IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

- - -

MICROCHIP TECHNOLOGY INCORPORATED,	: C.A. No. 17-1194
Plaintiff,	:
vs.	:
APTIV SERVICES US, LLC,	:
Defendant.	:

- - -

TRANSCRIPT OF PROCEEDINGS

TESTIMONY/CHARGE CONFERENCE

VOLUME 4

- - -

Date: Monday, April 11, 2022

Time: 8:30 a.m.

Place: J. Caleb Boggs Federal Building
844 N. King Street
Courtroom 6B
Wilmington, Delaware 19801

Before: HONORABLE JOSHUA D. WOLSON, JUDGE

Reporter: Rose A. Tamburri, RPR, CM, CRR
Notary Public of Delaware

- - -

VERITEXT LEGAL SOLUTIONS
MID-ATLANTIC REGION
1801 Market Street, Suite 1800

1 to you, and now we are going to turn to Aptiv 09:16:41
2 and give Aptiv an opportunity to present its 09:16:44
3 own evidence and its own witnesses who will -- 09:16:48
4 Aptiv will both defend itself against the 09:16:52
5 charge of infringement and also make its 09:16:54
6 argument that it thinks that the claims 23 09:16:58
7 through 25 of the patent are invalid. 09:17:03
8 MR. WIENER: Your Honor, Aptiv 09:17:06
9 calls Mr. Robert Voto. 09:17:08
10 THE COURT: Mr. Voto, you can step 09:17:09
11 up. 09:17:10
12 THE COURT CLERK: Please state and 09:17:31
13 spell your name for the record. 09:17:38
14 THE WITNESS: Robert Martin Voto, 09:17:41
15 R-O-B-E-R-T, M-A-R-T-I-N, V-O-T-O. 09:17:41
16 - - - 08:37:07
17 ...ROBERT M. VOTO, after having 08:37:07
18 first been duly sworn and/or affirmed, was 08:37:11
19 examined and testified as follows... 08:37:14
20 - - - 08:37:18
21 DIRECT EXAMINATION 08:37:18
22 - - - 09:18:19
23 BY MR. WIENER: 09:18:19
24 Q. Good morning, Mr. Voto. 09:18:20

1 Can you please introduce yourself 09:18:21
2 to the jury. 09:18:23
3 A. Good morning. My name is Robert 09:18:23
4 Voto. 09:18:26
5 Q. Mr. Voto, why are you here today to 09:18:26
6 testify? 09:18:28
7 A. Well, I am here today, I was -- 09:18:30
8 myself and my team developed this Boston chip 09:18:33
9 many years ago, and I really feel strongly 09:18:37
10 that the Boston chip does not infringe on 09:18:41
11 Microchip's patent, and I really wanted to 09:18:45
12 come here and explain to you the whole history 09:18:48
13 of how we developed it so you understand that 09:18:49
14 from my perspective. 09:18:51
15 Q. Mr. Voto, can you please tell the 09:18:52
16 jury about yourself? 09:18:54
17 A. Yes. So I'm born and raised in 09:18:55
18 Michigan, went to school for electrical 09:18:58
19 engineering degree at Purdue University, 09:19:01
20 graduated there, came back to Michigan, 09:19:04
21 started working in the automotive electronics 09:19:06
22 business. 09:19:09
23 So I was working for Delphi at the 09:19:10
24 time. We were developing different types of 09:19:13

1 electronic products for cars, got a master's 09:19:15
2 degree in electrical engineering while I was 09:19:19
3 doing that. 09:19:21
4 And then in 2009, I decided to 09:19:21
5 leave Delphi; I went to Unwired Technology. 09:19:26
6 Unwired Technology was another automotive 09:19:29
7 company, and I was the Vice President of 09:19:33
8 Engineering at Unwired Technology. 09:19:37
9 And I stayed with that until 2014 09:19:39
10 when Unwired Technology was actually purchased 09:19:42
11 by Delphi, the company actually got bought by 09:19:47
12 Delphi, so now I'm back to being a Delphi 09:19:50
13 employee in 2014. 09:19:53
14 After that, the company, Delphi, 09:19:55
15 changed its name, so it became Aptiv. And in 09:19:58
16 2020, I decided to leave Aptiv and move to 09:20:02
17 Indie Semiconductor. 09:20:09
18 Q. So, Mr. Voto, you are not currently 09:20:09
19 an Aptiv employee? 09:20:12
20 A. That's correct. 09:20:13
21 Q. Are you being compensated for your 09:20:14
22 work in connection with this trial by Aptiv? 09:20:16
23 A. I am. 09:20:19
24 Q. And how much? 09:20:20

1 A. I am being paid $230 an hour. 09:20:21
2 Q. And what's the nature of your 09:20:25
3 engagement with Aptiv on this matter? 09:20:27
4 A. So I am here as a consultant for the 09:20:30
5 case. 09:20:33
6 Q. And how did you come up with the rate 09:20:34
7 of $230 per hour? 09:20:37
8 A. So the rate -- the rates are like -- 09:20:39
9 I have a full-time job, right, so the rate is 09:20:42
10 kind of based on what I normally make anyway 09:20:44
11 in my day job. 09:20:46
12 Q. Now, do you have experience in USB, 09:20:48
13 Mr. Voto? 09:20:51
14 A. I do. 09:20:51
15 Q. How much? 09:20:52
16 A. I first started working with USB 09:20:55
17 products in about 2011. 09:20:58
18 Q. And are you the named inventor on any 09:21:00
19 patents relating to USB? 09:21:02
20 A. Yes, I believe five patents. 09:21:06
21 Q. Okay. 09:21:08
22 Now, earlier, Mr. Voto, you 09:21:09
23 mentioned that for your brief stint away from 09:21:11
24 Delphi, you worked at a company called Unwired 09:21:14

1 Technologies. 09:21:17
2 Can you tell the jury a little bit 09:21:18
3 more about that company, Unwired Technologies? 09:21:20
4 A. Yes. So it was 2009. I had been 09:21:22
5 working for Delphi for my whole career, so 09:21:26
6 quite a long time. I decided I wanted to make 09:21:28
7 a change. I moved to Unwired Technology, 09:21:32
8 which was very different. Unwired Technology 09:21:34
9 was a very small company compared, you know, 09:21:36
10 to big Delphi. 09:21:39
11 I was in charge of engineering. 09:21:41
12 Like I said, I was the vice president. A big 09:21:43
13 title, but actually it was a small company. 09:21:46
14 We only had, I don't know, maybe 20 or so 09:21:47
15 engineers in the whole company, so it was a 09:21:50
16 very different environment. 09:21:53
17 But at Unwired, I was, you know -- 09:21:55
18 on day one, I was responsible for product 09:21:58
19 design, technology development, and at the 09:22:01
20 time, there were these wireless headphones. 09:22:06
21 That was what the company did, it's called 09:22:08
22 Unwired, because it made these wireless 09:22:11
23 headphones for rear seat entertainment systems 09:22:14
24 and the back seat kind of entertainment 09:22:17

1 systems for the kids. 09:22:18
2 Q. So, Mr. Voto, at the time, who were 09:22:19
3 Unwired's customers? Were you selling those 09:22:22
4 headphones directly to the kids in the back 09:22:24
5 seat and their parents or -- 09:22:26
6 A. So -- so the headphones were part of 09:22:28
7 the package. If you bought that option in a 09:22:33
8 car, then when you got the car, it would come 09:22:35
9 with the headphone stream and all that stuff. 09:22:38
10 So our customers were, in large 09:22:41
11 part, you know, the carmakers. So General 09:22:44
12 Motors was big, you know, Chrysler was big, 09:22:48
13 Ford, you know. So all these OEMs, the 09:22:52
14 vernacular, you know, for the car companies, 09:22:59
15 car manufacturers, we call them OEMs, so those 09:23:01
16 were our customers. 09:23:05
17 Q. The jury has heard about OEMs over 09:23:06
18 the last week, so can you just tell them what 09:23:08
19 those letters stand for? 09:23:10
20 A. Sure. 09:23:11
21 OEM is just the acronym for 09:23:12
22 Original Equipment Manufacturers, is what we 09:23:15
23 call the carmakers. 09:23:16
24 Q. So did Unwired have any products 09:23:18

1 other than those wireless headphones that were 09:23:20
2 for the back seats of the car? 09:23:22
3 A. Initially, no. In 2009 when I 09:23:24
4 started, that was really what the company was 09:23:27
5 all about. Like I said, it was a small 09:23:30
6 company, not a big company. 09:23:33
7 But the company was doing well and 09:23:36
8 there was definitely an appetite to try to 09:23:39
9 expand the growth of the business. We had a 09:23:43
10 lot of relationships with a lot of these 09:23:46
11 customers and we thought well, maybe we can 09:23:48
12 get into some other products, too. Maybe 09:23:50
13 there's some other stuff that we can make for 09:23:52
14 cars, so there's plenty of opportunity. 09:23:54
15 Q. Did you get into any of those other 09:23:56
16 products, Mr. Voto? 09:23:58
17 A. We did. We were fortunate, you know, 09:23:59
18 that we got the opportunity at General Motors, 09:24:01
19 our biggest customer for headphones. General 09:24:05
20 Motors gave us the opportunity to bid on some 09:24:09
21 USB hub modules. 09:24:11
22 Q. So you bid on the USB hub modules. 09:24:13
23 Can you tell the jury a little bit about what 09:24:15
24 a USB hub module is? 09:24:17

1 A. Right. So all of the components that 09:24:19
2 go into cars are, in some way, you know, 09:24:25
3 uniquely created, you know. It's like you 09:24:28
4 don't go -- generally, you don't find the 09:24:31
5 parts that you need -- if you want to make a 09:24:34
6 brand new car, if you want to make a new 09:24:35
7 Corvette or something, your engineers at 09:24:38
8 General Motors are going to think about what 09:24:41
9 every single component of the car needs to do. 09:24:42
10 You are going to then find 09:24:45
11 suppliers that can design and manufacture that 09:24:46
12 for you. 09:24:48
13 So in the case of the hub module, 09:24:49
14 so GM was thinking about functionally, what do 09:24:51
15 they want the module to do, which you'll see 09:24:55
16 later, you know, it's basically a small box 09:24:59
17 and it's got some circuit boards inside of it. 09:25:02
18 It's got some plastic around it, and most 09:25:04
19 importantly, it's -- when you -- as the 09:25:06
20 consumer, when we get in our cars and we look 09:25:10
21 at these USB ports, that's what we're talking 09:25:13
22 about, is that particular piece of the car 09:25:15
23 that provides that USB function and those 09:25:17
24 connectors that you can plug into. 09:25:19

1 Q. All right. 09:25:22
2 So you bid on the USB hub module 09:25:23
3 contract with GM. How did that go? 09:25:25
4 A. So the very first time, you know, 09:25:28
5 there was multiple opportunities, but the very 09:25:32
6 first time, we were not selected as the 09:25:34
7 supplier. 09:25:37
8 It's a pretty fierce competition. 09:25:38
9 GM wants to make sure that they get the best 09:25:41
10 bang for their buck. They want the best 09:25:46
11 price, they want the best technology. So 09:25:48
12 everyone has to compete for that. And it took 09:25:50
13 us a couple tries, but we finally got GM to 09:25:52
14 award us the USB business. 09:25:56
15 Q. And around when was that? 09:25:58
16 A. 2011. 09:25:59
17 Q. Okay. 09:26:01
18 Did you have any other carmaker 09:26:01
19 customers for the USB hub business at Unwired? 09:26:04
20 A. So initially, yes, that comes next, 09:26:09
21 right? So first we have some great success 09:26:13
22 with General Motors. Then it was pretty big 09:26:16
23 business at GM, too, because it was going to 09:26:19
24 be for like all the trucks, and that's like a 09:26:22

1 lot of business, it's super important. 09:26:24
2 So little Unwired, we were pretty 09:26:26
3 excited about this, it was like our big break. 09:26:29
4 We wanted to see if we could offer similar 09:26:33
5 kinds of products to other OEMs as well. 09:26:35
6 So we knew it would be hard to get 09:26:40
7 into other OEMs that we didn't already have a 09:26:42
8 relationship with, so we went to Jaguar next 09:26:45
9 because we sold a lot of headphones with 09:26:48
10 Jaguar. We called up and said, what do you 09:26:50
11 think about us trying to be your USB module 09:26:53
12 supplier? 09:26:56
13 They gave us a chance to bid on 09:26:56
14 the business, similar process like what we did 09:26:58
15 with GM, and Jaguar ended up awarding Unwired 09:27:00
16 some USB module business. 09:27:04
17 Q. I know this was awhile ago, but do 09:27:07
18 you recall around when you were awarded the 09:27:10
19 Jaguar Land Rover contract? 09:27:11
20 A. I think we were -- we were starting 09:27:13
21 that process in, you know, 2012 and, you know, 09:27:15
22 about maybe the end of 2012, 2013, we were 09:27:18
23 awarded that business. 09:27:21
24 Q. All right. 09:27:22

1 And what was the product you were 09:27:22
2 supposed to provide to Jaguar Land Rover? 09:27:24
3 A. What Jaguar Land Rover was really 09:27:29
4 looking for was a hub module, but it was 09:27:33
5 different than the hub module from General 09:27:36
6 Motors. You know how every car has its own 09:27:41
7 unique styling? Well, all the engineers at 09:27:43
8 the car companies think they know best, too, 09:27:47
9 so they're all going to want something a 09:27:49
10 little bit different, right? 09:27:51
11 So with Jaguar, we had to develop 09:27:52
12 a whole new product. So just to make it 09:27:55
13 clear, when I say things like Jaguar awarded 09:28:00
14 us the business, what that really means is 09:28:03
15 Jaguar selected us to develop a custom 09:28:06
16 product, to get it ready for manufacture, to 09:28:10
17 do all the testing, to make sure it passes all 09:28:12
18 the requirements that would make it a good 09:28:15
19 product for the customer, right? So that's a 09:28:19
20 very long process, you know. 09:28:22
21 So you start with just 09:28:24
22 requirements from the customer on paper saying 09:28:26
23 hey, can you make something that does this for 09:28:28
24 me, right? So we go on this multi-year 09:28:30

1 process with the customer to do that. 09:28:33
2 Jaguar's product was a little 09:28:35
3 different from GM's because Jaguar wanted a 09:28:38
4 more upscale product, so they selected faster 09:28:41
5 USB communication, we call it super speed USB. 09:28:43
6 So that was a big difference. 09:28:47
7 Q. Did the hub that you were providing 09:28:49
8 at the time to General Motors, did that meet 09:28:52
9 the requirements that Jaguar Land Rover had 09:28:54
10 provided to you? 09:28:57
11 A. No, it didn't. You know, a big 09:28:58
12 reason why was because Jaguar wanted a higher 09:29:03
13 end, you know, class product. So not only did 09:29:06
14 we have to face the design of a new product, 09:29:10
15 but we needed to use different components, 09:29:13
16 different chips that made it a faster USB 09:29:15
17 setup. 09:29:21
18 And also, during the development 09:29:21
19 of that product, we ran across a requirement 09:29:22
20 that Jaguar had written, so remember, Jaguar 09:29:28
21 gives me the requirements, please make a 09:29:31
22 product that does X, Y and Z. Then we read 09:29:34
23 all the requirements and we understood them 09:29:37
24 all. We had some experience in doing this. 09:29:39

1 Except there was one requirement 09:29:42
2 that they asked for that absolutely made no 09:29:43
3 sense. They said the downstream port of the 09:29:46
4 hub module needed to support role reversing, 09:29:53
5 which means that you could hook up a USB host 09:29:59
6 or a USB device to the downstream ports of the 09:30:04
7 hub module. 09:30:07
8 Q. And did the hub that you had designed 09:30:10
9 the module for GM, did it support that role 09:30:14
10 reversing? 09:30:18
11 A. No, that's what I'm saying. As far 09:30:19
12 as I knew, nothing supported that requirement. 09:30:20
13 That requirement was bogus. It didn't even 09:30:23
14 make sense to me, and I told Jaguar that. I 09:30:26
15 said, I don't understand, is this a mistake? 09:30:29
16 No hubs work like this today and you're asking 09:30:33
17 me to make a hub that does something that hubs 09:30:36
18 don't do, so what gives? 09:30:38
19 So it took awhile to sort through 09:30:40
20 that because eventually Jaguar was saying 09:30:42
21 maybe that was a mistake, maybe we shouldn't 09:30:45
22 have put that in our requirements for you. 09:30:47
23 But eventually, there was a 09:30:49
24 specialist, and let's say an engineering 09:30:51

1 specialist within Jaguar that came forward and 09:30:53
2 explained, like, you know, that's not a 09:30:58
3 mistake. That was very much intentional. 09:31:01
4 And so he went on to explain the 09:31:05
5 reason that that requirement was in there was 09:31:09
6 because Jaguar was trying to work 09:31:12
7 cooperatively with Apple to implement this -- 09:31:15
8 this new iPhone application that they would 09:31:21
9 call CarPlay. 09:31:24
10 Q. Mr. Voto, can you turn to Tab 192 of 09:31:25
11 your binder, please, and look at Exhibit 192. 09:31:31
12 Can you describe what 192 is, 09:31:37
13 please? 09:31:39
14 A. Sure. 09:31:41
15 Exhibit 192 is a presentation that 09:31:44
16 I put together after finally understanding 09:31:48
17 this new requirement from Jaguar. 09:31:52
18 Remember, it's my job to design a 09:31:57
19 product that Jaguar wants so I didn't know how 09:32:00
20 to do it. I had to go out and research a 09:32:03
21 bunch of options, try to figure out how the 09:32:05
22 heck am I going to pull this off. And so this 09:32:08
23 presentation shows the results of that. 09:32:10
24 (Whereupon, Trial Exhibit 192 was 09:32:10

1 introduced.) 09:32:12
2 MR. WIENER: Your Honor, we offer 09:32:12
3 Exhibit 192 into evidence. 09:32:14
4 MR. SHAW: No objection, Your 09:32:16
5 Honor. 09:32:17
6 THE COURT: It's admitted. 09:32:17
7 MR. WIENER: Mr. Glass, can you 09:32:19
8 put 192 up on the screen. And if you could 09:32:21
9 please zoom in so that we can see the first 09:32:27
10 slide. 09:32:29
11 Actually, before you do that, Mr. 09:32:33
12 Glass, if you can zoom in on -- actually a 09:32:35
13 little -- yeah, the first slide will do just 09:32:39
14 fine. 09:32:41
15 BY MR. WIENER: 09:32:43
16 Q. Okay. 09:32:44
17 Now, first, Mr. Voto, in the 09:32:45
18 bottom right-hand corner, it says, "Jan 2013." 09:32:47
19 Does that mean that this document was created 09:32:50
20 in January of 2013? 09:32:53
21 A. Yeah, thereabouts. That's actually, 09:32:55
22 you know, kind of part of the slide template, 09:32:58
23 so I would say we probably started writing 09:33:01
24 this in January 13. It probably got updated a 09:33:06

1 couple times, but about right. 09:33:09
2 Q. All right. 09:33:10
3 Looking at the first slide of 09:33:11
4 Exhibit 192, can you explain to the jury 09:33:14
5 what's being shown on this slide? 09:33:16
6 A. Yeah, sure. 09:33:18
7 So, I mean, keep in mind, the 09:33:19
8 whole point of this presentation was me, as 09:33:21
9 the supplier to Jaguar engineering, going 09:33:23
10 okay, what's the problem, how can we fix it? 09:33:25
11 What are the options, you know. 09:33:29
12 So we started this saying what is 09:33:30
13 the current system? And you can see at the 09:33:32
14 top it says, "Vehicle System Diagram," the 09:33:34
15 baseline design, you know, that sort of thing. 09:33:38
16 This is just saying this is what we thought we 09:33:42
17 were going to make for you, right? 09:33:44
18 So what we did is the basic 09:33:46
19 description of the different bits and pieces 09:33:48
20 here is on the left, we have this Vehicle 09:33:50
21 System, okay. So this is like the main radio 09:33:52
22 of the head unit. 09:33:56
23 And then over on the right here, 09:33:58
24 this User Interface Panel, that was Jaguar's 09:34:00

1 name for the hub module. The hub module 09:34:04
2 obviously has all these ports on it. This 09:34:07
3 particular one, again, this is all Jaguar's, 09:34:10
4 you know, specifications saying I want an SD 09:34:13
5 card, I want a couple USB ports, I want this 09:34:15
6 place where you can plug in like a headphone 09:34:17
7 jack to get audio into your car. 09:34:22
8 And then Jaguar also had something 09:34:24
9 to say about the wiring that goes in between 09:34:27
10 the two. So if you think of this is like 09:34:29
11 somewhere in the car, this is somewhere else 09:34:31
12 in the car and this being a bunch of wires 09:34:32
13 going in between. That's the basic setup, 09:34:35
14 right? Okay, Jaguar, this is what you have 09:34:37
15 today. 09:34:40
16 Q. All right. 09:34:40
17 So you mentioned coming up with a 09:34:41
18 solution that would meet the requirement that 09:34:43
19 Jaguar was asking for in terms of role 09:34:44
20 reversal on the port. How did you go about 09:34:49
21 trying to meet that requirement? 09:34:51
22 A. Well, there were so many things 09:34:54
23 running through my head because, number one is 09:35:00
24 I didn't know where I could get the parts. I 09:35:03

1 mean, my job is to take parts, put them 09:35:05
2 together, you know, create stuff, make circuit 09:35:07
3 boards and great software and all this stuff 09:35:09
4 to do it, but you have to do that under like a 09:35:12
5 time crunch, you know. 09:35:14
6 Jaguar selected us and when they 09:35:16
7 do that, they said you now have one year to 09:35:17
8 complete the entire product element, 09:35:19
9 presentable, all right, about a year and then 09:35:24
10 after that, it's got to be done because then 09:35:26
11 we need to start building things and making 09:35:28
12 cars with it. You don't want to be the guy 09:35:30
13 that, you know, they can't make cars because 09:35:32
14 they don't have USB ports, right? 09:35:34
15 So we're under a time crunch. 09:35:36
16 That's number one. And so that means that I 09:35:38
17 need to go find parts that might be available 09:35:41
18 that I can use to, you know, somehow put them 09:35:44
19 together to make this new thing happen. 09:35:47
20 So the rest of this presentation 09:35:49
21 is to show Jaguar engineers hey, this might 09:35:52
22 not be perfect, but these are the ideas that I 09:35:55
23 came up with. 09:35:58
24 MR. WIENER: Mr. Glass, if we can 09:36:00

1 scroll down to the second slide that's on the 09:36:01
2 first page. Nope, that's the third slide. 09:36:04
3 Let's go up one more, please. 09:36:07
4 Okay. Thank you. 09:36:09
5 BY MR. WIENER: 09:36:10
6 Q. What's shown on the second slide of 09:36:11
7 this presentation, Option A? What is that? 09:36:12
8 A. Yeah. So we're saying Option A. All 09:36:15
9 right. So how many different ideas can we 09:36:17
10 come up with that we can then share back with 09:36:19
11 Jaguar engineer, our customer and say hey, 09:36:22
12 what do you think about this, right, or this 09:36:24
13 or this? 09:36:26
14 So Option A is the first one. 09:36:27
15 Option A, it looks like almost the same thing 09:36:30
16 as what you just saw in the baseline design, 09:36:33
17 but there is a big difference right here. 09:36:35
18 This is the hub chip, itself, inside of our 09:36:37
19 hub module. The hub chip, I replaced it with 09:36:41
20 a chip from SMSC that had this FlexConnect 09:36:47
21 feature. 09:36:51
22 So FlexConnect is going to allow 09:36:52
23 us to kind of swap the role of a downstream 09:36:54
24 port and the upstream port when you need to do 09:36:58

1 CarPlay. So it did start solving some of the 09:37:03
2 problems, but it also created problems, and 09:37:06
3 there was a couple big ones here. 09:37:08
4 The moment that you go into 09:37:11
5 CarPlay mode, the other ports that the head 09:37:12
6 unit should have access to will -- would be 09:37:18
7 lost. So like we said, hey, you could be 09:37:21
8 listening to music on one of those thumb 09:37:25
9 drives in one of those other ports and it's 09:37:28
10 just going to stop working. 09:37:30
11 So Jaguar is like, this is a no 09:37:31
12 go. I mean, there's no way that we can accept 09:37:33
13 these kinds of problems with Option A. 09:37:36
14 MR. WIENER: If we could please 09:37:39
15 scroll down to the next slide, Mr. Glass. 09:37:41
16 BY MR. WIENER: 09:37:43
17 Q. Option B comes after Option A. Can 09:37:44
18 you explain to the jury what Option B was? 09:37:46
19 A. Right. 09:37:48
20 So -- so Option B, okay, we've 09:37:49
21 already ruled out that we need -- we need to 09:37:53
22 make sure everything stays working at all 09:37:55
23 times, right? 09:37:57
24 So that's why Option B -- Option A 09:37:58

1 was bad, so we needed to come up with 09:38:02
2 something that keeps everything working the 09:38:03
3 whole time, so that's what we have here with 09:38:05
4 Option B. 09:38:07
5 Option B is all these ports can 09:38:07
6 work simultaneously with the head unit, great. 09:38:13
7 And we have a standard USB hub chip here 09:38:17
8 that's available to me. That's great. 09:38:21
9 So everything was fine except for 09:38:24
10 the fact that what we did to solve the problem 09:38:26
11 was we said hey, let's redesign the head unit, 09:38:28
12 let's add more wiring, let's add another 09:38:31
13 special USB channel to this one special port 09:38:35
14 that you can then plug in your iPhone to -- 09:38:38
15 that can do CarPlay. 09:38:42
16 Jaguar says yeah, you fixed all 09:38:44
17 the problems, but you just made me a massive 09:38:48
18 problem because I've already sourced all 09:38:51
19 these -- all these components you are talking 09:38:53
20 about changing here, it's way too late for 09:38:55
21 that. I've already got those things locked 09:38:57
22 down. So Jaguar rejected this option as well. 09:39:00
23 Q. Okay. 09:39:03
24 MR. WIENER: Mr. Glass, let's 09:39:05

1 please turn to the next slide. 09:39:05
2 BY MR. WIENER: 09:39:07
3 Q. So Option A and Option B have been 09:39:07
4 considered, that's using the sort of available 09:39:09
5 on-the-shelf technology, and what was your 09:39:11
6 summary here on the fourth slide? 09:39:13
7 A. So -- so not surprisingly, you know, 09:39:17
8 as we portrayed it here, I wasn't particularly 09:39:22
9 excited about Option A or Option B and neither 09:39:25
10 was Jaguar. We needed to -- I felt compelled, 09:39:27
11 I needed to find something better for Jaguar, 09:39:31
12 and that's what we worked on. We worked on 09:39:33
13 that and we came up with another option. 09:39:34
14 MR. WIENER: Okay. Let's go to 09:39:37
15 the next slide, please. 09:39:38
16 BY MR. WIENER: 09:39:41
17 Q. Option C, the Host 2 Host Hub. Can 09:39:42
18 you tell the jury about the Host 2 Host Hub, 09:39:46
19 please? 09:39:49
20 A. Sure. 09:39:49
21 So at this point, we were running 09:39:49
22 out of options, you know, of parts that we 09:39:51
23 knew that were available for the USB functions 09:39:54
24 that, you know, that would be easy to do. So 09:39:58

1 we had to start getting a little more 09:40:00
2 creative. I still needed to use chips that 09:40:03
3 are available, but maybe we could be more 09:40:05
4 creative in some of our, you know, fundamental 09:40:07
5 thinking about solving these problems. 09:40:10
6 And that's where this came up to 09:40:12
7 make sure that all of the downstream ports 09:40:16
8 work all the time, you know, these guys over 09:40:18
9 here, I need a regular hub here because that's 09:40:21
10 what hubs do. They make all the downstream 09:40:24
11 ports work all the time; I need that, right? 09:40:26
12 But I still have this problem 09:40:29
13 where one of these USB ports might suddenly 09:40:30
14 need to become a host instead of a device, so 09:40:33
15 how do I tackle that problem specifically 09:40:36
16 while still maintaining my hub? 09:40:38
17 And so in the process of 09:40:41
18 researching that, we came across these Host to 09:40:43
19 Host bridges that had been developed 09:40:50
20 previously by other people. And the reason 09:40:52
21 that they were out in the marketplace, you 09:40:56
22 know, you could even buy one from Amazon or 09:40:58
23 whatever, the reason that they were out there 09:41:01
24 has nothing to do with CarPlay, but it had 09:41:04

1 everything to do with, if you remember quite 09:41:07
2 awhile ago, before we had cloud memory storage 09:41:09
3 and huge thumb drives, when we got a new 09:41:14
4 computer, we needed to transfer all the data 09:41:16
5 from our old computer to the new computer. 09:41:20
6 That was a real problem; that was hard to do 09:41:22
7 many years ago, so we -- we saw people had 09:41:24
8 come up with some clever solution to that, 09:41:28
9 that they made a host to host bridge and a 09:41:31
10 cable that would allow you to hook two 09:41:34
11 computers which are both USB hosts together. 09:41:37
12 That was a novel thing that we 09:41:40
13 discovered. 09:41:42
14 Q. Mr. Voto, did you bring a 09:41:43
15 demonstrative to help show the jury what these 09:41:44
16 looked like? 09:41:48
17 A. We have an example of that cable. 09:41:48
18 MR. WIENER: May I approach, Your 09:41:51
19 Honor? 09:41:52
20 THE COURT: You may. 09:41:53
21 BY MR. WIENER: 09:42:01
22 Q. Mr. Voto, can you hold up what I have 09:42:02
23 just handed you and explain to the jury what 09:42:05
24 it is? 09:42:08

1 A. Sure. 09:42:08
2 So basically what we have here is 09:42:08
3 obviously a cable, and if you look closely on 09:42:10
4 the two ends, this is USB A connector, so this 09:42:13
5 would be the exact same connector that you 09:42:16
6 would find like on your home computer. It's a 09:42:18
7 little different than the normal cable you 09:42:22
8 have because normally, one end hooks to your 09:42:24
9 computer and the other one hooks to your phone 09:42:26
10 or something so it is a different connector. 09:42:29
11 This is the computer end of both sides, okay, 09:42:30
12 so that's strange. 09:42:33
13 But the reason why it all works is 09:42:34
14 what's in the middle here. Inside of this 09:42:37
15 little box, we have a host to host bridge. 09:42:39
16 The host to host bridge is basically two 09:42:45
17 different USB device controllers and so each 09:42:49
18 host that's, you know, here, gets to talk to 09:42:53
19 the USB device here. 09:43:00
20 This host on its own separate 09:43:01
21 network, it is being attached to the second 09:43:03
22 USB device also in the same module and then 09:43:08
23 these two USB device controllers are 09:43:10
24 physically connected so data can transfer from 09:43:12

1 one to the other. 09:43:15
2 So in essence, the cleverness of 09:43:16
3 this was I have now made two USB hosts talk 09:43:19
4 together, but not directly; that's not 09:43:23
5 allowed, you can't do it directly. But the 09:43:26
6 concept of a host to a device, a host to a 09:43:29
7 device, that's maintained. That's what you 09:43:32
8 need to not violate any USB rules and that's 09:43:35
9 what this does. 09:43:38
10 Q. And, Mr. Voto, is that whole cable 09:43:38
11 sometimes referred to as a bridge device? 09:43:42
12 A. Yes. I pause a little bit because 09:43:47
13 there's -- the word "device" is pretty 09:43:55
14 generic, okay? So when we think of a device, 09:44:00
15 a device is a device like several languages, 09:44:03
16 it's a thing, right? So this can be a device, 09:44:08
17 this can be a device, I mean, we can talk 09:44:10
18 about devices in a more general sense. 09:44:13
19 But I think for the purposes of 09:44:15
20 what we're here for now, we need to be talking 09:44:17
21 about devices a little bit more in a USB 09:44:20
22 sense, in USB lingo. We have host devices 09:44:24
23 and -- a host and we have devices, right? The 09:44:29
24 host talks to the device. 09:44:32

1 So just to be clear, we can call 09:44:34
2 this whole thing a device if we want, but 09:44:35
3 technically speaking, there's two different 09:44:38
4 device controllers inside of here to talk to 09:44:40
5 two different hosts. 09:44:43
6 Q. Turning back to the Exhibit 192 09:44:45
7 that's on the screen -- 09:44:48
8 MR. WIENER: You can go to Slide 09:44:53
9 5, please, Mr. Glass. One up, please. 09:44:54
10 Perfect. 09:45:00
11 BY MR. WIENER: 09:45:01
12 Q. Okay. 09:45:03
13 Mr. Voto, does Slide 5 of 09:45:03
14 Exhibit 192 describe the solution you had come 09:45:07
15 up with? 09:45:09
16 A. Yes, it does. 09:45:11
17 Q. Can you show to the jury sort of how 09:45:13
18 this works using the laser pointer to show how 09:45:16
19 the data flowed? 09:45:20
20 A. So this was the first picture the 09:45:22
21 first time we showed the Jaguar engineers, you 09:45:26
22 know, hey, I think we're onto something 09:45:28
23 interesting here. We said all right, first 09:45:30
24 off, we only have one lane of communication. 09:45:35

1 Jaguar is like yep, that's great. 09:45:38
2 Secondly, all my USB ports and all 09:45:40
3 these consumer ports will function at the same 09:45:44
4 time. Great. 09:45:49
5 Second or third is that the way 09:45:50
6 that I have solved the problem now is I have 09:45:53
7 the hub in here in this block diagram, but now 09:45:56
8 we've added this bridge. So that was the new 09:46:00
9 thing that then needed to be explained to 09:46:03
10 Jaguar next. 09:46:05
11 Q. How did Jaguar react to this idea? 09:46:07
12 A. They were pretty intrigued. They 09:46:10
13 were like wow, you guys found something where 09:46:13
14 I don't have to redesign all of my other car 09:46:16
15 parts and you can just fix this thing 09:46:18
16 magically in your one little module? That's 09:46:20
17 wonderful. 09:46:23
18 MR. WIENER: And, Mr. Glass, if we 09:46:26
19 could go down to Slide 8, please. 09:46:27
20 BY MR. WIENER: 09:46:32
21 Q. And what's shown on Slide 8, Mr. 09:46:34
22 Voto? 09:46:38
23 A. So naturally, yes, Jaguar was like 09:46:38
24 wow, this sounds pretty cool, but how does it 09:46:41

1 actually work? And naturally, they wanted to 09:46:45
2 know. And so this is the mystery piece. This 09:46:48
3 bridge, you know, we can tell them yeah, this 09:46:52
4 is where the inspiration came from, but this 09:46:55
5 is not an automotive product. This is 09:46:58
6 something that we found on the web. 09:47:00
7 So how do I get it into Jaguar's 09:47:03
8 product and make it meet all the requirements? 09:47:05
9 How do you design it? 09:47:08
10 So that's what this picture is 09:47:09
11 showing, is the very first bridge that we made 09:47:11
12 was actually comprised of a bunch of different 09:47:13
13 pieces. It had this FPGA chip, it had the USB 09:47:15
14 PHY chip, another USB PHY chip and a memory 09:47:21
15 chip over here, took all these different 09:47:24
16 pieces and put them together to make this. 09:47:26
17 Q. Mr. Voto, you see up in the middle of 09:47:29
18 the box, it says FPGA? 09:47:31
19 A. I do. 09:47:34
20 Q. Can you explain to the jury what FPGA 09:47:34
21 means? 09:47:37
22 A. Sure. 09:47:38
23 We use the word "chip" kind of 09:47:42
24 like for a lot of stuff, but there's many, 09:47:45

1 many different flavors of chips, right? And 09:47:47
2 one of the types of chips that's out there is 09:47:50
3 this Field Programmable Gate Array, which is 09:47:53
4 the type of chip where it's kind of like a 09:47:58
5 blank slate and it's got all these functional 09:48:02
6 pieces inside of it and you can make a lot of 09:48:05
7 different things with it. It's kind of like 09:48:09
8 Legos in a sense. 09:48:12
9 If you program it to do specific 09:48:13
10 functions, then you can use this off-the-shelf 09:48:18
11 piece of hardware with your own custom 09:48:21
12 programming that we would have to make to 09:48:23
13 implement an MCU and these, you know, USB 09:48:26
14 device controllers, you know, two of them, et 09:48:31
15 cetera. 09:48:34
16 So we basically used an available 09:48:35
17 chip with our own custom programming to make 09:48:37
18 the bridge. 09:48:40
19 Q. Did you get it to work? 09:48:42
20 A. We did. 09:48:43
21 Q. Do you remember about when you got it 09:48:45
22 to work? 09:48:47
23 A. I would say, you know, this wasn't a 09:48:49
24 one-week or one-month endeavor, but, you know, 09:48:53

1 during the year 2013, we had it working. 09:48:56
2 Q. And this was a solution that was -- 09:48:59
3 provided a single-lane solution to the head 09:49:02
4 unit; is that right? 09:49:04
5 A. That's correct. 09:49:05
6 Q. And it allowed for CarPlay on all of 09:49:06
7 the downstream ports? 09:49:09
8 A. Correct. 09:49:11
9 Q. And the data on the non-CarPlay ports 09:49:12
10 remained on those ports, even when the other 09:49:17
11 port was in CarPlay mode? 09:49:20
12 A. That's right. 09:49:22
13 Q. Okay. 09:49:23
14 Did this solution have a USB hub 09:49:23
15 chip? 09:49:26
16 A. Yes. 09:49:28
17 Q. Okay. 09:49:28
18 And who made the USB hub chip that 09:49:29
19 was used in the solution? 09:49:32
20 A. So in this design for Jaguar, 09:49:34
21 remember I said they wanted a higher end, they 09:49:37
22 wanted this super speed USB, so that means 09:49:41
23 that we had to use a hub chip that supports 09:49:43
24 super speed USB, of course, and the particular 09:49:48

1 part that we were using in this design came 09:49:50
2 from AyDeeKay. 09:49:52
3 Q. So it was not a Microchip that -- 09:49:55
4 plaintiff's chip; right? 09:49:59
5 A. Correct. 09:50:00
6 Q. Or SMSC? 09:50:01
7 A. No. 09:50:02
8 Q. Mr. Voto, if you could turn to -- if 09:50:06
9 you could turn to Tab 17 of your binder, 09:50:09
10 please. If you could give a high level 09:50:13
11 description of what that document is, please. 09:50:18
12 A. This document is a set of 09:50:22
13 requirements that my team wrote when I was at 09:50:28
14 Unwired Technology for how the -- how the 09:50:30
15 technical solution would work for this dual 09:50:34
16 role hub. 09:50:38
17 MR. WIENER: Your Honor, we offer 09:50:39
18 Exhibit 17 into evidence. 09:50:40
19 (Whereupon, Trial Exhibit 17 was 09:50:40
20 introduced.) 09:50:42
21 MR. SHAW: No objection, Your 09:50:42
22 Honor. 09:50:43
23 THE COURT: All right. Admitted. 09:50:43
24 MR. WIENER: Mr. Glass, if we 09:50:45

1 could put the first slide of Exhibit 17 up. 09:50:48
2 BY MR. WIENER: 09:50:51
3 Q. Was this a presentation that you 09:50:52
4 created, Mr. Voto? 09:50:53
5 A. That's correct. 09:50:55
6 Q. And who was the intended audience for 09:50:56
7 this presentation? 09:50:59
8 A. This presentation was meant for 09:51:01
9 customers, primarily, to help explain to them 09:51:05
10 what we were proposing. 09:51:10
11 Q. Sounds great. Let's use it to 09:51:11
12 explain to us how -- 09:51:14
13 A. All right. 09:51:15
14 Q. -- the solution worked. 09:51:15
15 MR. WIENER: If you could turn to 09:51:18
16 page 11 of Exhibit 17, please. 09:51:20
17 BY MR. WIENER: 09:51:20
18 Q. Mr. Voto, can you explain to the jury 09:51:24
19 what's being shown on page 11, please? 09:51:26
20 A. Sure. 09:51:30
21 So in this diagram, we -- let me 09:51:33
22 start from the outside here. This is on all 09:51:37
23 vehicle systems, so from our customer 09:51:41
24 perspective, we are talking to the car 09:51:44

1 manufacturers, right, so they want to see how 09:51:46
2 does it all fit together, how does it work. 09:51:48
3 The head unit, they know there is 09:51:50
4 a head unit, right, we have a single lane, 09:51:53
5 that's a plus, and we know we have, on the 09:51:55
6 other end of this diagram here, we have these 09:51:57
7 USB devices. These are the things that people 09:52:00
8 can plug into the hub module. 09:52:02
9 So we have some connection points 09:52:05
10 here. Here and here, these, as you can 09:52:08
11 imagine these things as being, that's where 09:52:12
12 you would actually have a USB connector you 09:52:13
13 can plug something into as a consumer. 09:52:16
14 On the left here, this is internal 09:52:19
15 wiring in the vehicle. That's how data goes 09:52:21
16 over a USB connection from the head unit to 09:52:24
17 the hub module. 09:52:27
18 And then inside of the hub module 09:52:29
19 is this whole middle section. And, you know, 09:52:31
20 fundamentally, to simplify it, there's three 09:52:35
21 pieces. There's the hub, the hub is like a 09:52:38
22 USB splitter, so to speak, so it splits data 09:52:41
23 paths. 09:52:46
24 The bridge is up here. The bridge 09:52:46

1 has these two USB devices with data flowing in 09:52:48
2 between. And then we have the switch matrix 09:52:52
3 here, which is important, because you'll see 09:52:54
4 that, you know, the iPhone can either go 09:52:57
5 through this path or it can go through other 09:52:59
6 paths. 09:53:02
7 Q. So on page 11 right now, is this 09:53:02
8 showing how the product works when the iPhone 09:53:06
9 is in host mode or in CarPlay mode? 09:53:09
10 A. Okay. So yeah, let me explain. 09:53:12
11 From -- think about it from the 09:53:16
12 perspective of you just get in the car, you 09:53:18
13 turn it on. What's going to happen next; 09:53:21
14 right? 09:53:23
15 So it's important to understand 09:53:23
16 the sequences. Because at the moment this 09:53:25
17 whole system turns on, the head unit is going 09:53:27
18 to detect this USB communication type stuff; 09:53:30
19 right? So the head unit is going to say okay, 09:53:35
20 something is out here, I see a hub chip, and 09:53:37
21 so the hub chip gets enumerated by the head 09:53:40
22 unit. 09:53:44
23 That means that the hub chip is 09:53:44
24 having to answer to the head unit, what are 09:53:48

1 you? You're a USB device, I know that, but 09:53:50
2 what are you and what do you do? That kind of 09:53:52
3 information has to flow back to the head unit 09:53:55
4 from the hub. The hub says I am a hub, this 09:53:58
5 is what I can do. Great. 09:54:01
6 So now the head unit says okay, I 09:54:02
7 recognize a hub here that I can talk to, 09:54:05
8 that's good. The hub then says oh, but I see 09:54:07
9 a USB device here that is connected to my hub. 09:54:10
10 And so the head unit then would get that 09:54:14
11 information, and it would say okay, let's play 09:54:18
12 the same game. Hey, USB device, what are you? 09:54:20
13 Please explain yourself to me. 09:54:23
14 This USB Device A says, I am a 09:54:24
15 vendor class bridge device. So the head unit 09:54:28
16 would then have to look up a driver for that, 09:54:33
17 locate that driver, you know, that sort of 09:54:36
18 thing. And then the head unit would basically 09:54:38
19 be up and running, all these devices are now 09:54:41
20 hooked up and ready for operation. 09:54:44
21 Then the iPhone or the devices 09:54:47
22 come into the picture. It doesn't have to be 09:54:52
23 an iPhone, it could be whatever you are 09:54:54
24 plugging into these USB devices, now that this 09:54:56

1 whole system is set up to run. One of these 09:54:58
2 things gets plugged in, it's going to have a 09:55:00
3 default routing. 09:55:03
4 Remember, these are controllable 09:55:06
5 by the whole system, but the default is that 09:55:08
6 you have this connection here. Whatever you 09:55:10
7 plug in is going to go to the hub. That's 09:55:12
8 going to go to the hub, that's going to go to 09:55:14
9 the hub. That's where you obviously start. 09:55:16
10 Q. So, Mr. Voto, you mentioned that -- 09:55:18
11 you mentioned the bridge device in this 09:55:21
12 context, and in the slide there in the second 09:55:23
13 bullet point, it talks about a custom driver 09:55:26
14 for the bridge device. 09:55:29
15 What does that mean in the context 09:55:30
16 of Slide 11? 09:55:32
17 A. Right. 09:55:34
18 So we talked about, in that 09:55:35
19 power-up sequence, so the moment when the hub 09:55:41
20 is all set up and this USB Device A is 09:55:44
21 discovered and it has to answer the question 09:55:48
22 to the head unit what are you, it gives it 09:55:51
23 that answer out of this, I'm a vendor class 09:55:53
24 device. 09:55:56

1 Vendor class device is just fancy 09:55:57
2 words for saying I'm a custom -- I'm a custom 09:56:00
3 device. I'm something, you know, unique. So 09:56:05
4 you need to go find a driver. So we have to 09:56:07
5 have a driver preloaded into the head unit 09:56:10
6 that, of course, knows how to communicate with 09:56:14
7 this custom device. That's what it's 09:56:17
8 referring to. 09:56:19
9 Q. And where on the diagram is the 09:56:19
10 bridge device? 09:56:21
11 A. So the bridge -- the bridge device is 09:56:24
12 what we refer to as USB Device A. 09:56:27
13 Q. Now, let's turn to Slide 12, please. 09:56:31
14 It's pretty similar to Slide 11, but not quite 09:56:37
15 the same. 09:56:40
16 MR. WIENER: Actually, Mr. Glass, 09:56:41
17 could you toggle back and forth really quickly 09:56:43
18 so we can see the difference between 11 and 09:56:45
19 12? 11, 12, okay. Let's stay on 12. 09:56:48
20 BY MR. WIENER: 09:56:51
21 Q. Mr. Voto, what's different in Slide 09:56:52
22 12? 09:56:54
23 A. So Slide 12 is the same diagram, and 09:56:55
24 I think you probably picked up on the fact 09:56:59

1 that the iPhone now is no longer directly 09:57:01
2 connected to the hub; it is now connected to 09:57:03
3 this USB Device B. 09:57:06
4 So at this point, this is what 09:57:10
5 happens when you would want to switch to 09:57:13
6 CarPlay mode. So if the iPhone needs to be a 09:57:16
7 host, a host can't connect to a downstream 09:57:19
8 port of a hub because that's not allowed. USB 09:57:24
9 technology doesn't allow that. 09:57:27
10 But USB technology does say a host 09:57:29
11 can connect to a device, so that's exactly 09:57:31
12 what we do here. 09:57:34
13 Q. So we've heard a lot over the last 09:57:36
14 week about how there are USB rules pertaining 09:57:38
15 to one host on a network. How is it possible 09:57:42
16 to have these two hosts communicating with 09:57:44
17 each other on a USB? 09:57:47
18 A. Right. 09:57:52
19 So the reason that you are seeing 09:57:53
20 two hosts and no USB violation is because it's 09:57:58
21 actually two USB networks, it's not one USB 09:58:01
22 network. You have a host here talking to this 09:58:04
23 device. There's nothing at all wrong with 09:58:09
24 that. 09:58:11

1 You have another host here talking 09:58:11
2 to this device. So they are really separate 09:58:13
3 networks, so there is no -- there's no 09:58:17
4 violation of having two hosts in one device. 09:58:19
5 Q. What about that green bridge, is that 09:58:22
6 USB connection right there between the two 09:58:24
7 devices? 09:58:27
8 A. In the middle here? 09:58:28
9 Q. Yeah. 09:58:29
10 A. No. So USB will -- let's say, for 09:58:30
11 example, from the iPhone, this will be USB 09:58:36
12 data, and at the end of the USB data pipe is 09:58:38
13 this USB device controller which then knows 09:58:42
14 how to interpret that data. And then once it 09:58:46
15 has received that data, then you can use it 09:58:49
16 for whatever you want. But it's no longer in 09:58:51
17 USB form; right? 09:58:53
18 So what we've done is we've just 09:58:56
19 said there's this broad data now shooting out 09:58:57
20 the end of this thing and we are just going to 09:59:00
21 pump it over here to this guy, and vice versa. 09:59:02
22 So that's what it's doing, is just taking two, 09:59:05
23 like, you can call them USB decoders or 09:59:08
24 receivers or whatever you want to call them. 09:59:12

1 Once the data gets received, you just send it 09:59:13
2 over to the other USB, and vice versa. 09:59:16
3 Q. And are those two working in concert? 09:59:18
4 A. Well, I mean, in a sense at a very 09:59:20
5 high level, you could say well, they are just 09:59:23
6 ping-ponging data back and forth. So maybe it 09:59:25
7 seems like they are just kind of working 09:59:28
8 together. But in reality, again, you have two 09:59:30
9 USB networks, so data can be going back and 09:59:32
10 forth here. 09:59:35
11 It doesn't mean that there's data 09:59:37
12 going back and forth here. It doesn't mean 09:59:38
13 that whatever is happening in this side is, 09:59:41
14 you know, symmetric with what's happening at 09:59:43
15 this side at any moment in time. 09:59:45
16 Of course, you know, when you send 09:59:47
17 data, it has to go all the way through, so 09:59:49
18 there is a continuation of data through the 09:59:51
19 whole system, but at any moment in time, it 09:59:53
20 doesn't mean that both sides are doing 09:59:58
21 identical things. 10:00:00
22 Q. Does this system allow for data to 10:00:02
23 continue flowing down to that other USB 10:00:07
24 device, that gray box? 10:00:09

1 A. Of course. I mean, that's a given, 10:00:11
2 that whenever we have the iPhone letters in 10:00:14
3 device mode, host mode, it doesn't matter. 10:00:19
4 All these other ports have to work in some 10:00:22
5 case and they do. 10:00:24
6 Q. Can the iPhone, when it is a host in 10:00:25
7 this diagram, can it control those other USB 10:00:27
8 devices? 10:00:29
9 A. It cannot. 10:00:29
10 Q. So the head unit and the iPhone, they 10:00:30
11 are not sharing the USB devices? 10:00:32
12 A. No. 10:00:34
13 Q. Let's -- 10:00:35
14 MR. WIENER: We can take this 10:00:40
15 slide down, Mr. Glass. 10:00:41
16 BY MR. WIENER: 10:00:42
17 Q. I'd like to sort of go back to where 10:00:43
18 you were at the end of your development of the 10:00:45
19 FPGA solution with Jaguar Land Rover. 10:00:47
20 Was it your plan to offer an FPGA 10:00:50
21 solution to other customers once you got that 10:00:53
22 thing to work for Jaguar? 10:00:55
23 A. Well, kind of. I mean, the FPGA 10:00:58
24 solution was pretty good, you know, it was 10:01:02

1 really exciting for us in the fact that we had 10:01:04
2 figured out a way to solve this problem. 10:01:07
3 However, you know, there was some 10:01:10
4 down sides to the design that we came up with, 10:01:12
5 and namely, I think I told you, it used a lot 10:01:15
6 of different parts. You know, each of these 10:01:19
7 parts are chips that you have to put on the 10:01:22
8 board and chips have to have other parts 10:01:23
9 around it so it's kind of clunky, it's kind of 10:01:25
10 big, right? So it wasn't really ideal. 10:01:28
11 Q. So does that mean that it wouldn't be 10:01:31
12 something you could -- well, let me ask it 10:01:35
13 this way. 10:01:37
14 So it wasn't ideal. What was the 10:01:38
15 next step? 10:01:40
16 A. Well, we knew what we wanted, you 10:01:41
17 know, functionally. We knew how to implement 10:01:46
18 it with these FPGAs and other things like 10:01:48
19 that; we just didn't like how big it was. It 10:01:52
20 was kind of expensive, too. 10:01:54
21 So we said well, how do we solve 10:01:56
22 those kinds of problems? We could maybe get a 10:01:58
23 custom chip made that would do exactly what we 10:02:03
24 want it to do. Instead of just buying a bunch 10:02:07

1 of off-the-shelf pieces, what if we made 10:02:09
2 something precisely to what we want? 10:02:12
3 And so we started looking at that 10:02:14
4 option and trying to find suppliers that could 10:02:16
5 do that sort of thing for us. 10:02:18
6 We had already had a supplier that 10:02:20
7 was making chips for our headphones, so we 10:02:22
8 went to talk to them. We said hey, what do 10:02:24
9 you guys think about, you know, trying to make 10:02:27
10 a USB module? And, you know, USB is pretty 10:02:29
11 well-known technology. It's been around for a 10:02:33
12 long time. This bridge thing, while, you 10:02:36
13 know, it needed development, that concept 10:02:39
14 worked. We showed proof of concept. 10:02:42
15 So long story short, we ended up 10:02:45
16 getting a proposal from our current chip 10:02:47
17 supplier to make a custom chip for us that did 10:02:49
18 the hub switching and the bridge function. 10:02:54
19 Q. And was that the AyDeeKay company 10:02:57
20 that we heard Mr. Petku testify about? 10:03:00
21 A. That's correct. 10:03:02
22 Q. Can you describe for the jury what 10:03:03
23 the relative roles were between you at Unwired 10:03:06
24 and AyDeeKay in terms of development of the 10:03:10

1 chip? 10:03:13
2 A. Okay. Sure. 10:03:14
3 So I think the best way to think 10:03:15
4 about it is like just from an analogy view, if 10:03:21
5 you want to build a house, you need an 10:03:27
6 architect. Somebody has to make the high 10:03:30
7 level decision, how many floors, how many 10:03:32
8 rooms, how many bathrooms, you know, just 10:03:34
9 there's so many decisions. You've got to kind 10:03:37
10 of have to set those parameters of what is it 10:03:40
11 that you're really looking for. 10:03:42
12 But we weren't in a position at 10:03:44
13 Unwired -- we knew all that stuff, right, so 10:03:48
14 we wrote it all down; we were the architects, 10:03:51
15 my team was the architect of what to do. But 10:03:53
16 what we didn't have was the capability of 10:03:57
17 designing chips, ourselves. That's a very 10:03:59
18 specialized knowledge. 10:04:02
19 And so that's where we worked with 10:04:03
20 AyDeeKay and said okay, AyDeeKay, I've got 10:04:06
21 some documents to show you, this is what I 10:04:10
22 want you to make for me. Could you please, 10:04:11
23 you know, translate this into an actual chip 10:04:14
24 design for us and get it fabricated and built 10:04:17

1 and provide that to us. 10:04:19
2 Q. Did you pay AyDeeKay to do that work? 10:04:20
3 A. We paid AyDeeKay a lot of money. It 10:04:23
4 was probably in the order of $5 million just 10:04:26
5 to pay them to develop a chip. 10:04:30
6 Q. Did it result in a working chip? 10:04:34
7 A. It did. It did. 10:04:37
8 Q. And is that the Boston 2 chip we've 10:04:38
9 heard about? 10:04:42
10 A. Yes, that's the Boston 2. 10:04:43
11 Q. Why is it called that? You said you 10:04:47
12 are a Michigan man; right? Why is this called 10:04:49
13 the Boston chip? 10:04:52
14 A. Well, every summer, one of the 10:04:53
15 vacations that I would look forward to is when 10:04:55
16 I was in the Boston area, go fishing with my 10:04:57
17 buddies, so I thought it would be fun to call 10:05:00
18 it Boston. 10:05:02
19 Q. When did you start selling the Boston 10:05:04
20 chip? 10:05:06
21 A. I would say -- I mean, okay. So 10:05:08
22 first, just to be clear, we didn't sell the 10:05:12
23 Boston chip to anyone. The Boston chip was 10:05:14
24 developed by my team at Unwired because we 10:05:16

1 wanted to use it in the hub modules that we 10:05:21
2 made, but that first hub module, probably like 10:05:25
3 in the 2015 timeframe. 10:05:30
4 Q. Okay. 10:05:31
5 Did you ever sell the chip by 10:05:32
6 itself? 10:05:35
7 A. No. It was never sold outside of -- 10:05:36
8 outside of Unwired/Aptiv. 10:05:40
9 MR. WIENER: Just give me one 10:05:49
10 second. I have some props. Let me start with 10:05:50
11 this. 10:05:57
12 BY MR. WIENER: 10:06:01
13 Q. You mentioned that you were a module 10:06:02
14 maker and that you developed a module that had 10:06:03
15 the Boston 2 chip in it; right? 10:06:08
16 A. That's correct. 10:06:11
17 Q. And what was the name of the module? 10:06:12
18 Did it have -- sorry, did you have a name that 10:06:16
19 you referred to the module in terms of 10:06:18
20 Unwired? 10:06:22
21 A. The dual role hub. 10:06:22
22 Q. The dual role hub. 10:06:24
23 MR. SHAW: Excuse me, Your Honor, 10:06:28
24 may I see it? 10:06:29

1 MR. WIENER: Sure. 10:06:31
2 THE COURT: Yes. 10:06:32
3 MR. WIENER: May I approach, Your 10:06:36
4 Honor? 10:06:38
5 THE COURT: Yes. 10:06:39
6 (Whereupon, Trial Exhibit 366 was 10:06:39
7 introduced.) 10:06:42
8 BY MR. WIENER: 10:06:42
9 Q. Mr. Voto, I've handed you what's been 10:06:43
10 marked Exhibit 366. Can you identify it, 10:06:46
11 please? 10:06:49
12 A. This is a hub module that uses one of 10:06:52
13 our Boston chips, and you can kind of see some 10:06:57
14 of the things I was trying to describe earlier 10:07:02
15 a few minutes ago. This is the front face 10:07:04
16 that you would see in the car, it's got the 10:07:07
17 USB ports, SD card, those type of things. 10:07:09
18 On the back of it is connectors 10:07:12
19 where it would -- you know, this would be the 10:07:13
20 hidden wiring in the vehicle that goes like to 10:07:16
21 the head unit, the entertainment system. 10:07:18
22 So yeah, they all look a little 10:07:22
23 bit different, because like I said, each 10:07:24
24 customer wants a little bit different contents 10:07:26

1 on it or different styling, but this is 10:07:29
2 generally what we are talking about when you 10:07:31
3 think of media modules. 10:07:33
4 MR. WIENER: Your Honor, I move 10:07:35
5 Exhibit 366 into evidence. 10:07:37
6 MR. SHAW: No objection. 10:07:38
7 THE COURT: All right. It's in. 10:07:39
8 MR. WIENER: That means at the 10:07:41
9 conclusion of the case, the jury will be able 10:07:43
10 to examine it. 10:07:45
11 BY MR. WIENER: 10:07:45
12 Q. How do you know that's a hub that has 10:07:46
13 the Boston chip in it? 10:07:48
14 A. Well, because of the fact that all 10:07:52
15 these different modules have kind of a unique 10:07:54
16 look to them, I can look at this and I know 10:07:58
17 exactly which hub module this is. This would 10:08:00
18 go in the General Motors vehicles and I helped 10:08:05
19 design the module, so I know what's inside of 10:08:07
20 it. 10:08:10
21 Q. You can't see the Boston 2 chip on 10:08:12
22 that one, just -- 10:08:14
23 A. No. 10:08:16
24 Q. Luckily, we have another one. I'm 10:08:16

1 handing you what's been marked Exhibit 365. 10:08:19
2 MR. SHAW: Thank you. 10:08:24
3 (Whereupon, Trial Exhibit 365 was 10:08:24
4 introduced.) 10:08:28
5 BY MR. WIENER: 10:08:28
6 Q. Mr. Voto, can you describe for the 10:08:28
7 jury what Exhibit 365 is? 10:08:30
8 A. So this, if you look at it, it's the 10:08:35
9 same thing, so this is the complete product. 10:08:40
10 This is how it would get shipped and actually 10:08:43
11 installed into the car, you know, attach the 10:08:46
12 cables and plug it into the car, good to go. 10:08:48
13 This is the same thing, but it's 10:08:51
14 kind of taken apart, which kind of gives you a 10:08:53
15 little bit of a deeper sense of what's 10:08:58
16 actually all the mystery that's going on 10:08:59
17 inside of this thing. 10:09:01
18 The first thing you see is we have 10:09:02
19 two plastic pieces; this is what forms the 10:09:04
20 housing of it. Inside of this, you have two 10:09:07
21 circuit boards that we are taking out now. 10:09:12
22 These two circuit boards work together. They 10:09:16
23 have an interconnect that go between them. 10:09:18
24 And now you can start to see where, on the 10:09:21

1 front of this, we have these different 10:09:24
2 connectors. 10:09:26
3 Now we can actually see these 10:09:26
4 connectors on the circuit board, right? These 10:09:28
5 are the USB connectors, the audio connector, 10:09:30
6 this is the connector that goes to the 10:09:34
7 vehicle, you know, that's behind the product 10:09:37
8 here in the back. 10:09:38
9 This is a USB connection that goes 10:09:40
10 back to the entertainment system. This is an 10:09:44
11 SD card connector and you can't see it from 10:09:47
12 there, but there is a ton of little tiny parts 10:09:50
13 all over this, like even right here there is, 10:09:53
14 I don't know, there's probably 50 or 60 parts 10:09:55
15 on the circuit board that are super tiny. 10:09:58
16 And one of the many components in 10:10:01
17 this design is this black square right here 10:10:03
18 which is the actual Boston hub chip. 10:10:08
19 Q. The reason we're all here today. 10:10:12
20 A. That's why. 10:10:15
21 MR. WIENER: Your Honor, I offer 10:10:15
22 Exhibit 365 into evidence. 10:10:18
23 MR. SHAW: No objection. 10:10:19
24 THE COURT: All right. It will 10:10:21

1 come in. 10:10:22
2 MR. WIENER: Your Honor, 10:10:22
3 permission to publish them to the jury so that 10:10:23
4 they can see them as well? 10:10:25
5 THE COURT: Any objection, Mr. 10:10:27
6 Shaw? 10:10:28
7 MR. SHAW: No, Your Honor. 10:10:29
8 THE COURT: Okay. Go ahead. 10:10:30
9 MR. WIENER: I'll do the hand-off. 10:10:33
10 (Whereupon, the exhibits were 10:10:44
11 published to the jury.) 10:10:46
12 BY MR. WIENER: 10:10:51
13 Q. All right. 10:10:52
14 Back to the documents, Mr. Voto. 10:10:53
15 If you could turn to Tab 14 of your binder, 10:10:55
16 please. 10:10:57
17 (Whereupon, Trial Exhibit 14 was 10:10:57
18 introduced.) 10:10:57
19 BY MR. WIENER: 10:10:57
20 Q. What's shown -- what is Exhibit 14? 10:11:04
21 Can you describe it at a high level for the 10:11:07
22 jury, please. 10:11:09
23 A. This is a document that my team wrote 10:11:10
24 at Unwired describing the Host to Host Bridge 10:11:12

1 technical specification. 10:11:15
2 MR. WIENER: Your Honor, I offer 10:11:16
3 Exhibit 14 into evidence. 10:11:17
4 MR. SHAW: No objection. 10:11:18
5 THE COURT: Okay. It can come in. 10:11:20
6 MR. WIENER: Mr. Glass, if you 10:11:21
7 could put the first page on there. 10:11:23
8 BY MR. WIENER: 10:11:24
9 Q. Can you explain what the purpose of 10:11:25
10 this document is to the jury? 10:11:27
11 A. Sure. 10:11:30
12 So as I was saying in some of the 10:11:30
13 previous slides, we were trying to develop our 10:11:35
14 own Host to Host Bridge, and, you know, the 10:11:37
15 specific -- the specifics of it were detailed 10:11:42
16 and we needed to write that down because we 10:11:47
17 needed to come up with that custom programming 10:11:49
18 that we could put into the FPGA to make it do 10:11:52
19 what we needed it to do, and there's actually 10:11:55
20 a lot of work to come up with that 10:11:58
21 programming, so the first step is to break 10:11:59
22 down the requirements. 10:12:01
23 MR. WIENER: Mr. Glass, could you 10:12:02
24 take us to page 4, please. 10:12:04

1 BY MR. WIENER: 10:12:05
2 Q. Mr. Voto, can you describe for the 10:12:06
3 jury what this chart or this diagram on page 4 10:12:08
4 is showing? 10:12:11
5 A. This diagram is similar to what we 10:12:13
6 were showing customers in those previous 10:12:16
7 drawings for the middle section here. It's 10:12:19
8 just got a little bit more detail to it, this 10:12:23
9 is more of an internal engineering 10:12:26
10 specification, but if you see this USB Device 10:12:28
11 A, Device B, those are both of the device 10:12:30
12 controllers inside of the bridge, and then 10:12:35
13 these are the switches down here at the bottom 10:12:37
14 that is allowing it to do different routing 10:12:40
15 between the USB ports and the hub and bridge. 10:12:42
16 Q. So if you could orient the jury and 10:12:46
17 show them where the head unit plugs in on 10:12:48
18 this, I think that would be helpful. 10:12:50
19 A. Okay. Sure. 10:12:52
20 So you're not seeing the whole 10:12:54
21 picture here because this picture is 10:12:55
22 specifically kind of about the bridge, itself, 10:12:57
23 right, just trying to track what's going on in 10:13:01
24 the bridge. 10:13:04

1 But if we back up and look at the 10:13:04
2 whole system, and let's say over here, we have 10:13:06
3 the head unit, the head unit has a data 10:13:08
4 connection, we have the hub right here. One 10:13:11
5 of the downstream ports of the plug would be 10:13:14
6 plugging in here as you would see Device A. 10:13:16
7 Q. Now, at the top it says, "FPGA." 10:13:19
8 Does that mean that this is just a diagram of 10:13:23
9 how the FPGA implementation works and there is 10:13:25
10 a different diagram somewhere for the chip 10:13:30
11 version? 10:13:32
12 A. No, it's the same diagram. Just 10:13:32
13 think about the sequence of events was we 10:13:35
14 first had to tackle Jaguar's problem and we 10:13:38
15 needed to do it quickly, we used FPGA, so the 10:13:41
16 first order of business was to get that done. 10:13:46
17 And then we made working 10:13:48
18 prototypes and then we said okay, how can we 10:13:51
19 make it smaller, cheaper, that sort of thing. 10:13:54
20 That's when we took the exact same concept, 10:13:57
21 because we already knew it worked, and tried 10:13:59
22 to put it into the chip. So at the end of the 10:14:00
23 day, it is the same thing in both the FPGA and 10:14:02
24 the chip. 10:14:05

1 Q. So this diagram on page 4 of 10:14:06
2 Exhibit 14 also describes how the bridge 10:14:10
3 functionality in the Boston chip works as 10:14:12
4 well? 10:14:15
5 A. Correct. 10:14:15
6 Q. Okay. 10:14:16
7 Mr. Voto, if you could turn to 10:14:17
8 Tab 16 in your binder, please. 10:14:19
9 (Whereupon, Trial Exhibit 16 was 10:14:19
10 introduced.) 10:14:19
11 BY MR. WIENER: 10:14:19
12 Q. When you get there, if you could 10:14:24
13 provide a high level description of what that 10:14:28
14 document is to the jury. 10:14:29
15 A. Yeah. This is what we call the 10:14:31
16 Boston data sheet. This is describing the 10:14:33
17 technical requirements or the features of the 10:14:36
18 Boston chip. 10:14:40
19 MR. WIENER: Your Honor, I offer 10:14:41
20 Exhibit 16 into evidence. 10:14:44
21 MR. SHAW: No objection. 10:14:45
22 THE COURT: All right. It will 10:14:46
23 come in. 10:14:47
24 MR. WIENER: Mr. Glass, if you 10:14:48

1 could put this up. And, Mr. Glass, if you 10:14:49
2 could turn to page 18 of Exhibit 16, please. 10:14:54
3 BY MR. WIENER: 10:14:57
4 Q. Now, Mr. Voto, here on page 18, we 10:14:58
5 have another diagram that looks a little 10:15:01
6 different from the block diagrams we have been 10:15:03
7 looking at so far. 10:15:05
8 Can you explain to the jury what 10:15:06
9 this diagram on page 18 is showing? 10:15:08
10 A. Sure. 10:15:11
11 So to put this into context, this 10:15:12
12 is page 18 out of 150. This is a huge 10:15:15
13 document that describes like every little 10:15:18
14 detail that we can think of about how the 10:15:20
15 Boston chip, itself, needs to be designed and 10:15:22
16 work. 10:15:25
17 So in the midst of all that 10:15:25
18 detail, it's nice to start with kind of a 10:15:28
19 let's go high level, like what does this thing 10:15:31
20 look like at the top level. What are we 10:15:33
21 dealing with here. 10:15:34
22 And so this diagram is, in 10:15:35
23 essence, it's like a cartoon of what the chip 10:15:40
24 is actually going to be. It represents the 10:15:42

1 chip, itself. So around the perimeter, you 10:15:45
2 can see this little tiny square, each of them 10:15:48
3 has words next to it. Those are the signals 10:15:51
4 that flow in and out of the chip. They all 10:15:53
5 have a name, they all have a purpose, they all 10:15:55
6 have a function. 10:15:57
7 And then inside the box, these -- 10:15:58
8 each of these little boxes represent some sort 10:16:02
9 of a function, some sort of a subsystem, if 10:16:04
10 you will, that does something. They all have 10:16:09
11 to work together, all that stuff works 10:16:11
12 together to make the overall chip function. 10:16:14
13 Q. And is there a portion of this 10:16:16
14 diagram that relates specifically to this 10:16:18
15 host-to-host bridging functionality we have 10:16:20
16 been talking about? 10:16:22
17 A. Yes. So specifically we see this box 10:16:24
18 down here that says, "H2H controller." That's 10:16:28
19 what we had to add, you know, largely on top 10:16:32
20 of everything else that the hub already did to 10:16:36
21 make the bridge function work. 10:16:38
22 MR. WIENER: Mr. Glass, if you can 10:16:41
23 zoom back out, please. 10:16:42
24 BY MR. WIENER: 10:16:44

1 Q. Now, this diagram, is this to scale 10:16:44
2 from, like, a physical perspective? 10:16:48
3 A. No, no. It's -- again, you can kind 10:16:49
4 of think of it as from -- from a top down 10:16:54
5 view, high level, like what are all the 10:16:58
6 different bits and pieces that go into this 10:17:01
7 chip. If you have to design the chip, you've 10:17:03
8 got to deal with every one of those things, 10:17:05
9 but I think it's also fair to say that the 10:17:07
10 boxes aren't all the same size because 10:17:10
11 somebody that created this diagram realized, 10:17:12
12 there's a heck of a lot of digital logic, 10:17:14
13 there is a whole lot of USB-to-hub logic and 10:17:17
14 many, many other little bits and pieces it 10:17:20
15 takes. 10:17:22
16 So kind of -- maybe by chance, it 10:17:23
17 sort of does somewhat compare in terms of the 10:17:26
18 complexity and how it's shown here. 10:17:29
19 Q. And are all of the components shown 10:17:31
20 on this page, are they all involved when -- or 10:17:34
21 necessary for using the hub in CarPlay mode? 10:17:38
22 A. No, they're not. 10:17:41
23 Q. Mr. Voto, from start to finish, how 10:17:50
24 long did it take Unwired to develop the Boston 10:17:53

1 2 chip? 10:17:56
2 A. Well, we had already been working 10:17:57
3 kind of with Jaguar for a while, but then when 10:18:02
4 we started trying to develop the chip, itself, 10:18:04
5 that was probably a couple years before we 10:18:08
6 had, like, something that worked well enough 10:18:10
7 and had been tested thoroughly enough to put 10:18:12
8 it in a product and sell it. 10:18:14
9 Q. And how many people from Unwired 10:18:16
10 worked on this project to develop the Boston 10:18:18
11 chip? 10:18:20
12 A. I mean, for the initial development, 10:18:22
13 probably, you know, rough guess, probably 10:18:24
14 around 10 guys, 10 people. 10:18:27
15 Q. And all told, how much did Unwired 10:18:29
16 invest to develop this chip? 10:18:31
17 A. We paid -- the contract with AyDeeKay 10:18:36
18 was for about $5 million and we worked on this 10:18:40
19 for those two years with 10 people, a lot of 10:18:44
20 outside testing. I don't have really a 10:18:47
21 precise number for you, but I am going to 10:18:49
22 ballpark it, like $10 million. 10:18:51
23 Q. How would you characterize an 10:18:52
24 investment of around $10 million for a company 10:18:55

1 like Unwired at the time that it made that 10:18:58
2 investment? 10:19:00
3 A. I mean, it was enormous, like we were 10:19:02
4 working at a little company. We made 10:19:06
5 headphones, you know. We made $10 products 10:19:08
6 that go in cars. We made a lot of them, but 10:19:12
7 this was unprecedented for us. We didn't have 10:19:16
8 $10 million to just throw around and hope it 10:19:21
9 worked, you know. So this was a huge -- this 10:19:24
10 was a big deal. 10:19:26
11 MR. WIENER: Mr. Glass, if we can 10:19:30
12 go back to the first page of this exhibit. 10:19:31
13 BY MR. WIENER: 10:19:36
14 Q. Mr. Voto, when Unwired invested the 10:19:37
15 money to develop the Boston 2 chip, were there 10:19:40
16 any risks associated with that investment? 10:19:44
17 A. Besides the fact that it might not 10:19:47
18 work? 10:19:49
19 Q. Yeah, besides the elephant in the 10:19:50
20 room, other risks? 10:19:52
21 A. Yeah. So, I mean, all joking aside, 10:19:54
22 it was -- it was -- it was super exciting and 10:19:57
23 super scary at the same time. We thought hey, 10:20:01
24 man, this is so cool. We figured out how to 10:20:04

1 solve this problem in a unique way. All we 10:20:07
2 have to do is crack this nut on figuring out 10:20:10
3 how to do it small enough so I can use it on 10:20:13
4 all these other customer programs. 10:20:15
5 It turned out to be a pretty hard 10:20:17
6 problem, you know. We were a module maker, so 10:20:20
7 working with some other company to make a chip 10:20:23
8 and make it meet all the requirements was 10:20:25
9 pretty tough. 10:20:28
10 And along the way, even though we 10:20:30
11 were getting positive feedback of, you know, 10:20:32
12 we built something, we tested, you know, it's 10:20:35
13 got some problems, but we're moving in the 10:20:37
14 right direction, there was always a risk that 10:20:39
15 some requirement could change. What if Apple 10:20:42
16 changed their mind about what they would 10:20:45
17 accept? 10:20:46
18 Q. Looking at Exhibit 16 towards the top 10:20:50
19 of the document, the first feature that's 10:20:54
20 listed underneath features, it says, "USB 2.0 10:20:59
21 - Compliant," and there is a footnote. 10:21:04
22 MR. WIENER: And, Mr. Glass, if we 10:21:06
23 could zoom back out and take a look at that 10:21:07
24 footnote at the bottom of the page. Just 10:21:10

1 above that. 10:21:12
2 There we go. Perfect. Nope, we 10:21:12
3 were close. If we could zoom in. Thanks. 10:21:16
4 BY MR. WIENER: 10:21:18
5 Q. So this is the footnote, "With the 10:21:18
6 exception of suspend current." 10:21:20
7 Does suspending current have 10:21:22
8 anything to do with CarPlay? 10:21:23
9 A. No. 10:21:25
10 MR. WIENER: Let's zoom back out 10:21:26
11 and go back to that top requirement, the main 10:21:28
12 features, Mr. Glass. Perfect. 10:21:30
13 BY MR. WIENER: 10:21:32
14 Q. "Main Features: USB 2.0 - Compliant 10:21:33
15 HUB operation." Can you explain to the jury 10:21:37
16 what that means? 10:21:37
17 A. Well, USB 2.0 is a version of USB we 10:21:40
18 had for a long time. We can call it USB high 10:21:50
19 speed, but it is a very complex specification. 10:21:55
20 I mean, you wouldn't even fit it in this 10:21:59
21 binder hardly. It is massively complex. 10:22:02
22 So we wanted to make sure that 10:22:05
23 AyDeeKay understood -- remember, we are the 10:22:08
24 architect, so we are like hey, when we get 10:22:11

1 this thing done, it better actually work with 10:22:14
2 all USB. It needs to follow all the USB 10:22:17
3 guidelines, all the USB regulations and, you 10:22:20
4 know, even get certified through the USB 10:22:24
5 standards. 10:22:30
6 Q. You mentioned get certified with the 10:22:30
7 USB standards. Can you tell the jury a little 10:22:32
8 bit about that process? 10:22:38
9 A. Think about all the different USB 10:22:39
10 products you've seen in your life. There's so 10:22:40
11 many companies making chips and modules and 10:22:43
12 products that all use USB technology. And we 10:22:45
13 all hope that they all work together right. 10:22:49
14 We expect it. 10:22:53
15 It doesn't mean that's always the 10:22:55
16 case, though. There is plenty of examples 10:22:56
17 where stuff doesn't seem to be compatible with 10:22:59
18 each other. 10:23:01
19 And the USB organization, 10:23:03
20 themselves, try to safeguard against that 10:23:06
21 happening and they set up a certification 10:23:10
22 program, so they said for anyone that's, you 10:23:11
23 know, serious about doing USB products, that 10:23:14
24 you want to know that your -- the quality of 10:23:17

1 your product is, you know, to the highest 10:23:20
2 level. Send your product through our 10:23:22
3 certification lab. 10:23:26
4 The USB certification lab, this is 10:23:27
5 an independent third-party kind of testing, 10:23:31
6 right, so only the USB is the one that's 10:23:33
7 prescribing how to test it and who is 10:23:35
8 qualified to test it. 10:23:38
9 So that's -- that's really the 10:23:39
10 gold standard when you want to say, you know, 10:23:41
11 something is or it is not compliant to the USB 10:23:44
12 standard. You can't really -- shouldn't 10:23:46
13 really make those claims yourself unless 10:23:49
14 you've taken your product and sent it to one 10:23:51
15 of these qualified labs and they independently 10:23:53
16 said yep, that looks good. 10:23:57
17 Q. Did you submit the Boston 2 for 10:23:58
18 certification to one of these labs? 10:24:00
19 A. We did. 10:24:01
20 Q. Did it pass? 10:24:02
21 A. It did. 10:24:03
22 Q. How about the dual role hub as a 10:24:03
23 whole, did you submit that to one of these 10:24:06
24 labs for USB certification? 10:24:07

1 A. Yeah. So expectation of our 10:24:09
2 customers and Apple was that all of our chips, 10:24:11
3 all of our modules were USB certified. So we 10:24:16
4 had to do that and we did. 10:24:19
5 Q. Now, you mentioned that it mattered 10:24:21
6 to Apple. Why did it matter to Apple? 10:24:23
7 A. So Apple -- Apple has its own 10:24:27
8 business interests and its own complex story, 10:24:34
9 but Apple basically was doing more and more 10:24:37
10 trying to integrate the iPhones in particular 10:24:41
11 into the cars. 10:24:44
12 They were doing this CarPlay thing 10:24:45
13 now. Even before CarPlay, you could stream 10:24:47
14 music over USB from your iPhone into the car 10:24:49
15 if your head unit supported it and all this 10:24:53
16 stuff. 10:24:55
17 So Apple is smart, you know. They 10:24:56
18 are always on the lookout to avoid anything 10:25:00
19 that makes Apple look bad, right? They don't 10:25:03
20 want to have accessories, Apple accessories, 10:25:06
21 that don't work well because the consumer gets 10:25:09
22 confused. They are like well, is this crappy 10:25:13
23 Apple product why my boom box doesn't work or 10:25:16
24 whatever? All right. We are just not even 10:25:19

1 going there, right. 10:25:21
2 So if you want to make an 10:25:22
3 accessory for an Apple product, you need 10:25:24
4 Apple's permission. And Apple is going to 10:25:26
5 say, and we are not going to make it easy on 10:25:29
6 you either. Particularly for USB products. 10:25:31
7 The first thing they ask, is everything in 10:25:34
8 your system, in this brand new system that, 10:25:36
9 let's say, Ford wants to launch or any OEM, is 10:25:39
10 every single component in it USB certified? 10:25:43
11 If they are not, go back and get that before 10:25:46
12 you start talking to me about whether or not 10:25:49
13 your system is approved by Apple. 10:25:50
14 Q. So could you submit the Boston 2 chip 10:25:52
15 by itself to Apple for certification or 10:25:55
16 approval? 10:25:57
17 A. No. So Apple wouldn't even have 10:25:57
18 looked at that, you know. Apple is not 10:26:00
19 interested in even really talking to component 10:26:02
20 suppliers that much. Their main interest, and 10:26:08
21 to keep things simple from their perspective, 10:26:11
22 is they want a relationship with car 10:26:14
23 manufacturers. 10:26:16
24 So Apple wants to talk to GM and 10:26:16

1 say hey, GM, what are you working on? What's 10:26:20
2 your new Cadillac that's going to come out in 10:26:23
3 a couple years? Can you give me a prototype, 10:26:27
4 give me a sneak peek on what you guys are 10:26:31
5 working on? Because here at Apple, we want to 10:26:33
6 make sure that it's all working smoothly and 10:26:35
7 to Apple's expectation. 10:26:37
8 So at the end of the day, it's 10:26:39
9 either their car manufacturers or their 10:26:41
10 representative that's submitting complete 10:26:43
11 systems to Apple, not bits and pieces like a 10:26:45
12 hub module. 10:26:47
13 Q. Did Apple ever approve Unwired's 10:26:48
14 host-to-host bridge solution for CarPlay in 10:26:52
15 any vehicle systems? 10:26:55
16 A. It got approved as part of a bigger 10:26:57
17 system. 10:26:59
18 Q. And when was the first time it got 10:26:59
19 that approval? 10:27:01
20 A. Around about 2015. 10:27:03
21 Q. Did you learn ahead of time from 10:27:06
22 Apple that they were going to approve the 10:27:08
23 system with your product in it? 10:27:10
24 A. No. 10:27:11

1 Q. Mr. Voto, there's been a suggestion 10:27:13
2 by Microchip that you received inside 10:27:16
3 information about Apple's -- about Apple's 10:27:18
4 specifications and what they would and would 10:27:23
5 not accept. 10:27:24
6 Did you get any information you 10:27:26
7 shouldn't have about Apple's requirements in 10:27:28
8 connection with developing this product? 10:27:31
9 A. No, no. So let me be clear. I don't 10:27:33
10 know where that's coming from, but the -- 10:27:38
11 here's how it works -- how it worked in this 10:27:42
12 case. And it's just all normal stuff. 10:27:44
13 Apple and Jaguar are talking to 10:27:50
14 each other and they're saying hey, you know, 10:27:53
15 we are going to have this new CarPlay thing. 10:27:55
16 Jaguar, here are some of the requirements, 10:27:58
17 right, this is what you have to do to make it 10:28:00
18 work. 10:28:01
19 And Jaguar is probably going 10:28:02
20 great, that sounds good. I would love to 10:28:03
21 support the latest consumer tech in a car. 10:28:05
22 Then Jaguar would turn around and 10:28:08
23 start thinking about, okay, which of these 10:28:11
24 different requirements of this do I need to 10:28:13

1 give to our supplier, you know, because our 10:28:16
2 suppliers have to make all the parts. The 10:28:20
3 suppliers have to make the hub module. And 10:28:22
4 the suppliers have to use chips and these 10:28:25
5 chips have to be able to do these things, too. 10:28:27
6 So that's how we found out, is 10:28:29
7 really because of the fact that we had earned 10:28:31
8 that business with Jaguar and we were in the 10:28:35
9 middle of developing it, at the same time that 10:28:37
10 Jaguar was talking to Apple, it just became, 10:28:40
11 you know, natural for Jaguar to start feeding 10:28:44
12 us some of these requirements. 10:28:48
13 Q. Did you ever meet with Apple to try 10:28:50
14 to learn if they would approve your solution 10:28:53
15 before it was approved as part of a vehicle 10:28:55
16 solution in 2015? 10:28:57
17 A. Yes, we did. 10:28:58
18 Q. Did they tell you at that meeting 10:29:00
19 whether they would be approving it? 10:29:02
20 A. No, they didn't. 10:29:04
21 Q. Mr. Voto, can you turn to Exhibit 12 10:29:05
22 of your binder, please. 10:29:07
23 (Whereupon, Trial Exhibit 12 was 10:29:07
24 introduced.) 10:29:07

1 BY MR. WIENER: 10:29:07
2 Q. Can you provide a high level 10:29:13
3 description of what that document is to the 10:29:15
4 jury? 10:29:16
5 A. This is a presentation that we put 10:29:18
6 together to show Apple what we were doing and 10:29:20
7 to try to solicit feedback from Apple. 10:29:26
8 MR. WIENER: Your Honor, I offer 10:29:28
9 Exhibit 12 into evidence. 10:29:31
10 MR. SHAW: No objection. 10:29:32
11 THE COURT: All right. It will 10:29:33
12 come in. 10:29:34
13 MR. WIENER: Mr. Glass, please put 10:29:35
14 it on the front. 10:29:37
15 BY MR. WIENER: 10:29:38
16 Q. So to set the stage in the time, this 10:29:41
17 is November 10th of 2014; is that right? 10:29:43
18 A. Yes. 10:29:46
19 Q. So by November of 2014, you had 10:29:46
20 developed -- did you have a chip that you had 10:29:50
21 tested and it worked? 10:29:52
22 A. Yes. 10:29:54
23 Q. Okay. 10:29:54
24 And you were meeting with Apple. 10:29:55

1 Had you been selected by any of the car 10:29:59
2 companies at this point? 10:30:01
3 A. Yes, we had. 10:30:03
4 Q. Okay. 10:30:04
5 And so you put this presentation 10:30:06
6 together, and what were you -- what was the 10:30:08
7 purpose of the presentation? 10:30:10
8 A. It was kind of twofold. The first 10:30:14
9 was we had been developing this technology now 10:30:20
10 since 2012, 2013, something like that, you 10:30:22
11 know, so a couple years, never having had 10:30:26
12 really direct anything from Apple. 10:30:31
13 It was understood that we needed 10:30:36
14 to meet the requirements on kind of what 10:30:38
15 Jaguar was telling us. It was understood that 10:30:40
16 we needed working systems. It was understood 10:30:43
17 that Jaguar was happy with what we had done 10:30:46
18 thus far. 10:30:49
19 But it would be so much more 10:30:50
20 satisfying for us, because again, this whole 10:30:52
21 thing represents a big risk for Unwired being 10:30:54
22 a small company. It would be so much more 10:30:57
23 satisfying if we can hear back from Apple that 10:30:59
24 hey, we are telling you exactly what we are 10:31:03

1 doing. We are laying it all out there for 10:31:05
2 you, Apple. Could you please tell me this is 10:31:07
3 okay. 10:31:09
4 Because we don't know, Apple can 10:31:10
5 change their mind about anything at any moment 10:31:12
6 in time. They could just swipe this whole 10:31:13
7 thing away and we would be totally gone. So 10:31:16
8 that's what we were doing and that's what the 10:31:21
9 presentation was for. 10:31:22
10 Q. So did you explain to Apple how your 10:31:23
11 dual role hub in the Boston 2 chip worked? 10:31:26
12 A. Yes. 10:31:29
13 MR. WIENER: Mr. Glass, if we 10:31:30
14 could go to Slide 4. This is the last one of 10:31:31
15 these you'll see from me today. 10:31:35
16 BY MR. WIENER: 10:31:37
17 Q. Can you explain to the jury what this 10:31:38
18 is? 10:31:40
19 A. Sure. 10:31:40
20 I hope at this point we can go 10:31:40
21 really fast, right? This is like the fourth 10:31:42
22 time I think we've looked at this. But it's a 10:31:44
23 safeguard, like if we wanted to have Apple 10:31:47
24 understand. Of course there is a head unit, 10:31:52

1 it has a single link connection to a two-wired 10:31:53
2 chip. Our chip has the hub, has the bridge, 10:31:56
3 it has the routing device, it has the consumer 10:31:59
4 device ports on the right. 10:32:01
5 MR. WIENER: And if we could go to 10:32:04
6 the last page of the exhibit, Mr. Glass. 10:32:05
7 BY MR. WIENER: 10:32:07
8 Q. What's shown on this slide? 10:32:08
9 A. So after walking through -- we 10:32:10
10 skipped over a bunch of pages, right, but 10:32:12
11 after walking through all this, you know, hey, 10:32:14
12 Apple engineers, I want you to understand, you 10:32:16
13 know, how it all works and kind of like the 10:32:18
14 bits and pieces, talk about the technical. 10:32:22
15 Before we walked away from this 10:32:25
16 meeting with Apple, we thought we should 10:32:27
17 really make sure that they understand, like, 10:32:30
18 who we are because they probably didn't even 10:32:33
19 know who Unwired was, at least their engineers 10:32:35
20 probably wouldn't have really known much about 10:32:38
21 us. 10:32:41
22 So we put this slide together just 10:32:41
23 as -- so by the way, we have a chip that we 10:32:44
24 just have been talking about. It's going -- 10:32:48

1 this bridge concept is going into this JLR 10:32:51
2 project, right? 10:32:56
3 Q. That's Jaguar? 10:32:57
4 A. Jaguar, yeah, JLR, Jaguar Land Rover. 10:32:58
5 The second is we have our own 10:33:04
6 custom chip in development. It's gone through 10:33:06
7 some revisions, it's going to have more, but 10:33:09
8 it's working. We are going to get it cleaned 10:33:11
9 up and ready for production and it is going to 10:33:13
10 go into awarded programs that we already have 10:33:16
11 from GM, Ford and Chrysler. So you can see 10:33:18
12 down here, five million vehicles. 10:33:21
13 We are basically telling Apple 10:33:23
14 hey, guys, if there's something wrong with 10:33:27
15 this, you need to like raise your hand now 10:33:29
16 because this is going to be in a lot of cars 10:33:32
17 where there is going to be a lot of heartache 10:33:34
18 about what's wrong with it. 10:33:36
19 Q. Did they give you the satisfaction of 10:33:38
20 letting you know they would approve this? 10:33:39
21 A. Man, I was really hoping they would 10:33:41
22 say this looks great, no problem, but we 10:33:43
23 didn't get that answer. The answer we got was 10:33:45
24 yeah, this looks fine, but please understand 10:33:48

1 that, you know, Apple's policy is we write 10:33:52
2 requirements. We publish those requirements 10:33:57
3 in places for you and your competitors to ask 10:33:59
4 us and you have to follow the same sort of 10:34:04
5 issues as anyone else. 10:34:07
6 I mean, the good news is they 10:34:09
7 didn't look at what we said -- look at what we 10:34:10
8 were proposing and say whoa. But at the same 10:34:13
9 time, they were making no guarantees that it 10:34:16
10 was going to be acceptable to Apple. We had 10:34:18
11 to follow the same certification process as 10:34:21
12 everyone else. 10:34:23
13 MR. WIENER: Your Honor, I am 10:34:25
14 probably at a good breaking point now, if it 10:34:26
15 would be a good time to take a morning break? 10:34:28
16 THE COURT: Okay. 10:34:31
17 Sounds good to me. So why don't 10:34:31
18 we take 5 to 10 minutes, plan to be back here 10:34:33
19 at quarter of, okay? 10:34:36
20 (Whereupon, the jury was excused 10:34:39
21 from the courtroom.) 10:34:41
22 THE COURT: Okay. 10 minutes be 10:35:04
23 back. Thanks, everyone. 10:35:06
24 (Whereupon, a 10-minute recess was 10:35:08

1 taken at 10:35 a.m.) 10:35:11
2 THE COURT CLERK: All rise. 10:45:32
3 THE COURT: All right. You may be 10:45:41
4 seated. 10:45:44
5 Please bring the jury back in. 10:45:45
6 (Whereupon, the jury entered the 10:45:47
7 courtroom.) 10:45:49
8 THE COURT: All right. You can 10:46:55
9 all be seated. 10:46:57
10 Mr. Wiener, proceed. 10:46:59
11 BY MR. WIENER: 10:47:01
12 Q. Mr. Voto, at the beginning of your 10:47:02
13 testimony this morning, you said you were here 10:47:03
14 to talk to the jury because Microchip was 10:47:04
15 accusing the Boston 2 chip you developed of 10:47:07
16 infringement; you wanted to tell the story how 10:47:11
17 you developed that product. You have done 10:47:14
18 that. 10:47:17
19 And now I want to focus on when 10:47:17
20 you learned from Microchip that they were 10:47:19
21 accusing you of patent infringement. 10:47:20
22 When did you first learn that 10:47:23
23 Microchip thought Aptiv infringed its patents? 10:47:24
24 A. In January of 2015, I received a 10:47:29

1 letter from Microchip. 10:47:32
2 MR. WIENER: Mr. Glass, can you 10:47:35
3 put up Exhibit 9 that's already in evidence. 10:47:37
4 BY MR. WIENER: 10:47:40
5 Q. Mr. Voto, is this the letter you 10:47:41
6 received? 10:47:42
7 MR. WIENER: If we can just zoom 10:47:46
8 out, Mr. Glass, it is just a one-pager. 10:47:48
9 Thanks. 10:47:50
10 THE WITNESS: Yes, this is the 10:47:51
11 letter I received. 10:47:52
12 MR. WIENER: Okay. 10:47:53
13 BY MR. WIENER: 10:47:53
14 Q. What do you remember about getting 10:47:56
15 the letter? 10:47:57
16 A. Being stunned, shocked even that 10:47:58
17 after everything we had gone through to 10:48:06
18 develop this new technology, that I was being 10:48:08
19 accused of stealing somebody else's ideas. 10:48:10
20 Q. What did you do when you got the 10:48:13
21 letter? 10:48:16
22 A. I mean, the first thing I did is 10:48:17
23 shared it with my boss and made sure that 10:48:20
24 management was aware of it. This was pretty 10:48:23

1 big news. 10:48:26
2 Secondly, I started looking at 10:48:27
3 these patents, because there was two patents 10:48:33
4 listed in this letter, which I can -- you 10:48:36
5 know, anyone can access freely. I started 10:48:39
6 studying those, together with my co-worker, 10:48:42
7 Craig Petku. 10:48:47
8 Both of us were trying to 10:48:48
9 understand how could we be infringing on these 10:48:49
10 patents; it's not explained in the letter. So 10:48:52
11 we were trying to understand where this was 10:48:55
12 coming from. 10:48:57
13 Q. And what did you do as part of that 10:48:59
14 investigation? 10:49:02
15 A. Well, you know, it kind of comes down 10:49:04
16 to reading the patents, the numbers that are 10:49:07
17 listed here, you read through those patents 10:49:12
18 very carefully, you read through all the 10:49:14
19 claims, try to understand what the meaning is 10:49:17
20 of all the claims and, you know, so whether or 10:49:19
21 not at the end of the day, are we doing 10:49:24
22 something inside of our hub chip, which Craig 10:49:27
23 and I obviously knew very well because we 10:49:30
24 developed it. 10:49:32

1 And we said okay, how -- how 10:49:35
2 could -- knowing what we know about how our 10:49:37
3 chip works, what is it that we might have done 10:49:40
4 that would have used some of what's in these 10:49:43
5 patents? And we looked hard for it. I mean, 10:49:46
6 just couldn't find it. 10:49:50
7 Q. And did you -- so you came to a 10:49:52
8 conclusion as to whether or not you were 10:49:55
9 using -- let me strike that. 10:49:59
10 You came to a conclusion as to 10:50:00
11 whether or not any of those claims in those 10:50:02
12 patents covered something you were doing? 10:50:04
13 A. Well, let's put it this way. We were 10:50:08
14 trying to see how anything could be construed 10:50:11
15 that we were violating these patents, and we 10:50:13
16 couldn't find it. 10:50:16
17 Q. Okay. 10:50:17
18 Why did you find -- or why did you 10:50:18
19 determine that that was the case? 10:50:21
20 A. Well, you know, at the danger of 10:50:23
21 oversimplifying it, these two patents that are 10:50:27
22 listed, what I remember about them is -- just 10:50:31
23 as you can see by the data here, but those two 10:50:37
24 patents, from my recollection, are largely 10:50:43

1 about multi-host systems with shared USB 10:50:47
2 devices or functions like printers, for 10:50:56
3 example. So that was something I remember 10:50:59
4 from the patents. 10:51:01
5 And if you think about a system 10:51:02
6 like that where maybe there is two computers 10:51:04
7 hooked to a printer, each has an active data 10:51:07
8 path to the printer, and the idea being, you 10:51:11
9 know, it would be kind of neat if you have 10:51:19
10 multiple computers hooked to one device like a 10:51:21
11 printer, and you could kind of very quickly 10:51:24
12 alternate access between being able to print 10:51:27
13 different documents; like if I wanted to print 10:51:30
14 a document and you wanted to print a document, 10:51:32
15 the printer can't print two things at one 10:51:35
16 time, but we both could have a connection to 10:51:37
17 the printer and the printer can then decide 10:51:39
18 with some controller logic how to kind of take 10:51:42
19 turns, you know, that sort of thing. That's 10:51:45
20 really what their invention was about. 10:51:47
21 We didn't do that, though. I 10:51:49
22 mean, I think that's the important 10:51:51
23 distinction, is when I look at the way both 10:51:53
24 the bridge and the hub and the switches and 10:51:59

1 all of that stuff inside of our chip work 10:52:01
2 together, we don't have two different hosts 10:52:04
3 trying to share some sort of a device. 10:52:06
4 Q. During your time at Aptiv, did you 10:52:09
5 believe, at any point, the dual role hub or 10:52:11
6 the Boston 2 chip infringed the Microchip '243 10:52:15
7 Patent? 10:52:19
8 A. No. 10:52:19
9 Q. Okay. 10:52:20
10 Did you ever ask Microchip to 10:52:21
11 explain why it thought Aptiv was infringing 10:52:23
12 its patent? 10:52:26
13 A. Sure. 10:52:28
14 Q. Can you tell us a little bit about 10:52:30
15 that? 10:52:32
16 A. So as I explained, we looked at these 10:52:33
17 patents over and over again very hard, 10:52:38
18 couldn't really connect the dots to what they 10:52:41
19 were claiming. That was in like January, 10:52:44
20 February of 2015. 10:52:48
21 Later in that same year, we had a 10:52:50
22 face-to-face meeting with Microchip. I think 10:52:52
23 it was, to my recollection, it was the first 10:52:57
24 actual meeting we had had since this letter 10:52:59

1 from many, many months ago. And part of that 10:53:02
2 discussion was okay, we knew that they think 10:53:07
3 we were violating the patents, but we really 10:53:11
4 didn't understand why, and asked, you know, 10:53:15
5 can we get a clear explanation? Where -- how 10:53:16
6 do you justify -- I'm sorry, what is it -- 10:53:20
7 what claim, what specific thing are we doing 10:53:23
8 inside of our chip that's violating the 10:53:26
9 patent? But we didn't get a clear answer. 10:53:29
10 Q. Was there a face-to-face meeting that 10:53:31
11 you had with them where this came out? 10:53:35
12 A. That's what I'm referring to, yeah. 10:53:37
13 Q. Okay. 10:53:38
14 And when did this meeting happen? 10:53:39
15 A. It was like October/November of 2015. 10:53:41
16 Q. Okay. 10:53:43
17 And who was at that meeting from 10:53:44
18 Microchip? 10:53:46
19 A. Gosh, Mitch Obolsky was there, I 10:53:47
20 think a couple other Microchip plaintiffs were 10:53:54
21 there. 10:53:56
22 Q. And how about from Aptiv's side, who 10:54:00
23 was there from Aptiv? 10:54:03
24 A. On the Aptiv side, it would have been 10:54:03

1 Craig Petku, myself, my bosses, Stephanie 10:54:06
2 Pennell and I believe Mike Dreon. 10:54:12
3 Q. Before we get into what happened at 10:54:16
4 the meeting, just earlier you were testifying 10:54:17
5 when you said you had looked at the patents 10:54:19
6 and you couldn't connect the dots. What do 10:54:22
7 you mean, you couldn't connect the dots? 10:54:24
8 A. I mean that I couldn't find any part 10:54:26
9 of our Boston chip that used any part of their 10:54:33
10 patented technology. 10:54:39
11 Q. Okay. 10:54:41
12 So we're in this meeting between 10:54:41
13 you and Mitch Obolsky and other people from 10:54:43
14 your group and their group. What was the 10:54:47
15 meeting set up to talk about? What was the 10:54:50
16 purpose of this meeting? 10:54:52
17 A. If I'm not mistaken, I think 10:54:54
18 Microchip wanted to come in and talk to us, 10:54:57
19 since we hadn't done a lot of talking for many 10:55:01
20 months, you know, past this letter that kind 10:55:04
21 of chilled the relationship pretty 10:55:06
22 significantly. 10:55:08
23 They came in, and I'm recalling 10:55:12
24 that the intention I think from their side was 10:55:15

1 maybe to be more -- less threatening and more 10:55:18
2 hey, I want you to know, Rob, that, you know, 10:55:23
3 we have been developing some new chips, too. 10:55:30
4 We think these new chips would be very 10:55:32
5 interesting to you. In fact, we think that it 10:55:34
6 would make a lot of sense for both sides if 10:55:37
7 you just stopped using your own hub chip and 10:55:39
8 started using these brand new Microchip hubs 10:55:42
9 instead. 10:55:47
10 Q. And what did you say to Mr. Obolsky 10:55:47
11 about that? Did you take him up on that? 10:55:49
12 A. Well, yeah. Long story short is I 10:55:51
13 said yes, conditionally, right? Because, 10:55:56
14 okay, why did we develop the chip in the first 10:56:01
15 place? It's not because Unwired is in the 10:56:03
16 chip business. In fact, it was really hard to 10:56:06
17 do and I really didn't think that that's 10:56:08
18 something that I needed to do. 10:56:10
19 My business, Unwired's business or 10:56:11
20 Aptiv's business, for that matter, is to make 10:56:14
21 modules for car companies, right? If you have 10:56:16
22 to make the underlying technology, too, that's 10:56:19
23 a lot of extra work. 10:56:22
24 But at the same time, our job is 10:56:23

1 to do what it takes, do whatever it takes, in 10:56:25
2 fact, to help our customers, the OEM 10:56:31
3 carmakers, make the best car that they can 10:56:34
4 make for all of our benefits. 10:56:36
5 So I told Mitch, that's what I do. 10:56:38
6 I don't have to make my own chip. I can use 10:56:41
7 your chip. In fact, if you price your chip 10:56:43
8 attractively to me, that means I can make 10:56:47
9 attractive products for our customer. If you 10:56:50
10 are correct in your claims about, you know, it 10:56:54
11 works just as well, doesn't have all these 10:56:56
12 downside issues that we have seen from 10:56:58
13 Microchip in the past, we're past all that and 10:57:00
14 everything is good, then I absolutely told him 10:57:02
15 I would use his chip. 10:57:05
16 Q. And what did he say? 10:57:06
17 A. Well, I don't think he was real 10:57:09
18 thrilled with the repercussions of what I was 10:57:12
19 saying because it would mean that he would 10:57:18
20 probably have to sell chips to us at a much 10:57:20
21 lower price than what they would prefer. So 10:57:23
22 it didn't -- the meeting really didn't end 10:57:28
23 well. 10:57:31
24 Q. How did the meeting end? 10:57:31

1 A. More or less ended with Microchip 10:57:33
2 being very upset and saying we would hear from 10:57:38
3 their lawyers. 10:57:42
4 Q. Okay. 10:57:42
5 I'd like to shift gears a little 10:57:43
6 bit. Earlier you mentioned that you received 10:57:46
7 five patents relating to USB. Can you tell me 10:57:48
8 about those patents? 10:57:50
9 A. Yeah. So along the way of developing 10:57:52
10 this new stuff, we thought, you know, it would 10:57:56
11 be smart of us to patent them, too. 10:57:59
12 So the very first patent 10:58:02
13 application that was submitted was around the 10:58:03
14 idea of combining the switches, the hub and 10:58:05
15 the bridge together. 10:58:08
16 Q. Now, why did you decide to seek 10:58:10
17 patent protection for the work you had done in 10:58:12
18 developing this Boston 2 chip? 10:58:15
19 A. Well, because we thought there was, 10:58:18
20 you know, significant value in it. We didn't 10:58:20
21 want to see other companies, you know, after 10:58:22
22 us having done all this hard work, just go and 10:58:25
23 copy our solution. 10:58:28
24 Q. And in connection with applying for 10:58:29

1 the patents, what information did you provide 10:58:32
2 to your lawyers to provide to the patent 10:58:35
3 office? 10:58:37
4 A. I provided, you know, a multi-page 10:58:38
5 document of description of a lot of the things 10:58:42
6 that we talked about today, diagrams showing 10:58:45
7 how things worked, you know, those sort of 10:58:47
8 things, so that from -- I worked with a patent 10:58:50
9 attorney. The patent attorney kind of knew 10:58:54
10 how to lay out a patent, how to format it, how 10:58:56
11 to submit it, how to communicate with the 10:58:58
12 patent office, but all the technical content 10:59:01
13 had either originated with me or had been 10:59:04
14 approved by me. 10:59:06
15 Q. And was the information you provided 10:59:08
16 to the attorney regarding what you had 10:59:10
17 invented the information about the work you 10:59:13
18 did to develop the Boston 2 chip? 10:59:15
19 A. That's correct. 10:59:18
20 Q. Okay. 10:59:19
21 Can you turn to Exhibit 187 of 10:59:20
22 your binder, please. 10:59:23
23 (Whereupon, Trial Exhibit 187 was 10:59:23
24 introduced.) 10:59:23

1 BY MR. WIENER: 10:59:23
2 Q. Can you describe what is -- what 10:59:32
3 Exhibit 187 is? 10:59:36
4 A. This is a U.S. Patent that was 10:59:37
5 granted to my team for the invention of the 10:59:41
6 Boston chip. 10:59:44
7 Q. Okay. 10:59:45
8 MR. WIENER: Your Honor, we offer 10:59:46
9 Exhibit 187 into evidence. 10:59:48
10 MR. SHAW: Your Honor, no 10:59:50
11 objection, subject to our discussion about 10:59:51
12 instructions later. 10:59:53
13 THE COURT: Okay. It will be 10:59:54
14 received. 10:59:56
15 MR. WIENER: Mr. Glass, can you 10:59:57
16 put 187 up on the screen, please. 10:59:58
17 BY MR. WIENER: 11:00:07
18 Q. Mr. Voto, what is the title of this 11:00:08
19 patent? 11:00:12
20 A. "Flexible mobile device connectivity 11:00:13
21 to automotive systems with USB hubs." 11:00:16
22 MR. WIENER: Mr. Glass, could you 11:00:19
23 zoom back out, please, for a second. 11:00:20
24 BY MR. WIENER: 11:00:22

1 Q. And up at the upper right, does it 11:00:23
2 show when the date -- when this patent issued? 11:00:25
3 A. Yeah, the patent issue date was 11:00:28
4 October 2016. 11:00:31
5 Q. And is that when you learned that you 11:00:35
6 were going to get patent claims? 11:00:36
7 A. We would have known maybe two or 11:00:38
8 three months in advance of that. The patent 11:00:42
9 office typically sends a notification of 11:00:44
10 allowance, I think they call it, and it lets 11:00:47
11 you know that your patent is going to be 11:00:50
12 granted soon. 11:00:52
13 Q. And then what do you see at the 11:00:52
14 bottom of the page on Exhibit 187? 11:00:54
15 A. The diagram. 11:00:58
16 Q. And we won't spend long going over 11:01:02
17 that, we've seen these enough at this point, 11:01:04
18 but is this one of the diagrams you provided 11:01:07
19 in connection with the information that you 11:01:09
20 gave to the attorney about the invention you 11:01:12
21 had come up with for applying for this patent? 11:01:15
22 A. Yeah. You can see how it's 11:01:17
23 significantly similar to a lot of the other 11:01:19
24 diagrams we looked at that I prepared for 11:01:20

1 customer presentations, and it's essentially 11:01:23
2 the same thing here in the patent application. 11:01:26
3 Q. Okay. 11:01:28
4 Can you turn to Tab 188 of your 11:01:28
5 binder, please. 11:01:31
6 (Whereupon, Trial Exhibit 188 was 11:01:31
7 introduced.) 11:01:31
8 BY MR. WIENER: 11:01:31
9 Q. And what is Tab 188? 11:01:35
10 A. Another U.S. Patent, this would be 11:01:38
11 the second patent that was granted under the 11:01:41
12 same family. 11:01:44
13 Q. And again, this was a patent that was 11:01:44
14 issued for your work in developing the Boston 11:01:47
15 2 chip and dual role hub? 11:01:49
16 A. Correct. 11:01:51
17 MR. WIENER: Your Honor, we offer 11:01:52
18 Exhibit 188 into evidence. 11:01:54
19 MR. SHAW: No objection, subject 11:01:55
20 to the same instruction. 11:01:56
21 THE COURT: It is received. 11:01:57
22 BY MR. WIENER: 11:01:58
23 Q. Can you turn to Tab 189 of your book, 11:01:59
24 please. 11:02:01

1 (Whereupon, Trial Exhibit 189 was 11:02:01
2 introduced.) 11:02:01
3 BY MR. WIENER: 11:02:01
4 Q. And what is tab -- Exhibit 189? 11:02:02
5 A. This would be the third patent that 11:02:07
6 was granted as part of the Boston chip 11:02:09
7 project. 11:02:12
8 MR. WIENER: Your Honor, we offer 11:02:12
9 Exhibit 189 into evidence. 11:02:14
10 MR. SHAW: No objection, subject 11:02:16
11 to the instruction. 11:02:18
12 (Whereupon, the Judge acknowledges 11:02:18
13 receipt.) 11:02:19
14 BY MR. WIENER: 11:02:19
15 Q. And then Exhibit 190? 11:02:19
16 (Whereupon, Trial Exhibit 190 was 11:02:19
17 introduced.) 11:02:19
18 THE WITNESS: Patent 4. 11:02:24
19 BY MR. WIENER: 11:02:25
20 Q. And when was that issued? 11:02:25
21 A. January 2020. 11:02:27
22 Q. And was this patent issued for the 11:02:28
23 work you did in connection with developing the 11:02:31
24 Boston 2 chip and the dual role hub? 11:02:33

1 A. It was. 11:02:36
2 MR. WIENER: We offer it into 11:02:36
3 evidence. 11:02:37
4 MR. SHAW: No objection, subject 11:02:37
5 to instruction. 11:02:39
6 (Whereupon, the Judge acknowledges 11:02:40
7 receipt.) 11:02:41
8 BY MR. WIENER: 11:02:41
9 Q. And last but not least, Exhibit 191. 11:02:41
10 (Whereupon, Trial Exhibit 191 was 11:02:41
11 introduced.) 11:02:41
12 THE WITNESS: Patent No. 5 related 11:02:47
13 to the Boston project. 11:02:49
14 MR. WIENER: We offer it into 11:02:51
15 evidence. 11:02:52
16 MR. SHAW: No objection, subject 11:02:53
17 to the instruction. 11:02:54
18 THE COURT: Okay. It will be 11:02:55
19 received. 11:02:56
20 BY MR. WIENER: 11:02:57
21 Q. If you could turn back to 11:02:57
22 Exhibit 188, please, Mr. Voto. And if you 11:03:00
23 could turn to the second page. 11:03:04
24 MR. WIENER: Mr. Glass, if you 11:03:08

1 could get the second page there. 11:03:09
2 BY MR. WIENER: 11:03:11
3 Q. And you'll see there is a portion of 11:03:12
4 the patent that says, "References Cited." 11:03:15
5 What is your understanding of the list of 11:03:19
6 documents that are shown there? 11:03:20
7 A. So in every patent, there is a 11:03:24
8 section for stating other works that are 11:03:28
9 similar or that look similar or could be 11:03:33
10 related to the invention. 11:03:36
11 So you're trying to submit a new 11:03:38
12 idea to the patent office that you think you 11:03:40
13 may have invented. There needs to be work to 11:03:43
14 see, is this really new or is it maybe already 11:03:46
15 covered by somebody else's invention, right? 11:03:49
16 So References Cited is where a 11:03:51
17 statement can be made to say hey, these things 11:03:56
18 ought to be considered when the patent 11:03:59
19 examiner thinks about this as being new or 11:04:03
20 novel. 11:04:05
21 Q. And is the '243 Patent that's 11:04:06
22 asserted in this case listed there? 11:04:08
23 A. Yes, it is. 11:04:10
24 Q. Okay. 11:04:12

1 Mr. Voto, I just have a couple 11:04:14
2 more questions for you. 11:04:16
3 I want to turn back to our 11:04:18
4 discussion about Microchip's allegations about 11:04:20
5 their patent. They sent you the notice letter 11:04:23
6 in 2015 and then you had a meeting in 11:04:27
7 October 2015. 11:04:30
8 What happened next? 11:04:31
9 A. So after the meeting, nothing 11:04:35
10 happened for a long time. We are talking from 11:04:39
11 the fall of 2015 until probably the next 11:04:44
12 significant thing, from my perspective, was in 11:04:51
13 the summer of 2016, we received a notification 11:04:53
14 from the patent office that our first patent 11:05:00
15 was going to be issued, our Aptiv patent was 11:05:03
16 going to get approved for the Boston chip by 11:05:07
17 the patent office. 11:05:10
18 Q. And what happened next? 11:05:12
19 A. At that point, more time went by, 11:05:17
20 another month or two later, and we received 11:05:21
21 notification from Microchip that they were 11:05:23
22 filing a lawsuit against Aptiv. 11:05:25
23 Q. Mr. Voto, ever since you first heard 11:05:29
24 from Microchip about the '243 Patent, has your 11:05:32

1 belief that the Boston chip does not infringe 11:05:36
2 that patent ever wavered? 11:05:38
3 A. Not at all. 11:05:41
4 MR. WIENER: Thank you. No 11:05:42
5 further questions. 11:05:43
6 THE COURT: Mr. Shaw. 11:05:46
7 - - - 11:05:47
8 CROSS-EXAMINATION 11:05:48
9 - - - 11:05:51
10 BY MR. SHAW: 11:05:51
11 Q. Good morning, Mr. Voto. 11:06:14
12 My name is John Shaw. I don't 11:06:15
13 think we've met before, but welcome. 11:06:17
14 A. Good morning. 11:06:19
15 Q. All right. 11:06:21
16 Just after the break, if my notes 11:06:22
17 are right, I believe you testified that you 11:06:27
18 didn't have any interest in getting into the 11:06:28
19 chip-making business? 11:06:30
20 A. Correct. 11:06:32
21 Q. And you just wanted to be a module 11:06:33
22 maker? 11:06:36
23 A. Right. 11:06:36
24 Q. And was that true back at Unwired, 11:06:37

1 also? 11:06:40
2 A. Yes. 11:06:41
3 Q. Okay. 11:06:43
4 Now, when you started this 11:06:43
5 morning, you testified a little bit about the 11:06:47
6 USB hub that Unwired had supplied to General 11:06:48
7 Motors. 11:06:52
8 Do you remember that? 11:06:52
9 A. I do. 11:06:53
10 Q. And that hub used an SMSC chip; is 11:06:53
11 that right? 11:07:00
12 A. That's correct. 11:07:00
13 Q. Okay. 11:07:01
14 Now, shortly after or around that 11:07:04
15 time, Unwired was thinking about getting into 11:07:07
16 developing a custom chip for that module. 11:07:11
17 Do you remember that? 11:07:13
18 A. I do. 11:07:14
19 Q. And do you remember that there were 11:07:15
20 questions about whether that would be a good 11:07:18
21 investment for Unwired? 11:07:20
22 A. Absolutely. 11:07:22
23 Q. And you worked on presentations about 11:07:23
24 that. 11:07:26

1 Do you remember that? 11:07:26
2 A. Yep. 11:07:26
3 Q. I think in your notebook towards the 11:07:27
4 back, there is an Exhibit 13. 11:07:31
5 (Whereupon, Trial Exhibit 13 was 11:07:31
6 introduced.) 11:07:31
7 BY MR. SHAW: 11:07:31
8 Q. Could you find that for us, please. 11:07:33
9 A. I see it. 11:07:39
10 Q. All right. 11:07:40
11 Now, that's the presentation -- 11:07:40
12 what is that, first of all? 11:07:43
13 A. Yeah, so this is a presentation that 11:07:45
14 was done -- it was created by me. It was done 11:07:47
15 for an internal management review within 11:07:52
16 Unwired to start thinking about this -- how do 11:07:56
17 we think about this position whether we would 11:08:00
18 make our own chip or not. 11:08:02
19 Q. And this is the chip you didn't want 11:08:03
20 to make, but you were talking about making 11:08:05
21 one? 11:08:07
22 A. Yeah. So to be clear about this 11:08:07
23 whole business of are we in the chip business 11:08:09
24 or do we want to make chips, what I'm saying 11:08:11

1 is Unwired or Aptiv or whoever at any Tier 1, 11:08:15
2 it was an auto supplier, you want to make the 11:08:22
3 best product you can. The easiest way to do 11:08:24
4 that is using components and chips that are 11:08:27
5 available to you. 11:08:29
6 But if that fails, if that lets 11:08:30
7 you down, if you can't satisfy or if there is 11:08:33
8 a better way that the supply base hasn't 11:08:35
9 offered yet, you can be bold enough to try to 11:08:38
10 make your own chip, and that's what we are 11:08:41
11 talking about here. 11:08:43
12 Q. Sure. 11:08:43
13 And at that point in time, you 11:08:44
14 hadn't gone out to suppliers in the market to 11:08:45
15 ask them to make a better chip for you; right? 11:08:47
16 A. At what point in time? 11:08:50
17 Q. When you did this presentation. 11:08:51
18 A. We had already considered that, yes. 11:08:53
19 Q. My question though, Mr. Voto, was had 11:08:56
20 you gone out to the marketplace to ask other 11:08:58
21 suppliers to make that better chip for you? 11:09:00
22 A. We had talked to suppliers to see 11:09:03
23 what they had available to us. 11:09:06
24 Q. Let me ask it again. 11:09:07

1 A. Okay. 11:09:09
2 Q. At the time of this presentation, had 11:09:09
3 you gone out to ask suppliers to make a better 11:09:10
4 chip for you? 11:09:13
5 A. Yeah. I mean, sure. I would say 11:09:18
6 yes. We had -- I have to nuance that answer 11:09:22
7 because there's a lot of different 11:09:27
8 discussions. It's not as straightforward as 11:09:30
9 maybe what you would like to think as we wrote 11:09:32
10 a bunch of requirements, then we sent it out 11:09:35
11 to supplier A, B, C, D, E, F, G and they all 11:09:37
12 got to have a look at that and then we got all 11:09:40
13 the responses back. It didn't really go like 11:09:43
14 that. 11:09:45
15 MR. SHAW: All right. At this 11:09:45
16 point, Your Honor, I would like to move into 11:09:47
17 evidence Exhibit 13. 11:09:48
18 MR. WIENER: No objection. 11:09:50
19 THE COURT: All right. It's 11:09:50
20 received. 11:09:52
21 MR. SHAW: Could you bring that 11:09:52
22 up, please, Mr. Ferrer. So blow up the first 11:09:53
23 blocks on the left. Thank you. 11:09:56
24 BY MR. SHAW: 11:09:59

1 Q. So that's the title page of the 11:10:00
2 presentation you are talking about here; 11:10:02
3 right? 11:10:03
4 A. Right. 11:10:03
5 MR. SHAW: Now, could you go to 11:10:05
6 the next box, please, Mr. Ferrer. 11:10:07
7 BY MR. SHAW: 11:10:10
8 Q. And this is your needs and decisions 11:10:11
9 discussion; correct? 11:10:13
10 A. Correct. 11:10:14
11 Q. Now, the first need you discussed 11:10:14
12 here was getting "Commercial advantage over 11:10:16
13 competitors using auto grade SMSC chips." 11:10:18
14 Do you see that? 11:10:22
15 A. Yes. 11:10:23
16 Q. And the second need or decision you 11:10:24
17 focused on was "Technical advantage over 11:10:27
18 competitors using SMSC chips." 11:10:29
19 Do you see that? 11:10:32
20 A. Right. 11:10:33
21 Q. And the third need was to find a dual 11:10:34
22 source for the Hub IC you were making; is that 11:10:39
23 right? 11:10:42
24 A. Yep. 11:10:42

1 Q. And the fourth need was a "Strategic 11:10:42
2 advantage in marketplace as we compete for new 11:10:46
3 business." 11:10:49
4 Do you see that? 11:10:50
5 A. Yes. 11:10:51
6 Q. And the last need you had was "Lower 11:10:51
7 BOM," BOM means bill of materials; correct? 11:10:54
8 A. That's -- that's -- yes, that's 11:10:57
9 saying that -- 11:10:59
10 Q. BOM means bill of materials; right? 11:11:01
11 A. Correct. 11:11:04
12 Q. And the last point says, "Lower 11:11:04
13 BOM/increase profit on the existing GM 11:11:06
14 business." 11:11:09
15 Do you see that? 11:11:09
16 A. Yes. 11:11:10
17 Q. And those were all things that 11:11:10
18 Unwired wanted to accomplish; correct? 11:11:11
19 A. Correct. 11:11:13
20 Q. Now, could you go to the next box, 11:11:15
21 please -- I'm sorry, go to the next page, the 11:11:17
22 top box. 11:11:20
23 Now, there were some decision 11:11:22
24 points to be made within Unwired about whether 11:11:23

1 it was a good investment. 11:11:25
2 Do you see that? 11:11:27
3 A. I do. 11:11:29
4 Q. And on this good investment chart, 11:11:29
5 none of them talks about costs and timeframe 11:11:32
6 going to third-party suppliers to make the 11:11:36
7 improved chip, does it? 11:11:38
8 A. It does. It's basically saying -- 11:11:48
9 when you talk about cost and timeframe, things 11:11:52
10 like high investment, things like the 11:11:55
11 engineering resources that are going to be 11:11:58
12 needed, those are significant. 11:12:00
13 Q. But those are significant, but 11:12:03
14 nowhere on here does it say we went to 11:12:05
15 third-party suppliers that couldn't meet our 11:12:08
16 needs; correct? 11:12:09
17 A. It wouldn't be appropriate to put 11:12:10
18 that here, so no, it's not there. 11:12:12
19 Q. Okay. 11:12:14
20 Now, in deciding whether it would 11:12:16
21 be a good investment to make your own chip, 11:12:17
22 the last bullet point you have there was "IP 11:12:20
23 risk?." 11:12:22
24 Do you see that? 11:12:23

1 A. That's right. 11:12:24
2 Q. And IP risk means things like having 11:12:24
3 a lawsuit brought against you for infringing 11:12:27
4 someone's patent; correct? 11:12:29
5 A. To me, IP risk meant how do we design 11:12:31
6 our product so we don't violate any IP. 11:12:34
7 Q. Like patents? 11:12:37
8 A. Patents, yeah, for sure. 11:12:38
9 Q. And one way you addressed this IP 11:12:40
10 risk question here is you looked at some 11:12:42
11 patents yourself. 11:12:45
12 Do you remember that? 11:12:47
13 A. That's one way, yes. 11:12:47
14 Q. And that's something that you did 11:12:49
15 personally; correct? 11:12:51
16 A. Yes. 11:12:52
17 Q. And this search occurred in 2012; 11:12:53
18 right? 11:12:56
19 A. Thereabouts. 11:12:56
20 Q. Okay. 11:12:57
21 Well, thereabouts. It didn't 11:12:58
22 happen in 2013; right? 11:12:59
23 A. I don't think so. 11:13:01
24 Q. Okay. 11:13:02

1 And for the search, you targeted 11:13:03
2 SMSC patents; correct? 11:13:05
3 A. Correct. 11:13:08
4 Q. And you knew that SMSC was an 11:13:09
5 innovator in the USB hub field; right? 11:13:11
6 A. I knew that they offered hub 11:13:15
7 products, yes. 11:13:18
8 Q. You knew they were an innovator, 11:13:19
9 that's why you looked at their patents; 11:13:21
10 correct? 11:13:22
11 A. I knew that they had patents and I 11:13:22
12 knew that they had products, yes. Sure, I'll 11:13:24
13 go with innovator, that's fine. 11:13:28
14 Q. And you looked at more than 20 11:13:30
15 patents? 11:13:32
16 A. Yeah. 11:13:33
17 Q. You're not sure how many, but you 11:13:33
18 know it was at least 20? 11:13:35
19 A. Right. 11:13:37
20 Q. And you don't remember looking at any 11:13:37
21 patents from anyone other than SMSC; correct? 11:13:39
22 A. I think what I said was I don't 11:13:42
23 remember one way or the other. I was not 11:13:45
24 specifically targeting SMSC, but it seemed 11:13:49

1 like, when you combine automotive grade and 11:13:53
2 hub chips, that that was where a lot of it 11:13:56
3 was, right, SMSC. 11:13:58
4 Q. Okay. 11:14:00
5 And you read the patents in 11:14:00
6 detail; correct? 11:14:02
7 A. That's correct. 11:14:03
8 Q. And you don't remember whether or not 11:14:04
9 you reviewed the '243 Patent that was owned 11:14:06
10 then by SMSC; right? 11:14:09
11 A. There was just too many. I can't 11:14:10
12 remember. 11:14:12
13 Q. Now, this was the only time that you 11:14:16
14 looked at the SMSC patents before you got the 11:14:18
15 January 12, 2015, letter from Microchip; is 11:14:23
16 that right? 11:14:26
17 A. Probably. 11:14:26
18 Q. Okay. 11:14:27
19 And I take it you were satisfied 11:14:28
20 with the results of this review of the SMSC 11:14:30
21 patent because Unwired signed an agreement 11:14:33
22 then to design and to have manufactured its 11:14:36
23 own custom chip? 11:14:38
24 A. That is correct. 11:14:39

1 Q. All right. 11:14:40
2 Now, the chip that you had 11:14:41
3 designed and manufactured wasn't the Boston 2 11:14:44
4 chip at that time; right? 11:14:46
5 A. Originally we started with what we 11:14:49
6 just referred to as the Boston chip. 11:14:51
7 Q. Right. 11:14:53
8 A. Which is different than Boston 2. 11:14:54
9 Q. And what you referred to at that 11:14:56
10 time, that didn't have the CarPlay 11:14:57
11 functionality involved; right? 11:14:59
12 A. Correct. 11:15:00
13 Q. Okay. 11:15:01
14 I am going to put up here, if I 11:15:03
15 can do this correctly, a little bit of a 11:15:05
16 timeline. Perfect. 11:15:08
17 So sometime in 2012, you looked at 11:15:14
18 the SMSC patents. Do I have that timeframe 11:15:21
19 right? 11:15:27
20 A. Correct. 11:15:27
21 Q. Okay. 11:15:28
22 Now, could you look in your binder 11:15:29
23 from this morning again at Exhibit 22. I 11:15:32
24 think it's also towards the back. 11:15:35

1 (Whereupon, Trial Exhibit 2 was 11:15:35
2 introduced.) 11:15:35
3 BY MR. SHAW: 11:15:35
4 Q. Do you have it? 11:15:43
5 A. I have it. 11:15:43
6 Q. Could you take a look at it, please, 11:15:44
7 and tell us what it is. 11:15:46
8 A. This document is titled ASIC 11:15:49
9 Development and Supply Agreement between 11:15:53
10 AyDeeKay and Unwired Technology for the 11:15:56
11 "Boston" ASIC. 11:15:57
12 Q. That's the manufacturing agreement we 11:15:58
13 just talked about? 11:16:00
14 A. It's more than that, but yes. 11:16:03
15 Q. But the product development 11:16:06
16 agreement? 11:16:07
17 A. Yeah. It is a development agreement. 11:16:08
18 Q. Okay. 11:16:10
19 MR. SHAW: I move into evidence 11:16:12
20 Exhibit 22, please. 11:16:13
21 MR. WIENER: No objection. 11:16:14
22 THE COURT: All right. It's in. 11:16:16
23 BY MR. SHAW: 11:16:17
24 Q. Now, in Exhibit 22 towards the back, 11:16:18

1 I'm sorry, I don't have a page, there is a 11:16:21
2 list of the charges for development of the 11:16:24
3 product. It's an exhibit to the agreement. 11:16:26
4 A. Appendix A? 11:16:34
5 Q. Did you find it? 11:16:36
6 A. No, I am asking you, are you 11:16:37
7 referring to Appendix A? 11:16:39
8 Q. Yeah. It's page 12 to 14. 11:16:41
9 A. Yes. 11:16:46
10 Q. And the cost to develop this product, 11:16:46
11 you can see the total payment of 646,000? 11:16:50
12 A. I see that. 11:16:53
13 Q. And that's the project you wanted to 11:16:54
14 make sure there was no IP risk for; correct? 11:16:55
15 A. Yes. 11:16:59
16 Q. All right. 11:17:01
17 Now, let's switch over to Jaguar a 11:17:02
18 little bit. I think you testified this 11:17:05
19 morning that you got introduced to Jaguar 11:17:06
20 because you had success in the GM hub 11:17:09
21 business; is that right? 11:17:11
22 A. Not exactly right. 11:17:12
23 So to clarify it, we already had a 11:17:15
24 relationship with Jaguar because we sold 11:17:18

1 headphones to them. 11:17:20
2 Q. Okay. 11:17:21
3 And then they had some hub 11:17:22
4 business for you? 11:17:24
5 A. We convinced them to give us a chance 11:17:25
6 to try to win the hub business, yeah. 11:17:27
7 Q. All right. 11:17:29
8 And it was through that chance 11:17:29
9 that you first learned about Aptiv's CarPlay 11:17:31
10 technology; correct? 11:17:34
11 A. That's correct. 11:17:35
12 Q. And at the time that you got 11:17:36
13 introduced to it, CarPlay was under a lot of 11:17:37
14 secrecy? 11:17:40
15 A. It was not publicly known. 11:17:42
16 Q. Right. 11:17:44
17 But it was also under a lot of 11:17:45
18 secrecy, wasn't it? 11:17:47
19 A. Apple is pretty secret about 11:17:49
20 everything they do. 11:17:51
21 Q. So that's a yes? 11:17:52
22 A. Yeah. 11:17:53
23 Q. Okay. 11:17:53
24 And this was in 2013 before it was 11:17:54

1 publicly announced; right? 11:17:57
2 A. Can you ask me the question again? 11:18:03
3 What was in 2013? 11:18:04
4 Q. So it's in 2013 that the CarPlay 11:18:06
5 project is under a lot of secrecy; correct? 11:18:08
6 A. At Apple? 11:18:11
7 Q. Well, also generally. 11:18:12
8 A. So let me be clear. I don't know 11:18:15
9 what Apple is doing in 2013. I am not talking 11:18:17
10 to Apple. 11:18:19
11 Q. All right. 11:18:20
12 MR. SHAW: May I approach, Your 11:18:21
13 Honor? 11:18:23
14 THE COURT: Yes. 11:18:23
15 BY MR. SHAW: 11:18:45
16 Q. Now, you were asked questions under 11:18:46
17 oath before in this litigation; right, Mr. 11:18:47
18 Voto? 11:18:50
19 A. That's correct. 11:18:50
20 Q. By my colleague, Mr. Adams? 11:18:51
21 A. Yep. 11:18:53
22 Q. And there is a point in your dep -- 11:18:54
23 and it is the same courtroom testimony; right? 11:18:56
24 A. Yes. 11:18:58

1 Q. Now, if you turn to page 88 of your 11:19:00
2 transcript, it is in the back of the binder I 11:19:02
3 just handed you. I'm sorry, in doing that, I 11:19:05
4 lost my note. 11:19:19
5 All right. Now, there is a long 11:19:20
6 series of explanations, over eight pages, but 11:19:27
7 I want you to look at line 7. And I'm going 11:19:30
8 to read your testimony and then let the jury 11:19:33
9 know if it's correct. 11:19:35
10 "Apple, you know, we're going back 11:19:37
11 to 2013. Apple didn't have CarPlay out in the 11:19:39
12 market. It was still under development and, 11:19:42
13 quite honestly, under a lot of secrecy, too." 11:19:46
14 Do you see that? 11:19:49
15 A. I do. 11:19:50
16 Q. And that was your testimony at the 11:19:50
17 deposition? 11:19:52
18 A. That is. 11:19:52
19 Q. Okay. 11:19:52
20 Now, the time when Apple announced 11:19:55
21 CarPlay to the public was in early 2014 at the 11:19:57
22 Virginia auto show? 11:20:03
23 A. I'm not sure. 11:20:03
24 Q. Could you go to the tab that says, 11:20:05

1 "BBC," right before your deposition. 11:20:08
2 A. Okay. 11:20:19
3 Q. And take a look at that and see if 11:20:19
4 that refreshes your memory as to when Apple 11:20:21
5 announced publicly the CarPlay iPhone system. 11:20:23
6 A. I can read what it says, but I don't 11:20:28
7 remember reading this particular article. 11:20:31
8 Q. All right. 11:20:32
9 But my question was different; it 11:20:33
10 was, does this refresh your memory as to when 11:20:34
11 Apple released to the public information about 11:20:36
12 the CarPlay system? 11:20:40
13 A. No, because I don't know this 11:20:43
14 particular article. But if your point is that 11:20:45
15 it was probably released publicly in or around 11:20:47
16 March '14, that's fine. 11:20:50
17 Q. March of 2014? 11:20:51
18 A. Yeah. 11:20:53
19 Q. Okay. 11:20:53
20 And that's how I marked up this 11:21:05
21 exhibit on the document screen; right? 11:21:06
22 A. Yep, yep. 11:21:10
23 Q. And then back in 2012, roughly when 11:21:11
24 that vertical line is, that's when the 11:21:14

1 AyDeeKay contract was for the Boston chip 1 11:21:16
2 was signed? 11:21:20
3 A. Which one? 11:21:21
4 Q. Roughly here. You can take a look at 11:21:22
5 Exhibit 22. It will have a date on it if you 11:21:27
6 want to check. I believe it was 11:21:29
7 September-ish. 11:21:32
8 MR. SHAW: Can you pull up the 11:21:40
9 first page, Mr. Ferrer, Exhibit 22? Oh, I'm 11:21:41
10 sorry. 11:21:50
11 BY MR. SHAW: 11:21:51
12 Q. Do you see the August 1st date? 11:21:52
13 A. Yeah. I see that. I'm also going by 11:21:54
14 the actual date it was executed, the 11:21:58
15 signatures. 11:22:01
16 Q. And what date was that? 11:22:01
17 A. Match the same date, August 1st, 11:22:03
18 2012. 11:22:06
19 Q. Okay. 11:22:06
20 And your patent search was done 11:22:06
21 before then; correct? 11:22:09
22 A. I believe so. I don't know the exact 11:22:10
23 date, but again, seems reasonable. 11:22:15
24 Q. Okay. 11:22:17

1 Now, let's go back to Jaguar. 11:22:18
2 When you learned about Apple's plans through 11:22:25
3 Jaguar, you thought they were radical; isn't 11:22:28
4 that right? 11:22:31
5 A. I thought this whole requirement of 11:22:32
6 making a downstream port of a hub be able to 11:22:35
7 hook a host to it was pretty radical. 11:22:39
8 Q. You thought it was radical. Okay. 11:22:41
9 And that was because in the 11:22:43
10 automotive infotainment market, no car 11:22:45
11 manufacturer had ever been allowed to 11:22:48
12 basically be the USB host? 11:22:51
13 A. That's right. 11:22:54
14 Q. Okay. 11:22:55
15 A. They didn't do that. The 11:22:55
16 infotainment systems were -- were USB hosts. 11:22:57
17 Q. So that's why Apple's plan about 11:23:03
18 CarPlay was radical? 11:23:07
19 A. Well, Apple's -- Apple's plan to 11:23:12
20 release this CarPlay feature where the phone, 11:23:19
21 itself, had to go into host mode, they 11:23:25
22 couldn't just do that by device mode, was 11:23:27
23 quite a surprising departure from what was 11:23:33
24 expected, so I called it radical. 11:23:35

1 Q. Okay. 11:23:37
2 Now, through the development 11:23:38
3 process, and I think you showed some slides 11:23:39
4 this morning, Unwired decided the best 11:23:41
5 approach was to add the host-to-host bridge in 11:23:44
6 the hub; correct? 11:23:47
7 A. Right. 11:23:48
8 Q. All right. 11:23:49
9 And at that point, you thought how 11:23:49
10 does Unwired take advantage of the fact that 11:23:53
11 we know this. And that's information that was 11:23:55
12 secret at that time; right? 11:23:59
13 A. Well, you have to remember that there 11:24:01
14 are a number of nondisclosure agreements in 11:24:05
15 place where companies can legally share 11:24:08
16 confidential information that is not public; 11:24:12
17 therefore, secret. 11:24:15
18 Q. Sure. And I am not trying to 11:24:16
19 insinuate you did anything wrong; I am just 11:24:18
20 trying to make clear that what you were 11:24:21
21 learning through Jaguar wasn't available to 11:24:23
22 the general public? 11:24:25
23 A. I believe that's true, yes. 11:24:26
24 Q. And then my question was, and I 11:24:27

1 probably made the error because I think I 11:24:29
2 asked two at once. 11:24:31
3 At this point in time when you 11:24:34
4 were going through the development process, 11:24:35
5 you thought how does Unwired take advantage of 11:24:37
6 the fact that they know this non-public 11:24:40
7 information; is that right? 11:24:42
8 A. What I was driving after was we 11:24:46
9 had -- because of the fact that we were 11:24:55
10 working with Jaguar and Jaguar was working 11:24:56
11 with Apple and we found out about this brand 11:24:59
12 new problem, we thought okay, if we can figure 11:25:01
13 out this problem, if this is going to be a 11:25:04
14 problem for the whole industry, this isn't 11:25:07
15 just a Jaguar problem because Apple is going 11:25:09
16 to try to roll this out everywhere. 11:25:11
17 So we figured if we could figure 11:25:15
18 out a novel solution ourself, this would be 11:25:16
19 huge for our business. So we want to know how 11:25:18
20 we can, you know, strengthen our business, 11:25:21
21 grow our business, you know, do something 11:25:23
22 great for not just Jaguar, but other car 11:25:25
23 companies, too. 11:25:28
24 Q. Right. 11:25:29

1 And you knew at that point, or 11:25:29
2 that was your thinking at that point, how does 11:25:31
3 Unwired take advantage of this knowledge that 11:25:33
4 they got from working with Jaguar; right? 11:25:35
5 A. Of course. 11:25:36
6 Q. And at that point, you realized you 11:25:37
7 were lucky being in that position; right? 11:25:40
8 A. Yeah, it was quite fortunate that we 11:25:41
9 were in a position where we needed to -- 11:25:45
10 perhaps I'm speculating a bit -- but I believe 11:25:49
11 when I made those statements under oath, as I 11:25:53
12 do today, that we were probably one of the 11:25:55
13 first ones to find out about this new thing 11:25:57
14 that car -- this CarPlay thing that Apple was 11:26:00
15 trying to do. 11:26:02
16 And, you know, we didn't get in a 11:26:03
17 position where we had learned about it by 11:26:06
18 chance. We didn't go to Vegas and roll the 11:26:07
19 dice. We worked hard to win Jaguar's 11:26:10
20 business. We worked hard to find a solution 11:26:12
21 to what was being presented to us as a major 11:26:16
22 problem. 11:26:19
23 No one had a chip that could fix 11:26:19
24 this problem, so it was really lucky that we 11:26:22

1 were in a position where we got to see this 11:26:24
2 problem, and through our own hard work and 11:26:27
3 determination, find a solution. I mean, we 11:26:29
4 kind of created our own luck, too. 11:26:32
5 Q. Absolutely. 11:26:35
6 And Unwired thought that the 11:26:35
7 opportunity was enormous; correct? 11:26:37
8 A. Absolutely. 11:26:38
9 Q. All right. 11:26:39
10 Now, it was about this time that 11:26:40
11 Unwired started thinking about making its own 11:26:44
12 custom chip for this hub also; correct? 11:26:46
13 A. Well, the way that I would say it is 11:26:49
14 we were already making a custom chip, right, 11:26:53
15 the Boston chip. 11:26:56
16 Q. Right. 11:26:57
17 You had started development on the 11:26:58
18 Boston chip? 11:26:59
19 A. That was already underway. 11:27:00
20 Q. Right. 11:27:01
21 And at this point in time, you 11:27:02
22 decided or started talking about developing 11:27:03
23 what you were calling the Boston 2 chip; 11:27:07
24 correct? 11:27:09

1 A. Correct. 11:27:09
2 Q. All right. 11:27:09
3 MR. SHAW: Could you call up, 11:27:12
4 please, Mr. Ferrer, Exhibit 192. And then 11:27:13
5 just blow up the first box there. 11:27:20
6 BY MR. SHAW: 11:27:24
7 Q. And then you talked a little bit 11:27:24
8 about -- do you need time to find it in your 11:27:26
9 book? It's in the book you had this morning. 11:27:28
10 It's on the bottom. 11:27:30
11 A. Okay, okay. Great. It's at the 11:27:31
12 beginning. Got it. 11:27:44
13 Q. And you talked a little bit about the 11:27:45
14 January 2013 date, and it may have been 11:27:48
15 finalized a little later than that. 11:27:50
16 Do you remember that? 11:27:52
17 A. Yes. 11:27:52
18 MR. SHAW: And then the second 11:27:52
19 page, Mr. Ferrer, I think the fifth slide, 11:27:54
20 Option C. Could you blow that up? 11:27:57
21 BY MR. SHAW: 11:28:00
22 Q. And then there is some pros and cons 11:28:00
23 listed on there. 11:28:03
24 Do you see them? 11:28:04

1 A. Yes. 11:28:06
2 Q. Okay. 11:28:07
3 MR. SHAW: And then under the 11:28:07
4 cons, could you blow those up, please, Mr. 11:28:12
5 Ferrer? Just the cons. The letters are a 11:28:14
6 little hard to see. 11:28:18
7 BY MR. SHAW: 11:28:19
8 Q. So con was a "Custom ASIC cost," and 11:28:20
9 that's the custom ASIC you were thinking about 11:28:23
10 making at that time; right? 11:28:26
11 A. This presentation, you have to 11:28:31
12 remember, was made for Jaguar. 11:28:31
13 Q. Um-hmm. 11:28:33
14 A. So for the Jaguar project, we 11:28:34
15 implemented it at FPGA and didn't do the 11:28:36
16 custom ASIC. 11:28:40
17 Q. Right. 11:28:40
18 But you were talking about the 11:28:41
19 need for a custom ASIC to do this solution? 11:28:42
20 A. We were certainly thinking about it, 11:28:44
21 right, right there. 11:28:46
22 Q. Yes. In January. Okay. 11:28:47
23 Now, from that point in time, by 11:28:48
24 September, I believe, you decided to go 11:28:56

1 forward with the custom ASIC project; right? 11:28:59
2 A. That sounds about right. 11:29:02
3 Q. Okay. 11:29:03
4 Could you look in your notebook 11:29:04
5 from this morning at Exhibit 23. 11:29:05
6 (Whereupon, Trial Exhibit 23 was 11:29:05
7 introduced.) 11:29:05
8 THE WITNESS: You are going all 11:29:20
9 the way from the beginning to the end. Sorry. 11:29:21
10 MR. SHAW: Yeah. 11:29:23
11 THE WITNESS: Exhibit 23. Got it. 11:29:26
12 BY MR. SHAW: 11:29:27
13 Q. And that's the amendment to the 11:29:27
14 manufacturing and developing agreement, I may 11:29:29
15 have the title wrong, but that's the amendment 11:29:31
16 to the AyDeeKay agreement that was Exhibit 22; 11:29:34
17 correct? 11:29:37
18 A. Yeah. This is the modifications that 11:29:37
19 we needed, because we already had the Boston 11:29:39
20 chip in development and then we said hey, we 11:29:41
21 don't want to start over and make another 11:29:44
22 chip. 11:29:46
23 Q. Excuse me, Mr. Voto. I just asked a 11:29:46
24 question about the date and the time. I 11:29:48

1 didn't -- all right. 11:29:50
2 MR. SHAW: So I'd like to move 11:29:53
3 this into evidence, first of all, Your Honor. 11:29:54
4 MR. WIENER: No objection. 11:29:56
5 THE COURT: Admitted. 11:29:58
6 MR. SHAW: Could you pull up 11:29:59
7 Exhibit 23, please, which is the exhibit I 11:30:01
8 moved into evidence without the number. 11:30:02
9 BY MR. SHAW: 11:30:05
10 Q. And you'll see the date at the top on 11:30:05
11 the second line says, "September 20th, 2013." 11:30:07
12 Do you see that? 11:30:09
13 A. I do. 11:30:10
14 Q. All right. 11:30:10
15 Now, between January and that 11:30:11
16 PowerPoint we just looked at, and the date you 11:30:13
17 signed this agreement, you were negotiating it 11:30:16
18 for a while, I take it. You probably didn't 11:30:18
19 negotiate it in just a day; is that right? 11:30:21
20 A. Yeah, I didn't sign the agreement 11:30:24
21 so... 11:30:27
22 Q. Okay. 11:30:27
23 But between when this agreement 11:30:28
24 was signed and the January timeframe, did 11:30:29

1 Unwired go out to the marketplace and ask any 11:30:31
2 manufacturer like SMSC if they could make the 11:30:35
3 custom chip you needed? 11:30:38
4 A. No. 11:30:40
5 Q. All right. 11:30:41
6 Okay. And, in fact, you didn't 11:30:42
7 publicize that you were making this custom 11:30:46
8 chip at the time, did you? 11:30:48
9 A. No. 11:30:49
10 Q. All right. 11:30:49
11 And the amended agreement was a 11:30:50
12 reset of the scope of the original agreement; 11:30:53
13 correct? 11:30:55
14 A. That's correct. 11:30:56
15 Q. And it's a reset because you changed 11:30:56
16 scope from making just this USB hub to making 11:30:59
17 the USB hub with the hub-to-hub bridge 11:31:02
18 technology in it? 11:31:06
19 A. That's correct. 11:31:07
20 MR. SHAW: Now, could you go to 11:31:09
21 page 5, please, Mr. Ferrer. And blow up the 11:31:11
22 chart in the middle. 11:31:19
23 BY MR. SHAW: 11:31:20
24 Q. And this is a summary of the 11:31:20

1 milestones and payments for the revised 11:31:22
2 project; correct? 11:31:24
3 A. Correct. 11:31:25
4 Q. And the first part of the project was 11:31:26
5 the 646,000 or so? 11:31:28
6 A. Correct. 11:31:31
7 Q. And that's what's labeled B1 there on 11:31:32
8 the left? 11:31:35
9 A. Yes. 11:31:35
10 Q. And then B2 is the Boston 2 expenses? 11:31:36
11 A. That's correct. 11:31:40
12 Q. And they total somewhere around $3 11:31:41
13 million? 11:31:47
14 A. I thought it was a little more than 11:31:47
15 that, but... 11:31:49
16 Q. Well, my math could be wrong as well, 11:31:51
17 but 3 million, $4 million, somewhere in that 11:31:53
18 range? 11:31:56
19 A. Yeah. 11:31:56
20 Q. This is all for just the B2 project, 11:31:56
21 it's just for adding the hub-to-hub 11:31:59
22 functionality that you worked on with Jaguar; 11:32:01
23 right? 11:32:03
24 A. Not just. 11:32:03

1 Q. Okay. 11:32:04
2 But to integrate that with the 11:32:05
3 rest of the chip? 11:32:07
4 A. Yeah. So we added some new function; 11:32:08
5 host-to-host was one of them. 11:32:11
6 Q. That was the primary one, though; 11:32:13
7 correct? 11:32:14
8 A. Yeah, it was one of the primary ones. 11:32:15
9 Q. Well, let's go back to the first page 11:32:16
10 then, and pull up the third recital, please. 11:32:19
11 It starts, "Whereas subsequent to the 11:32:29
12 passage." 11:32:33
13 And here it references changes in 11:32:33
14 features principally related to the USB 11:32:35
15 host-to-host bridge; correct? 11:32:38
16 A. Yes. 11:32:39
17 Q. All right. 11:32:40
18 Now -- 11:32:40
19 MR. SHAW: You can take that down, 11:32:42
20 please. 11:32:44
21 BY MR. SHAW: 11:32:45
22 Q. From the first patent search you did 11:32:46
23 until this agreement was signed, did you 11:32:48
24 conduct another search of USB patents to look 11:32:51

1 for whether there were any IP risks? 11:32:54
2 A. Not that I recall. 11:32:57
3 Q. And at the time you did the first 11:32:58
4 search, USB hub-to-hub wasn't even on the 11:33:00
5 horizon; correct? 11:33:05
6 A. No, it wasn't. 11:33:05
7 Q. All right. 11:33:06
8 Now, the -- the FG -- the chip 11:33:07
9 that you put together, the test war chips for 11:33:19
10 Jaguar, I think you mentioned that they were 11:33:22
11 too big or too costly to actually implement; 11:33:24
12 is that right? 11:33:27
13 A. I think what I said was -- the 11:33:29
14 question that was asked of me was so you 11:33:32
15 developed this, did you take it to other 11:33:34
16 customers, right, and my answer was yeah, we 11:33:36
17 were taking -- we were super excited about the 11:33:39
18 concept, but the fact that it was big and 11:33:41
19 expensive, it was a little bit difficult to 11:33:45
20 imagine that all the different car companies 11:33:47
21 would accept. 11:33:48
22 Q. Would that implementation that was 11:33:49
23 big and expensive have fit in the form factor 11:33:51
24 that was admitted in Exhibits 365 and 66? 11:33:54

1 A. Maybe, but it would have been tough. 11:33:58
2 Q. Okay. 11:34:00
3 The form factor means within the 11:34:01
4 plastic box? 11:34:03
5 A. Yes, I'm sorry. 11:34:04
6 Q. And on the chip, it has all the other 11:34:05
7 things besides the Boston 2 chip; correct? 11:34:08
8 A. That's right. 11:34:10
9 Q. All right. Let's skip forward 11:34:11
10 another year to the fall of 2014. 11:34:13
11 There was a slide you showed about 11:34:15
12 the meeting with Apple. I noticed that Delphi 11:34:18
13 was on it; correct? 11:34:22
14 A. Right. 11:34:23
15 Q. And at that point in time, it's just 11:34:24
16 a month or so after Delphi had bought Unwired; 11:34:26
17 correct? 11:34:29
18 A. About that, yeah. 11:34:29
19 Q. Now, when Delphi bought Unwired, you 11:34:30
20 were paid about $2 million for your shares; 11:34:33
21 correct? 11:34:35
22 A. Because of the sale of Unwired, 11:34:36
23 that's correct. 11:34:38
24 Q. So you made $2 million out of that 11:34:38

1 transaction. 11:34:40
2 And then we come to January 2015. 11:34:42
3 And that's Exhibit 9, the letter from 11:34:46
4 Microchip. 11:34:48
5 MR. SHAW: And could you call that 11:34:50
6 up, please, Mr. Ferrer. And could you blow up 11:34:52
7 the first paragraph, please. 11:35:01
8 BY MR. SHAW: 11:35:03
9 Q. Now, it's true at this time, wasn't 11:35:04
10 it, that Microchip and Delphi were valued 11:35:06
11 business partners, as it says in the first 11:35:10
12 phrase? 11:35:14
13 A. Sure. 11:35:15
14 Q. And they still are today, or at least 11:35:15
15 as of when you left Delphi? 11:35:21
16 A. Yeah, could you please clarify that 11:35:23
17 statement, because I don't work there. 11:35:24
18 Q. They were a valued business partner 11:35:26
19 still as of when you left Delphi? 11:35:28
20 A. Between -- between Microchip and 11:35:29
21 Aptiv? 11:35:32
22 Q. Yes. 11:35:34
23 A. As of the time that I was there? 11:35:35
24 Q. As of the time you left. 11:35:37

1 A. I think as a matter of perspective, 11:35:39
2 we obviously had our differences. Other parts 11:35:42
3 of Aptiv were using Microchip parts that I'm 11:35:45
4 aware of, but I had nothing to do with. 11:35:48
5 Q. Okay. 11:35:50
6 And it's correct that at that 11:35:50
7 time, as the letter states, that Unwired and 11:35:53
8 then Delphi had been "developing technology 11:35:57
9 related to USB device controllers designed for 11:36:00
10 multiple-host connectivity for use in 11:36:03
11 automotive infotainment systems"? 11:36:05
12 That's the second sentence; right? 11:36:09
13 MR. SHAW: Thank you, Mr. Glass. 11:36:11
14 BY MR. SHAW: 11:36:11
15 Q. That is true also; right? 11:36:13
16 A. Well, in a general sense, yeah. But, 11:36:15
17 I mean, as of 2015, okay, right, it's Aptiv's 11:36:19
18 system, it's not Unwired Technology anymore. 11:36:23
19 But it kind of overlooked that fact and just 11:36:25
20 said well, Unwired/Delphi, are we developing 11:36:27
21 USB things? Sure. That's a true statement. 11:36:31
22 Q. All right. 11:36:35
23 Now, as of the date of this 11:36:35
24 letter, the modules from Delphi that contained 11:36:39

1 the Boston 2 chip hadn't yet hit the 11:36:42
2 marketplace; in other words, they weren't in 11:36:46
3 cars that could be purchased in 2014? 11:36:48
4 A. I don't know. It was very close. 11:36:50
5 Q. All right. 11:36:51
6 Let's go back to Exhibit 23. And 11:36:52
7 see the chart with the cost, which I believe 11:36:58
8 was page 5. There we go. 11:37:11
9 MR. SHAW: And it shows that -- go 11:37:13
10 down to the second to last line and blow up 11:37:17
11 the first four boxes, one more to the right, 11:37:20
12 start one more to the right, perfect, and then 11:37:25
13 go back to the left. Highlight everything to 11:37:28
14 the left. 11:37:31
15 BY MR. SHAW: 11:37:36
16 Q. And this schedule shows mass 11:37:37
17 production beginning January 1st? 11:37:39
18 A. That's what it says. 11:37:41
19 Q. And then they have to be -- then the 11:37:42
20 modules have to be manufactured and placed 11:37:44
21 into cars; correct? 11:37:46
22 A. Yeah, but I think the schedule that 11:37:48
23 you're looking at was a schedule that was 11:37:52
24 written as of the date of this contract being 11:37:54

1 signed. 11:37:56
2 Q. Okay. 11:37:57
3 A. So that doesn't mean that it is 11:37:58
4 exactly how all of history unfolded. 11:38:00
5 Q. Sure. 11:38:03
6 But the car manufacturers are 11:38:04
7 given well -- months and months in advance of 11:38:05
8 schedules of when they will receive modules 11:38:07
9 that they can manufacture; correct? 11:38:09
10 A. Correct. 11:38:11
11 Q. And that planning takes place back in 11:38:11
12 2014 and even 2013, I would expect? 11:38:14
13 A. Your point is valid, they are 11:38:16
14 planning their launches far in advance. 11:38:19
15 Q. Right. 11:38:21
16 So now, when you got the letter, 11:38:21
17 did you offer up a module or a chip so that 11:38:26
18 Microchip could test it and see if it actually 11:38:30
19 infringed? 11:38:32
20 A. No. 11:38:33
21 Q. And when you got to -- 11:38:34
22 A. They also didn't ask for one. 11:38:37
23 Q. I understand. 11:38:38
24 But you said -- you testified that 11:38:39

1 you felt strongly that the chip didn't 11:38:40
2 infringe the patent; correct? 11:38:42
3 A. That's correct. 11:38:44
4 Q. And you didn't offer up one of these 11:38:45
5 chips to test; correct? 11:38:47
6 A. Nope. 11:38:49
7 Q. And it cost how much, the chip? 11:38:50
8 A. Oh, the chips, themselves, just the 11:38:54
9 individual chip? 11:38:56
10 Q. Yeah. 11:38:57
11 A. We would buy them for, you know, like 11:38:57
12 1 to $2. 11:39:00
13 Q. Okay. 11:39:01
14 And then in this October meeting 11:39:02
15 you had, you didn't offer up any chips to 11:39:05
16 test? 11:39:07
17 A. Well, they didn't ask for one; we 11:39:07
18 didn't offer it. 11:39:09
19 Q. And let me go back to this chart I 11:39:11
20 was working on here. 11:39:13
21 So this is -- do you see where I 11:39:21
22 put Delphi merger in 2014? Is that roughly 11:39:26
23 correct on the timeline? 11:39:29
24 A. Yes. 11:39:30

1 Q. And the AyDeeKay amendment, which 11:39:31
2 I'll call AyDeeKay 2, that was August 1, 2013. 11:39:37
3 Have I put that correctly on the 11:39:42
4 timeline? 11:39:44
5 A. Yes. 11:39:44
6 Q. And then the notice letter, which is 11:39:46
7 probably not accurate in terms of exact 11:39:51
8 distance, I've marked that roughly correctly? 11:39:55
9 A. Okay. 11:39:59
10 Q. And then between getting that letter 11:40:02
11 and the first AyDeeKay, what I'm marking now 11:40:07
12 in pink, through all that time, you didn't go 11:40:11
13 back and investigate anyone else's patents to 11:40:16
14 make sure there was no IP risk from your 11:40:19
15 Boston 2 development; is that correct? 11:40:23
16 A. That's correct. 11:40:24
17 MR. SHAW: Your Honor, I would 11:40:25
18 mark this demonstrative as Exhibit 11:40:26
19 Demonstrative 1000 because I don't know what 11:40:29
20 number we are, just for identification. 11:40:31
21 THE COURT: Okay. 11:40:32
22 (Whereupon, Demonstrative Exhibit 11:40:32
23 1000 was marked for identification.) 11:40:35
24 MR. SHAW: I pass the witness, 11:40:35

1 Your Honor. 11:40:36
2 THE COURT: Okay. Anything 11:40:36
3 further? 11:40:38
4 MR. WIENER: No further questions, 11:40:42
5 Your Honor. 11:40:44
6 THE COURT: Okay. All right. 11:40:45
7 Mr. Voto, you can step down. 11:40:46
8 THE WITNESS: Leave the binders 11:40:46
9 here? 11:40:47
10 THE COURT: No, take those with 11:40:47
11 you and give them back to the lawyers. 11:41:01
12 (Whereupon, the witness was 11:41:01
13 excused.) 11:41:22
14 THE COURT: Before you start, just 11:41:22
15 to clarify, I think where we were this 11:41:33
16 morning, that's the point at which plaintiff 11:41:36
17 is resting; is that correct? You have held it 11:41:38
18 open for that? 11:41:42
19 MR. SLAYDEN: Yes, Your Honor. 11:41:43
20 THE COURT: All right. Okay. 11:41:43
21 (Brief pause.) 11:41:43
22 MS. LI: Good afternoon. Aptiv 11:41:46
23 calls as its next witness, Michael Dreon. 11:41:48
24 THE COURT: Mr. Dreon, come on up. 11:41:50

1 C E R T I F I C A T E

2

3 I do hereby certify that I am a Notary Public in good standing, that the
4 aforesaid testimony was taken before me, pursuant to notice, at the time and place
5 indicated; that said witnesses were duly sworn to tell the truth, the whole truth, and
6 nothing but the truth; that the testimony of said witnesses was correctly recorded in
7 machine shorthand by me and thereafter transcribed under my supervision with
8 computer-aided transcription; that the transcript is a true and correct record of the
9 testimony given by the witnesses; and that I am neither of counsel nor kin to any party in
10 said action, nor interested in the outcome thereof.
11 WITNESS by hand and official seal
12 this 11th day of April, 2022.

13 _____
Notary Public
14

15

16
Job No. 5162170
17

18

19

20

21

22

23

24