 1073:4 1087:1 1090:4 1098:21 1099:1 1100:24 1101:6 1102:15 1111:2 1113:1 understanding [15] 861:1, 6 862:2 903:6 904:9,9 920:23 931:20 937:13 981:8 1033:3 1037:17 1072:13, 13 1102:20 understood [7] 899:13 901:18 998:13 1016:16 1095:12 1100:19 1111:7 undertaken [1] 936:12 unexploded [1] 854:18 unfelt [1] 1032:19 Unfortunately [2] 980:16 1081:2 uniform [3] 1051:6,7 1113:17 uniformity [3] 934:22 1053:3 1054:21 uniformly [4] 965:7,24 1049:22 1054:7 unit [48] 914:23 939:9,21, 23 940:6,8,21,23 941:3,4,5, 13,18 942:3,4 943:6,9,18 944:1,7,12 945:19 946:20 950:2,3 957:22 962:24 963:11,18 964:1,19 965:7 966:6,24 988:1 1005:1 1036:8 1037:15 1059:19 1060:5,11,12 1064:20 1070:7,9 1078:23 1079:3 1084:12 UNITED [2] 838:1 927:12 units [2] 879:1 914:7 universal [1] 884:3 University [2] 919:7,11 unless [1] 968:24 unmet [1] 1032:7 unpictured [1] 1108:1 unscrew [1] 954:19 unscrewing [1] 1080:20	until [2] 902:22 1120:7 up [104] 846:20,24 847:23 849:2,5 850:2 851:10 852:6 863:7 867:5,14 868:22 869:23,23 872:8,12 874:24 877:3 878:11 879:11 881:1 882:17,20 883:12 886:2 890:19 901:15 906:9 907:4 909:6,23 910:9 913:6,20 915:9 928:24 936:1,25 948:17 949:24 964:25 966:8 972:19 975:12 977:11 979:23 982:9 986:16 988:11 1006:3 1015:4,5 1021:4 1025:8 1029:6 1037:24 1040:5 1041:3 1044:20 1046:17 1047:22,25,25 1048:16,21 1049:14 1050:17 1055:4,15 1058:18 1059:10,10,18 1060:2,22, 22,23 1070:4 1071:11 1075:19 1076:11 1077:22 1078:17 1079:13 1081:20 1085:20 1086:4 1088:19 1090:6,7,8 1092:8 1096:4, 21,21 1097:4 1098:4,6 1103:20,25 1107:11,12 1110:17 1111:17 upcoming [2] 892:24 969:10 updated [1] 922:2 upper [3] 1001:12 1066:10 1078:1 upstream [1] 1029:12 upward [2] 943:7 1066:10 upwards [1] 1066:14 uses [3] 980:9 1041:9,9 using [17] 886:3 892:9 920:22 948:4 973:4 976:2 1007:4,6 1009:10 1035:18 1039:15,24 1071:1 1075:6 1078:10 1079:1 1095:13 utilized [1] 920:7 utilizes [1] 929:16	13,17 1003:5 1011:10,19, 21,22 venting [1] 1053:2 vents [10] 1022:15 1028:12, 13,14,20,21 1050:1,4,17 1093:18 verbatim [1] 1135:23 verified [1] 896:23 version [3] 891:7,10 1092:16 versus [1] 976:11 vertical [5] 850:12 962:6 1001:11 1063:25 1082:18 vertically [1] 1067:23 Vertigo [89] 848:10,18,22, 22 850:24 851:3 856:7 862:16,17,20 863:1,19 864:1,6,12 870:19,21 871:10, 13,13 873:11,12,13,17 874:7,14 875:2,20 876:10,19, 19,23 877:9,25 879:17,25 880:6,12,13,17,22 881:4, 11,15,18 882:12 883:3,6, 18 884:2,7,25 885:6,8,10 886:2 889:4,5,6,15,20,22 890:7,10,14 892:19 893:5 895:17 898:13,15,20,25 899:4 908:7,9,15,22 909:12 910:21 912:16,19 913:13 914:13 915:17,23 916:5, 8,14,18 Vertigo's [7] 862:11 871:16 875:11,11 884:23 913:3 916:2 vibrating [1] 1013:21 vibration [3] 1070:23 1071:1 1079:4 video [2] 913:22 929:7 view [110] 862:19 894:14, 23 897:11 899:19 905:24 918:20 925:15,18 926:18, 20,21,24,25 927:1,2,3,19 928:5 930:3 933:1 935:20 936:10 937:9,19,21,25 938:1,2,3,21,22,22,24 939:15 940:1,2 944:18 947:9,13 949:23 951:7,20 953:11 956:15 957:6 958:7 960:2 961:3,11 962:5,21 966:14 968:22 971:12 973:8 978:2 981:17 986:17,23 987:3 988:23 991:2 995:1,5,11, 12,14,15 1001:6,10 1006:16 1007:13 1008:14 1012:18,21 1017:4 1025:14 1031:22 1033:23 1045:1 1053:12,20,21,23,24 1055:8 1056:6,8,8 1057:1 1059:9,11,21 1065:8 1067:5,6,9 1068:12 1075:25 1082:25 1083:13 1087:7 1108:6 1113:6 1114:14 1116:12,	20,24 1117:14 viewed [2] 957:20 961:25 viewer [2] 990:1,2 views [5] 936:21 1033:20 1046:1,2 1094:12 viscous [1] 1050:11 visible [2] 965:14 1094:11 visited [1] 905:9 visualization [2] 868:4 878:7 visualizations [2] 853:18 870:2 vitro [1] 919:16 voir [1] 922:12 VOLUME [3] 838:19 1000:8 1052:18	15 921:18 986:14 well-known [3] 945:6 970:15 1009:12 West [1] 840:9 whatever [5] 849:4 851:11 1029:20 1092:4 1110:14 whatnot [1] 893:8 whatsoever [1] 975:9 Where's [1] 989:20 whereas [2] 956:5 1018:21 wherein [2] 999:11,12 Whereupon [5] 847:8 886:23 917:19 974:6 1120:8 whether [31] 848:13 890:10 902:5 927:10 934:12 950:13 953:2 955:4 956:19 962:4 970:17 991:14 1012:18 1031:24 1032:11, 21 1037:17 1043:6,7,9 1044:15 1045:2 1059:17 1072:8 1073:23 1083:4 1093:12 1094:24 1095:8 1114:2 1118:2 whichever [1] 1059:6 whilst [1] 972:5 white [1] 867:8 Who's [1] 857:12 whole [6] 875:21 965:9 968:14 1055:7 1074:8 1083:5 widely [1] 946:19 wider [1] 852:13 width [7] 962:1 968:1,15 989:14 1083:5,7 1086:23 will [74] 863:6 879:1 882:20 887:14 926:3,4 927:5 929:1 933:16 938:5,14 939:1 943:6 946:13 956:15 959:7 969:11 979:6,17 980:9 984:23 994:5 998:17 1008:24 1014:12 1021:16 1041:14 1047:17 1049:9 1051:3, 4,5 1052:24,24 1053:5 1054:1,7,23 1055:6,17,25 1059:9 1062:13,14,15,17, 17 1065:16,23 1066:14,16 1067:2,24 1068:5 1069:2 1074:24 1079:13 1081:7, 19 1086:14 1088:21 1094:13,14,16,16,17 1098:25 1102:9,14 1110:3,17 1111:23 1118:23 1119:9 William [1] 857:13 Williams [8] 1004:24 1005:4,6,7,9,24 1006:16 1007:4 wind [1] 965:21 window [1] 897:7 Winston-Salem [1] 840:10 wish [1] 981:21 withdraw [1] 1077:17 within [42] 849:17 854:2
--	---	---	---	---

855:9 884:9,16 890:4,22, 24 891:4 892:10 894:3,15 897:13,22 904:15 931:2 944:19 955:14 966:22 972: 14 979:1 983:1,2,16,20 985:3,19 988:5 991:4,16, 20 1023:17 1024:23 1028: 7 1029:18 1045:3 1059:21 1084:19 1093:24 1094:17 1116:15 1117:2 without [6] 950:24 953:5 955:2 969:13 1022:23 1112:10 withstand [1] 875:18 witness [47] 846:23 847:19 865:1 885:13 886:9,10,13, 14,17,20 887:2 897:25 898: 1 916:25 917:5,16,24 969: 13,22,25 970:2,3 971:14, 14 986:12 1018:19 1019: 20,24 1020:1,6,11,15 1025: 22 1026:4 1038:11 1040: 20 1048:25 1081:6 1091: 11,14 1097:12,15 1102:4 1110:3,7 1117:19 1121:3 witness' [2] 922:11 969:9 witnesses [2] 846:15,17 WO [1] 1096:15 WO116116 [1] 1096:23 WO2007116116 [1] 1096: 16 won [3] 890:10,12,14 wonder [1] 982:9 wondering [3] 1051:25 1062:1 1069:18 WOO [1] 841:15 word [3] 860:14 1020:11 1070:18 words [2] 1055:24 1067:19 work [54] 850:4,11 873:2, 11,13,17 883:21 888:14 889:5,15,20 890:4 892:18, 19,21 895:4,6,16,24 896:4, 7,23 902:6 908:15 912:16, 19,21 916:22 919:2,24 934: 24 935:1 954:11 1000:10 1039:1,9,14,14,23,23,24 1040:2,20 1041:1,6,6 1042: 1,3,6 1050:20 1055:25 1070:13 1119:5,7 work-related [1] 888:13 worked [13] 852:6 862:4 888:22 889:22 906:15,18, 23 912:24 1041:22 1042: 18,20 1088:4,22 working [22] 849:12 851: 20 861:12 864:18,23 870: 19 885:3 887:24 888:1 889:6,17 905:19,25 906:4 912:19 919:14,18,23 920:4 1088:6,7,11 works [2] 999:15 1052:2	write [3] 853:14 854:7 863: 23 written [8] 856:12 926:6,11 1032:22 1033:2,4,11,12 wrote [16] 851:18 852:16, 24 853:9 860:1 861:1 863: 11,19 864:4,16 873:20 874: 6,12 878:19,25 879:15 Y Yare [70] 970:25 971:20 975:11 978:2 982:12 985: 1,15 995:12,15 1017:7,13, 19,19,25 1018:2 1019:1 1020:2 1022:5,10,13,19,21, 22 1023:11,11,20,25 1024: 1,3,17,18 1025:3,6,12,14, 14,19,22 1026:4,10,15 1027:9,14,18,20,24 1028:1, 5,8,10,12,22,24 1029:2,4, 16 1030:1,3,6,8 1031:1,19, 22 1095:15 1096:3,7 1102: 24 1104:12 1108:6 1109:3 Yare's [11] 1021:25 1023: 17,17 1024:10 1029:14 1030:13,19 1031:11 1108: 5,7,12 year [5] 868:11 869:12 888: 9 906:3 922:2 years [11] 888:25 889:1 903:7 906:1,14,15,22 920: 13,15 996:3 1115:5 yellow [9] 942:18 950:4 1046:11 1047:23 1056:14 1057:4,9 1058:1 1059:15 yellow-ish [1] 935:21 yellowish [1] 1048:5 Yep [4] 910:12 1034:16 1050:24,24 yesterday [4] 847:24 865: 23 868:13 1119:12 YOONA [1] 841:22 York [5] 842:16,18,18 861: 23 919:7 yourself [3] 887:6 918:5 920:16 Z Zephyr [1] 887:9 zone [48] 932:18 944:10 955:14 972:5,6 980:6 982: 15 985:3 988:9 992:19,19 997:12 1005:15 1022:3,13, 16,21,23 1023:13,14,18 1024:5,7,14,16,19,23 1025: 1,7,9 1027:24 1028:14 1029:5,6,18 1030:4,5 1038: 3 1106:1,3,4,13 1116:9,11, 12,16,19,19 zoom [1] 1095:22
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