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

- - -

Date: Thursday, April 7, 2022
Time: 9 o'clock 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

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08:13:41

(Whereupon, the Court commenced proceedings at 9 o'clock a.m.) 08:13:41 08:13:45

THE COURT CLERK: All rise. The Honorable Joshua D. Wolson presiding. 08:13:59 08:14:03

THE COURT: Good morning, everybody. 08:56:14 08:56:15

MR. BANNER: Good morning. 08:56:15

MR. SAULSBURY: Good morning. 08:56:15

MR. SLAYDEN: Good morning. 08:56:15

MS. DURIE: Good morning. 08:56:17

THE COURT: Have a seat, please. 08:56:17

All right. 08:56:21

Well, the jurors are all here on time, so that's positive. I did not get anything from all of you in terms of any issues related to this morning. Is that where we stand; is that right? 08:56:22 08:56:25 08:56:31 08:56:34 08:56:38

MR. SLAYDEN: Yes, Your Honor. 08:56:40

MS. DURIE: Yes. 08:56:42

THE COURT: Okay. 08:56:43

And then I guess the only other thing is -- I'm getting a lot of feedback. 08:56:47 08:56:50

There we go. Okay. Hope that will be better. 08:56:53 08:56:55

The only other housekeeping question I think I had was I thought we had talked about getting revised proposed jury instructions; is that right? Can someone tell me? I thought we talked about that at the final pretrial. 08:56:55 08:56:56 08:56:59 08:57:04 08:57:10 08:57:12

MR. BANNER: Yes, Your Honor, we did talk about that. I don't know that we are quite there yet. 08:57:12 08:57:14 08:57:15

THE COURT: Okay. 08:57:16

What's the timing on that then? 08:57:17

MR. BANNER: I think we can probably get them done today. 08:57:19 08:57:20

THE COURT: Yes. I'd like to, if possible, look at it because my goal would be to get you a draft of my proposed instructions tomorrow so you can play with them over the weekend. Depending how things break and given where we were yesterday, I'm thinking that maybe we'll try to do a charge conference sort of the last portion of Monday and that way we can let our juror go and pick up her kids and not lose her. 08:57:22 08:57:24 08:57:26 08:57:30 08:57:33 08:57:37 08:57:39 08:57:43 08:57:46 08:57:49

MS. DURIE: Perfect. 08:57:51

THE COURT: So if you can get it to me today, that would be good. We made some progress but... all right. 08:57:52 08:57:52 08:57:55

And then we're going to call Mr. Bohm first this morning; right? 08:57:59 08:58:01

MR. BANNER: Yes, Your Honor. 08:58:04

THE COURT: All right. Just so I know. 08:58:05 08:58:06

And I take it you're handling that examination; is that right? 08:58:08 08:58:11

MR. BANNER: Yes, Your Honor. 08:58:12

MR. SAULSBURY: Hello, Your Honor, I'm Mr. Saulsbury. 08:58:13 08:58:16

THE COURT: Great. So we know who is handling it. 08:58:18 08:58:19

Then if there's nothing else, why don't we get the jury in. 08:58:20 08:58:22

(Whereupon, the jury entered the courtroom.) 08:58:24 08:58:28

THE COURT: Good morning, everybody. Welcome back. 09:00:31 09:00:33

Let me start out by saying to you we appreciate you being so prompt. I know the mornings can be tough sometimes, but it is 09:00:35 09:00:38 09:00:42

good to get going on time and have a relatively easy day. 09:00:46 09:00:48

Just to give you a quick preview of what I'm envisioning for the day, we're going to get started in just a second with the first witness. I tend to take a break somewhere in the range of 10:30, something like 10 minutes, 15 minutes, and then we'll take a lunch break. 09:00:49 09:00:51 09:00:53 09:00:57 09:01:00 09:01:05 09:01:08

We'll come back from the lunch break, we'll have another session, and probably will wrap up at that point, because as I said, I have somewhere to be later in the afternoon today. That will typically be our trial day, you know, with some days like tomorrow, we will have an afternoon break as well. 09:01:09 09:01:11 09:01:15 09:01:17 09:01:20 09:01:23 09:01:26 09:01:28

That said, as we're sitting here, if any of you need to break for some reason, if something is happening, just get my attention or someone's attention and we'll work it out as soon as we can. I'll try not to interrupt right in the middle of a line of questioning, but if we're not coming up on a 09:01:28 09:01:31 09:01:33 09:01:35 09:01:37 09:01:39 09:01:42

break and you need one, we'll take one. Okay. 09:01:44

So with that... 09:01:47

MR. BANNER: Yeah, if I could call 09:01:50

the first witness, Mr. Mark Bohm. 09:01:51

THE COURT CLERK: Please state and 09:02:31

spell your name for the record. 09:02:32

MR. BOHN: Mark Bohm, M-A-R-K

B-O-H-M.

- - -

...MARK BOHM, after having first

been duly sworn and/or affirmed, testified as

follows...

- - - 09:02:39

MR. BANNER: Your Honor, may I 09:02:39

approach? 09:02:40

THE COURT: Yes, please. 09:02:41

MR. BANNER: Good morning, members 09:03:38

of the jury. My name is Brian Banner and I'm 09:03:39

here with plaintiff, Microchip, and I'm one of 09:03:41

the people who is going to be helping with 09:03:43

this case and presenting our first witness, 09:03:44

Mr. Bohm. 09:03:47

- - - 09:03:08

DIRECT EXAMINATION

- - -

BY MR. BANNER:

Q. Good morning, Mr. Bohm.

A. Good morning.

Q. Could you please introduce yourself to the jury.

A. Yes. My name is Mark Bohm. I was a technical fellow with Microchip Technology and I'm also one of the inventors on the patents that are part of this case here this week.

MR. BANNER: Can everybody hear?

THE WITNESS: The seat doesn't move.

(Brief pause.)

THE WITNESS: Shall I repeat that?

BY MR. BANNER:

Q. Can you tell us a little bit about yourself personally.

A. Well, I live just a little south of Austin, Texas in a town called Village of Bear Creek.. I live in the same house that I have with my wife for, I think we've been there about 24 years now. We raised two children in

that home. My children are grown and have moved on. My son is a law enforcement officer with the Texas Department of Public Safety and my daughter is an ICU nurse in a children's hospital.

Q. And what do you like to do in your spare time?

A. Well, I still enjoy solving problems, so I have little remodeling projects around our house. We've also purchased a small piece of an old cattle ranch that had been over grade and we've been slowly reverting it back to wildlife purposes by introducing native plants and things like that, so I've been staying busy.

Q. And are you currently employed by Microchip?

A. No, I am not.

Q. And when did that end?

A. So I -- I retired in 2020, December of 2020, the very end of the year.

Q. Okay.

So are there other things you do

that distract you during your retirement? 09:05:37

A. Well, there's one other item. Around 09:05:39

the same time that I retired, the small city 09:05:42

that I live in, Village of Bear Creek, I 09:05:44

volunteered to be the mayor of there and I was 09:05:46

doing that for about a year-and-a-half now. 09:05:50

Thankfully, it's a volunteer position, so it 09:05:53

doesn't take a lot of time, but it does occupy 09:05:56

me from time to time. 09:05:59

Q. So you retired and you're here in 09:06:00

Delaware. Can you explain to the jury why? 09:06:03

A. Yes. So this case started a long 09:06:04

time ago and we had expected that it would 09:06:08

complete before my plans for retirement had 09:06:11

come, but with COVID, a lot of things got 09:06:14

delayed and this case was one of those. 09:06:18

So Microchip had asked if I would 09:06:20

still be willing to be part of this trial, and 09:06:22

I agreed, so we set up a consulting agreement 09:06:24

for the purposes of just this trial. 09:06:28

Q. So you're working as a consultant for 09:06:30

Microchip currently? 09:06:33

A. Yes. Currently, I am a consultant. 09:06:34

Q. And how much -- did you and Microchip 09:06:36

determine how much you would get paid for your consulting work? 09:06:38 09:06:40

A. Well, we took what was my full annual compensation, including benefits and everything, and divided it into an hourly number of $188 an hour, and that's the number that's in the consulting agreement. 09:06:41 09:06:44 09:06:46 09:06:48 09:06:51

Q. And does that mean your compensation for consulting in this case is equivalent to about what you made when you were working for Microchip? 09:06:53 09:06:55 09:06:58 09:07:00

A. Yes. As close as we could make it, yes. 09:07:00 09:07:03

Q. Does your compensation depend in any way on your testimony or the outcome of this case? 09:07:03 09:07:05 09:07:07

A. No, not at all. The compensation is just based on hours. 09:07:07 09:07:10

Q. Can you tell the jury a little bit about Microchip? 09:07:12 09:07:13

A. So Microchip is one of the top 25 semiconductor companies in the world. They have a number of high-tech products, and many of them include microcontrollers. And 09:07:16 09:07:21 09:07:24 09:07:27

microcontrollers are in many things that are in our daily lives, from computers to cars to even satellites, to help deliver our -- our evening news. 09:07:31 09:07:33 09:07:39 09:07:43

If we just, maybe just focus on the cars, since that is part of what we're talking about in this trial, most cars, even an entry level car today, probably has at least a dozen microcontrollers in it of some sort, and the more complicated cars like the Tesla, for example, could have hundreds of computers and microcontrollers in them. 09:07:45 09:07:47 09:07:50 09:07:54 09:07:57 09:08:00 09:08:03 09:08:07

And for the purposes of what we're going to focus on, which would be the dashboard and the head unit of the car, the connectivity that many of us see when we're using that car is -- is, many times, provided by a microcontroller-based product from Microchip. 09:08:10 09:08:12 09:08:15 09:08:20 09:08:22 09:08:25 09:08:28

Q. What type of work did you do while you were still working for Microchip? 09:08:29 09:08:32

A. Well, I was a senior member of the technical staff and we worked in the USB and networking division and produced products for 09:08:34 09:08:38 09:08:47

Microchip, so I had a technical role, and I also had a staff leadership role in the division. 09:08:50 09:08:53 09:08:59

Q. I'd like to talk to you a little bit about your career before Microchip. 09:08:59 09:09:01

Can you tell the jury a little bit about your early educational and work background? 09:09:02 09:09:04 09:09:07

A. Certainly. Certainly. 09:09:07

Well, for that, I'd probably have to go way back, so when I graduated from high school, I entered the United States Air Force and did a four-year term, and while in the Air Force, I started going to college at night. I was based at Fairchild Air Force Base in Washington state, so my early schooling started there, and my normal day job, if you will, that I started was we -- there was a precision measuring equipment lab on the base which, civilian term for that position would be metrology, which would be science of measurement, so that was what I did in the day and at night, I began going to college. 09:09:10 09:09:11 09:09:15 09:09:17 09:09:20 09:09:25 09:09:27 09:09:30 09:09:35 09:09:37 09:09:41 09:09:46 09:09:49 09:09:51

After I got out of the Air Force, 09:09:53

I worked for a few different companies in the aerospace industry and continued to pursue an engineering degree at night, which I completed, I believe it was 1995, and graduated with a bachelor's degree in electrical and electronic engineering from California State University. 09:09:55 09:09:57 09:10:00 09:10:03 09:10:07 09:10:09 09:10:11

Q. What did you do after that? 09:10:13

A. Well, upon graduation, I accepted a position for a company in Austin, Texas, and that was Cirrus Logic. I worked at Cirrus for a few years, transitioned to a similar position at Motorola Semiconductor, and then around 2000, I took a position with a company by the name of Standard Microsystems, which we also call SMSC for short. 09:10:15 09:10:19 09:10:23 09:10:26 09:10:30 09:10:33 09:10:38 09:10:41

Q. Why did you join SMSC? 09:10:44

A. Well, I wanted to pursue a career change within engineering where I would take on a position as a system architect, and SMSC had a design center in Austin where they were doing some cutting-edge design and they had an opening for a system architect, so I became aware of that, pursued it and took that job. 09:10:47 09:10:52 09:10:54 09:11:01 09:11:03 09:11:06 09:11:08

Q. And what did your role as a system architect at SMSC entail? 09:11:11 09:11:14

A. So initially I was working on companion chips to Intel CPUs. 09:11:16 09:11:19

Q. And how long did that last? 09:11:22

A. That lasted a little over a year, probably almost two years, and then we transitioned to working on USB 2.0 hubs. 09:11:24 09:11:26 09:11:29

Q. How long did your work on USB hubs last? 09:11:34 09:11:38

A. Well, I've actually done many hubs over the years. That lasted pretty much right up until I retired from Microchip in 2020. 09:11:38 09:11:42 09:11:44

Q. Okay. 09:11:48

Can you explain to the jury how you went from SMSC to Microchip? 09:11:48 09:11:49

A. Yes. Yes. In 2012, Microchip acquired SMSC, and as part of that acquisition, I transitioned and became a Microchip employee at that time. 09:11:52 09:11:56 09:12:00 09:12:03

Q. So during this time you were working on USB hubs; is that correct? 09:12:05 09:12:07

A. Yes, that is correct. 09:12:10

Q. Okay. 09:12:11

Can you give us -- the jury a little bit of USB background to help understand your work on USB hubs? 09:12:11 09:12:13 09:12:16

A. Certainly. Certainly. 09:12:18

So I guess we'll start with the letters, themselves; USB stands for Universal Serial Bus. I think that was covered a little bit in the opening yesterday. 09:12:19 09:12:21 09:12:26 09:12:27

And, you know, as was also mentioned, you know, it's cables that we commonly use; that's what many of us think of when we think of USB. 09:12:29 09:12:31 09:12:34 09:12:36

But USB is quite more than that. It's also -- I mean, it's a standard bus that has a lot of definitions of what everything that plugs into it, what the behavior needs to be of that device. There's protocols, there's signaling levels, there's a lot of things involved, and so that is an international standard that we -- that we base our hub products on. 09:12:38 09:12:40 09:12:43 09:12:48 09:12:51 09:12:53 09:12:56 09:13:00 09:13:03

And then within that standard, there is a definition for what a hub must be, along with what host and any other device 09:13:04 09:13:06 09:13:08

would be. 09:13:10

Q. When did you start all of this work 09:13:12

on USB hubs? 09:13:14

A. So that would have been 2001-2002 09:13:16

timeframe, if I recall. 09:13:19

Q. And was there something significant 09:13:20

about that time? 09:13:23

A. Well, the USB 2.0 version of the spec 09:13:24

had released, I think it was about a year or 09:13:28

two prior to when we started on doing the hub. 09:13:32

So that was kind of the driving activity. 09:13:35

SMSC did not have a USB 2.0 hub program at the 09:13:39

time and I felt like it was a growing market 09:13:43

and opportunity, and so it looked like a good 09:13:45

device to create, so we started on it. 09:13:47

Q. Okay. 09:13:49

You used the term, "USB spec." 09:13:50

Can you explain what you mean when you're 09:13:53

talking about the USB spec? 09:13:54

A. Oh, yeah. I'm sorry. I am used to a 09:13:55

lot of lingo that we used at our offices to 09:14:01

try not to spell everything out all the time. 09:14:03

So instead of spelling out the 09:14:07

term specification, we would shorten it to be 09:14:09

spec, and instead of USB 2 spec or USB 2.0 spec, specification, which would be more the full name, we would just typically refer to it as either the USB spec or USB 2 spec. And I may kind of use either going forward, I suppose. 09:14:11 09:14:17 09:14:20 09:14:22 09:14:27 09:14:30

Q. Were you involved in any part of the USB specification? 09:14:32 09:14:34

A. Not the USB 2 spec, but yes, I had actually helped do some contributions for some of the other specs, USB 3 spec, USB 4 spec, USB high-speed inter-chip spec and several others. I don't remember all of them. 09:14:35 09:14:41 09:14:46 09:14:50 09:14:53

And then as part of that standards process, there are lots of companies that get involved on all of those different specifications, each with different experts that are participating and contributing the knowledge that they have to make sure that the industry gets the best specification that we can. 09:14:57 09:14:59 09:15:00 09:15:02 09:15:05 09:15:07 09:15:10 09:15:12

Q. So tell us a little bit more about the USB hub that you started at SMSC. 09:15:13 09:15:16

You said you started that in 09:15:21

2001-2002; is that correct? 09:15:23

A. Um-hmm. 09:15:25

Q. And then what kind of project did you first work on? 09:15:25

A. Well, initially the first USB 2 hub that we did was about fairly standard a product, I would say. It matched the USB specification; it was kind of very similar to what you would expect if you were just following the straight specification. 09:15:28

And then as we began to sell that device and began to interact with quite a few more customers. We learned that customers had a lot of needs that went outside of the USB 2.0 specification. They wanted to differentiate their products in the marketplace, and there were some features they wanted us to add that wouldn't violate the specification, it would kind of add to it. It would give them some custom enhancements. 09:15:48

And so going forward, as we would, you know, work to find a good business case and make sure that we had a good team ready to go and be able to meet their actual delivery 09:16:15

schedules, we would then create those projects. 09:16:28 09:16:30

Q. I want to take a little bit of a step back, because I know we heard some of the underlying technologies in the opening yesterday, but did you prepare a demonstrative to help explain the USB hub and kind of the USB system? 09:16:31 09:16:33 09:16:36 09:16:38 09:16:41 09:16:44

A. Yes, I did. 09:16:45

MR. BANNER: Mr. Ferrer, can we put Slide 1 up on the screen. 09:16:49 09:16:50

BY MR. BANNER: 09:16:52

Q. Can you tell us what this demonstrative shows? 09:16:53 09:16:55

A. So this is a tower computer, kind of similar to what you would have seen around the timeframe that we came up with our invention in the mid 2000s. And on this particular computer, there are two USB ports on the front panel and then those, of course, would be driven by what we call the USB host controller, which is the master device inside the computer. 09:16:55 09:16:58 09:17:00 09:17:02 09:17:05 09:17:08 09:17:10 09:17:13 09:17:15

MR. BANNER: Next slide. 09:17:21

THE WITNESS: And in this particular example, we just have three devices, and if you want to plug the three devices each with the cable and the plug on it into the computer, you know, we don't have enough ports, and so you can go to the next slide and you see that we have a bit of a problem. 09:17:22 09:17:23 09:17:25 09:17:27 09:17:31 09:17:33 09:17:35 09:17:38

So then we bring up the next slide, that problem was already a foreseen issue in the USB specifications, and that is what we would refer to as a standard USB four-port hub. It has four ports on the front panel, and typically off the rear of it, there would be a cable that you would plug into the device that contained the host controller. 09:17:39 09:17:42 09:17:45 09:17:50 09:17:55 09:17:58 09:18:00 09:18:03

And this enables you, in the particular example we have here, to use one port up, but to give yourself another additional four ports, and then you can plug in three devices and still you will have two, three ports available for any other products you want to put in. 09:18:06 09:18:09 09:18:11 09:18:14 09:18:18 09:18:22 09:18:24

BY MR. BANNER: 09:18:25

Q. Is the USB hub that you designed at SMSC, is that similar to the hub we see here in this demonstrative? 09:18:25 09:18:29 09:18:31

A. Well, SMSC and Microchip were both semiconductor companies, and so I think a little of this was shown yesterday in some of the opening arguments, but we actually built the chip, and the chip or the semiconductor device would be inside that box. 09:18:32 09:18:35 09:18:38 09:18:40 09:18:42 09:18:45

So our customers would normally make that box and sell it, but our chip would be inside, and the chip would have all the brains of everything that you needed to make it a spec compliant hub to work in the industry. 09:18:48 09:18:50 09:18:53 09:18:55 09:18:58 09:19:02

Q. What does a USB hub chip look like? 09:19:03

A. Well, I think we brought some demonstratives of that as well. 09:19:06 09:19:09

MR. BANNER: Your Honor, may I approach? 09:19:11 09:19:31

THE COURT: Yes. 09:19:32

THE WITNESS: Okay. You see, I put my glasses on because these things get a little small. 09:19:42 09:19:47 09:19:49

(Whereupon, Trial Exhibits 349, 359 and 350 were introduced.) 09:19:49 09:19:50

BY MR. BANNER: 09:19:50

Q. Mr. Bohm, can you just describe what I've handed you, Exhibits 349, 359 and 350? 09:19:50 09:19:52

A. Ah, yes, of course. 09:19:56

So Exhibit 349, these are some chips. I believe these are the Sandia device 4916, if I recall. 09:19:59 09:20:02 09:20:07

We also have Exhibit 359 is -- a break out box is what we call it, which is basically a hub in the automotive industry where this would be in your car dashboard or center console or somewhere, usually convenient, so that you can plug in your phone. 09:20:11 09:20:16 09:20:20 09:20:22 09:20:25 09:20:28 09:20:30

And then Exhibit 350 is the circuit board that would go inside of this break out box. So these are effectively the same thing, just one with the plastic enclosure, one where the -- excuse me -- plastic enclosure has been removed. 09:20:30 09:20:36 09:20:39 09:20:41 09:20:42 09:20:47

MR. BANNER: Your Honor, I'd move to admit Exhibits 349 and 359 and 350. 09:20:49 09:20:50

MR. SAULSBURY: No objection. 09:20:54

THE COURT: All right. Admitted. 09:20:55

BY MR. BANNER: 09:20:56

Q. Mr. Bohm, going back to the Sandia, 09:20:57

the question I asked before I brought those up 09:20:59

is what does a hub chip look like. Can you 09:21:01

kind of show that to the jury? 09:21:04

A. I can. We have a couple of them 09:21:05

here. They're all based on the exact same 09:21:07

semiconductor die, that's the actual chip that 09:21:10

goes inside. This is the largest variant that 09:21:14

we have, and I'm showing you the bottom 09:21:17

because it's -- the other side is just pure 09:21:19

black, it's the part you would see if you 09:21:22

actually looked at the circuit board. It is 09:21:23

just a plastic lid really over it. 09:21:26

But on the bottom, there are a 09:21:28

bunch of pins that get attached to the wires 09:21:30

that are on the circuit board, so there's 09:21:34

electrical connectivity so the hub can 09:21:37

function. 09:21:40

And -- 09:21:40

Q. Sorry to interrupt, did you have a 09:21:42

circuit board there as well? 09:21:43

A. I do. I'll hold it up in just a minute. But here is the smaller chip so you can get an idea of the actual device, itself, is even smaller. It fits within this package, and it's really just a matter of how many pins you have to bring out for which size package that we put it in. 09:21:44 09:21:47 09:21:51 09:21:54 09:21:57 09:22:01 09:22:03

And then I believe you wanted me to hold this up? 09:22:04 09:22:07

Q. Exhibit 350, yes. 09:22:10

A. So in this case, the first chip that I held up would be located right here on the circuit board and it would provide the USB connectivity to the connectors on the front that you would be plugging your phone or a pendrive or something into, and then the car, itself, would connect through a cable on the back of the break out box up to the head unit, and so those would typically not be cables that you would see or have access to. 09:22:11 09:22:13 09:22:17 09:22:21 09:22:23 09:22:27 09:22:29 09:22:32 09:22:35 09:22:38

Q. You used the term -- you said head unit, and I think we saw some of that in the opening yesterday, but can you explain what the connection is to the head unit? 09:22:40 09:22:42 09:22:44 09:22:46

A. Oh, certainly. 09:22:48

So a head unit is really just an 09:22:49
automotive term to describe the computer that 09:22:52
is in the dashboard of a car, and it's a 09:22:55
computer with a screen, not that different 09:22:58
than your laptop or a tablet computer or 09:23:00
something like that. It's just specially 09:23:03
formatted and made for use in an automobile. 09:23:07

And typically you don't have a 09:23:10
keyboard like you might on your laptop, they 09:23:11
only have a touchscreen or some other type of 09:23:14
convenient pointing device. 09:23:16

Q. Mr. Bohm, does Exhibit 359, I believe 09:23:19
you called it a break out box; is that 09:23:23
correct? 09:23:27

A. Yes. I guess I didn't really explain 09:23:27
that term either, did I? 09:23:29

Q. Okay. 09:23:32

A. Sorry. 09:23:32

So in the automotive industry, 09:23:34
just like they have a special name for the 09:23:35
computer that is the entertainment center, 09:23:38
which is the head end unit, they have a name 09:23:41
for the hub as a break out box, and so we just 09:23:44

refer to it as a break out box or honestly, we usually just use shorthand and call it a BOB, a B-O-B. 09:23:50 09:23:53 09:23:57

Q. Thank you, Mr. Bohm. 09:23:58

I want to -- you can put those down and I want to talk a little bit more about your work at SMSC. 09:24:00 09:24:02 09:24:04

A. Okay. 09:24:06

Q. How did you get involved in designing the USB hub chip at SMSC? 09:24:06 09:24:08

A. Well, again, as I had I think, mentioned before, we recognized that SMSC, with the updated standards to the USB 2.0 spec. 09:24:11 09:24:14 09:24:18 09:24:22

Now, there had been hubs and stuff in the USB 1 spec, but the USB 2 spec was a pretty big speed performance enhancement for USB, and it really helped to accelerate the adoption of USB throughout the industry, and so that was the catalyst that drove the thinking behind SMSC starting on a hub program. 09:24:23 09:24:25 09:24:29 09:24:32 09:24:36 09:24:40 09:24:43 09:24:46

Q. Were there any challenges you faced by designing a USB hub chip? 09:24:48 09:24:49

A. Yes, there absolutely were. You know, in the -- in spec, of course, you know, there's a lot of definitions involving the rules you have to follow and everything that the hub chip itself must do, but out in the industry, as you have a number of different companies inventing different products, not everybody reads the specification exactly the same way. They may interpret one piece of it or another slightly differently. 09:24:52 09:24:54 09:24:56 09:25:00 09:25:03 09:25:06 09:25:09 09:25:11 09:25:13 09:25:16

And so when they come out with their products, you know, while they usually work together pretty well, there's almost always a little, what we would refer to as corner cases, where something didn't really work as you had expected. 09:25:17 09:25:18 09:25:22 09:25:24 09:25:26 09:25:28

And a hub is expected to just expand the number of ports that are available, but then make no other changes. So if you have a product that works perfect when you plug it directly into a host port, you would expect that product to work exactly the same way when you plug it into a hub port. 09:25:30 09:25:34 09:25:36 09:25:39 09:25:42 09:25:45 09:25:48

And we hadn't realized, when we 09:25:51

started developing our hubs, that while that sounds like an easy issue, that's actually a lot more challenging than we ever really imagined. We had to create a pretty sophisticated interoperability environment, simulation environments, you know, a lot of work to be able to go through and figure out when another device didn't operate quite the same through our hub as it did when directly put into the host, why was that. 09:25:53 09:25:55 09:25:58 09:26:00 09:26:02 09:26:05 09:26:09 09:26:12 09:26:15 09:26:18

And in some cases, we actually had to make minor adaptive changes to our hub that actually slightly violated what the spec said our hub had to do, but in order for our hub to work with some of these devices out in the marketplace, we just had to make these little tweaks and then we could work very compliantly with all these other products and make sure that we didn't have any ill side effects with anything else. 09:26:20 09:26:23 09:26:28 09:26:30 09:26:33 09:26:36 09:26:39 09:26:43 09:26:44 09:26:47

Q. How many hubs did you design? 09:26:48

A. I actually don't have a memorized number, but somewhere -- 15, 20 is a very safe estimate. 09:26:52 09:26:54 09:26:59

Q. In your work designing hub chips, has there been any particular emphasis or focus for you? 09:26:59 09:27:02 09:27:05

A. Well, I think I touched on it earlier, that we always would strive to have a solid business case. And then next in line, we worked very closely with our customers to always understand what their needs were that would be outside of the USB spec; the extra features that, you know, they were going to demand in order to ensure that their product could win in the market segments that they sold in. 09:27:05 09:27:08 09:27:11 09:27:14 09:27:17 09:27:21 09:27:23 09:27:24 09:27:27 09:27:30

Q. Can you give us some examples of -- you mentioned kind of going outside the USB spec. Can you give us some examples of where you sought out while you were working on the hub? 09:27:31 09:27:34 09:27:37 09:27:41 09:27:43

A. Certainly. One would be on the product that's still in front of me here, the Sandia device, Exhibit 349. One of the non-standard features is the multi-host device controller that is the discussion of some of the patents in this case. 09:27:43 09:27:46 09:27:48 09:27:51 09:27:55 09:27:58

Q. And why do you consider that to be a non-standard? 09:27:59 09:28:00

A. Well, the USB specification, itself, is written so that there's a single host controller that's in charge of the USB bus that all the devices connect into. And so all the devices are designed to only be talking to a single host computer, and multi-host device controller idea is one that allows a device to talk to more than one host. And so that's why it is outside of the USB specification, itself. 09:28:01 09:28:03 09:28:07 09:28:12 09:28:16 09:28:19 09:28:24 09:28:27 09:28:30 09:28:33

Q. Is the Sandia project the only time you have encountered a non-standard USB device that could talk to two USB hosts at the same time? 09:28:35 09:28:37 09:28:41 09:28:43

A. No, no. We actually had enabled a feature on our prior family of products that internally we called the Athens products where we could connect two different hosts, but it was more of a switching-based product where we could allow a device to connect to one host or the other, but it did not have simultaneous connectivity, not the same way that we enabled 09:28:43 09:28:47 09:28:50 09:28:53 09:28:56 09:29:00 09:29:03 09:29:07

in the Sandia chip. 09:29:09

Q. Mr. Bohm, could you turn to your witness binder and look at Exhibit 1 in your witness binder, please. 09:29:11 09:29:13 09:29:17

A. Let me make a little room here, put aside these exhibits, I think. 09:29:18 09:29:26

And where did you -- 09:29:35

Q. Exhibit 1, please. 09:29:36

A. Exhibit 1? 09:29:37

Q. Yes. 09:29:40

A. Okay. 09:29:41

(Whereupon, Trial Exhibit 1 was introduced.) 09:29:41 09:29:41

BY MR. BANNER: 09:29:42

Q. Do you recognize this document? 09:29:42

A. Yes. This is what we refer to as the '243 Patent. 09:29:45 09:29:48

MR. BANNER: Your Honor, I move to admit Exhibit 1 into evidence. 09:29:52 09:29:53

MR. SAULSBURY: No objection. 09:29:56

THE COURT: All right. It will be admitted. 09:29:56 09:29:57

BY MR. BANNER: 09:30:01

Q. Mr. Bohm, you called it the '243 09:30:02

Patent. Can you describe why you called it that? 09:30:06 09:30:08

A. Yes. In the upper right corner is the patent number, and we just refer to it by the last three digits, which would be '243. 09:30:08 09:30:10 09:30:14

Q. And are you listed as an inventor on this patent? 09:30:19 09:30:23

A. Yes, I am. Under the inventor section, I am listed along with my co-inventor, Atish Ghosh. 09:30:23 09:30:26 09:30:30

Q. And when was the application that led to the patent filed? 09:30:31 09:30:33

A. If you look lower in the same left column, the filed date is June 21, 2006. 09:30:36 09:30:38

Q. So between the two inventors, you and Mr. Ghosh, who was the first person who came up with the idea in this patent? 09:30:42 09:30:46 09:30:49

A. Well, to be honest, it's long enough ago and we were both very deeply involved in the inventions, so neither of us can honestly remember who had the first portion of the idea and exactly who contributed which piece. So we pretty much feel that it was a full co-development between the two of us. 09:30:51 09:30:54 09:30:59 09:31:03 09:31:05 09:31:07 09:31:10

Q. Did you and Mr. Ghosh have the same level of seniority at the time you came up with this idea? 09:31:11 09:31:13 09:31:16

A. At the time, we did. We were co-workers. And I don't remember exactly when, but it was sometime afterwards, I was promoted and became the department manager and I managed Atish. 09:31:16 09:31:18 09:31:20 09:31:23 09:31:25

Q. And what led you -- sorry, excuse me. What led you and Mr. Ghosh to come up with the idea of the '243 Patent? 09:31:28 09:31:30 09:31:33

A. Well, we had been working on a preceding product that we had called the switching hub, which is very similar to the device I mentioned a few minutes ago where, again, it had the ability to switch devices from one host to another, and we became very keenly aware of many deficiencies in that design that we felt we wanted to find a solution for. And so that led us to the innovations that are contained in the '243 and other patents. 09:31:35 09:31:37 09:31:41 09:31:43 09:31:45 09:31:48 09:31:53 09:31:56 09:31:59 09:32:03 09:32:07

Q. Mr. Bohm, can you please turn in your exhibit binder to Exhibit 241. 09:32:08 09:32:11

A. I'm sorry, did you say 241? 09:32:16
Q. 241, yes, sir. 09:32:19
A. Okay. Okay. 09:32:21
(Whereupon, Trial Exhibit 241 was 09:32:21
introduced.) 09:32:21
BY MR. BANNER: 09:32:35
Q. Do you recognize this document? 09:32:35
A. Yes. This is a paper that I had 09:32:37
written titled The SMSC Switching Hub. I 09:32:41
created it in the fall of 2005, and it was for 09:32:48
an internal technical gathering of SMSC 09:32:52
engineers. 09:32:56
MR. BANNER: Your Honor, I move to 09:32:57
admit Exhibit 241 into evidence. 09:32:58
MR. SAULSBURY: No objection. 09:33:00
THE COURT: All right. Admitted. 09:33:01
MR. BANNER: Can you put 241 up on 09:33:03
the screen, please. 09:33:05
BY MR. BANNER: 09:33:06
Q. So, Mr. Bohm, does this paper have 09:33:07
anything to do with the '243 Patent? 09:33:09
A. A little bit in two ways. So this is 09:33:12
referring to the product that I had mentioned 09:33:16
that Mr. Ghosh and I were working on, we were 09:33:18

recognizing some deficiencies of, and some of those deficiencies are talked about in this paper. 09:33:22 09:33:25 09:33:27

But we do also, just briefly, introduce the concept that we realized there is another way to do this, and so we did comment on it in this paper. 09:33:28 09:33:30 09:33:33 09:33:36

MR. BANNER: Mr. Ferrer, can we go to Figure 2 on page 3. 09:33:39 09:33:41

BY MR. BANNER: 09:33:46

Q. So, Mr. Bohm, can you explain what we're seeing here in Figure 2 of Exhibit 241? 09:33:47 09:33:49

A. Certainly. Yes. 09:33:53

So this is what we refer to as a simple USB switch, as the figure is titled. The darker box, I think it's coming in as purple on the large screen, is the USB 2.0 hub, pretty much a standard four-port USB hub, and above it is a switch and that switch enables you to connect to either the host computer on the left or the host computer on the right, and both of those are at the top of the diagram. 09:33:54 09:33:58 09:34:03 09:34:07 09:34:11 09:34:14 09:34:17 09:34:21 09:34:24 09:34:27

Q. So are both of the computers in the 09:34:27

diagram, are they both connected to the switch -- is that a cable? What is that black thing? 09:34:30 09:34:33 09:34:36

A. Yes. So the black lines would represent a cable, and yes, both hosts would be simultaneously connected to the product at all times. Yes. 09:34:37 09:34:39 09:34:42 09:34:46

Q. Are the hosts actually connected to the devices, the printer and the camera at the bottom of the screen, at the same time? 09:34:47 09:34:50 09:34:53

A. No, they are not. No. 09:34:55

So the way this kind of a device works, even though physically the cables are attached electrically, the switch chooses which of those two devices shown, one is a printer and one is a digital camera in that particular example. You either get the hub and those two devices connected to the host on the left in a USB fully connected and usable state or a host on the right, but only one host or the other actually has ownership of the devices at any one time due to the switch. 09:34:57 09:34:58 09:35:00 09:35:05 09:35:09 09:35:11 09:35:15 09:35:17 09:35:24 09:35:27 09:35:31

MR. BANNER: Mr. Ferrer, if we could turn to one page back on page 2 of 09:35:37 09:35:38

Exhibit 241, Section 2, towards the bottom. 09:35:41

BY MR. BANNER: 09:35:45

Q. There's a paragraph there, Mr. Bohm, 09:35:45

that starts with, "Each USB device is designed 09:35:47

to be enumerated by 1 and only 1 host 09:35:51

controller." 09:35:53

Do you see that? 09:35:54

A. Yes. 09:35:55

Q. Can you explain what that sentence 09:35:56

means and how it relates to the switches that 09:35:58

you just discussed, if at all? 09:36:00

A. Certainly. 09:36:04

So, you know, probably first and 09:36:05

foremost, I should explain the word 09:36:08

"enumerated." So that's a term out of the USB 09:36:10

specification. 09:36:14

I won't necessarily go into all 09:36:15

the rules associated with it, but when you 09:36:17

plug something into a USB host, it doesn't 09:36:20

know anything about what you just plugged in. 09:36:23

It could be a mouse, it could be a printer, it 09:36:26

could be anything. 09:36:28

So there's a series of steps that 09:36:30

the host has to go through to figure out what 09:36:32

got plugged in and how to use it. And the first of those series of steps in the spec is referred to as enumeration. 09:36:34 09:36:37 09:36:41

And so what this -- so what this sentence is indicating is, as I had described previously, that all of the USB devices that we were aware of at the time had always been designed to be only enumerated by one host. There was no way to have another host plug into it and also enumerated at the same time, because the device is enumerated by the single host that it's attached to. 09:36:43 09:36:49 09:36:54 09:36:57 09:36:59 09:37:03 09:37:05 09:37:09 09:37:12

Q. Does that concept relate at all to your '243 Patent? 09:37:14 09:37:16

A. Yes, it does, because that's one of the things here that we determined is, you know, we needed to make a change to the way the devices, themselves, operated in order to get around that restriction. So that actually did lead to the development of the '243 Patent. 09:37:17 09:37:21 09:37:23 09:37:25 09:37:28 09:37:32 09:37:35

Q. And does this paper that you wrote in 2005 describe that? 09:37:35 09:37:38

A. Yes. If I remember right, it's near 09:37:42

the end. I think that's page 6. 09:37:45

MR. BANNER: Mr. Ferrer, can we go 09:37:50

to page 6. 09:37:51

THE WITNESS: If I'm recalling 09:37:52

right. 09:37:54

BY MR. BANNER: 09:37:55

Q. And where on this page are you? 09:37:56

A. So the very last paragraph of 09:37:58

Section 5, just before Section 6. Yes. 09:38:01

That's correct. That's the one. 09:38:04

Q. Okay. 09:38:05

Do you want to explain? 09:38:06

A. Yes. So when it starts off saying, 09:38:07

"This device," it's talking about a device 09:38:11

that we think we need to make in the future. 09:38:12

So it's referring to the idea of a 09:38:15

device that is modified so that it can be 09:38:16

enumerated by two or more hosts 09:38:20

simultaneously. 09:38:24

And I guess I can just read the 09:38:25

sentence. "This device may be possible within 09:38:27

a single-chip solution, because the hub 09:38:30

controls device routing, and it can be built 09:38:32

to route the same device to multiple hosts 09:38:35

(simultaneously). In this way, a USB device could be accessed by more than one host (without having to switch it). The device itself would need to support being configured and accessed by multiple hosts, and would therefore be a custom device." 09:38:40 09:38:42 09:38:43 09:38:46 09:38:48 09:38:53

And by custom device, I would kind of count that into it's outside of the USB specification. 09:38:55 09:38:58 09:39:01

Q. All right. Thank you, Mr. Bohm. 09:39:03

MR. BANNER: Mr. Ferrer, could we go back to Exhibit 1, the '243 Patent. 09:39:05 09:39:07

BY MR. BANNER: 09:39:11

Q. Mr. Bohm, can you tell the jury what the title of your '243 Patent is? 09:39:11 09:39:13

A. Absolutely. It's in that upper left column, Item 54 is "MULTI-HOST USB DEVICE CONTROLLER." 09:39:16 09:39:20 09:39:28

Q. And why did you give that name to your patent? 09:39:28 09:39:30

A. We chose that name because we thought it was very descriptive of the idea and what the patent contained. 09:39:30 09:39:32 09:39:35

Q. All right. 09:39:38

Is there a place where the legal definition of the inventions are set forth in the patent? 09:39:39 09:39:41 09:39:44

A. Yes. That is the Claim section. That's an interesting section. It's where the lawyers take your idea and put a lot of legal words around it, but it takes many of us a little while to kind of stare at them and figure them all out. 09:39:45 09:39:50 09:39:52 09:39:54 09:39:59 09:40:00

Q. Well, I apologize on behalf of the lawyers who do that. 09:40:01 09:40:04

Let's look at Figure 1 of your patent. 09:40:05 09:40:07

MR. BANNER: And that's on page 3, Mr. Ferrer. 09:40:07 09:40:09

BY MR. BANNER: 09:40:09

Q. Mr. Bohm, can you explain what is seen here in Figure 1 of the patent? 09:40:11 09:40:13

A. Just a second while I flip back to it. 09:40:18 09:40:21

So Figure 1 is a very simple block diagram. The USB multi-host controller, the device that we entitled Patent, is right in the center in that box, 108, and of course 09:40:23 09:40:27 09:40:32 09:40:35

it's assumed to be contained in some other product, and that's the 106. 09:40:38 09:40:41

And then there is a host on the left side called Host 1 that has a designation of 102 and a second host on the right side with a designation of 104. 09:40:44 09:40:46 09:40:49 09:40:53

Q. Let's move to Figure 2 which is directly below this. 09:40:58 09:41:01

Mr. Bohm, can you tell us what we're seeing in this figure of your patent? 09:41:04 09:41:06

A. Yes. So this is a little bit of an expanded diagram showing several different use cases. In this case, there's just two hosts shown, but it could work for more than that. 09:41:08 09:41:12 09:41:15 09:41:18

The hosts are, again, on the left and the right, but this time, the picture, there is a tower computer, along the left at 123 and the one on the right is 122. 09:41:21 09:41:23 09:41:27 09:41:31

And we have several devices, a printer with a number 120 on the top, we have a monitor kind of right in the middle at 124. And you'll notice for each of these products, they each have a black line going to them that then leads to one host or the other. 09:41:35 09:41:37 09:41:43 09:41:48 09:41:51 09:41:54

And that is showing that without any switching devices or anything, that we can just direct attach these upgraded peripherals that have the ability to be enumerated by multiple hosts directly to those multi-hosts and respective functions. 09:41:56 09:41:58 09:42:01 09:42:06 09:42:08 09:42:13

Q. Can you give an example of why someone would use one monitor and connect it up to two different computers? 09:42:14 09:42:17 09:42:20

A. Well, one that would come to mind would be some data center kind of solution where you've got, you know, many different computers that are doing some network routing or something in your company's environment. And most of those computers don't have a dedicated keyboard and a mouse with them or a monitor; you know, it's just a rack of computers stacked on top of one another. 09:42:22 09:42:25 09:42:29 09:42:32 09:42:35 09:42:39 09:42:41 09:42:45 09:42:48

So classically, that has been done with what we've called KVM switches, keyboard video monitor switches, where you can just switch between the different computers and choose which one would get a single access to the single monitor keyboard and mouse kind of 09:42:50 09:42:52 09:42:57 09:43:00 09:43:01 09:43:04

alongside the unit. 09:43:08

And we were just trying to picture 09:43:09

here that in certain applications, you would 09:43:11

be able to solve that problem where you 09:43:13

wouldn't have to have a switch and you could 09:43:15

just connect it and access the computers 09:43:17

directly. 09:43:21

Q. So is there a switch in Figure 2 of 09:43:22

your patent, a KVM switch that you are talking 09:43:25

about? 09:43:29

A. We do talk about one as a prior art 09:43:29

item, yes. 09:43:31

Q. Okay. 09:43:32

Is it shown in Figure 2? 09:43:33

A. No, it is not. 09:43:34

Q. Okay. 09:43:35

And why is that? 09:43:36

A. Because our solution does not require 09:43:37

the switches. Again, that was part of what 09:43:41

drove the invention, itself, was we wanted to 09:43:44

eliminate the need for them at all. 09:43:48

MR. BANNER: Mr. Ferrer, if we 09:43:53

could go to Figure 3 of the '243 Patent. 09:43:54

BY MR. BANNER: 09:43:57

Q. Mr. Bohm, can you explain this figure that is displaying here? 09:43:58 09:44:02

A. Yes. I know this was also talked about a little bit in the opening, but it seems worth going through again. 09:44:04 09:44:06 09:44:09

So at the top, we have connections to the first and second host. Those are the little arrows on the top of the diagram. The first box as you come in is Box 302, 304. Those are the USB electronics to enable connectivity to the ports, themselves. 09:44:13 09:44:17 09:44:20 09:44:24 09:44:30 09:44:33

And then as we move downward, Box 306 and 308, we refer to those as the USB endpoint and status blocks. That's where those controllers are doing a lot of communication to the device. These are the memory locations that the host is generally dialoguing directly with, and there's a lot of other status and required functions per the USB spec that needs to occur in those blocks. 09:44:35 09:44:38 09:44:43 09:44:46 09:44:48 09:44:50 09:44:54 09:44:57 09:45:03

And because this particular example has two hosts shown at the top, we have duplicated all of these so that the device is able to satisfy all the requirements 09:45:06 09:45:08 09:45:12 09:45:14

of each host separately from one another. 09:45:17

Q. Mr. Bohm, let me break that down a little bit and let's talk about the two boxes at the top, 302 and 304, and they are labeled Upstream Port. 09:45:20 09:45:22 09:45:25 09:45:29

Do you see that? 09:45:30

A. Yes. 09:45:31

Q. Can you just explain what a port is in this context? 09:45:31 09:45:33

A. Certainly. 09:45:35

So, now, perhaps the easiest way, thinking back to the -- one of the first diagrams on the hub, a little square box where you had the connection point for doing the actual device attached, where you're going to plug a product in. 09:45:36 09:45:38 09:45:41 09:45:44 09:45:47 09:45:52

In our part here, these are the actual electronics that live behind that port that you see. So from a user's standpoint, you don't see these, these are buried in the chip, but they would directly connect to those ports that you see on the front of your computer. 09:45:54 09:45:57 09:46:01 09:46:04 09:46:07 09:46:09 09:46:12

Q. Thank you. 09:46:12

And then on the two boxes below the port, they are labeled 306, 308 and have the words, "USB Endpoint & Status," under that. Can you explain what an endpoint is? 09:46:13 09:46:15 09:46:20 09:46:26

A. Yes. That is a USB specification-defined term. 09:46:28 09:46:32

An endpoint, I think I touched on it a little, but an endpoint is, you know, the memory location inside of the device that the host, when it's doing its communications with the device, the host will either deliver data down into that location or it will pull data out of that location, depending on what the host is doing with the device at the time. 09:46:34 09:46:36 09:46:40 09:46:43 09:46:46 09:46:49 09:46:53 09:46:56

So they're referred to as endpoint and status registers so that the host knows, you know, the state of the product, as well as getting access to the data. 09:46:59 09:47:01 09:47:05 09:47:09

Q. Did you make up the term or invent the term "endpoint"? 09:47:11 09:47:13

A. No, no, no, not at all. Again, that is right out of the USB specification, itself. And honestly, I think any USB product I've seen from anyone anywhere in the world, they 09:47:14 09:47:18 09:47:21 09:47:24

almost always refer to it as USB endpoint. 09:47:27

Q. And then what's in Box 108 below the endpoint and status? 09:47:29 09:47:32

A. So here is where we, you know, we kind of get into the specifics of the '243 Patent, itself, beyond just the duplicating of the items up above. 09:47:33 09:47:37 09:47:41 09:47:45

This is where, you know, we have to have some control logic that is aware of the two different hosts and it has to keep the data straight between the two of them. 09:47:47 09:47:48 09:47:54 09:47:56

So this is a USB multi-device controller that we built for whatever product that you're going to put in it. 09:48:00 09:48:04 09:48:06

Q. What about Box 312 at the bottom? 09:48:07

A. And 312 is referring to the device or function, and in this case, really probably the easiest way to think of it is, is whatever the product was that you bought. So if you bought a mouse, whatever makes that mouse a mouse, that's the device or function. 09:48:10 09:48:14 09:48:16 09:48:18 09:48:20 09:48:22

If you buy a printer, you know, the intelligence that takes the data and turns it into words on the page, again, that would 09:48:24 09:48:26 09:48:31

be the device or function. 09:48:33

So this would obviously vary a 09:48:35

lot, depending on what the actual product was 09:48:37

that you bought. 09:48:40

Q. Are there any more figures in your 09:48:42

patent, Mr. Bohm? 09:48:44

A. No, I believe that's all. 09:48:45

Q. Okay. 09:48:47

MR. BANNER: Mr. Ferrer, can we 09:48:48

please look at the next page, page 5 of the 09:48:50

patent. 09:48:53

BY MR. BANNER: 09:48:57

Q. And, Mr. Bohm, do you see at the top 09:48:58

left there's a section called "BACKGROUND OF 09:48:59

THE INVENTION"? 09:49:02

A. Yes. 09:49:02

Q. Can you tell us, you know, what that 09:49:03

section is about? 09:49:05

A. Well, the background generally 09:49:07

introduces what general category the patent 09:49:11

fits in, and then it goes on to describe 09:49:15

what's referred to as related art, and we just 09:49:17

call it prior art. 09:49:22

Q. And can you explain what prior art 09:49:23

is? 09:49:25

A. So this would be the items that we were aware of that might have some similar capabilities to some aspects of what is disclosed in the patent, but also don't actually perform the function that we believe we are inventing. 09:49:25 09:49:27 09:49:31 09:49:34 09:49:39 09:49:43

And so, you know, we have a responsibility as inventors to provide knowledge of anything that we had knowledge of, and so this is the section where we do that. 09:49:45 09:49:47 09:49:50 09:49:53 09:49:56

Q. Does this section discuss any specific types of devices that you knew about at the time of your invention? 09:49:56 09:49:58 09:50:00

A. Well, the switching devices that we had talked about, off the top of my head, I'm almost positive that is in here. 09:50:02 09:50:05 09:50:08

MR. BANNER: Mr. Ferrer, can you please go down to the bottom of column 1, line 54, and start with the words, "In general." And highlight that sentence. 09:50:10 09:50:13 09:50:16 09:50:20

BY MR. BANNER: 09:50:23

Q. Mr. Bohm, would you mind, can you 09:50:23

explain what this sentence is talking about here? 09:50:25 09:50:28

A. So this is, you know, pretty similar to what I think I had said awhile ago. So -- and I can just read it. "In general, the USB specification is structured so that every device is configured and accessed by a single host controller." 09:50:30 09:50:35 09:50:39 09:50:41 09:50:43 09:50:45

Again, USB specification mandates that there is one host in any USB system, and so the devices that are meant to work with that host are designed, you know, in that way, they are meant to be accessed by a single host. 09:50:47 09:50:50 09:50:54 09:50:56 09:51:02 09:51:04

MR. BANNER: And, Mr. Ferrer, line 58, there is a sentence starting with "There also exist," and can you just highlight that at the end. 09:51:05 09:51:09 09:51:21 09:51:24

BY MR. BANNER: 09:51:26

Q. Starting at the top, Mr. Bohm, would you mind reading what we see here? 09:51:27 09:51:28

A. Yes. That would be fine. Excuse me, I have a little bit of a frog in my throat this morning. 09:51:30 09:51:34 09:51:36

So, "There are several switching devices that currently allow a device to be switched between multiple USB Host controllers, but the device can generally be configured and accessed by only a single host at any given time. There also exist stand-alone USB switches that provide the capability of switching a device between upstream USB Host Controllers. These solutions, however, fail to permit simultaneous access to the USB device that is downstream of the hub or switch. The USB device is typically accessed by one single host at a time, and when access to the USB device is switched, the device must be re-configured, thereby losing internal state information." 09:51:38 09:51:40 09:51:42 09:51:44 09:51:47 09:51:50 09:51:53 09:51:55 09:51:58 09:52:00 09:52:03 09:52:06 09:52:09 09:52:12 09:52:23 09:52:26 09:52:31

Q. Mr. Bohm, thank you. 09:52:31

Is your invention in the '243 Patent about these stand-alone switches discussed here? 09:52:32 09:52:34 09:52:36

A. No, no. This is -- again, this is the prior art section, so we are disclosing, you know, the items that were available at 09:52:37 09:52:39 09:52:42

this time and how the market used those items at this time. 09:52:46 09:52:49

Q. Does your patent explain how your invention is different from these types of switches? 09:52:51 09:52:54 09:52:57

A. Yes. Yes. It does in the next section. And then, of course, as mentioned before, the Claim section actually outlines the legal definition of exactly what the patent is. 09:52:57 09:53:03 09:53:07 09:53:10 09:53:12

Q. Okay. 09:53:13

MR. BANNER: So the next section, "SUMMARY OF THE INVENTION," Mr. Ferrer, could you put that up in the first two sentences there. 09:53:14 09:53:17 09:53:20 09:53:22

BY MR. BANNER: 09:53:23

Q. Is this where you talk about the difference between your invention and the switches that you mentioned in the previous section? 09:53:23 09:53:25 09:53:27 09:53:28

A. Yes. 09:53:29

Q. Would you mind reading that for us? 09:53:29

A. No, I'd be happy to. 09:53:31

"In one set of embodiments, a 09:53:33

single USB device may be shared across multiple USB hosts without needing to be re-configured or re-enumerated each and every time the upstream hosts alternate accessing the USB device. Since each host has simultaneously enumerated the device, there may be no need to detach and reconfigure the device on the fly." 09:53:36 09:53:39 09:53:42 09:53:45 09:53:48 09:53:50 09:53:52 09:53:55

Q. All right. 09:53:57

That's a lot of words and probably a lot of lawyer words, but can you explain embodiment, just, you know, the first word there; what's your understanding of what that means, embodiment? 09:53:57 09:53:59 09:54:02 09:54:05 09:54:07

A. Yes, so my understanding of embodiment, it's very simple, is it's an example; so a set of examples is how I generally interpret it. 09:54:08 09:54:10 09:54:14 09:54:17

Q. Okay. 09:54:18

So when you're talking here and it says there may be, you know, no need to reconfigure or re-enumerate, what are you explaining there? 09:54:18 09:54:20 09:54:23 09:54:26

A. So what we're explaining here, I'll 09:54:27

try not to dive too deeply into the USB specifications, but every time a host sees a new device attach, there's an expectation that that device is in basically a clean state. 09:54:29 09:54:32 09:54:35 09:54:39

So if you have a switching device and you're going to switch from one host to the other, the act of disconnecting from one host and reconnecting to another basically cleans the device of the previous configuration that it had, so it's kind of starting fresh again so that the new host can enumerate it, as we had talked about before, you know, discover it and actually then enable it. 09:54:43 09:54:45 09:54:47 09:54:50 09:54:54 09:54:57 09:55:00 09:55:04 09:55:06 09:55:09

And so there's some time spent obviously by the host, you know, doing that. So there's a natural delay that, depending on the device, you may actually detect. 09:55:09 09:55:12 09:55:14 09:55:17

Q. Does your patent describe any other examples of real-world USB devices that might use your invention? 09:55:19 09:55:21 09:55:24

A. Yeah. I think just right below this, we go into, I think, the Ethernet controller example. 09:55:26 09:55:29 09:55:35

MR. BANNER: Okay. Mr. Ferrer, if you could highlight the sentence starting around -- yeah. 09:55:36 09:55:39 09:55:42

BY MR. BANNER: 09:55:44

Q. Mr. Bohm, is this what you're referring to, the Ethernet controller example? 09:55:45 09:55:47

A. Yes. 09:55:50

Q. And can you explain what your patent describes here? 09:55:50 09:55:52

A. You want me to read it? 09:55:53

Q. Up to you. 09:55:56

A. Okay. Well, I'm fine not reading any more than I need to, I guess. 09:55:56 09:56:01

So Ethernet controller, without trying to spend too much time going into a lot of different standards, Ethernet is a standard that allows connectivity to a network, typically a corporate network, but some of us actually have them in our homes. 09:56:04 09:56:09 09:56:11 09:56:15 09:56:17 09:56:20

And most of us nowadays are probably more familiar with this being called WiFi, that's the wireless version. This is referring to the wired version. 09:56:22 09:56:23 09:56:25 09:56:28

And the Ethernet controller back 09:56:31

in these days was a fairly costly item. In order to share it, we needed to use a switch. And since both the Ethernet controller, itself, and the switch are, again, very costly, we felt that this would be a great place to utilize our invention so that we could have a multi-host device controller which could then access a single, very costly gigabit Ethernet controller and share it among multiple -- excuse me, multiple devices. 09:56:37 09:56:39 09:56:42 09:56:45 09:56:48 09:56:50 09:56:54 09:56:57 09:57:00 09:57:03

Q. And does your patent discuss any advantage to using your invention for that type of Ethernet controller? 09:57:07 09:57:09 09:57:11

A. I believe it does. I think -- yes, it's already highlighted. I think it was mentioning the cost savings by not having the switch. 09:57:12 09:57:16 09:57:19 09:57:24

So the -- an Ethernet switch, itself, is a fairly complex device, actually U and G, the other part of my job was doing Ethernet devices, so we had those devices as well. And we could get rid of the switch and, of course, save the power and it was more compact. 09:57:25 09:57:28 09:57:32 09:57:34 09:57:38 09:57:41 09:57:44

Q. And was that Ethernet switch in existing devices, was that an external switch, kind of like a KVM switch? 09:57:44 09:57:47 09:57:50

A. Typically, yes, it would be a stand-alone external switch. And again, they are a very complex device that allows some very complex routing, so they were also fairly costly. So the ability to get rid of that switch and to share an expense and pick up an Ethernet controller, we felt, was a win/win. 09:57:52 09:57:54 09:57:57 09:57:59 09:58:02 09:58:05 09:58:08

Q. All right. 09:58:11

MR. BANNER: Let's look at page 6, Mr. Ferrer, if we can go look at the bottom, column 3, and the section that starts with "DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS." 09:58:12 09:58:15 09:58:19 09:58:22 09:58:24

BY MR. BANNER: 09:58:26

Q. Do you see that, Mr. Bohm? 09:58:27

A. Yes, I do. 09:58:29

Q. And again, what is an embodiment? 09:58:30

A. So again, it is an example. 09:58:36

Q. And is there somewhere in your patent where you make that clear, that it's just an example? 09:58:39 09:58:41 09:58:43

A. Yes. Actually, I think it's in the paragraph right before the Claim section begins. 09:58:45 09:58:47 09:58:50

Q. Okay. 09:58:50

MR. BANNER: Mr. Ferrer, can you please highlight the two sentences of the last paragraph before the claims begin, in column 4 and 5. 09:58:52 09:58:53 09:58:57 09:59:01

THE WITNESS: It starts with "Although." 09:59:01 09:59:05

BY MR. BANNER: 09:59:05

Q. Mr. Bohm, do you want to read those sentences? 09:59:06 09:59:07

A. Sure. 09:59:08

"Although the embodiments above have been described in considerable detail, other versions are possible. Numerous variations and modifications will become apparent to those skilled in the art once the above disclosure is fully appreciated. It is intended that the following claims be interpreted to embrace all such variations and modifications. Note the section headings" -- do you want me to stop there? 09:59:09 09:59:11 09:59:14 09:59:16 09:59:19 09:59:21 09:59:26 09:59:28 09:59:31 09:59:39

Q. Sure, that's great. 09:59:39

And can you explain to the jury 09:59:41
why you put those sentences in your patent? 09:59:42

A. Well, yes, absolutely. 09:59:44

So we knew it would be impossible 09:59:46
to come up with every possible variation of 09:59:49
the way that this patent could be implemented, 09:59:53
so we implemented -- or, excuse me, we 09:59:55
described in the embodiments, you know, 09:59:59
several that we thought showcase some 10:00:01
different use cases, and then this paragraph 10:00:03
was added, which is kind of a normal thing for 10:00:06
many patents, indicating that, you know, 10:00:10
really the ideas apply beyond the examples 10:00:13
that we were able to provide. 10:00:16

Q. We started looking at the section of 10:00:19
your patent called DETAILED DESCRIPTION OF THE 10:00:21
PREFERRED EMBODIMENTS and that begins at 10:00:26
column 3 towards the bottom. 10:00:28

MR. BANNER: Mr. Ferrer, please 10:00:30
highlight the first sentence there in that 10:00:31
section. 10:00:33

BY MR. BANNER: 10:00:34

Q. Mr. Bohm, sorry to make you read so 10:00:34

much, but could you read that for us and explain what we are seeing here? 10:00:37 10:00:38

A. That's fine. 10:00:40

"In one set of embodiments, a multi-host USB device may provide maximum flexibility and a simple means by which to cheaply share devices with multiple hosts, by providing a separate configuration and access interface with each upstream host." 10:00:43 10:00:46 10:00:48 10:00:52 10:00:55 10:01:01

Q. So are separate configuration and access interface for each upstream host a part of your invention? 10:01:03 10:01:05 10:01:11

A. Yes. 10:01:12

Q. And what is a configuration and access interface? 10:01:12 10:01:13

A. So that would be the block that we were talking about just generically, the endpoint and status registers along with everything associated with them. 10:01:14 10:01:19 10:01:22 10:01:25

Q. Is that on Figure 3 of your patent? Is that what you're referring to? 10:01:26 10:01:29

A. Yes, Figure 3. 10:01:30

MR. BANNER: Mr. Ferrer, can we go back to Figure 3, please. 10:01:31 10:01:36

BY MR. BANNER: 10:01:38

Q. Mr. Bohm, where are the separate configurations at in Figure 3? 10:01:38 10:01:44

A. Basically starting at the top and come in on the port so you can actually attach all the way down through the USB endpoint and status registers. 10:01:45 10:01:47 10:01:49 10:01:52

Q. Okay. 10:01:53

And what makes them separate? 10:01:54

A. From a host standpoint, when the host comes down and enables the device, it will assign an address to the device, and then every host will assign unique addresses to every device that it enumerates. 10:01:57 10:02:02 10:02:05 10:02:09 10:02:14

So if you have five things plugged into your computer, all five will have a different address assigned to it that the host will then use whenever it knows it needs to access that specific device. 10:02:17 10:02:19 10:02:22 10:02:25 10:02:28

Q. How does Figure 3 differ from just a regular device? 10:02:31 10:02:34

A. So a regular device, if -- I know I can't do it up on the big screen, but if you were just to effectively hold your hand kind 10:02:35 10:02:39 10:02:41

of over one side or the other and you would just have the single port at the top with the single blocks below it coming on down to the device or function, that would be, you know, a pretty basic high level diagram of a standard USB device. 10:02:44 10:02:46 10:02:48 10:02:53 10:02:55 10:02:58

And what makes this different is we have the two ports and then we've duplicated that so that if Host 1 has five devices and it's assigning the addresses it needs to to address the left side of the device, the second host on the right side would do its own address assignment to the portion of the device that it is talking to. 10:03:00 10:03:02 10:03:04 10:03:08 10:03:11 10:03:15 10:03:17 10:03:20

So there was not -- in most situations, they would not be the same address and one would always be different. 10:03:22 10:03:25 10:03:27

Q. All right. Let me make sure I understand. 10:03:29 10:03:30

MR. BANNER: So, Mr. Ferrer, can we highlight 302, the box at the top, down to 306 on the left, the whole left-hand side of that figure, just drag it all the way down. 10:03:31 10:03:33 10:03:36 10:03:38

There you go. Okay. 10:03:45

BY MR. BANNER: 10:03:46

Q. Mr. Bohm, is that what you were putting your hand over when you were talking about the separate accessing configuration interfaces? 10:03:47 10:03:48 10:03:50 10:03:53

A. Yes. I kind of forgot you could highlight it and I probably should have asked for that. 10:03:53 10:03:56 10:03:58

Q. Yes, feel free to ask, too. 10:03:58

A. Okay. Yes. 10:04:00

So if we were to effectively erase what's highlighted in yellow and then you just add everything on the right side, that would effectively be a standard USB device. You would simplify, obviously, the multi-device controller would not be required, but everything else would be a standard device. 10:04:02 10:04:05 10:04:08 10:04:11 10:04:14 10:04:18 10:04:20

Q. So part of your invention, the package you just read about, providing separate configuration and access interface for each upstream port or host -- let me rephrase that. Sorry. 10:04:22 10:04:25 10:04:27 10:04:30 10:04:33

So the patent passage we just read about providing separate configuration and 10:04:34 10:04:40

access interface for each upstream host, is the portion highlighted there between Box 302 and 306, is that one of the separate configuration and access interfaces? 10:04:42 10:04:46 10:04:49 10:04:52

A. Yes. 10:04:54

Q. And what's the other configuration and access interface shown here? 10:04:55 10:04:57

A. It would be the one that's not highlighted. 10:05:00 10:05:03

Q. Okay. 10:05:03

So on the right side? 10:05:04

A. To the right side, yes. And now it's highlighted. 10:05:06 10:05:08

Q. Great. 10:05:09

And that's Box 304 and 308 and everything in between it? 10:05:10 10:05:13

A. Yes. 10:05:14

Q. Great. 10:05:15

MR. BANNER: So, Mr. Ferrer, if we could go back to column 3 in the patent, the last two lines at the bottom and the first line of column 4. 10:05:17 10:05:19 10:05:24 10:05:28

BY MR. BANNER: 10:05:35

Q. Mr. Bohm, would you mind reading that 10:05:36

sentence and explaining what that means. 10:05:38

A. So, "Multi-host device 106 may be 10:05:44
addressed separately by each host, and may 10:05:48
respond to each host within USB specified 10:05:51
limits." 10:05:54

Q. And what are you describing here in 10:05:57
the patent? 10:05:58

A. Well, I promised not to go into the 10:05:59
USB spec in gory detail, but as I mentioned 10:06:01
before, there's a lot of rules in the USB spec 10:06:05
about what a device must do, and many of those 10:06:08
rules deal with certain time intervals. It 10:06:12
must do something in a certain set amount of 10:06:15
time or it must do something else. These 10:06:18
kinds of things. 10:06:21

So that is what we're referring to 10:06:23
here. 10:06:24

Q. And what does the patent mean when it 10:06:25
says each host can address the multi-host 10:06:28
device separately? 10:06:31

A. So this is what I was referring to 10:06:32
earlier where each host would come in and do 10:06:33
its own separate discovery and enablement of 10:06:36
the portion of the device that it sees. It 10:06:40

would give it its own unique address and then it would use that address to communicate with the device going forward. 10:06:43 10:06:46 10:06:49

Q. And why does the device need to have an address? 10:06:51 10:06:55

A. Well, in, I guess, the simplest way to describe it, a new device on USB, before you plug it in, it's always at address zero. Everything, where it's plugged in everything is at address zero. And so the USB host, if it had a whole lot of things that had the same exact address of zero, it would really have a hard time functioning. It would be like if all of the houses on your street had the exact same number on the mailbox, you know, the postman would have a hard time getting the mail to you. 10:06:56 10:06:59 10:07:03 10:07:09 10:07:11 10:07:14 10:07:17 10:07:19 10:07:22 10:07:24 10:07:27 10:07:29

So in the USB system, everything gets a unique address, just like in your home, so that the host can make sure that the right communication is occurring to the specific device it knows it has to reach. 10:07:29 10:07:32 10:07:35 10:07:39 10:07:43

Q. So addressing multi-host -- when it says the "Multi-host device may be addressed 10:07:44 10:07:49

separately by each host," how many addresses could it be? 10:07:51 10:07:54

A. Well, there's a limit in USB spec, and I'm forgetting it right now. There's like 200 and something. I don't recall the number. 10:07:56 10:08:00 10:08:03

Q. Okay. 10:08:06

How about in your multi-host device, Figure 3; how many addresses would you expect to see? 10:08:06 10:08:09 10:08:11

A. Oh, I guess I misunderstood your question. 10:08:12 10:08:14

Q. Probably a bad question. Sorry. 10:08:14

A. No, that's okay. 10:08:16

So the host -- the host would give the device one address number. It would give it a specific number. And then again, that specific number is the one that it would use to communicate with that device from then on. 10:08:17 10:08:19 10:08:23 10:08:26 10:08:28

Q. So Figure 3 of your patent is connected to two hosts; how many addresses would we see if two hosts are connected? 10:08:32 10:08:34 10:08:36

A. We would then see two addresses. 10:08:39

Q. Would they be the same address? 10:08:41

A. More than likely not, although 10:08:43

there's nothing that would prevent that. If it was the very first device ever plugged in on that particular host at that particular time, just due to randomness, they might end up being the same. It would be just pure coincidence. But more often than not, they would be different. 10:08:45 10:08:47 10:08:50 10:08:54 10:08:57 10:08:59 10:09:02

Q. All right. So let's look at -- 10:09:03

MR. BANNER: On this page, Mr. Ferrer, kind of towards the bottom. 10:09:06 10:09:08

BY MR. BANNER: 10:09:11

Q. What comes after the DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS, Mr. Bohm? 10:09:11 10:09:13 10:09:16

A. So that's where the claims start. 10:09:16

Q. Okay. 10:09:20

And this is labeled No. 1; is that the first claim? 10:09:21 10:09:25

A. Yes. 10:09:25

Q. And then it goes a couple pages. 10:09:26

Do you know how many claims you have in this patent here? 10:09:29 10:09:29

A. I think there are 25, if I recall. 10:09:30

Q. Okay. 10:09:33

A. That ends in column 8 on page 8. 10:09:34
Q. Okay. 10:09:37
Let's go to the last -- yeah, 10:09:40
that's claim 25 right now, Mr. Bohm? 10:09:44
A. Yes. 10:09:47
Q. So that's the last one; right? 10:09:48
A. Yes. 10:09:51
Q. Okay. 10:09:52
MR. BANNER: If we could go to the 10:09:54
last page of Exhibit 1, Mr. Ferrer. Sorry, 10:09:54
page 9, go to page 9. 10:10:01
BY MR. BANNER: 10:10:03
Q. Mr. Bohm, what's on this page? 10:10:04
A. I'm sorry, we're on page 9? 10:10:05
Q. Page 9, yeah, sorry. 10:10:09
A. So page 9 is a Certificate of 10:10:11
Correction. 10:10:14
Q. And what is this in your patent for? 10:10:15
A. So there were a couple of, I guess 10:10:18
typos, for lack of a better word, and so these 10:10:21
were some minor corrections just to make some 10:10:24
clarifications to the language. 10:10:27
MR. BANNER: All right. Mr. 10:10:30
Ferrer, can we go to the last page of the 10:10:32

patent, please? Blow that up. 10:10:35

BY MR. BANNER: 10:10:39

Q. Mr. Bohm, do you see the title, 10:10:39

"INTER PARTES REVIEW CERTIFICATE"? 10:10:44

A. Yes. 10:10:44

Q. What is an Inter Partes Review? 10:10:45

A. Well, I think this was introduced in 10:10:48

the opening, but this was that legal process 10:10:51

that went through a couple of different Court 10:10:53

procedures to -- to figure out if all the 10:10:56

claims in the patent were valid, and this 10:11:00

defines that, gives the date that it occurred, 10:11:06

which was in February of 2021. 10:11:08

And really happy to report we 10:11:10

still have lots of claims that are valid in 10:11:13

this patent. There were a few that were 10:11:16

certainly cancelled. And I have been led to 10:11:20

believe by others that having this many claims 10:11:22

survive is actually something to celebrate; 10:11:25

it's a great thing. 10:11:29

Q. In your mind, Mr. Bohm, what were the 10:11:30

benefits of the invention you and your 10:11:32

colleague made that you patented? 10:11:34

A. Well, in addition to more 10:11:38

straightforward to use, people didn't need to think about, you know, where a particular switch might be set. The real fit was the ability for the device to be seamlessly shared. You didn't have to rethink at all. 10:11:40 10:11:42 10:11:44 10:11:48 10:11:51

If you wanted to print to a printer from two different computers, you didn't have to worry about, you know, who had control at any one time; it was just there and you could print to it. 10:11:53 10:11:54 10:11:56 10:11:59 10:12:01

Q. How did your invention result in the patent application being filed? 10:12:03 10:12:06

A. So within SMSC, there was a defined process for inventions where we would fill out what was called a disclosure, and we would submit it. There was a review process that was through one of our senior managers, and if they deemed your idea patentable, and there was also kind of a business component that -- SMSC was a very small company, so they also had to see if your idea was patentable that would relate to an SMSC product that would kind of make sense to the business to get a return on investment because patents are kind 10:12:07 10:12:12 10:12:16 10:12:18 10:12:23 10:12:24 10:12:29 10:12:31 10:12:37 10:12:40 10:12:43 10:12:45

of expensive to create and maintain. 10:12:47

Q. Were you personally involved in that 10:12:50

process? 10:12:51

A. I was from the standpoint, obviously, 10:12:52

of co-inventing the idea, we co-wrote the 10:12:56

disclosure. To be honest, we actually, both 10:12:59

myself and my co-inventor, had to have 10:13:02

multiple meetings with our business unit 10:13:04

manager because he wasn't originally sold on 10:13:07

the idea that this could really mesh in with 10:13:09

SMSC's business. He thought it was a good 10:13:12

idea, but he wasn't sure he wanted to pay for 10:13:14

it, I guess would be the better way to say it. 10:13:17

And so we -- we eventually 10:13:21

convinced him and he agreed to fund it, so 10:13:23

then the patent process moved forward. 10:13:26

Q. Did you submit any prior art to the 10:13:28

patent office as far as applying for your 10:13:31

patent? 10:13:35

A. Well, whatever we had submitted, we 10:13:35

would have given to the patent attorney and it 10:13:37

would have been included in the submission, 10:13:38

yes. 10:13:40

Q. All right. 10:13:40

I'm going to change gears a little bit and we're going to go to Exhibit 3 in your binder, Mr. Bohm, a separate binder, the big one. 10:13:40 10:13:42 10:13:46 10:13:49

A. Oh, that big one. Okay. I was just realizing I wasn't seeing Tab 3 here. Okay. 10:13:49 10:13:52

Q. Could you open it up and look at the first page, please, and let me know if you recognize the document? 10:14:12 10:14:14 10:14:16

A. Yes. This is the file wrapper for the '243 Patent. 10:14:21 10:14:25

(Whereupon, Trial Exhibit 3 was introduced.) 10:14:25 10:14:27

MR. BANNER: Your Honor, I move to admit Exhibit 3 into evidence. 10:14:27 10:14:28

MR. SAULSBURY: No objection. 10:14:30

THE COURT: All right. It's received. 10:14:32 10:14:33

MR. BANNER: Mr. Ferrer, can you please put it up on the screen for us. 10:14:34 10:14:35

BY MR. BANNER: 10:14:37

Q. Mr. Bohm, can you explain what you mean by file wrapper? 10:14:38 10:14:39

A. So as I understand it, when the 10:14:41

patent is filed, all the documentation that is submitted, along with all of the correspondence going back and forth, even the Court action that we referred to a few minutes ago, all of that is contained in a complete file wrapper for the patent, which is quite weighty. 10:14:44 10:14:47 10:14:50 10:14:54 10:14:56 10:15:00 10:15:02

Q. Mr. Bohm, it looks like it's over 1500 pages, if you look at the bottom. 10:15:04 10:15:07

Do you know why there are so many pages in it? 10:15:09 10:15:11

A. Well, the majority of them, I recall there being something in the order of 1300 pages before the Court actions were dealing with the question you had earlier regarding prior art, so a substantial portion of these pages are the prior art submission. 10:15:11 10:15:15 10:15:18 10:15:22 10:15:23 10:15:26

MR. BANNER: Mr. Ferrer, can you please pull up page 20 of Exhibit 3. 10:15:32 10:15:33

BY MR. BANNER: 10:15:35

Q. And, Mr. Bohm, please tell the jury what we're seeing here on this page. 10:15:36 10:15:38

A. That was page 20? 10:15:40

Q. Page 20, yes. 10:15:41

A. So this is, I recall, a mandatory part of the patent's submission. This is where we sign our names and date that we are agreeing with the declaration statement above. 10:15:48 10:15:52 10:15:54 10:15:59

Q. And did you sign this page before it was submitted to the patent office? 10:16:04 10:16:05

A. Yes, I did. 10:16:07

Q. And is that your signature there in the middle? 10:16:08 10:16:11

A. Yes, in the middle. 10:16:11

Q. So do you understand that when you signed this, you were confirming that all of the statements in the patent application were true? 10:16:12 10:16:14 10:16:16 10:16:18

A. Yes. 10:16:18

Q. And sitting here today, do you have that same belief; that all the statements in your patent application were true at the time you signed it? 10:16:18 10:16:20 10:16:22 10:16:24

A. Yes, I do. 10:16:25

Q. All right. Thank you. 10:16:26

MR. BANNER: Mr. Ferrer, could you pull up page 1544 of this exhibit. 10:16:28 10:16:30

BY MR. BANNER: 10:16:35

Q. Mr. Bohm, can you explain what this is that we're seeing on this page? 10:16:36 10:16:39

A. It's probably easier for me to look on the screen as well. That's a lot of pages. 10:16:41 10:16:43

Yes. I believe this is the summary page from the IPR, so it was those court procedures I was mentioning earlier. 10:16:48 10:16:51 10:16:58

MR. BANNER: All right. And if we go to the next page, Mr. Ferrer. 10:17:00 10:17:01

BY MR. BANNER: 10:17:03

Q. Do you have an understanding as to what this means? 10:17:06 10:17:08

A. Yes. So this would be that final appeal, and this is where they affirmed the results of the previous Court, that all of the claims that I pointed to earlier were still valid as found by the Court. 10:17:09 10:17:12 10:17:17 10:17:20 10:17:23

MR. BANNER: All right. I think we can put Exhibit 3 away right now. And we'll get your other exhibit binder back and we're going to go through a couple more there. 10:17:29 10:17:30 10:17:34 10:17:38

THE WITNESS: Okay. 10:17:52

BY MR. BANNER: 10:17:53

Q. So you're at SMSC, you apply for the 10:17:54

patent.

After you applied for that '243 Patent, did SMSC then make a multi-host device product?

A. No, not immediately. As I mentioned, we had a little bit of a struggle, you know, convincing our managers we even had a good business case to fund the patent, and as we went on to try to fund the device, we weren't able to find quite enough of a convincing case to move forward and actually put an entire development team on it. So we sidelined it for a little while.

Q. Were you ever able to make a business case for developing a multi-host device product?

A. Not at SMSC, but after the Microchip acquisition in 2012, my team's market responsibilities grew and we also got responsibilities for automotive, and through that, we were able to find a convincing business case to move forward on.

Q. So were you able to use your multi-host device controller technology for an

automotive application? 10:19:03

A. Yes, specifically for the CarPlay 10:19:04
application. 10:19:07

Q. Okay. 10:19:09

Can you explain a little bit about 10:19:09
how that came about and what you mean by the 10:19:11
CarPlay application? 10:19:13

A. So the timeframe, as I recall, was 10:19:15
shortly after the acquisition, so it would be 10:19:20
early 2013, we began to hear that the 10:19:24
automotive market had interest in enabling 10:19:27
CarPlay. And so we had a product that was 10:19:30
useful in the CarPlay in some scenarios, but 10:19:33
not all, so that's where we began to look at 10:19:38
the multi-host device controller patent to be 10:19:41
able to enable some additional features. 10:19:42

Q. What did you know about CarPlay at 10:19:44
that time in 2013? 10:19:47

A. So we obviously, like most, were 10:19:49
involved in a lot of different standards 10:19:53
activities and we keep an eye on the market. 10:19:55
So we heard some of the early announcements, 10:19:57
and a lot of rumors flying around as far as 10:20:00
what it was exactly. It took a little while 10:20:02

before there was more of a proper release with some real details, but we -- we had an opportunity to speak with some OEMs and figure out how they were going to use it. 10:20:04 10:20:07 10:20:10 10:20:13

Q. At a very high level, what was the CarPlay feature that you were talking about at that time? 10:20:15 10:20:17 10:20:21

A. So the main feature and the one that really focused a lot of attention on the CarPlay was that Apple wanted to be the host in the system and take over the head unit from the carmaker, which was pretty groundbreaking. Carmakers have never allowed anyone to take over their head unit before. 10:20:21 10:20:26 10:20:29 10:20:31 10:20:34 10:20:38 10:20:40

Q. So when you're talking about Apple, you're talking about the company, Apple? 10:20:41 10:20:43

A. Yes. 10:20:46

Q. And CarPlay, is that an Apple thing? 10:20:46

A. Yes. So Apple announced that they were going to release, you know, a CarPlay-enabled upgrade to their iPhone devices, and I believe they trademarked it, so it is an Apple trade name, yes. 10:20:50 10:20:54 10:20:57 10:21:00 10:21:03

Q. Okay. 10:21:04

And so according to CarPlay, your understanding at the time was that CarPlay required that Apple's iPhone would be the USB host of the system? 10:21:05 10:21:07 10:21:10 10:21:13

A. Yes. 10:21:14

Q. Did Microchip have a USB hub that would support CarPlay at that time? 10:21:14 10:21:17

A. Yes, we did. We had two different ways that our hub would support CarPlay in the car application. 10:21:18 10:21:24 10:21:27

Q. And that solution that you had, did it have a name? 10:21:27 10:21:31

A. So the internal programming for that product was Athens. 10:21:32 10:21:34

Q. Athens, like the city? 10:21:36

A. Like, yes, like Athens, Greece, yeah. 10:21:38

Q. Is Athens a hub chip? 10:21:43

A. Yes. Athens is a hub chip that has some other patented technology that had enabled switching of the ports, but it also, because of that, it could be connected to hosts. 10:21:47 10:21:50 10:21:54 10:21:56 10:21:58

So in a car, you had a host in the head unit, and then with the iPhone, you have 10:21:59 10:22:02

a USB host in the phone. So Athens did have the ability to link between the two hosts. 10:22:04 10:22:08

Q. With Athens, would the two hosts be connected at the same time? 10:22:12 10:22:16

A. Not in host mode. 10:22:19

Q. Okay. 10:22:22

Is Athens a little chip like the physical Sandia chip you showed the jury earlier? 10:22:23 10:22:27 10:22:29

A. Yes, very -- very similar. If we were to have an exhibit, it would be fairly hard to distinguish the difference. 10:22:29 10:22:32 10:22:35

Q. Okay. 10:22:36

Was there anything specific about CarPlay and the CarPlay requirements that led to using Athens' hub chip as a solution for CarPlay? 10:22:37 10:22:40 10:22:42 10:22:46

A. Well, the Apple phone, itself, is not always in host mode. Initially, it's in what we refer to as device mode. You connect and it's a device and then there's a mechanism that occurs, in-band messaging, to flip it to a host mode, so you have to have the ability to detect that and change roles. 10:22:46 10:22:51 10:22:55 10:22:59 10:23:02 10:23:05 10:23:07

Q. What Athens-based CarPlay solution did Microchip offer at the time? 10:23:10 10:23:13

A. So we had to -- we had one that was referred to as a single upstream; and to simply define that, that's one cable effectively between the break out box and the head unit. 10:23:14 10:23:17 10:23:21 10:23:24 10:23:26

And then the second solution we called dual upstream, or we had a shorthand for it called DUST, dual upstream, and that's where you have two cables between the break out box and the head unit. 10:23:29 10:23:31 10:23:34 10:23:38 10:23:42

Q. Did Microchip have any other CarPlay solutions in mind around the time when you were looking into the CarPlay issue in 2013? 10:23:46 10:23:48 10:23:51

A. Yes, yes. In that timeframe, especially once we began to engage with the carmakers, we were recognizing a third scenario, which would be a single upstream, but with the multi-host device controller so that we could actually maintain connectivity of two hosts simultaneously. Athens did not have that capability. 10:23:55 10:23:57 10:24:00 10:24:03 10:24:06 10:24:09 10:24:12 10:24:15

Q. So what was your understanding as to 10:24:17

why a multi-host device controller would be suitable for that application? 10:24:19 10:24:24

A. So we -- again, we were out talking to the customers and discovered that the carmakers did not want to allow Apple to just, in all circumstances, completely take over the head unit. They also wanted to maintain control. So they wanted their USB host to remain a host, as well as allowing the Apple iPhone to go to the host mode to enable CarPlay. 10:24:26 10:24:29 10:24:31 10:24:35 10:24:38 10:24:40 10:24:43 10:24:48 10:24:50

And that created the very special circumstances that we had to have a system with two active hosts in it. And since I was keenly aware of the patent that we had never been able to do anything with, it became pretty apparent to myself and my colleagues that this was a great opportunity to use our '243 and other patents. 10:24:52 10:24:56 10:24:57 10:25:02 10:25:05 10:25:08 10:25:11 10:25:15

Q. Did Microchip then, having this realization, propose a solution? 10:25:17 10:25:19

A. Eventually. It was a little slow moving forward, principally because, you know, even though we knew the solution would work, 10:25:22 10:25:26 10:25:29

you know, I, in particular, had a concern that Apple may not actually certify a solution that put a device between their phone and the head unit that they said they wanted to take over because we are putting our device in the middle. 10:25:31 10:25:34 10:25:39 10:25:42 10:25:45 10:25:47

That's not what the CarPlay spec was really trying to achieve, and so we did have to take a fair amount of time to work through those details with customers, and even Apple, to better understand if they would tolerate a solution in the middle like that, and similarly with carmakers, themselves, to make sure that they wanted to support a solution like that. 10:25:47 10:25:49 10:25:53 10:25:57 10:26:00 10:26:03 10:26:06 10:26:08 10:26:10

Q. Did you -- were you personally involved in those conversations? 10:26:11 10:26:13

A. Some of them, not all. 10:26:14

Q. And what work did you do on this subject? 10:26:16 10:26:21

A. Sorry, could you repeat the question? I missed part of it. 10:26:21 10:26:24

Q. What work did you do to investigate the carmakers' requirements and Apple's 10:26:25 10:26:29

requirements? 10:26:34

A. So the team that I was part of, the 10:26:34

team that I ran was the architecture team, and 10:26:37

as part of our responsibility, we interfaced 10:26:41

quite regularly with our marketing team who 10:26:44

actually dealt with the customers. 10:26:47

And so I did do some engagements 10:26:51

with customers, themselves, but it was mostly 10:26:55

with marketing and also at that sort of -- I 10:26:58

would call it the standards level, trying to 10:27:02

get access to the Apple specs themselves, 10:27:04

working through the contract details, and then 10:27:06

actually being able to add some dialogue with 10:27:09

some people at Apple. 10:27:12

Q. And what, if anything, came out of 10:27:14

your investigation? 10:27:16

A. So ultimately at the end, really two 10:27:17

things. So we were able to validate that the 10:27:20

automakers would support the solution that 10:27:23

we're talking about, and secondly, we also 10:27:26

were able to validate that Apple would accept 10:27:29

the solution in the middle. So my personal 10:27:32

hesitancy and concerns were actually allayed 10:27:36

with that revelation. So that was kind of the 10:27:39

first section. 10:27:41

And then the second was after 10:27:43

going through this process and realizing that 10:27:45

this was a great opportunity for the 10:27:50

multi-host device controller patent, we also 10:27:52

learned of our competitor, Aptiv, offering a 10:27:54

very similar-sounding solution. 10:27:59

And since we weren't aware of 10:28:02

another way to do this, we thought it then 10:28:03

very likely that Aptiv might be utilizing our 10:28:05

same patented technology in their solution. 10:28:08

Q. All right. 10:28:10

So you mentioned two things, and 10:28:11

let's start with the first one and we'll come 10:28:13

back to that second point regarding the 10:28:15

defendant, Aptiv. 10:28:18

A. Okay. 10:28:19

Q. But I do want to talk about the 10:28:19

product first. 10:28:21

So once you realized the carmakers 10:28:24

and Apple would accept this multi-host device 10:28:26

idea, what happened on the business product 10:28:30

side? 10:28:30

A. So once we -- you know, once we had a 10:28:33

comfort level that this product would be done because we couldn't get certifications and stuff, we began to put some people on it to do some of the initial work for figuring out at the top level what this device would need to look like on the marketing side. 10:28:36 10:28:42 10:28:44 10:28:47 10:28:49 10:28:52

They also got very busy working on the business case justification, which is, of course, the key things that I mentioned before. 10:28:55 10:28:57 10:28:59 10:29:01

Q. Mr. Bohm, would you please turn to Exhibit 25 in your binder. 10:29:02 10:29:05

A. Okay. 10:29:16

(Whereupon, Trial Exhibit 25 was introduced.) 10:29:16 10:29:16

BY MR. BANNER: 10:29:17

Q. Do you recognize this document? 10:29:17

A. Yes, I do. 10:29:20

Q. And what is it? 10:29:21

A. So this is the Product Business Plan for Sandia. 10:29:23 10:29:26

MR. BANNER: Your Honor, I move to admit Exhibit 25 into evidence. 10:29:28 10:29:30

MR. SAULSBURY: Subject to the 10:29:45

limiting instruction, Your Honor. 10:29:46
THE COURT: Okay. So it will come 10:29:48
in and... 10:29:52
(Brief pause.) 10:30:33
THE COURT: I'm sorry, was your 10:30:48
instruction on the last exhibit; is that 10:30:52
correct? 10:30:57
MR. SAULSBURY: The proposed 10:30:57
instruction was -- 10:31:00
THE COURT REPORTER: I'm sorry, I 10:31:00
can't hear. 10:31:07
THE COURT: You need to make sure 10:31:07
you're speaking into a microphone, and then 10:31:08
secondly, I thought you had sent a proposed 10:31:11
instruction. I just want to make sure I'm 10:31:16
looking at it; is that right? 10:31:20
MR. SAULSBURY: I believe so, yes, 10:31:21
Your Honor. 10:31:23
THE COURT: Okay. Hold on one 10:31:24
second. 10:31:26
I see. Okay. All right. 10:31:33
I'll -- so I'll admit the exhibit, 10:31:39
Exhibit 25. And, ladies and gentlemen, as we 10:31:44
talk about this exhibit, you're going to see 10:31:47

and hear statements that are -- discuss the scope of or at least some discussion about the scope of Microchip's patent. 10:31:49 10:31:59 10:32:01

Those statements are things that are not admitted; you should not take them as true, okay? You should take them just for the fact that they were being discussed at the time, and that's the reason they are being admitted. 10:32:05 10:32:08 10:32:11 10:32:13 10:32:15 10:32:20

With that, Mr. Banner, you can proceed. 10:32:21 10:32:23

MR. BANNER: Thank you, Your Honor. 10:32:23 10:32:24

BY MR. BANNER: 10:32:24

Q. Mr. Bohm, have you previously reviewed -- 10:32:25 10:32:26

MR. BANNER: Can we get it on the screen, please? Thank you. 10:32:27 10:32:28

BY MR. BANNER: 10:32:28

Q. Mr. Bohm, have you previously reviewed this document? 10:32:30 10:32:32

A. Yes, I have. 10:32:33

Q. In what capacity? 10:32:35

A. Well, both as the manager of the 10:32:40

architecture team, I would have the responsibility of reviewing it, and I was also senior staff, so I would have sign-off responsibility on it. 10:32:42 10:32:44 10:32:47 10:32:51

Q. Can you describe for the jury what this Sandia business plan was used for at Microchip? 10:32:52 10:32:53 10:32:57

A. Certainly, yes. 10:32:57

So a business plan is the actual document that contains the business justification for doing a product. It usually talks about the competitors in the field, it would talk about the customers, it would talk about key features, previous generation products that this product might replace or incorporate. 10:32:58 10:33:02 10:33:06 10:33:09 10:33:12 10:33:14 10:33:18 10:33:20

And then, of course, it would get into quite a bit of financial information about the cost of doing the project and what the expected return on investment would be. And then I think also, like, some critical key dates. 10:33:22 10:33:24 10:33:26 10:33:30 10:33:33 10:33:37

There may be more I'm forgetting, but that's what comes to mind. 10:33:37 10:33:39

Q. Thank you. 10:33:40

And what is the date that we see 10:33:41

here on this exhibit? 10:33:43

A. So for this particular revision, 10:33:46

second revision, it was August 18th of 2015. 10:33:47

Q. Is that the date when your team 10:33:50

started architecting the Sandia? 10:33:52

A. No, we had started prior to this. 10:33:55

Q. Okay. 10:33:57

And who was in charge of the team 10:33:57

who did the Sandia architect work? 10:33:58

A. It was myself. 10:34:01

Q. Were there other teams at Microchip 10:34:02

involved in designing and developing Sandia? 10:34:05

A. Over the course of the development of 10:34:09

the chip, itself, yes, there were many 10:34:12

different teams within Microchip. 10:34:14

Q. And what were those? 10:34:16

A. I mean, I don't remember them all, 10:34:18

but certainly the main early ones would be 10:34:20

architecture, marketing would have done this 10:34:24

plan, we had the implementation and 10:34:27

development teams, we also had some product 10:34:29

test teams and ultimately, the production 10:34:32

teams that would have run the product through the sampling and get it to the package team itself. 10:34:35 10:34:40 10:34:44

Q. So let me make sure I understand. 10:34:44

So you were part of the architecture team; is that correct? 10:34:46 10:34:47

A. Correct. 10:34:49

Q. And that's a different team or the same team as, say, sales and marketing? 10:34:49 10:34:51

A. No, it was definitely a different team, yes. 10:34:53 10:34:55

Q. And then is sales and marketing two teams or one team? 10:34:55 10:34:58

A. Sales was separate; marketing was in our division. Sales was more at the corporate level kind of function. 10:34:59 10:35:03 10:35:06

Q. Okay. 10:35:07

And what does the sales team do? 10:35:08

A. The sales team would interact directly with customers to actually sell products and do all the sales fulfillment. 10:35:11 10:35:13 10:35:17

Q. And would the -- would the sales team interact with your architecture team? 10:35:21 10:35:25

A. No, not generally. They would 10:35:27

typically interact with the marketing team and then if, you know, if marketing needed help for something with sales, then we would help marketing where we needed to. 10:35:29 10:35:32 10:35:36 10:35:39

Q. Okay. 10:35:42

And what was the -- what was the architecture team's role in designing Sandia? That's your team. 10:35:42 10:35:46 10:35:51

A. So our role would be defining, at the top level, what are all the features and functions we know this device needs to be, you know, what are some of the key milestones date-wise that we have to hit. We'll be pulling some of that stuff, for instance, out of the business plan. 10:35:51 10:35:55 10:35:58 10:36:01 10:36:05 10:36:07 10:36:09

You know, power consumption, is there a limit to the size of the package because of the customer requirement for the size of their product; things like that we would include in that early definition. 10:36:12 10:36:15 10:36:18 10:36:20 10:36:22

Q. Would you have been gathering information on features or customer requirements as part of your work in the architecture of the Sandia device? 10:36:26 10:36:28 10:36:31 10:36:33

A. Some of what we would do in architecture would be to gather some feature requirements and stuff. Sometimes we would even need to be on visits to the customer. Many times we would get a lot of that information from marketing directly, so we wouldn't always have to go out and get it on our own. 10:36:35 10:36:38 10:36:42 10:36:46 10:36:48 10:36:50 10:36:52 10:36:54

And then in addition to, you know, some competitive information that we may find, we'd also be looking at what's going on in the industry specification-wise that we may need to do some updates to certain elements in our design, make sure we're supporting whatever the latest standards would be and things of that nature. 10:36:55 10:36:57 10:37:00 10:37:03 10:37:05 10:37:08 10:37:11 10:37:13

Q. By gathering information, features or customer requirements, was your team attempting to make similar products to your competitors? 10:37:14 10:37:18 10:37:20 10:37:22

A. No, we would never do that. We always try to make a better product than anything that our competitors are offering. 10:37:23 10:37:25 10:37:28

Additionally, it doesn't really do 10:37:30

us much good to come out with the same part a competitor has two years or so after they've already got it. We have to make sure ours did more and adhered to all the standards. 10:37:31 10:37:34 10:37:36 10:37:41

Q. Is the Sandia project a single USB chip? 10:37:44 10:37:47

A. Well, the die, itself, is, but it actually supports three separate products. 10:37:49 10:37:53

Q. And are all those three products CarPlay capable? 10:37:56 10:37:58

A. Yes, they are. 10:38:00

Q. What three CarPlay configurations are available on Sandia? 10:38:01 10:38:07

A. So the two that I mentioned previously regarding Athens, where we had a single upstream that enabled CarPlay, but did not enable two hosts to simultaneously communicate, a dual upstream, and then the third would be the multi-host variant which was added with Sandia. 10:38:08 10:38:09 10:38:13 10:38:19 10:38:22 10:38:26 10:38:29

Q. Let's turn to page 7 of Exhibit 25. 10:38:31

MR. BANNER: Mr. Ferrer, can you go there. And please zoom in on that part at the top. 10:38:35 10:38:36 10:38:40

BY MR. BANNER: 10:38:41

Q. Mr. Bohm, does this graphic describe the three-hub chip configuration found on Sandia? 10:38:43 10:38:45 10:38:49

A. It does on the right side, the boxes in red. On the left, the boxes in green, that's actually Athens. That's the previous generation product. 10:38:49 10:38:51 10:38:54 10:38:56

Q. Okay. I want to talk through those, the Sandia in the red boxes. 10:38:57 10:39:00

MR. BANNER: Can we start with the red box on the bottom and blow that one up, Mr. Ferrer. 10:39:02 10:39:03 10:39:05

BY MR. BANNER: 10:39:05

Q. Which configuration of Sandia are we looking at here, Mr. Bohm? 10:39:09 10:39:13

A. So this would be the single upstream. This is the one that allows what we refer to as FlexConnect, which is the ability to reverse the cords which would enable CarPlay to take over the host along with some IO bridging, and all ports would be supported with CarPlay. 10:39:15 10:39:18 10:39:21 10:39:24 10:39:27 10:39:33 10:39:35

Q. Okay. 10:39:36

MR. BANNER: Can we go to the next one up, Mr. Ferrer, in the middle, the red box. 10:39:37 10:39:38 10:39:43

Actually -- sorry, let's go back to the first one. 10:39:47 10:39:50

BY MR. BANNER: 10:39:52

Q. Mr. Bohm, you mentioned that with this FlexConnect, CarPlay would work on all ports; is that correct? 10:39:53 10:39:55 10:40:01

A. Yes. 10:40:02

Q. So if somebody had used this version for CarPlay and plugged into an iPhone from one port, would the other ports in the hub still function normally? 10:40:03 10:40:08 10:40:11 10:40:16

A. So the term you're referring to is what we've been calling persistent, and the answer is no. So you'd have CarPlay on all ports, but for other products that would be plugged into those ports once the CarPlay session occurred, the other ports would revert to just charge whatever the device was, but it wouldn't actually allow a useful connection between the head unit and the device. 10:40:17 10:40:18 10:40:22 10:40:24 10:40:27 10:40:30 10:40:34 10:40:37 10:40:40

Q. Okay. 10:40:42

MR. BANNER: Mr. Ferrer, go to the next box. 10:40:43 10:40:45

BY MR. BANNER: 10:40:47

Q. And which version of Sandia is this, Mr. Bohm? 10:40:48 10:40:51

A. So this is the dual upstream version, or DUST, as I had referred to it earlier, and in this version, very similar to the previous one, it enables CarPlay on all of the downstream ports, but because of the two connections upstream, there is a dedicated connection to the head unit host that enables the persistence that we just talked about. 10:40:51 10:40:54 10:40:57 10:41:01 10:41:04 10:41:07 10:41:11 10:41:14

And this version and the one that we just talked about are also supported on the previous generation, the Athens product; the difference there being that for Athens, we had to use some external switches with it and Sandia, all of those were integrated. So it was an enhancement on what was available with Athens. 10:41:18 10:41:20 10:41:24 10:41:27 10:41:29 10:41:33 10:41:36 10:41:39

Q. All right. 10:41:40

MR. BANNER: So the third box, if we could go to the third box at the top, Mr. 10:41:42 10:41:43

Ferrer. 10:41:45

BY MR. BANNER: 10:41:45

Q. Mr. Bohm, what Sandia version is this? 10:41:46 10:41:49

A. So this is the version that the multi-host device controller is enabled in, and this enables that whole persistence that we just talked about, and it enables CarPlay on all ports as we've discussed, and it also enables the two separate hosts, the head unit host and the iPhone host, to both be active hosts at the same time and enumerate the device. 10:41:49 10:41:53 10:41:56 10:42:00 10:42:03 10:42:05 10:42:09 10:42:13 10:42:16

Q. Thank you, Mr. Bohm. 10:42:17

MR. BANNER: Now, Mr. Ferrer, there's another figure kind of down towards the bottom of this page. 10:42:18 10:42:20 10:42:22

BY MR. BANNER: 10:42:25

Q. Briefly, Mr. Bohm, can you describe what we're seeing in this picture? 10:42:26 10:42:27

A. So this figure is going back to Athens, the product I had mentioned before, so this would be the previous generation device. 10:42:29 10:42:33 10:42:36

So the business plan, you know, it 10:42:39

talked some about, all right, what are we already selling into the marketplace, so that's why this would be in here. 10:42:40 10:42:42 10:42:44

Q. So would the Sandia product replace this solution, the Athens solution? 10:42:46 10:42:49

A. Yes. So in this case, we see Sandia, the chip at the top, with the port going up to the head end unit. 10:42:51 10:42:55 10:42:59

Q. I'm sorry, did you say that's the Sandia? 10:43:01 10:43:02

A. Did I say Sandia? 10:43:02

Q. You might have. 10:43:04

A. That was an eventful slip. This is Athens, the Athens device, that would be at the top. 10:43:04 10:43:10 10:43:15

Q. Okay. 10:43:15

A. And in the middle box, the USB3740, those are the switches I referred to earlier, and then the bottom box is a port charging device, so this is what enables different kinds of phones or devices to be charged. Not everything just uses straight standard USB power; there are some very unique charging things in the world. So that chip handles all 10:43:15 10:43:19 10:43:21 10:43:25 10:43:28 10:43:32 10:43:37 10:43:38

of that.

Q. So this is -- this is the Athens solution that was available before Sandia; is that correct?

A. This is the Athens solution available before Sandia, and in this case, Sandia would integrate those two USB3740s. So the Sandia-based solution would remove the necessity of having those switches and reduce the cost a little bit and simplify our customers' design.

Q. So in this Athens solution, what is the purpose of the switches, the USB3740 switches?

A. So the built-in capability on the hub to do the port reversing, or the FlexConnect as the marketers labeled it, was only enabled on one of the hub's ports, just how we happened to design it at the time based on what the customer feedback was a year or so prior.

So in this case, there are two ports shown down at the bottom, and so what the switches do is there's a clever little

detection scheme that they would just allow the Apple iPhone to make sure it's routed over to go through the port on the hub that actually enables that CarPlay switch. 10:44:44 10:44:47 10:44:50 10:44:52

Q. Could you use Athens to support CarPlay if those switches were removed? 10:44:56 10:44:58

A. Yes, you can. You would just -- you would have CarPlay on just that one port then, the port that it's enabled natively in the device. 10:45:01 10:45:03 10:45:07 10:45:12

MR. BANNER: Mr. Ferrer, can we go to page 8. 10:45:12 10:45:13

THE COURT: Mr. Banner, if you get a little bit -- I don't know how much you have left, but we should pause to take a break. 10:45:23 10:45:26 10:45:28

MR. BANNER: Sure. We can pause and take a break right now. 10:45:32 10:45:33

THE COURT: Okay. 10:45:35

Why don't we take 10 minutes and we'll come back. 10:45:35 10:45:37

(Whereupon, a 15-minute recess was taken at 10:45 a.m.) 10:45:43 10:45:47

THE COURT CLERK: All rise. 10:58:26

THE COURT: Have a seat, please. 10:58:36

Just one housekeeping matter before we bring the jury back in. I am told that our court reporter is having a little trouble hearing everyone, so Mr. Banner, pull that microphone up a little closer to you and, Mr. Bohm, whatever you can do to either, I think either try to move -- maybe if you can move it closer and just make a conscious effort to speak into it, that will help everyone out. 10:58:37 10:58:39 10:58:41 10:58:43 10:58:46 10:58:49 10:58:53 10:59:00 10:59:04 10:59:05

(Whereupon, the jury entered the courtroom.) 10:59:19 10:59:23

THE COURT: All right. 10:59:50

Welcome back. As we resume with Mr. Bohm this morning, I just want to make sure, are you all able to hear okay? Are you having any trouble with sound? 10:59:52 10:59:56 10:59:59 11:00:01

Okay. All right. Good. If you do at some point, speak up and let us know because obviously it's important for you to hear the witness and counsel back and forth. Okay. 11:00:03 11:00:04 11:00:07 11:00:09 11:00:11

All right. Mr. Banner, you can resume. 11:00:11 11:00:13

MR. BANNER: Thank you, Your Honor. 11:00:14 11:00:16

And, Mr. Ferrer, can we get the diagram back on, the exhibit, Exhibit 5, and I think we were about to turn to page 8, if we go there. 11:00:16 11:00:20 11:00:22 11:00:24

BY MR. BANNER: 11:00:26

Q. Mr. Bohm, do you see the figure here on this page, kind of what we were just talking about the previous figure, and would you just explain, just tell us briefly what this is. 11:00:26 11:00:28 11:00:29 11:00:31 11:00:33

A. Yes, absolutely. 11:00:35

So I'll make sure I get the Athens part of it right this time. So this is, again, Athens. In this case, this is the dual upstream variant of Athens, and so we have, in this particular case, two instances, an Athens chip, or in some we could do a simpler device, but a majority of customers put two of them in there. 11:00:37 11:00:40 11:00:42 11:00:45 11:00:51 11:00:56 11:00:59 11:01:02

Q. And, Mr. Bohm, just so it's clear for the record, when you say, "two Athens chips," are you talking about the two blue boxes at 11:01:03 11:01:05 11:01:09

the top? 11:01:11
A. Yes. Sorry. 11:01:11
Q. And the USB8460x on the left? 11:01:12
A. Yes. Thank you. 11:01:15
Q. And then what's here in the blue box 11:01:17
that says, "USB3740"; what is that? 11:01:19
A. So those are the same switches that I 11:01:21
mentioned before, the USB3740, and again, 11:01:24
they're for rerouting the CarPlay device on 11:01:30
the downstream ports to make sure it gets 11:01:35
connected to the CarPlay labeled port. 11:01:37
Q. So are the -- I'm sorry. 11:01:40
A. No, that's fine. 11:01:41
Q. Are those switches, are they separate 11:01:43
components from the Athens chips shown above 11:01:45
them? 11:01:47
A. Yes. Those are separate components, 11:01:47
and at least on Athens, and then in Sandia, we 11:01:49
enhanced it so that, again, those would not be 11:01:53
required in Sandia. 11:01:56
Q. Thank you, Mr. Bohm. 11:01:57
MR. BANNER: Can we move to the 11:02:00
next page, Mr. Ferrer. 11:02:01
BY MR. BANNER: 11:02:04

Q. And the graphic at the top of this page, what are we seeing here, Mr. Bohm? 11:02:05 11:02:07

A. This time I get to say Sandia, so this actually is showing the new one, and this is a conceptual diagram showing that we have one connection upstream, we have multiple downstream ports; in this case, two. 11:02:09 11:02:11 11:02:15 11:02:19 11:02:23

So we no longer need those external switches, they're integrated along with some of the power components. And then in the middle, that's where we have the components that we defined to be -- we wanted to functionally reproduce for the multi-host device controller. 11:02:27 11:02:28 11:02:31 11:02:34 11:02:36 11:02:40 11:02:42

Q. So the EP Bridge, is that part of the multi-host device controller? 11:02:44 11:02:49

A. Yes. 11:02:50

Q. And what does EP Bridge stand for? 11:02:51

A. So EP would be shorthand for endpoint, and bridge, because we're bridging the data from one endpoint to another endpoint. 11:02:53 11:02:56 11:03:00 11:03:03

Q. So you didn't make that term up? 11:03:03

A. No. Bridge is a very commonly used 11:03:05

term in engineering, using it for almost all of my engineering career, and I'm sure it probably predates me by quite a bit; and endpoint, as I had mentioned before, is used in the specification, itself. 11:03:09 11:03:12 11:03:15 11:03:18 11:03:23

So we don't always like to be super creative. In this case, we wanted to just describe exactly what it was doing, so we labeled it endpoint bridge. 11:03:24 11:03:26 11:03:28 11:03:31

Q. All right. 11:03:32

MR. BANNER: There's another figure, Mr. Ferrer, on this page, page 9 of Exhibit 25. Can you zoom in on that, on the bottom. 11:03:33 11:03:34 11:03:37 11:03:39

BY MR. BANNER: 11:03:40

Q. Mr. Bohm, what is this figure? 11:03:41

A. Well, when we initially started our work, we thought that we might have to do a fairly complicated amount of data and control transitions between the two endpoints to support the multiple hosts, but the further in we got, once we got the Apple spec and things like that, we discovered that we could actually simplify it quite a bit. 11:03:44 11:03:46 11:03:50 11:03:54 11:03:56 11:03:59 11:04:02 11:04:04

And so we actually implemented what here we refer to as an endpoint mirror. It simply mirrored data from one side to the other. And internally, we also call that an endpoint reflector; it's the same thing, just two different labels for the one item. 11:04:06 11:04:08 11:04:12 11:04:15 11:04:18 11:04:21

Q. And what does that have to do with your -- what does that have -- what role does that play in Sandia? 11:04:23 11:04:25 11:04:27

A. So that's really what we simplified the endpoint bridge to do, so that's more descriptive in the end of what we -- what we went to market with. 11:04:29 11:04:33 11:04:36 11:04:38

Q. All right. I think we're done with the Sandia business plan. 11:04:39 11:04:41

Mr. Bohm, if you could turn to Exhibit 292 in your binder. 11:04:43 11:04:45

A. Okay. 11:04:58

(Whereupon, Trial Exhibit 292 was introduced.) 11:04:58 11:04:58

BY MR. BANNER: 11:04:59

Q. Do you recognize this document? 11:04:59

A. Yes. This is the 4916 data sheet for Sandia. 11:05:01 11:05:07

MR. BANNER: All right. I move to admit Exhibit 292 into evidence. 11:05:10 11:05:12

MR. SAULSBURY: No objection. 11:05:14

THE COURT: All right. It's admitted. 11:05:15 11:05:16

MR. BANNER: Mr. Ferrer, could you please bring that up on the screen. Thanks. 11:05:17 11:05:18

BY MR. BANNER: 11:05:20

Q. So, Mr. Bohm, what is at the top of the USB4916/USB4914, what is that? 11:05:23 11:05:26

A. So internally, we just give it the last 4, but the full label here is USB4916 and the USB4914 are two part numbers for two different versions of this particular Sandia device. 11:05:32 11:05:35 11:05:41 11:05:47 11:05:50

And the change in the last digit, the 4 and the 6, indicates whether it has -- in the case of the 4914, two CarPlay ports downstream, and in the case of the 4916, four CarPlay ports downstream. 11:05:53 11:05:55 11:06:01 11:06:05 11:06:09

Q. And the title of this data sheet, Mr. Bohm, what is it? 11:06:11 11:06:13

A. The title is "USB 2.0 Hi-Speed Multi-Host Device Controller." 11:06:14 11:06:18

Q. And what do these part numbers have to do with this title? 11:06:20 11:06:23

A. Well, this is the very Sandia that we were just previously talking about where we had enabled the multi-host device controller within it so that we could support the mode where two hosts are on simultaneously and they are both able to communicate with the product. 11:06:25 11:06:27 11:06:30 11:06:32 11:06:35 11:06:39

Q. All right. 11:06:42

MR. BANNER: Mr. Ferrer, can we turn to page 3. 11:06:43 11:06:45

BY MR. BANNER: 11:06:49

Q. Mr. Bohm, I want to look at Figure 1.1 and ask you what this figure is about. 11:06:51 11:06:53 11:06:55

A. So this is a simplified block diagram of the device. 11:06:57 11:07:01

Q. Which device is that? 11:07:06

A. The Sandia USB4916 and 4914. 11:07:08

Q. Can you explain the ports shown at the bottom of this diagram? There's four flex ports and a standard port; can you explain what those are? 11:07:13 11:07:18 11:07:21 11:07:23

A. Sure. 11:07:23

So the flex ports, those are the ports that enable CarPlay when you plug the iPhone in. And you notice there's a little bracket under sort of the middle two there. And those are only bonded out in USB4916 versions so you get four ports. 11:07:24 11:07:27 11:07:30 11:07:34 11:07:39 11:07:44

Q. Okay. 11:07:46

So just to -- you used the term "bonded out." 11:07:47 11:07:48

A. Yeah. 11:07:50

Q. In layman's terms, what do you mean when you're talking about the -- the bracketed ports there? 11:07:50 11:07:52 11:07:56

A. Sorry, I realized that I said it and I was like oh, no, now I have to define another term. My apologies. 11:07:56 11:07:59 11:08:01

So when we -- when we put our actual chip in the package like I showed earlier on Exhibit 249, we use little tiny wires called bond wires to go from the chip, itself, to the little pins in the package that actually get soldered down for the customer. 11:08:03 11:08:05 11:08:08 11:08:14 11:08:17 11:08:21

Q. So how many CarPlay ports does the 4916 version of the product have as shown in 11:08:27 11:08:29

this figure? 11:08:32

A. So the 4916 would get all four of 11:08:32

those flex ports, so it would have the four 11:08:35

enabled. The 4914 would only get the left 11:08:38

two. 11:08:42

And then you had asked, also, I 11:08:43

believe, about the standard port. That's just 11:08:46

a regular USB hub port. And for most of our 11:08:49

automotive customers, that would be used to 11:08:54

connect the break out box in, say, the back 11:08:56

seat of an SUV or a minivan or something where 11:08:59

you want to have more connectivity than just 11:09:02

whatever might be, you know, for the front 11:09:05

passengers. This gives additional ports for 11:09:07

the rear of the vehicle so they can sort of 11:09:10

daisy chain the product along in the car. 11:09:13

Q. Is the standard port a CarPlay 11:09:16

capable port? 11:09:19

A. No, it is just a regular USB port. 11:09:20

Q. Can you turn in your witness binder 11:09:22

to Exhibit 26, Mr. Bohm. 11:09:24

A. Okay. 11:09:38

(Whereupon, Trial Exhibit 26 was 11:09:38

introduced.) 11:09:38

BY MR. BANNER: 11:09:39

Q. Do you recognize this document? 11:09:39

A. Yes. This is a data sheet for the 11:09:42

USB4715 version of Sandia. 11:09:45

MR. BANNER: Your Honor, I move to 11:09:50

admit Exhibit 26 into evidence. 11:09:51

MR. SAULSBURY: No objection. 11:09:53

THE COURT: All right. It can 11:09:53

come in. 11:09:55

MR. BANNER: Mr. Ferrer, if you 11:09:55

could display that on the screen. 11:09:57

BY MR. BANNER: 11:09:57

Q. So again, this has a number at the 11:10:00

top, USB4715. Can you tell us what that is, 11:10:02

what that reference is, Mr. Bohm? 11:10:04

A. So again, that would be the part 11:10:06

number that Microchip's customers would use to 11:10:08

order this specific device. 11:10:10

Q. All right. 11:10:13

MR. BANNER: Let's go to page 6, 11:10:14

Mr. Ferrer. Figure 2.1. 11:10:16

BY MR. BANNER: 11:10:20

Q. Mr. Bohm, what is this figure showing 11:10:21

us here on page 6? 11:10:23

A. So similar to the previous one, this is a simplified block diagram for the features of this product. 11:10:26 11:10:29 11:10:33

Q. And can you tell us about kind of the ports at the bottom? 11:10:34 11:10:37

A. So the flex ports here are, again, these are the ports that enable CarPlay with the iPhone. And you'll notice we don't have the standard port on this particular product, so it's not meant to enable the rear seat kind of applications. 11:10:38 11:10:42 11:10:44 11:10:47 11:10:50 11:10:54

Q. And how many CarPlay ports are available on this product? 11:10:55 11:10:57

A. There would be four. It would be all four of these flex ports. 11:10:59 11:11:01

Q. Thank you. I think we're done with Exhibit 26. 11:11:03 11:11:05

Mr. Bohm, earlier we took kind of a fork in the road where you had -- we went down to tell the story about Sandia, but you had also mentioned your investigation when you were talking to the automakers and trying to get information about Apple, you discussed, you know, the defendant, Aptiv. 11:11:06 11:11:08 11:11:12 11:11:14 11:11:16 11:11:19 11:11:22

Do you recall the fork in the road that we took there? 11:11:24

A. Yes, I do. 11:11:28

Q. Okay. 11:11:29

So during your investigation, did Aptiv, defendant Aptiv, come up? How did that happen? 11:11:29

A. So we had learned, through some of our customers, that actually the company that Aptiv required, Unwired -- I'm sorry, acquired Unwired had begun to advertise a product for sale that was sounding very similar to what we were also beginning to work on. 11:11:37

Q. And why was it similar? 11:11:57

A. Because it was indicating that it could support simultaneous connectivity to two hosts and support CarPlay with persistence with a single upstream cable connection between the break out box and the head unit. 11:11:58

Q. Mr. Bohm, can you turn to Exhibit 67 in your binder. 11:12:01

A. Yes. 11:12:15

(Whereupon, Trial Exhibit 67 was introduced.) 11:12:17

11:12:24

11:12:24

BY MR. BANNER: 11:12:26

Q. And do you recognize Exhibit 67? 11:12:26

A. Yes, I do. This is an email chain 11:12:29
that was shared in the process of this court 11:12:34
case. 11:12:40

Q. Were you one of the recipients of at 11:12:42
least a portion of this email chain? 11:12:45

A. I'm not actually on the page that's 11:12:47
shown, but in the thread here, yes, I am 11:12:49
included. 11:12:51

MR. BANNER: Your Honor, I move to 11:12:52
admit Exhibit 67 into evidence. 11:12:53

MR. SAULSBURY: No objection. 11:12:55

THE COURT: All right. It will be 11:12:56
admitted. 11:12:58

MR. BANNER: Mr. Ferrer, if we 11:12:58
could jump to page 13, down at the bottom. I 11:13:00
want to start at the bottom where the email 11:13:08
starts. 11:13:10

BY MR. BANNER: 11:13:11

Q. Mr. Bohm, it will make it easier to 11:13:12
discuss. So what are we looking at here? 11:13:14

A. Well, so this is a email that I 11:13:17
received from David Sroka. He was our 11:13:21

marketing manager for our product at this time. It was sent by Dave on November 12th of 2014, and he is asking for the patent number for the dual host single endpoint patent. That's the '243 Patent. 11:13:29 11:13:31 11:13:34 11:13:39 11:13:42

Q. Did you respond to Mr. Sroka's request? 11:13:50 11:13:55

A. Yes, I did. Not on this page, a little earlier. 11:13:56 11:14:05

MR. BANNER: Mr. Ferrer, please jump to page 2 near the bottom. 11:14:06 11:14:07

BY MR. BANNER: 11:14:09

Q. Mr. Bohm, is there where you responded to Mr. Sroka? 11:14:10 11:14:11

A. Yes. So I responded basically the next day, November 13th, 2014. 11:14:14 11:14:17

Q. And did you send Mr. Sroka your multi-hub patent? 11:14:20 11:14:25

A. Yes, I actually pasted the basic whole thing right in so he got a snapshot of it, along with the number. 11:14:27 11:14:30 11:14:32

Q. And why did you send this to Mr. Sroka? 11:14:33 11:14:36

A. Well, we had had some prior 11:14:36

conversations about it, and then I think further back in an email thread, there was some issues that came up with the customer where they wanted to have the patent number again, so that's why he asked and why I responded. 11:14:38 11:14:42 11:14:45 11:14:48 11:14:54 11:14:55

Q. Okay. 11:14:56

Was that back in Mr. Sroka's email on page 13? 11:14:56 11:14:59

A. Yeah, I think it's actually whatever preceded it. 11:15:01 11:15:06

Q. Okay. Let's look at this real quick. 11:15:07

MR. BANNER: If you could blow that up, Mr. Ferrer. 11:15:09 11:15:10

BY MR. BANNER: 11:15:11

Q. That's that second sentence from Mr. Sroka to you. Can you explain what he's talking about with you there? 11:15:12 11:15:15 11:15:17

A. So he mentions that Delphi is going to be moving full steam ahead with the Unwired solution, and obviously he is asking to think about options. Since we had had prior conversations, he knew discussion of this patent would be one of those options. 11:15:18 11:15:23 11:15:26 11:15:30 11:15:33 11:15:36

Q. Mr. Sroka, did he work in the same group as you? 11:15:38 11:15:40

A. No. Dave worked in our marketing team. 11:15:41 11:15:44

Q. So he wasn't part of the architecture team? 11:15:46 11:15:48

A. No, no, he is not part of architecture. 11:15:48 11:15:50

Q. After you sent your patent to Mr. Sroka, did you try to confirm whether the Unwired product used your multi-host device controller technology? 11:15:50 11:15:53 11:15:55 11:15:58

A. Myself or our department? 11:15:59

Q. You first. 11:16:04

A. So we -- we never got any internal documentation that described the internal workings of the product, but we did try to see what we could, you know, get out on the open market in kind of a sales sheet, I think it was called a feature sheet, if I recall, that was talking about the break out box. So it took quite a bit of time, but yes, we definitely kept looking. 11:16:05 11:16:09 11:16:11 11:16:15 11:16:18 11:16:21 11:16:24 11:16:31 11:16:34

Q. Did you ever pass any of the 11:16:36

information you obtained with respect to the Unwired product to your implementation team? 11:16:37 11:16:39

A. No, no. We would never do that. 11:16:41

Q. Were you ever able to confirm the features on the Unwired product? 11:16:45 11:16:49

A. I, myself, was not, but at Microchip, we had other technical team members who were, yes. 11:16:54 11:16:59 11:17:01

Q. And what timeframe did that occur? 11:17:01

A. It was June, July of 2016, I believe. 11:17:04

Q. And what was the status of the Sandia product at that time? 11:17:09 11:17:11

A. Around that same time, I think we were sampling our Sandia product, so we had our finished device and we were making it available to the customers to test, I believe. 11:17:13 11:17:16 11:17:18 11:17:21

Q. Do you have an understanding of how Sandia compares to the Unwired product? 11:17:24 11:17:26

A. In terms of what? 11:17:31

Q. Features. 11:17:34

A. Oh, features. Well, from the multi-host device controller standpoint, from what we understand from customers, they sound fairly similar. 11:17:35 11:17:38 11:17:41 11:17:44

One of the main differences would be theirs requires a custom driver to be loaded on the head end unit and ours, we were able to use standard drivers that were already available on all those products. 11:17:45 11:17:47 11:17:49 11:17:53 11:17:57

MR. BANNER: Mr. Ferrer, if we can just jump back to Exhibit 1, please, if we could go to column 2 and starting around line 20, if you blow that up for me. 11:18:00 11:18:01 11:18:11 11:18:14

So, "embodiments" -- starting, "embodiments of the present invention," to the end of that sentence. 11:18:25 11:18:28 11:18:31

BY MR. BANNER: 11:18:33

Q. Mr. Bohm, would you mind -- I know we went through this earlier, but I wanted to get this on the record. I don't think I had you read this one. Would you mind reading it for me. 11:18:33 11:18:35 11:18:38 11:18:40 11:18:42

A. "Embodiments of the present invention the Ethernet switch may be replaced by a less expensive and more compact multi-host USB controller, allowing each host to access the USB device directly." 11:18:42 11:18:45 11:18:48 11:18:52 11:18:54

Q. Mr. Bohm, just a couple more 11:18:56

questions and we'll finish up.

Have you been asked to offer an opinion on whether Aptiv infringes your '243 Patent?

A. No, I'm not a patent attorney. No, I haven't been going through the claims in any way or anything like that.

Q. Mr. Bohm, you're an inventor on the '243 Patent.

Do you have any other patents?

A. Yes, I believe I have 14 patents.

Q. Are all 14 of your patents related to USB?

A. Most all of them are, not quite all.

Q. Have you always been an innovator?

A. I love solving problems and I've enjoyed doing it in my engineering career.

MR. BANNER: I pass the witness.

- - -

CROSS-EXAMINATION

- - -

BY MR. SAULSBURY:

Q. Good morning, Mr. Bohm.

A. Good morning.

Q. You spoke to Mr. Banner about Ethernet controllers. 11:20:11 11:20:14

A. Yes. 11:20:15

Q. And you said that one of your ideas was that two computers could share one Ethernet controller? 11:20:17 11:20:21 11:20:24

A. Correct. 11:20:26

Q. A USB Ethernet controller is a USB device? 11:20:27 11:20:30

A. I'm sorry, could you -- 11:20:32

Q. A USB Ethernet controller is a USB device; is that right? 11:20:33 11:20:36

A. A USB Ethernet controller, yes. 11:20:38

Q. And, in fact, this is a USB connect controller here? 11:20:43 11:20:49

A. I believe so. I don't know what's inside of it, but it would appear to be. 11:20:55 11:20:57

Q. Okay. 11:21:00

THE COURT: Are you offering that? 11:21:04

MR. SAULSBURY: Not yet. 11:21:06

THE COURT: Okay. 11:21:08

BY MR. SAULSBURY: 11:21:09

Q. So your idea was a way for two computers to share one function; right? 11:21:10 11:21:14

A. What -- what function specifically? 11:21:18

Q. To share a USB function; right? 11:21:22

A. To share whatever the device function would be; in that case that you showed, it would be Ethernet. 11:21:26 11:21:30 11:21:33

Q. Okay. 11:21:34

You didn't invent having one computer use one Ethernet controller; right? 11:21:35 11:21:39

A. No, that would have been prior art. 11:21:42

Q. And so if I were to connect this Ethernet controller to the computer, that's one host and one device; right? 11:21:49 11:21:54 11:21:56

A. I believe so. 11:21:59

Q. Okay. 11:22:00

Now, you didn't invent a way for a second computer to connect to a second Ethernet controller; right? You didn't invent that? 11:22:01 11:22:08 11:22:11 11:22:22

A. No. 11:22:22

Q. Okay. 11:22:22

Each host controls its own device? 11:22:24

A. Each host is controlling its Ethernet controller, yeah. 11:22:28 11:22:32

Q. Okay. 11:22:32

And you can attach a crossover cable between two USB devices; right? 11:22:33 11:22:53

A. For Ethernet, you can do device to device attach, I believe. 11:22:57 11:23:02

Q. Like I've shown here? 11:23:03

A. Um-hmm. 11:23:05

Q. Okay. 11:23:05

But that's not something you invented? 11:23:06 11:23:08

A. I don't recall inventing that, no. 11:23:09

Q. Okay. 11:23:11

It's not covered by the patent asserted here? 11:23:12 11:23:15

MR. BANNER: Objection, Your Honor, calls for a legal opinion. 11:23:17 11:23:18

THE COURT: Sustained. 11:23:19

BY MR. SAULSBURY: 11:23:24

Q. And now this arrangement I just showed with the crossover cable between the Ethernet controllers, this complies with the USB specifications; correct? 11:23:25 11:23:27 11:23:31 11:23:36

MR. BANNER: Objection, calls for expert testimony. 11:23:38 11:23:40

BY MR. SAULSBURY: 11:23:41

Q. You don't know? 11:23:42

THE COURT: Hold on. Let me rule. 11:23:43

The objection is overruled. 11:23:46

Go ahead, if you know. 11:23:48

THE WITNESS: I don't know. I've 11:23:50

never tested a device like that. 11:23:52

BY MR. SAULSBURY: 11:23:54

Q. Well, it's compliant because, in this 11:23:57

case, each host, each computer, is talking to 11:23:59

its own device; correct? 11:24:03

A. But I don't believe that the USB 11:24:07

compliance labs would test that configuration, 11:24:11

so I don't know that you can say that it's 11:24:13

compliant. 11:24:16

Q. Okay. 11:24:16

The connection between each host 11:24:20

and its device is one host, one device; right? 11:24:22

A. So I'm not quite sure what question 11:24:29

you're asking. 11:24:31

Q. This is one host and one device here? 11:24:37

A. Correct. 11:24:39

Q. Okay. 11:24:40

And so that's compliant with the 11:24:41

requirement that a USB, you only have one 11:24:44

host; right? 11:24:47

A. So the USB compliance labs would test 11:24:49

that configuration as you're holding it. 11:24:53

Q. And this was a way for computers to 11:24:59

pass data from one computer to another; 11:25:01

correct? 11:25:04

A. Ethernet, yes, Ethernet is an 11:25:06

exchange -- allows computer to computer to 11:25:09

exchange data. 11:25:11

Q. It's not something you invented? 11:25:14

A. I did not invent the Ethernet, no. 11:25:16

Q. And you didn't invent connecting two 11:25:20

Ethernet controllers, two USB Ethernet 11:25:22

controllers together with the crossover cable; 11:25:26

correct? 11:25:30

A. As you had previously shown? 11:25:30

Q. Right. 11:25:36

A. You're referring to that? Yeah, I 11:25:37

did not invent that. 11:25:42

MR. SAULSBURY: I've marked this 11:26:09

as Exhibit 371, and I just want to get a 11:26:10

little bit closer to you. 11:26:14

(Whereupon, Trial Exhibit 371 was 11:26:14

introduced.) 11:26:14

BY MR. SAULSBURY: 11:26:14

Q. So you recognize that it's two USB Ethernet controllers connected with a crossover cable? 11:26:15 11:26:18 11:26:20

MR. BANNER: I'm sorry, Your Honor, can I have a look at that? 11:26:21 11:26:22

THE COURT: Yeah, have you shown it to him, Mr. Saulsbury? 11:26:24 11:26:25

MR. SAULSBURY: Here you go. 11:26:37

BY MR. SAULSBURY: 11:26:43

Q. The question was, you recognize this as two USB controllers connected with the crossover cable? 11:26:44 11:26:47 11:26:50

A. Well, I don't know that it's a crossover cable. I can see that it's an Ethernet cable. 11:26:51 11:26:53 11:26:56

MR. SAULSBURY: Okay. Move Exhibit 371. 11:26:57 11:26:58

MR. BANNER: No objection. 11:27:00

THE COURT: Okay. It will come in. 11:27:01 11:27:02

BY MR. SAULSBURY: 11:27:03

Q. Now, you didn't invent USB host controllers; correct? 11:27:03 11:27:06

A. I missed the very first word. Would you mind repeating? 11:27:07 11:27:10

Q. No problem. 11:27:11

You didn't invent USB host controllers? 11:27:12 11:27:15

A. No, I did not invent USB host controllers. 11:27:15 11:27:17

Q. You didn't invent USB interface circuits either? 11:27:20 11:27:24

A. I have invented some interface circuitry for USB. 11:27:28 11:27:31

Q. So the concept of a USB interface circuit was known? 11:27:32 11:27:35

A. Are you referring to what's called out in the USB 2.0 specification? 11:27:37 11:27:40

Q. That's right. 11:27:42

A. No, I did not invent the USB 2.0 specification. 11:27:43 11:27:46

Q. And you didn't invent the USB interface as discussed in that specification; correct? 11:27:47 11:27:49 11:27:53

A. I am not exactly sure how to answer. I have built devices on the instructions that are in there. Would you repeat that question 11:27:58 11:28:01 11:28:04

again, please? 11:28:08

Q. Yeah. 11:28:09

You didn't come up with the idea 11:28:10

of the USB interface; right? 11:28:12

A. No, no. As defined in the USB spec, 11:28:15

no. 11:28:18

Q. You didn't invent the USB endpoint 11:28:18

buffers? And again, you didn't -- sorry, let 11:28:23

me rephrase so I can simplify. 11:28:25

You didn't invent the concept of 11:28:28

the USB endpoint buffer; right? 11:28:31

A. As defined in the USB specification? 11:28:33

Q. Right. 11:28:36

A. No. In the 2.0 spec, no, that was in 11:28:36

the spec. 11:28:43

Q. You didn't invent any -- strike that. 11:28:43

In the context of the '243 Patent 11:28:45

asserted here, you didn't invent any new types 11:28:51

of device functions; correct? 11:28:53

MR. BANNER: Objection, vague. 11:29:01

THE COURT: Overruled. 11:29:03

THE WITNESS: So I'm still kind of 11:29:04

processing your question. You asked it in a 11:29:06

way -- I'm not exactly sure what you're 11:29:12

meaning by that. Is there a way you could rephrase it? 11:29:14 11:29:16

MR. SAULSBURY: Yeah. 11:29:17

BY MR. SAULSBURY: 11:29:17

Q. I'd just like to know whether, in the context of the patent asserted in this case, you invented a new type of device function? 11:29:18 11:29:21 11:29:24

A. New type of device function. So I don't believe we disclosed a new type of device function in the patent, as I recall, so I think the answer is no. 11:29:28 11:29:40 11:29:43 11:29:48

Q. Again, in the context of the patent asserted here, you didn't invent one device function that reports different device descriptors to different hosts; correct? 11:29:49 11:29:54 11:29:58 11:30:03

A. I don't believe there's anything that precludes that. 11:30:13 11:30:15

Q. It's not something you invented? 11:30:17

A. I think it's allowed for someone skilled in the art to create a product that would do that. It didn't say that they must be the same. 11:30:21 11:30:24 11:30:26 11:30:29

Q. Sure. My question is a little bit different, though. 11:30:30 11:30:31

That's not something that's disclosed in your '243 Patent; correct? 11:30:32 11:30:34

A. As far as the specific embodiments, that's not an example that we gave. 11:30:37 11:30:39

Q. Okay. 11:30:41

And nowhere in the '243 Patent do you disclose one device function that reports different device descriptors to different codes; correct? 11:30:42 11:30:45 11:30:51 11:30:53

A. We do specify that the responses need to be appropriate for the host, so it would be whatever the host would be expecting. 11:30:55 11:30:59 11:31:02

Q. Again -- 11:31:05

A. It could be different. 11:31:06

Q. Again, the question is a little bit different. 11:31:07 11:31:09

Nowhere in the '243 Patent do you disclose one device function that reports different device descriptors to different hosts; right? 11:31:10 11:31:13 11:31:19 11:31:22

A. I don't recall doing that as this specific embodiment, no. 11:31:23 11:31:27

Q. Okay. 11:31:29

And you have the '243 Patent in 11:31:30

front of you; correct? 11:31:34

A. Yes, I do. 11:31:35

Q. Exhibit 1? 11:31:36

A. I believe so. 11:31:37

Q. And you reviewed it in advance of your testimony today? 11:31:48 11:31:52

A. Somewhat, yes. 11:31:54

Q. Okay. 11:31:55

You don't recall seeing any discussion of a device function that reports different device descriptors to different hosts; right? 11:31:56 11:31:58 11:32:03 11:32:06

A. That is correct. As I said, I don't recall putting it in the embodiments. 11:32:07 11:32:09

Q. You claim to have invented a way to share a single USB device with more than one host? 11:32:16 11:32:20 11:32:23

A. Is there a specific reference you're wanting me to look at? 11:32:38 11:32:40

Q. Sure. Why don't we take a look at claim 1. 11:32:43 11:32:45

MR. SAULSBURY: Mr. Glass, if we could please see claim 1 in evidence. This is on page 6 of Trial Exhibit 1 running on to 11:32:49 11:32:50 11:32:53

page 7. 11:32:59

BY MR. SAULSBURY: 11:33:00

Q. Do you recognize this as claim 1 of the '243 Patent? 11:33:01 11:33:03

A. That seems right, yeah. 11:33:05

Q. You talked about Figure 3 of the patent in your direct. 11:33:13 11:33:16

A. Yes, sir. 11:33:19

MR. SAULSBURY: Can we get Figure 3 up side-by-side with claim 1, please. 11:33:21 11:33:24

BY MR. SAULSBURY: 11:33:27

Q. Everything in Figure 3 over on the right is found in claim 1 of your patent; correct? 11:33:31 11:33:36 11:33:39

A. Well, I will be honest, I haven't studied it in that respect. 11:33:41 11:33:45

Q. Well, why don't we take it step-by-step. 11:33:49 11:33:51

A. Okay. 11:33:53

Q. See how the first element is a USB multi-host device? 11:33:53 11:33:58

A. Okay. 11:33:58

Q. See how, at the very bottom of Figure 3, the big box is labeled USB 11:33:59 11:34:02

multi-host device? 11:34:05

A. Yes. 11:34:08

Q. So the first element is found in 11:34:08
Figure 3; right? 11:34:11

A. You're correct, yes. 11:34:14

Q. Okay. 11:34:16

The next element is first and 11:34:17
second upstream ports configured to couple to 11:34:19
responding first and second hosts. 11:34:23

Do you see that? 11:34:25

A. Yes. 11:34:26

Q. That's the upstream ports 1 and 2 11:34:26
that are labeled Boxes 302 and 304 in 11:34:29
Figure 3; right? 11:34:34

A. Yes. 11:34:34

Q. Okay. 11:34:35

The next element of claim 1 is a 11:34:35
USB device/function block. That corresponds 11:34:39
to the box at the bottom of Figure 3 labeled 11:34:46
312 device/function; correct? 11:34:50

A. Yes, I believe that is correct. 11:34:53

Q. Okay. 11:34:55

The next element is a multi-host 11:34:55
device controller; right? 11:34:58

A. Yes. 11:35:01

Q. And claim 1 goes on to say it's "a multi-host device controller coupling the device/function block to the first and second upstream ports." Let's just stop there. 11:35:03 11:35:06 11:35:09 11:35:11

The USB multi-host device controller that's shown in Figure 3 is 108? 11:35:14 11:35:17

A. I'm sorry, was that a question? 11:35:29

Q. Yes, it was. 11:35:31

A. Okay. I think I must have missed the question. 11:35:32 11:35:35

Q. No problem. 11:35:35

The multi-host device controller of claim 1, that's depicted in Figure 3 as the box labeled 108? 11:35:36 11:35:41 11:35:44

A. I think that seems correct, yes. 11:35:45

Q. And we saw that in claim 1, it says, "multi-host device controller coupled the USB device/function block to the first and second upstream ports." 11:35:49 11:35:53 11:35:56 11:35:58

Do you see that? 11:35:59

A. Yes. 11:36:00

Q. Okay. 11:36:01

And in Figure 3, that's what's 11:36:01

depicted; right, that arrow between -- going up to the multi-host device controller, and then if you follow it all the way up to the top, you see that the multi-host device controller is coupling the device function up to the two ports you see at the top; right? 11:36:03 11:36:08 11:36:10 11:36:13 11:36:15 11:36:17

A. Yes. 11:36:26

Q. And claim 1 goes on to say, "wherein the multi-host device controller is configured to establish concurrent respective dedicated USB connections between the USB device block and the first and second upstream ports." 11:36:26 11:36:30 11:36:32 11:36:35 11:36:38

Do you see that? 11:36:40

A. Yes. 11:36:42

Q. And that's the function of the multi-host device controller that's depicted in Figure 3 as block 108? 11:36:43 11:36:46 11:36:49

MR. BANNER: Objection. Calls for a legal conclusion. 11:36:53 11:36:56

THE COURT: Overruled. 11:36:57

Go ahead. 11:36:58

THE WITNESS: Yes, I think so. 11:37:00

BY MR. SAULSBURY: 11:37:02

Q. Claim 1 goes on to say, "to allow the 11:37:03

corresponding first and second hosts to," and then you see a list of things it needed to allow. This is in claim 1. 11:37:07 11:37:10 11:37:12

A. Right. 11:37:14

Q. The first thing it allows is "simultaneously request access to the USB block" {sic} -- sorry, "USB device" by both levels. 11:37:16 11:37:19 11:37:22 11:37:25

Do you see that? 11:37:25

A. Yes. 11:37:26

Q. And the multi-host device controller, 108, allows for that; correct? It allows both hosts connected to upstream ports to simultaneously request access to the USB device? 11:37:26 11:37:31 11:37:34 11:37:37 11:37:39

A. Yes. 11:37:40

Q. Okay. 11:37:40

The next requirement we see is that the multi-host controller allow the first and second host to alternately access the USB device block to use at least one function. 11:37:40 11:37:45 11:37:51 11:37:55

Do you see that? 11:37:57

A. Yes. 11:37:58

Q. And the multi-host device controller 11:37:58

in Figure 3 allows for that; correct? 11:38:01

A. Correct. 11:38:03

Q. If we continue on in claim 1, it has to allow alternating access to USB device block without either one of the first and second hosts reconfiguring the USB device block each time a different one of the first and second hosts is given access to the USB device block to use the at least one function. 11:38:04 11:38:07 11:38:13 11:38:15 11:38:19 11:38:23 11:38:26

Do you see that? 11:38:30

A. Yes. 11:38:31

Q. And the multi-host device controller in Figure 3 allows for that; right? 11:38:32 11:38:34

A. Absolutely, yeah. 11:38:37

Q. And so you understand that claim 1 of your patent is invalid; right? 11:38:38 11:38:44

A. I know it was included in that Court action, yes. 11:38:46 11:38:48

Q. Okay. 11:38:49

It was -- it was found by the patent office -- 11:38:49 11:38:52

A. Invalid. 11:38:53

Q. -- to be invalid -- my apologies. 11:38:54

It was found by the patent office 11:38:56

to be invalid in light of the patent? 11:38:58

A. Honestly, I was not involved in the 11:39:02

patents, so I don't know which patents were 11:39:04

involved, but I do know the outcome of the -- 11:39:06

of the case, yes. 11:39:08

Q. Okay. 11:39:09

And so everything shown here in 11:39:10

Figure 3 that we just went over is covered by 11:39:12

invalid claim 1; right? 11:39:16

A. Yes. It's the claim 1 you walked 11:39:19

through. 11:39:22

Q. Yes. 11:39:22

We're talking here today about 11:39:23

claims 23, 24 and 25; right? 11:39:32

A. Right. That's my understanding. 11:39:35

MR. SAULSBURY: Mr. Glass, can we 11:39:41

please leave up claim 1 on the left and then 11:39:43

put up claim 23 on the right. 11:39:45

BY MR. SAULSBURY: 11:39:54

Q. And while that's happening, let me 11:39:54

just ask you, what's the difference between 11:39:55

claim 1, which is invalid, and claim 23? 11:39:59

A. Well, I -- I'll need to be honest 11:40:05

with you, I have not sat studying the 11:40:08

difference between claim 1 and claim 23, so it's not something I have done prior to coming here today. 11:40:11 11:40:13 11:40:18

Q. Do you want to take a look at claim 23 now and let me know what the difference is? 11:40:19 11:40:21

A. I certainly can, if you don't mind my taking some time. 11:40:23 11:40:26

Q. That's no problem. Thank you. 11:40:27

(Whereupon, the witness reviews the exhibit.) 11:40:29 11:40:31

MR. BANNER: Your Honor, I'm going to object that the exercise that's being asked to be performed here is asking for an expert opinion. 11:42:13 11:42:15 11:42:19 11:42:22

THE COURT: It's overruled. 11:42:24

(Whereupon, the witness reviews the exhibit.) 11:40:29 11:40:31

THE WITNESS: Okay. So -- oh, I'm sorry. I didn't know you had stepped away. 11:44:48 11:44:51

MR. SAULSBURY: My apologies. 11:44:53

THE WITNESS: I had my head down here. So if you remind me again what your question was, you wanted to know if there was a difference? 11:44:54 11:44:55 11:44:59 11:45:02

MR. SAULSBURY: Yeah. 11:45:03

BY MR. SAULSBURY: 11:45:04

Q. My question was what's the difference between claim 23 and claim 1, which is invalid? 11:45:05 11:45:06 11:45:10

A. So in claim 1, around line 65, it talks about alternatively access the USB block, and in claim 23, it is talking about simultaneous with respect to the USB access; so that's -- just sitting here, obviously, it's a little difficult to do this in a witness chair, but that's what I was able to come up with on a quick inspection, but I wouldn't contend it was thorough. 11:45:11 11:45:21 11:45:25 11:45:33 11:45:39 11:45:41 11:45:43 11:45:46 11:45:52

Q. Thank you. 11:45:53

A. Is that what you were looking for? 11:45:54

Q. Well, claim 1 actually also says that the multi-host device controller is configured to allow the corresponding first and second host to simultaneously request access to the USB device; right? 11:45:56 11:46:00 11:46:03 11:46:06 11:46:11

A. You are right. I think I had missed that line when I was moving back. 11:46:11 11:46:13

Q. Are there any other differences you 11:46:16

identified -- or rather, I should say, is there anything else that you identified that you think is different? 11:46:19 11:46:21 11:46:22

A. No, nothing else. It seemed to me that what I was seeing in claim 23 appeared to be pretty well included in claim 1. 11:46:23 11:46:27 11:46:30

Q. Okay. 11:46:33

Now, you were -- strike that. 11:46:42

You testified earlier that you understand that claim 1 was invalidated by the patent office? 11:46:44 11:46:46 11:46:49

A. Correct, yes. 11:46:50

Q. Okay. 11:46:51

And that was in light of the patent of Mr. Dickens; is that right? 11:46:52 11:46:55

A. Well, again, I'm not at all familiar with that patent. I just know about the Court action. 11:46:57 11:47:00 11:47:02

Q. Right. 11:47:02

So Mr. Dickens invented claim 1 first? 11:47:03 11:47:06

A. I have no idea what the patent office used to invalidate claim 1. I just know that claim 1 was invalidated. 11:47:06 11:47:08 11:47:12

Q. Microchip employers didn't provide you with a copy of that decision? 11:47:17 11:47:19

A. Just a summary of it. I was not involved in that process. 11:47:21 11:47:24

Q. Let's take a look at the invention disclosure form that you discussed with Mr. Banner. 11:47:34 11:47:38 11:47:41

MR. SAULSBURY: Mr. Glass, could we please take a look at Exhibit 24 in evidence at page 10. 11:47:42 11:47:43 11:47:45

MR. BANNER: Objection, Your Honor, this is not in evidence yet. 11:47:46 11:47:47

THE COURT: 24 is not in evidence. 11:47:51

MR. SAULSBURY: It's not? My apologies. I must have written it down wrong. 11:47:53 11:47:58

My apologies. I think I was looking at 241. 11:48:12 11:48:14

BY MR. SAULSBURY: 11:48:40

Q. Mr. Bohm, I've just handed you what's been marked as Trial Exhibit 24. 11:48:41 11:48:43

(Whereupon, Trial Exhibit 24 was introduced.) 11:48:43 11:48:43

BY MR. SAULSBURY: 11:48:43

Q. Do you recognize this as your 11:48:45

invention -- sorry, your Innovation Documentation, Disclosure and Evaluation form for the '243 Patent? 11:48:48 11:48:50 11:48:53

A. That seems right, yes. 11:49:01

MR. SAULSBURY: Move to admit Exhibit 24. 11:49:06 11:49:08

MR. BANNER: No objection. 11:49:09

THE COURT: All right. It's admitted. 11:49:10 11:49:11

MR. SAULSBURY: And can we please see the first page, Mr. Glass. 11:49:13 11:49:20

BY MR. SAULSBURY: 11:49:24

Q. Now, I'd like to get one quick housekeeping thing out of the way. 11:49:24 11:49:27

Do you see here at the bottom of the page, sort of in small print, it says, "revised 5/29/03"? 11:49:28 11:49:30 11:49:33

A. Yes. 11:49:36

Q. And do you see how at the top, it also says, "Revised 5/29/03"? 11:49:36 11:49:38

A. Yes. 11:49:42

Q. Okay. 11:49:42

Now, that's the date that the template for the form was revised; correct? 11:49:43 11:49:47

A. I don't know that, but I think that's a reasonable guess. 11:49:52 11:49:55

Q. It's not the date you filled out this form; right? 11:49:57 11:49:59

A. No, no. Correct. 11:49:59

Q. And that's because you came up with this idea in late 2005? 11:50:06 11:50:08

A. Yes. And I think that date should be in here somewhere. 11:50:13 11:50:16

Q. Okay. 11:50:18

Let's flip to page 10, please. 11:50:30

A. Okay. 11:50:36

Q. I believe this might have been what you were looking for. 11:50:37 11:50:38

A. Yes. 11:50:39

Q. Do you see how, at the top, in section A, it says, "Date you first conceived of your solution"? 11:50:39 11:50:41 11:50:44

A. Yes. 11:50:45

Q. And it says, "October 24, 2005"? 11:50:45

A. Correct. 11:50:49

Q. That's when you came up with the idea that resulted in the '243 Patent? 11:50:50 11:50:51

A. Correct. 11:50:54

Q. Let's take a look at section C on the same page. 11:50:57 11:51:03

A. Okay. 11:51:04

Q. Do you see how it asks when your solution was first disclosed to someone else in your company? 11:51:06 11:51:09 11:51:11

A. Yes. 11:51:13

Q. You said you first disclosed the idea on October 24, 2005; right? 11:51:14 11:51:16

A. Yes, that is what's written here. 11:51:19

Q. The same day you conceived of your invention? 11:51:21 11:51:24

A. Yes. The chief technology officer sat just down the hall from me, so I went and had a conversation with him. 11:51:24 11:51:27 11:51:30

Q. And that would be Mr. Doug Smith? 11:51:31

A. That would be Mr. Doug Smith. 11:51:33

Q. Okay. 11:51:35

You told Mr. Smith about your idea and the concept of the switching hub presentation? 11:51:35 11:51:37 11:51:43

A. Well, he had asked me to do the switching hub presentation, so as we were discussing that, I talked to him about the 11:51:43 11:51:45 11:51:47

idea we were just coming up with and he thought it would be a good idea to pursue. 11:51:49 11:51:52

Q. You gave that presentation at SMSC's fall 2005 conclave? 11:51:57 11:52:01

A. Yes, that's correct. 11:52:05

Q. That's what's referred to here at the end of the sentence? 11:52:06 11:52:08

A. Yes. 11:52:09

Q. Conclave, that's another word for gathering; is that right? 11:52:11 11:52:13

A. That sounds right. It wasn't the word I was using, it was Doug Smith's word. 11:52:15 11:52:18

Q. Fair enough. 11:52:21

Mr. Bohm, could you please flip to Exhibit 241 in your binder. 11:52:22 11:52:33

MR. SAULSBURY: And, Mr. Glass, could we please publish Exhibit 241 in evidence, starting on page 1. 11:52:36 11:52:38 11:52:41

BY MR. SAULSBURY: 11:52:44

Q. Now, Mr. Bohm, this is a page that you presented at the 2005 conclave? 11:52:48 11:52:51

A. Yes, that's correct. 11:52:53

Q. Now, this switching hub you presented on was called the SMSC 2524? 11:52:54 11:52:57

A. The actual device that we were working with at the time, yes, that is the correct number, as I recall. 11:53:02 11:53:03 11:53:06

Q. And to be clear, the SMSC 2524 is different from the system in your patent; right, in the '243 Patent, that is? 11:53:08 11:53:13 11:53:16

A. Yes, because this '243 Patent was not for a switching hub. 11:53:20 11:53:23

Q. And the difference is that the 2524 required that you throw a switch to hand over controls from one host to another host; correct? 11:53:26 11:53:31 11:53:34 11:53:36

A. Some sort of switching mechanism, yes, but there were a number of schemes involved. 11:53:38 11:53:41 11:53:43

Q. It didn't have to be a mechanical switch; right? 11:53:44 11:53:46

A. No. In fact, they were built in, so it was some sort of mechanical means or software means to switch it. 11:53:47 11:53:49 11:53:53

Q. The 2524 couldn't automatically share a USB device with more than one host at a given time; right? 11:53:57 11:54:01 11:54:05

A. At a given time, no, no, that is 11:54:06

correct. 11:54:15

Q. Now, it occurred to you, in the 11:54:15

context of this switch, that it would be 11:54:18

better for both hosts to share the device 11:54:22

without having to switch back and forth; 11:54:25

right? 11:54:28

A. Yes, that is correct. 11:54:28

Q. And that's how you came up with the 11:54:29

idea of the '243 Patent? 11:54:31

A. Yes, it led to that patent 11:54:33

disclosure. Yes. 11:54:36

Q. And that idea is embodied in claim 1 11:54:37

that we saw earlier; right? 11:54:40

MR. SAULSBURY: It we could 11:54:44

actually take a look at claim 1, please. 11:54:44

THE WITNESS: Okay. I'm sorry, I 11:54:49

kind of missed the first part of your 11:54:52

question. 11:54:53

MR. SAULSBURY: No problem. 11:54:54

BY MR. SAULSBURY: 11:54:55

Q. The question was, your idea for how 11:54:56

you could share one device with two hosts 11:55:02

without having to switch back and forth, 11:55:07

that's embodied in claim 1 here of the 11:55:09

asserted patent? 11:55:13

A. Yes. 11:55:16

Q. And you know you didn't invent that 11:55:19

claim, Mr. Dickens did first; right? 11:55:22

A. Well, again, I have no idea where 11:55:24

that came in. 11:55:26

Q. In any case, you understand you 11:55:28

weren't the first to invent it? 11:55:30

A. I understand that it was eliminated 11:55:31

as a claim in the patent due to prior art, 11:55:34

yes. 11:55:38

Q. Okay. 11:55:39

And you also understand that you 11:55:39

weren't the first to invent what we saw in 11:55:46

Figure 3; right? 11:55:48

A. I know that we still have other 11:55:50

active claims. I have to say I have not sat 11:55:54

and looked at the existing claims versus 11:55:57

Figure 3, so what was your question again? 11:56:01

Q. Yeah. 11:56:05

My question was, you understand 11:56:06

that you did not invent what's in Figure 3? 11:56:10

A. So no, I don't understand that. 11:56:14

Q. Okay. 11:56:16

Well, you recall how we just did that exercise where we showed that everything in Figure 3 was found in claim 1? 11:56:17 11:56:19 11:56:22

A. I do, but we didn't do that for all of the remaining claims, so I don't know, because I have never done the exercise, of how Figure 3 relates to the remaining claims from the Court action. That's not something that I've done. There are some other experts involved with that. 11:56:26 11:56:28 11:56:30 11:56:34 11:56:38 11:56:40 11:56:43

Q. You couldn't identify any difference with respect to claim 23, though; right? 11:56:43 11:56:46

A. Well, again, I -- you know, I haven't sat and done any comparison exercise like you asked me to do, so I was just looking here, and from a sitting here standpoint, I didn't quickly notice anything, no. 11:56:48 11:56:52 11:56:55 11:56:58 11:57:01

Q. From the standpoint of your invention? 11:57:03 11:57:06

A. Reading the claims in the invention, yes. 11:57:08 11:57:11

Q. Let's go back to Exhibit 24 in your binder, your innovation and disclosure form. 11:57:12 11:57:14

MR. SAULSBURY: Thank you, Mr. 11:57:20

Glass. 11:57:21

BY MR. SAULSBURY: 11:57:22

Q. I want to zoom out for a moment and talk about the purpose of this form. 11:57:23 11:57:24

Now, you understand that Microchip had procedures in place that required engineers to document and then disclose innovations for possible patents; correct? 11:57:26 11:57:28 11:57:30 11:57:33

A. Yes, that's correct. 11:57:37

Q. Okay. 11:57:39

And it was important that you filled out the form accurately; right? 11:57:40 11:57:41

A. Absolutely. 11:57:43

Q. And that's because it may be used by Microchip's lawyers to apply for a patent; right? 11:57:44 11:57:47 11:57:50

A. That was the purpose of it, yes. 11:57:50

Q. And it's important to make accurate representations to the patent office? 11:57:52 11:57:54

A. Of course. 11:57:56

Q. Now, if we could take a look -- 11:57:58

MR. SAULSBURY: Mr. Glass, if we could take this down, actually, and if we could take a look at numbered paragraph 1, and 11:58:03 11:58:04 11:58:07

I'd like to call your attention to the final sentence. 11:58:11 11:58:13

BY MR. SAULSBURY: 11:58:13

Q. Do you see how it says, "The importance of engineers keeping a notebook (or other dated and witnessed hardcopy) AS THEY DEVELOP their work cannot be overstated!" 11:58:14 11:58:15 11:58:19 11:58:24

Do you see that? 11:58:26

A. I do, yes. 11:58:27

Q. And that was important so that there was a contemporaneous record showing what you invented; right? 11:58:30 11:58:33 11:58:36

A. Yes. 11:58:38

Q. Okay. 11:58:39

If we go down to paragraph A, the form says -- and actually, I apologize, it actually shows up on page 10. Page 10 is where it calls for attachments. Yes, if we could go to paragraph A, where it asks when you first conceived of your solution, the attached notebook entries or other written records, and include month, day, year. 11:58:43 11:58:47 11:58:51 11:58:54 11:58:57 11:59:03 11:59:05 11:59:08

Do you see that? 11:59:11

A. Yes, I do. 11:59:12

Q. But you attached nothing? 11:59:13

A. Because we would be handing them whatever the documents were. We didn't attach it as an electronic file in this Word document. 11:59:15 11:59:17 11:59:19 11:59:23

Q. Handed it to who? 11:59:23

A. Handed it to -- it would have been either counsel or Doug Smith at SMSC at the time. 11:59:25 11:59:27 11:59:31

Q. Do you know why the version of this invention disclosure provided to Aptiv in this case had no attachment? 11:59:31 11:59:33 11:59:35

A. I honestly have no idea. I was not involved with that at all. 11:59:37 11:59:40

But that all occurred at SMSC. I don't know what Microchip was able to recover on any of those kinds of document submissions. 11:59:42 11:59:45 11:59:47

Q. Let's take a look at the rest of page 10. And let's go down to section B. The question is about whether the device had actually been -- sorry, not section B. Oh, my apologies. It is, in fact, section B. 11:59:54 11:59:56 12:00:03 12:00:05 12:00:16

This is about whether the device had actually been constructed; right? 12:00:20 12:00:25

A. Correct, yes. 12:00:27

Q. Your response was N/A, as in not applicable? 12:00:28 12:00:31

A. Yes. At the time, we had not built a model of this device. 12:00:32 12:00:36

Q. Okay. 12:00:38

Now, this innovation is a part of the form submitted to SMSC's attorneys; right? 12:00:39 12:00:44

A. Yes. I don't remember now exactly who I submitted it to. I don't remember if it was directed directly to attorneys or Doug Smith or how that flow occurred. 12:00:48 12:00:50 12:00:54 12:00:57

Q. Ultimately, it got to the attorneys? 12:00:58

A. Ultimately, the attorneys were involved, yes. 12:01:00 12:01:02

Q. And they turned it into a patent? 12:01:02

A. I think they actually used an external firm to turn it into a patent, so I don't think it was an actual in-house attorney. But yes, ultimately, attorneys turned it into a patent. 12:01:06 12:01:07 12:01:11 12:01:13 12:01:15

Q. So you didn't actually write the language that appears in the patent; right? 12:01:16 12:01:18

A. That is correct, yes. 12:01:20

Q. Could you please turn back to Exhibit 1 in your binder. 12:01:26 12:01:30

MR. SAULSBURY: And if we could -- thank you. 12:01:34 12:01:37

BY MR. SAULSBURY: 12:01:37

Q. You recognize this as your '243 Patent? 12:01:38 12:01:41

A. Yes. 12:01:41

Q. The patent asserted here? 12:01:41

A. Right. 12:01:43

Q. Now, you didn't mention host-to-host communication in your patent; right? 12:01:44 12:01:47

A. Not that I recall. 12:01:53

Q. Your patent doesn't mention role reversal either? 12:01:55 12:01:59

A. I'm sorry, would you repeat? 12:02:00

Q. Certainly. 12:02:02

Your patent also doesn't mention role reversal; right? 12:02:02 12:02:05

A. No, we have a different patent that covers that. 12:02:06 12:02:09

Q. Okay. 12:02:09

Your invention disclosure didn't mention host-to-host communication either? 12:02:13 12:02:16

MR. BANNER: Asked and answered. 12:02:18

THE COURT: Overruled. 12:02:20

Go ahead. 12:02:21

THE WITNESS: Not that I recall, 12:02:22

no. 12:02:25

BY MR. SAULSBURY: 12:02:25

Q. Now, why don't we flip back actually 12:02:33

to your invention disclosure, Exhibit 24. And 12:02:36

if you could please flip to page 5 of it, and 12:02:41

I'd like to direct your attention to section 12:02:46

B. 12:02:48

It says, "How have others 12:02:49

attempted to solve this problem?" Are you 12:02:51

there with me? 12:02:54

A. Yes, I am. 12:02:55

Q. Now, in the paragraph below, you 12:02:56

endeavor to explain how others attempted to 12:03:02

solve the problem of sharing one USB device 12:03:05

with multiple hosts; right? 12:03:09

A. I'm just reading it because it's been 12:03:15

a very long time since I have written this. 12:03:17

Q. Certainly. Take your time. 12:03:19

(Whereupon, the witness reviews 12:03:21

the exhibit.) 12:03:23

THE WITNESS: Yes, that is correct. 12:03:38 12:03:40

BY MR. SAULSBURY: 12:03:40

Q. All the prior devices you described here are USB switches; right? 12:03:40 12:03:44

A. That is correct, yes. 12:03:47

Q. USB switches don't allow for host-to-host communication; right? 12:03:49 12:03:52

A. None that I'm aware of, or at least none that I was aware of at that time. I haven't looked at them in many years. 12:03:56 12:04:00 12:04:01

Q. They also don't provide role reversal? 12:04:04 12:04:13

A. That's not something that -- that I thought to look for. We do have USB devices that do role reversal and they can be used with the switches. We have them in Athens, so yes, we have switching hubs that do role reversal. 12:04:13 12:04:17 12:04:21 12:04:23 12:04:26 12:04:29

Q. My question was a little different, and I apologize. I know there's been a number of questions. 12:04:29 12:04:31 12:04:34

A. Okay. 12:04:34

Q. My question was, with respect to the 12:04:35

prior art you identified for the prior switches, those switches don't allow for role reversal; right? 12:04:36 12:04:40 12:04:42

A. Oh, in this timeframe, I don't remember seeing any, no. It's not anything I recall. 12:04:43 12:04:48 12:04:52

Q. And in the context of Athens, what you said is that you can use switches along with other components to accomplish role reversal; right? 12:04:52 12:04:54 12:04:57 12:05:01

A. Well, in Athens, role reversal is built in on one of the ports. 12:05:03 12:05:05

Q. Right. 12:05:07

But role reversal isn't a function that was available in prior switches; right? 12:05:08 12:05:14

A. In this timeframe of this disclosure? 12:05:18

Q. Oh, sorry. I thought -- 12:05:33

A. No. 12:05:35

Q. I thought you answered. 12:05:36

A. You're saying in reference to this disclosure? 12:05:37 12:05:39

Q. That's correct. I didn't realize it was a question. That's correct. 12:05:39 12:05:41

I'm sorry, did you answer? 12:05:43

A. So yeah, I would not have been aware of any at this time or I would have disclosed it. 12:05:44 12:05:46 12:05:48

Q. And so to be clear, at this time, you weren't aware of any prior art that mentions host-to-host communication; right? 12:05:52 12:05:54 12:05:57

A. None comes to mind that I would have known about in this timeframe. 12:06:02 12:06:06

Q. Okay. 12:06:07

And none of the prior art you disclosed to the patent office was about role reversal; right? 12:06:07 12:06:09 12:06:12

A. Again -- well, I guess -- let me back up a second and say, you know, the file wrapper that contains all the prior art, much of that was gathered by the patent attorneys and stuff. So I don't -- I don't know, I didn't go to review all of that prior art. 12:06:15 12:06:19 12:06:23 12:06:25 12:06:28 12:06:30

So I guess to clarify my response, as far as what -- are you just asking about what I disclosed or what was disclosed to the patent office? 12:06:33 12:06:38 12:06:40 12:06:42

Q. You know, that was a helpful clarification. 12:06:44 12:06:45

So with respect to what you disclosed, there was no prior art that allowed for role reversal; right? 12:06:46 12:06:48 12:06:57

A. Again, not -- not that I recall and I don't see any mention of that here, but as far as -- 12:07:01 12:07:04 12:07:07

Q. And in terms -- 12:07:07

A. -- as far as what I did. 12:07:08

Q. I'm sorry, you go ahead. 12:07:10

A. No, as far as what I disclosed. 12:07:12

Q. And as far as the rest of the prior art disclosed to the patent office, you don't know because that was left to the attorneys? 12:07:14 12:07:16 12:07:18

A. Yes, they did whatever prior art searches they needed to do, and, you know, we -- we wouldn't -- excuse me, we would not review everything. But there were certain things, if they thought it required attention, that they would ask us about. So I probably had seen a little of it, but certainly not all. 12:07:21 12:07:22 12:07:25 12:07:28 12:07:31 12:07:34 12:07:37 12:07:40

Q. And from what you saw, none of it disclosed host-to-host communications; right? 12:07:42 12:07:44

A. You know, to be very honest at this 12:07:47

point in time, especially for a 1300-page document with lots of prior art in it, I don't recall any of that prior art. So I can't really answer the question I think you're asking. 12:07:49 12:07:53 12:07:56 12:07:59 12:08:02

Q. Let me try asking a slightly different question, and this is specifically about what you know of, what you're aware of, setting aside what the attorneys did. 12:08:04 12:08:06 12:08:13 12:08:16

You don't know if there were existing prior art devices capable of host-to-host communication; right? 12:08:18 12:08:20 12:08:23

A. So are you talking with regard to any standard of any kind or what -- what is the context? 12:08:25 12:08:30 12:08:34

Q. Let me try it this way. 12:08:34

Were you aware of any host-to-host bridges that existed as of the time of your invention? 12:08:37 12:08:40 12:08:46

A. The only thing I would have recalled would be, you know, written here. I didn't talk about it, so I'm not really sure how to answer. 12:08:47 12:08:51 12:08:54 12:09:00

Q. You were deposed in this case, Mr. 12:09:11

Bohm? 12:09:13

A. Yes, I was. 12:09:14

Q. Okay. 12:09:15

MR. SAULSBURY: Your Honor, may I approach? 12:09:34 12:09:35

THE COURT: Yes. 12:09:36

(Whereupon, a discussion was held at sidebar as follows: 12:09:36 12:12:12

MR. SAULSBURY: Permission to play -- and I didn't think it called for a sidebar, it was just a heads-up to play 184 at line 25 through 185 at line 6 of the deposition. 12:12:12 12:12:12 12:12:12 12:12:12 12:12:12

MR. BANNER: This is improper impeachment. He gave the same answer and said he wasn't aware. It's the same thing he said in his deposition. 12:12:12 12:12:12 12:12:12 12:12:12 12:12:12

THE COURT: It does look like the same answer. 12:12:12 12:12:12

What's the purpose? 12:12:12

MR. SAULSBURY: He said I'm not really sure. 12:12:12 12:12:12

THE COURT: I'm looking at the transcript and I don't -- I don't see it as 12:12:12 12:12:12

terribly different from what he said today. 12:12:12

MR. SAULSBURY: I think it 12:12:12

clarifies what he said. 12:12:12

THE COURT: I mean, I'll let you 12:12:12

play it. I mean, it's fine. It's not going 12:12:12

to -- I don't know that it's going to 12:12:12

accomplish much of impeachment, but if you 12:12:12

want to put it in front of him, go ahead. 12:12:12

(Whereupon, sidebar discussion 12:12:12

concluded.) 12:12:21

MR. SAULSBURY: Mr. Glass, will 12:12:21

you please play clip 1201. 12:12:23

(Whereupon, a video was played for 12:12:27

the jury.) 12:12:30

BY MR. SAULSBURY: 12:12:57

Q. Mr. Bohm, you were personally 12:12:58

involved in analyzing Aptiv's dual role hub 12:13:00

for this case; right? 12:13:05

A. No, I was not. 12:13:06

Q. Did you do any analysis with respect 12:13:09

to the dual role hub product? 12:13:11

A. No, I did not. 12:13:14

MR. SAULSBURY: Your Honor, 12:13:16

permission to show Mr. Bohm's deposition 12:13:17

transcript at 158 line 25 through 159, 1 through 4. 12:13:27 12:13:32

THE COURT: Okay. 12:13:33

MR. SAULSBURY: Mr. Glass, would you please do that. And could we please blow up 158, line 25 through 159, 1 through 4. 12:13:34 12:13:35 12:13:45

BY MR. SAULSBURY: 12:13:52

Q. When you were asked in your deposition, "Did you do any analysis with respect to the accused dual role hub product?" And you answered, "Me being me personally?" And I said, "Yes." 12:13:52 12:13:54 12:13:55 12:14:00 12:14:03

A. It is interesting. 12:14:04

Could I see the couple of questions that preceded it? 12:14:05 12:14:06

Q. What's -- what do you need to see? I asked you whether you analyzed the hub. 12:14:10 12:14:15

A. Oh, I know what this was. I think I am interpreting analysis of it differently right here today than I think I did here. 12:14:17 12:14:23 12:14:27

Q. So you did, in fact, analyze Aptiv's dual role hub; right? 12:14:29 12:14:33

A. I saw a de-capped part where we analyzed the costing data for the dot size 12:14:34 12:14:39

that we were marketing. 12:14:45

Q. Okay. 12:14:46

A. But I have not actually analyzed the internals or the functionality of the Aptiv hub. 12:14:47 12:14:50 12:14:54

So the questioning of the -- of the deposition, you know, I think it was a broader thing, whereas the discussion we were having -- I didn't focus on the internal workings of it and patent claims, so that would be my reason. 12:14:55 12:14:58 12:15:01 12:15:04 12:15:07 12:15:11

Q. My apologies. 12:15:12

So your testimony is you haven't analyzed the internal workings of the Aptiv hub? 12:15:14 12:15:15 12:15:19

A. From the internal workings, no, I have not analyzed the internal workings of the Aptiv hub. 12:15:19 12:15:21 12:15:24

Q. You were here for the opening statements; right? 12:15:25 12:15:27

A. Yes, I was. 12:15:28

Q. Okay. 12:15:28

And you recall seeing the letter that Mr. -- sorry, the letter that Microchip 12:15:29 12:15:34

sent to Aptiv about infringement? I'm just trying to place a timeframe. 12:15:42 12:15:45

A. Yeah. 12:15:47

Q. You're familiar with that letter? 12:15:47

A. Yes. 12:15:49

Q. Okay. 12:15:49

Now, you were involved in the infringement analysis leading up to that letter; right? 12:15:50 12:15:56 12:15:59

A. So I am trying to put my head in the mind -- or, excuse me, in the timeframe of what we were seeing then. 12:15:59 12:16:03 12:16:05

I believe that was based totally on what we were hearing Aptiv was advertising, so it was based on advertised features. We didn't have any -- anything that would tell us conclusively that they were infringing or not, I don't believe, at that time. 12:16:12 12:16:14 12:16:20 12:16:22 12:16:26 12:16:31

Q. Right. 12:16:31

So before you sent that letter, you never actually used the dual role hub? 12:16:32 12:16:34

A. I personally have never used an Aptiv device, I forget the -- Boston chip, I think that's what they were calling it in the 12:16:39 12:16:45 12:16:48

opening.
Q. Okay.
And you also didn't have any documentation for Aptiv's hub before you sent the letter?
A. Not to their hub, no.
As I mentioned, I think, during my previous questioning, we had a sales sheet, I believe. It was not a confidential document. It just listed some features of the break out box. But we had no documentation on the chip, itself.
Q. And, in fact, as of January 5th, 2015, Microchip hadn't confirmed how Aptiv's device worked; right?
MR. BANNER: Objection, calls for speculation.
THE COURT: Sustained.
BY MR. SAULSBURY:
Q. Mr. Bohm, I've handed you what's been marked as trial Exhibit 268.
(Whereupon, Trial Exhibit 268 was introduced.)
BY MR. SAULSBURY:

Q. Do you recognize this as an email from David Sroka of Microchip? 12:18:10 12:18:14

A. Yes. 12:18:22

MR. SAULSBURY: Okay. Move to admit 268. 12:18:24 12:18:25

MR. BANNER: No objection. 12:18:28

THE COURT: All right. Admitted. 12:18:29

MR. SAULSBURY: Mr. Glass, please let us see it. 12:18:30 12:18:33

BY MR. SAULSBURY: 12:18:34

Q. Now, Mr. Bohm, this is an email dated January 5th, 2015; right? 12:18:34 12:18:37

A. Yes, that is correct. 12:18:40

Q. And you can see how in the very first sentence it says, "The diagram is our creation/interpretation of what Unwired is doing, and has not been confirmed"; right? 12:18:40 12:18:42 12:18:45 12:18:47

A. Yes. 12:18:50

Q. So January 5th, Microchip hadn't confirmed that this device worked; right? 12:18:51 12:18:55

A. I would not agree with that statement. We are getting some guesses from our marketing team as to what they believe that Unwired at this time was doing, but we 12:18:59 12:19:03 12:19:06 12:19:10

had no way to know if that was correct or not. 12:19:15

Q. Right. I think we're on the same 12:19:17

page. 12:19:19

And therefore, you had not 12:19:19

confirmed how Aptiv's device worked? 12:19:21

A. I apologize. I thought you said "had 12:19:23

confirmed." I maybe misunderstood your 12:19:25

question. 12:19:28

Q. No worries at all. I think we're on 12:19:28

the same page. 12:19:30

Despite not knowing how Aptiv -- 12:19:36

strike that. 12:19:38

Despite not having confirmed how 12:19:38

this device worked, Microchip sent Aptiv a 12:19:41

letter threatening legal action just a week 12:19:46

later; right? 12:19:49

A. I don't remember the dates. I'll 12:19:53

take your word for it, I suppose. 12:19:54

Q. Mr. Bohm, I've just handed you what's 12:20:25

been marked as Trial Exhibit 9. 12:20:27

(Whereupon, Trial Exhibit 9 was 12:20:27

introduced.) 12:20:27

BY MR. SAULSBURY: 12:20:27

Q. Do you recognize this as -- do you 12:20:31

recognize this document? 12:20:32
A. Yes, it seems like the letter that 12:20:34
our internal counsel sent to Delphi. 12:20:37
MR. SAULSBURY: Move to admit 12:20:41
Exhibit 9. 12:20:43
MR. BANNER: No objection. 12:20:43
THE COURT: All right. It's 12:20:44
admitted. 12:20:45
BY MR. SAULSBURY: 12:20:46
Q. Do you see how this letter is dated 12:20:47
January 12th, 2015? 12:20:50
A. Yes. 12:20:54
Q. Does that refresh your recollection 12:20:55
that just a week after Microchip said it 12:20:56
hadn't confirmed how Aptiv's chip worked, it 12:21:02
sent a threatening legal letter? 12:21:06
A. I'm looking at the letter here, if 12:21:10
you give me a moment. 12:21:13
(Whereupon, the witness reviews 12:21:14
the exhibit.) 12:21:16
BY MR. SAULSBURY: 12:21:23
Q. And I can perhaps speed this up. 12:21:24
Do you see how, in the second 12:21:26
paragraph, it says, "Microchip and its 12:21:28

subsidiaries have made core innovations in the area of multi-host USB device controllers"? 12:21:30 12:21:32

And then it refers to two patents, one of them is the '243 Patent asserted here. 12:21:37 12:21:39

And it goes on, it says, "These patents protect fundamental aspects of the multi-host type USB device controllers. More specifically, our patents cover key aspects of any multi-host USB device controller-based solution that might be implemented within the automotive infotainment environment." 12:21:42 12:21:43 12:21:47 12:21:49 12:21:52 12:21:55 12:21:57

Do you see that? 12:22:00

A. Yes, I do. 12:22:01

Q. And it says, "Please know that if required Microchip will defend its intellectual property rights to protect our interests in this space." 12:22:02 12:22:05 12:22:06 12:22:10

Do you see that? 12:22:10

A. I do. 12:22:11

Q. So this refreshes your recollection then a week after Microchip had confirmed -- sorry, a week after saying that it couldn't confirm if the chip worked, Microchip sent a letter saying the defendant's IP rights in 12:22:18 12:22:19 12:22:23 12:22:26 12:22:32

that its patents covered any multi-host device controller solution that might be implemented in the automotive infotainment system; right? 12:22:36 12:22:41 12:22:43

MR. BANNER: Objection, vague. 12:22:50

THE COURT: Overruled. 12:22:51

THE WITNESS: Yep, that's what it says. 12:22:53 12:22:54

BY MR. SAULSBURY: 12:22:55

Q. Now, eventually you did get your hands on one of Aptiv's chips; right? 12:22:55 12:22:57

A. No. We got ahold of a break out box. 12:22:59

Q. And that break out box -- 12:23:04

A. Not the chip. 12:23:06

Q. My apologies. 12:23:09

The break out box you got ahold of, that had an Aptiv chip on it; right? 12:23:10 12:23:12

A. Well, we got ahold of different things at different times. If you could give me a little bit of a clue as far as what time period you're talking about, I might be able to better answer your question. 12:23:14 12:23:18 12:23:23 12:23:26 12:23:28

Q. Certainly. Let's take a look. 12:23:32

(Brief pause.) 12:24:53

BY MR. SAULSBURY: 12:24:59

Q. Mr. Bohm, I've just handed you what's been marked as Exhibit 288. 12:25:00 12:25:02

(Whereupon, Trial Exhibit 288 was introduced.) 12:25:02 12:25:02

BY MR. SAULSBURY: 12:25:02

Q. Do you recognize the photos that are in Exhibit 288? 12:25:05 12:25:06

A. I can't say that I recall the photos. I may have seen them, but I don't recall. 12:25:44 12:25:48

(Brief pause.) 12:26:13

MR. SAULSBURY: Your Honor, it looks like we don't have 287. Can we take a lunch break now and then I can come back and start with that? 12:26:16 12:26:21 12:26:25 12:26:28

THE COURT: That's fine. 12:26:29

So we would have taken a lunch break in about 10 minutes anyway. 12:26:30 12:26:33

I'm going to remind you again the caution I gave you yesterday. I know you're starting to hear testimony. You should not be talking with each other about the evidence that's coming in. That includes things like, you know, whether any of you wants clarification of the evidence from someone 12:26:35 12:26:37 12:26:39 12:26:41 12:26:44 12:26:46 12:26:50

else, it shouldn't include your impressions of the witnesses or questions or anything like that. 12:26:52 12:26:55 12:26:58

You have to hold that all to yourself until you get to deliberations. Okay? So chat about other things over lunch, but not about the evidence coming in. 12:26:59 12:27:00 12:27:02 12:27:05

So with that, we'll take lunch, we'll plan on 45 minutes and we'll be back here around 1:15. Okay. 12:27:07 12:27:09 12:27:12

(Whereupon, the jury was excused from the courtroom.) 12:27:17 12:27:26

THE COURT: Just a ballpark of what you have left? 12:27:38 12:27:41

MR. SAULSBURY: 15 minutes, ideally 10. 12:27:42 12:27:44

THE COURT: Okay. 12:27:45

MR. BANNER: Your Honor, would you mind letting Mr. Bohm know -- 12:27:46 12:27:47

THE COURT: I'm sorry, Mr. Bohm, you can step down. My apologies. 12:27:50 12:27:51

And just a reminder, over the lunch break, you are still under oath, so you should not be chatting with anybody about your 12:27:53 12:27:54 12:27:56

testimony.
THE WITNESS: I clearly understand that.
Should I be standing when the jury comes out? I feel like I would bump into them.
THE COURT: I'm concerned that you would topple over, so it's fine. I don't think it's a problem.
All right. You can step down.
And then I assume, Mr. Banner, you'll have a little bit of redirect?
MR. BANNER: Yes, just a small amount.
THE COURT CLERK: All rise.
(Whereupon, a 45-minute luncheon recess was taken at 12:30 p.m.)
THE COURT CLERK: All rise.
THE COURT: All right. Have a seat, please.
I just have one quick clarification before we bring the jury back in. After listening to the openings and testimony so far, where do you stand on the

'708 Patent? Did you drop that claim? 13:14:44

MR. BANNER: Yeah, we dropped it, 13:14:45

Your Honor. 13:14:48

THE COURT: Okay. 13:14:51

So I'll fix the instructions 13:14:52

accordingly. So I did instruct the jury on it 13:14:54

yesterday, and in the instructions, I don't 13:14:57

think I knew it was dropped, but my guess is 13:15:00

-- I'm not going to worry about it too much. 13:15:03

And if you want me to say something at the 13:15:05

conclusion of the instructions, we can figure 13:15:07

that out somehow. 13:15:09

MR. SLAYDEN: Should we just 13:15:10

assign that to highlight at the moment, Your 13:15:11

Honor? 13:15:14

THE COURT: Yes, that's fine. 13:15:14

Okay. You can bring them in. 13:15:15

MR. BANNER: Your Honor, could I 13:15:17

ask for one thing? 13:15:18

THE COURT: Sure. 13:15:19

MR. BANNER: I don't know if 13:15:20

counsel plans on playing any more deposition 13:15:21

testimony, but my understanding is that the 13:15:23

process of impeachment requires that the -- 13:15:26

that the witness gets to review and refresh his memory as to what he answered in his deposition before it's kind of put up on the screen. If that's not Your Honor's understanding, I understand, but I just wanted to -- 13:15:31 13:15:35 13:15:38 13:15:40 13:15:41 13:15:43

THE COURT: That hasn't necessarily been my practice, but I will say that there's -- obviously, if there is a question about the completeness, you can raise it or you can raise it on redirect. I don't have the transcript -- I mean, I have the transcript but I haven't studied it, but if they think that's a basis for impeach, I'll let them impeach. 13:15:43 13:15:44 13:15:47 13:15:49 13:15:54 13:15:56 13:15:58 13:16:00 13:16:03

MR. BANNER: Okay. 13:16:05

(Whereupon, the jury entered the courtroom.) 13:16:06 13:16:08

THE COURT: All right. 13:17:02

You can proceed. All right. So welcome back. We're going to continue now with the rest of Mr. Bohm's cross-examination. 13:17:03 13:17:04 13:17:07

MR. SAULSBURY: Thank you, Your Honor. 13:17:11 13:17:13

THE COURT: Yes. 13:17:13

BY MR. SAULSBURY: 13:17:19

Q. Mr. Bohm, I've just handed you what's been marked as Exhibit 287. 13:17:19 13:17:22

(Whereupon, Trial Exhibit 287 was introduced.) 13:17:22 13:17:22

BY MR. SAULSBURY: 13:17:22

Q. Do you recognize this as an email from you to Mitch Obolsky? 13:17:24 13:17:26

A. Yes, in early 2016. 13:17:29

MR. SAULSBURY: Okay. Your Honor, I represent that the images marked as Exhibit 288 are the attachment to the email that is Exhibit 287. I offer both 287 and 288. 13:17:31 13:17:33 13:17:36 13:17:37 13:17:41

MR. BANNER: No objection. 13:17:43

THE COURT: Okay. They are admitted. 13:17:44 13:17:45

MR. SAULSBURY: Mr. Glass, would you put up 287, please. There we go. 13:17:46 13:17:49

BY MR. SAULSBURY: 13:17:52

Q. So in this email, Mr. Bohm, you were telling Mr. Obolsky that you had received the new BOB. That's the break out box; right? 13:17:53 13:17:54 13:17:58

A. Correct. 13:18:02

Q. And the break out box that contained the Unwired device this morning? 13:18:02 13:18:08

A. Yes. 13:18:10

Q. And you opened it up and you took a couple pictures? 13:18:11 13:18:13

A. Yes. 13:18:14

Q. Those are the pictures that I handed you as Exhibit 288? 13:18:14 13:18:17

A. You know, I'll take your word for it. 13:18:18

Q. Now, you say you didn't beep out the board to create a schematic, but you did follow the USB lines and they definitely go to the Unwired chip? 13:18:20 13:18:22 13:18:26 13:18:28

A. Yep. 13:18:29

Q. Now, if you go down to the next paragraph, you say, "The unwired chip (likely an MCM), has a C4 rev. Could be a single die that is rumored, but hard to say." 13:18:31 13:18:33 13:18:36 13:18:42

Do you see that? 13:18:44

A. Yes, I do. 13:18:45

Q. Again, you continue, "We can decap this, but it does belong to Tecvox, so if we do a decap it would be only fair to share the 13:18:46 13:18:49 13:18:52

report"? 13:18:57

A. I see that, yes. 13:18:57

Q. Now, Tecvox makes USB hubs; right? 13:18:58

A. I think they make the break out box. 13:19:03

Q. Right. 13:19:06

A. Is that what you're referring to? 13:19:07

Q. That's right. They are one of 13:19:08

Aptiv's direct competitors? 13:19:10

A. Yes, I believe so. 13:19:12

Q. And you, in fact, did that decapping? 13:19:13

A. Yes, I think it is the decap that I 13:19:17

actually referred to earlier. 13:19:19

Q. Now, if you please turn back to 13:19:24

Exhibit 67 in your binder, this is one of the 13:19:27

documents you went over with Mr. Banner. And 13:19:28

we'll take a look at 67 in evidence. 13:19:33

Mr. Bohm, I'd like you to turn to 13:19:37

page 13, please. 13:19:40

A. Again, that was 67? 13:19:42

Q. That's right. Page 13. 13:19:45

And I direct your attention to the 13:19:47

email at the bottom from Mr. Sroka to you. 13:19:49

A. I'm still getting there. 13:19:54

Q. You can also see it up on the screen 13:20:01

here if you need it. 13:20:02

A. Okay. 13:20:03

Q. Do you see how Mr. Sroka asks, "Do you have the patent number for the Dual host, single endpoint?" 13:20:04 13:20:08 13:20:10

A. Yes. 13:20:11

Q. And your reply is on page 3 of this document? 13:20:13 13:20:15

A. As I recall, yes. 13:20:17

MR. SAULSBURY: Could we go to page 3, please, Mr. Glass. 13:20:25 13:20:26

BY MR. SAULSBURY: 13:20:27

Q. This is your reply here on page 3? 13:20:28

A. Yes. 13:20:32

MR. SAULSBURY: And if you could put the whole top of page 3, Mr. Glass, right there is good and all the way up to the top. That works, sure. And then can you blow up? Keep going. There we go. 13:20:36 13:20:38 13:20:42 13:20:50 13:20:55

BY MR. SAULSBURY: 13:21:02

Q. You replied to Mr. Sroka and you actually provided a different patent than the patent that's asserted here; right? 13:21:03 13:21:07 13:21:09

A. Yes. This was the '708 Patent. This 13:21:13

was the other patent, yes. 13:21:17

Q. Thank you. 13:21:18

MR. SAULSBURY: No further 13:21:25

questions. 13:21:27

THE COURT: Okay. 13:21:27

Mr. Banner? 13:21:28

- - - 13:21:28

REDIRECT EXAMINATION 13:21:32

- - - 13:21:33

BY MR. BANNER: 13:21:33

Q. Thank you, Mr. Bohm. I have a few 13:21:33

questions for you. 13:21:35

And -- 13:21:36

MR. BANNER: Mr. Ferrer, 13:21:51

apologies. Mr. Ferrer, can you pull up 13:21:53

Exhibit 1 of the claims 23 and 1 and put them 13:21:54

side-by-side, please. 13:21:59

BY MR. BANNER: 13:22:01

Q. Mr. Bohm, you remember answering 13:22:01

questions about claims 23 and claim 1 of your 13:22:03

'243 Patent? 13:22:09

A. Yes. 13:22:09

Q. Did you write the claims here, claim 13:22:10

23 or claim 1 of the '243 Patent? 13:22:13

A. No, I did not write any of them. 13:22:15
Q. Who wrote the claims? 13:22:17
A. I'm sorry? 13:22:18
Q. Who wrote the claims? 13:22:20
A. This would have been patent counsel, either in-house or external. 13:22:21
Q. Do you understand the legal meaning of the words in the claims of your patents? 13:22:27
A. Probably not without going to look them up, what they are. 13:22:33
Q. Have you reviewed the Court claim construction order in this case where the Court decided what the words in the claims of your patent means? 13:22:36
A. No, I've never reviewed that. 13:22:43
Q. Okay. 13:22:45
If you look at claim 1 and claim 23 up here on the screen, are the words found in claim 1 of your patent the same as the words found in claim 23 of your patent? 13:22:45
A. As I was reviewing them, I was finding many, if not all. The words appear to be common between the two, yes. 13:22:55
Q. So are they identical? 13:23:02

A. That was my initial take-away when I was doing the review up here, yes. 13:23:05 13:23:08

Q. The words in your claim -- in claim 23 are the same as the words in claim 1? 13:23:10 13:23:12

A. Well, no, not all of the words, but many of the words were contained in both. I'm sorry, I may have misunderstood your question. 13:23:15 13:23:18 13:23:21

Q. I'm sorry, it was probably a bad question. 13:23:23 13:23:25

MR. BANNER: Let's go to Exhibit 1, Mr. Ferrer. Page 11. And blow that up. 13:23:25 13:23:27 13:23:36

BY MR. BANNER: 13:23:36

Q. Mr. Bohm, we talked about this in the first part of your testimony, and do you remember what this is, Inter Partes Review Certificate? 13:23:38 13:23:40 13:23:44 13:23:46

A. Yes. 13:23:46

Q. And what is it? 13:23:47

A. So this is the outcome of the Court case regarding all of the claims defining which claims would be cancelled and which claims are still found to be patentable. 13:23:47 13:23:51 13:23:54 13:23:57

Q. Is claim 23 one of the claims that 13:24:00

the patent office found patentable? 13:24:02

A. Yes. 13:24:04

Q. Is claim 1 one of the claims that the patent office cancelled? 13:24:04 13:24:07

A. Yes. 13:24:08

MR. BANNER: No further questions, Your Honor. 13:24:11 13:24:12

THE COURT: Okay. 13:24:13

MR. SAULSBURY: No further questions. 13:24:13 13:24:14

THE COURT: All right. Mr. Bohm, you can step down. 13:24:14 13:24:16

(Whereupon, the witness was excused.) 13:24:16 13:24:18

THE COURT: Counsel, can he leave those binders there? 13:24:23 13:24:25

MR. BANNER: They were specifically for him. 13:24:27 13:24:28

THE COURT: Okay. So you can leave them there and counsel will take them back. 13:24:29 13:24:30 13:24:32

(Brief pause.) 13:24:33

THE COURT: All right. 13:24:58

Mr. Slayden, you may -- Mr. 13:25:00

Slayden, are you going next? 13:25:05

MR. SLAYDEN: Yes. 13:25:08

THE COURT: All right. Who do you 13:25:08

call? 13:25:09

MR. SLAYDEN: I call Mr. Obolsky. 13:25:11

THE COURT: All right. Mr. 13:25:12

Obolsky, please come up. 13:25:13

THE COURT CLERK: Would you please 13:25:33

stand and raise your right hand. Please state 13:25:35

and spell your name for the record. 13:25:37

THE WITNESS: My name is Mitch 13:25:39

Obolsky, it's M-I-T-C-H, last name is 13:25:40

O-B-O-L-S-K-Y. 13:25:45

- - - 13:25:46

...MITCHEL OBOLSKY, after having 13:25:46

first been sworn and/or affirmed, was examined 13:25:46

and testified as follows... 13:25:46

- - - 13:25:58

DIRECT EXAMINATION 13:25:58

- - - 13:26:02

BY MR. SLAYDEN: 13:26:02

Q. Please state your name for the 13:26:03

record. 13:26:04

A. Yes, my name is Mitch Obolsky. 13:26:05

Q. When did you join Microchip? 13:26:09

A. I joined Microchip in 1995. 13:26:11

Q. What's your current title in Microchip? 13:26:14 13:26:16

A. My current title is Senior Vice President of the Networking and Data Center Business Unit. 13:26:16 13:26:19 13:26:23

Q. Can you describe your responsibilities to the jury, please. 13:26:23 13:26:24

A. Yes. At the highest level, I run four business units of Microchip and they all are related to wire connectivity. 13:26:26 13:26:29 13:26:31

Q. How long have you been in your current position? 13:26:35 13:26:38

A. The current position I've held is about four years. 13:26:39 13:26:41

Q. And as Senior Vice President, do you manage any engineers? 13:26:42 13:26:45

A. Yes, I do. 13:26:46

Q. How many? 13:26:47

A. Today, roughly 2,000 engineers. 13:26:48

Q. Can you describe to the jury the type of products that fall under your responsibility at Microchip? 13:26:51 13:26:54 13:26:55

A. Yeah. At a high level, they are all wire connectivity. Do you want me to give a little more detail? 13:26:56 13:27:00 13:27:02

Q. Maybe just a little bit. 13:27:03

A. Okay. So the ones we're talking about come from one of my business units that's a USB and Ethernet, we've seen a lot about USB. 13:27:05 13:27:07 13:27:09 13:27:13

Another business unit does what's called host, the automotive infotainment group, and that business does connectivity from the head unit out to the speaker. 13:27:13 13:27:16 13:27:20 13:27:22

Another business unit works on data center storage products, and the last one works on telecom products. 13:27:24 13:27:25 13:27:28

Q. And are you in charge -- is your group in charge, I'm sorry, or is it your responsibility over the Sandia chip that's involved in this case? 13:27:31 13:27:35 13:27:38 13:27:41

A. Yes. That falls under my responsibility. 13:27:42 13:27:45

Q. Okay. 13:27:45

Let's back up a little bit and let the jury know a little bit about you. 13:27:47 13:27:49

Where did you attend college? 13:27:50

A. I attended college in upstate New York; I went to Cornell University. 13:27:52 13:27:54

Q. And what did you study? 13:27:56

A. I studied electrical engineering. 13:27:57

Q. What year did you graduate? 13:28:00

A. I graduated in 1983. 13:28:01

Q. Well, over the past 40 years, have you had time to have a family? 13:28:04 13:28:09

A. Yes, I did. 13:28:09

Q. Are you married? 13:28:10

A. Yes, I am. 13:28:11

Q. How long have you been married? 13:28:12

A. I've been married also about 40 years. 13:28:14 13:28:16

Q. And do you have kids? 13:28:16

A. Yes, three. 13:28:17

Q. Okay. 13:28:17

Are they still at home? 13:28:18

A. No, they've all left. 13:28:19

Q. Well, did you have the chance -- did they have any grandchildren for you? 13:28:22 13:28:25

A. Yes, I have four granddaughters so far. 13:28:28 13:28:31

Q. You said 1995. I guess if my math is right, I think you've been at Microchip for 27 years? 13:28:31 13:28:33 13:28:36

A. Yes, 27 years. 13:28:37

Q. Can you tell the jurors why you've been at Microchip for 27 years? 13:28:38 13:28:39

A. Yes. You know, Microchip is a special company in semiconductors in that it's purpose built. Culture is one that's enjoyable in that world. We have a definition of what we expect out of an employee, we measure it regularly, and, you know, the people work very well together. 13:28:41 13:28:45 13:28:49 13:28:51 13:28:56 13:28:59 13:29:02

Q. Has Microchip changed over the 27 years you've been there? 13:29:06 13:29:09

A. Yes, it has. 13:29:10

Q. And has Microchip's product offerings grown over those 27 years? 13:29:11 13:29:13

A. Yeah. So that's the change. Microchip has grown substantially. Microchip was -- you know, when I joined originally, it was a small company. Now it's maybe 30 times the size it was when I first joined. And, you know, we were a very narrow product offering, 13:29:14 13:29:16 13:29:18 13:29:21 13:29:23 13:29:27

you know, what was called microcontrollers, that was one or two business units, and today we have 25 business units, so we're a much bigger company today. 13:29:31 13:29:34 13:29:36 13:29:39

Q. About how many different products does Microchip offer today? 13:29:39 13:29:41

A. So, yeah, it's a big number that's roughly 180,000 different part numbers that are available for sale today. 13:29:43 13:29:46 13:29:49

Q. Can you describe to the jury some examples of the products Microchip makes? 13:29:51 13:29:53

A. Sure. We talked about the ones that were under my direct responsibility, so in the world of USB, there would be products for microcontrollers, for all kinds of PCs, for consumer products. Microcontrollers were a key to the company. What we described as 8, 16 and 32-bit, which is basically a small, medium and large size. Those products are used to drive a very large number of electronic devices. 13:29:56 13:30:01 13:30:04 13:30:07 13:30:11 13:30:14 13:30:17 13:30:20 13:30:22 13:30:24

Probably most of you have a hundred different parts of a microchip in some part that you've bought, just hidden inside. 13:30:25 13:30:27 13:30:31

Q. Does Microchip make consumer products? 13:30:33 13:30:35

A. Yeah, Microchip does make products that are sold into consumer products. 13:30:36 13:30:38

Q. Okay. All right. 13:30:41

Has Microchip's capacity to produce and make microchips grown since you've been at the company? 13:30:42 13:30:44 13:30:49

A. Yeah. As a rough estimate, we probably produced about a million parts a day when I first joined, and today we produce more than 20 million parts today, so about 20X. 13:30:50 13:30:51 13:30:54 13:30:56

Q. So what is that per year do you think, on average, of chips that Microchip makes? 13:30:59 13:31:01 13:31:03

A. At a high level, we currently are running roughly eight billion units per year, so that's like more than there's every person on the planet to get a sense where you likely have one. 13:31:04 13:31:06 13:31:09 13:31:12 13:31:15

Q. Does Microchip make the same number of chips of each chip each month or does it vary? 13:31:16 13:31:18 13:31:20

A. So we -- we make whatever the 13:31:20

customers ask for, and that varies considerably across the year. So yes, we respond to the needs. For example, a lot of our customers buy a lot of their products Christmastime. They make consumer products that are only used from October to December and sold only at Christmas. 13:31:23 13:31:26 13:31:29 13:31:33 13:31:36 13:31:38 13:31:40

Other companies like automotive industry tends to ramp in June by every year and by March have stopped buying product. So every one of our customers has a different pattern, so we're quite flexible. 13:31:42 13:31:44 13:31:48 13:31:50 13:31:52

Q. And talking about customers, what is the preferred customer at Microchip? 13:31:54 13:31:56

A. So a preferred customer is usually one of our larger customers and someone we have a strong relationship, we give them preferred service, preferred support. In most cases, what's important to them is the technical support. We have a very large number of sales and technical people that are application engineers and we would help them develop a design, get it into production, work with all the qualification testing and even 13:31:57 13:31:59 13:32:02 13:32:04 13:32:08 13:32:11 13:32:13 13:32:17 13:32:20 13:32:22

solve issues later. 13:32:25

Q. Pricing, do your preferred customers get discounts on Microchip products? 13:32:27 13:32:30

A. Yes. If you are a larger preferred customer, certainly you get a price that's well below what would be our normal list price. 13:32:32 13:32:34 13:32:36 13:32:38

Q. And can you explain to the jurors how that pricing is set for preferred customers? 13:32:38 13:32:40

A. Yes. So for large customers, we use sort of a long-term agreement. They are not formal agreements, but, in essence, what we do is quote all the parts we sell to them once a year; we give them the prices for that year and they give us a forecast of how much they're going to buy. And then, you know, how much they intend to buy the next four years, and we give them a rough estimate of what they'll pay. So they can make give us a forecast. 13:32:43 13:32:49 13:32:51 13:32:53 13:32:57 13:32:59 13:33:01 13:33:03 13:33:05 13:33:07 13:33:10

Q. Would it be correct to say that if they buy more chips or earn more chips, they get a better pricing? 13:33:10 13:33:12 13:33:15

A. Yes, certainly. During the annual 13:33:16

agreements, often we find if they decided to use our product in more locations, then they would pay less per unit, or if they were going to use it less, then they would pay more. 13:33:18 13:33:21 13:33:23 13:33:25

Q. Do the terms of the long-term agreements that you mentioned change year to year? 13:33:28 13:33:30 13:33:32

A. Yes. So again, you know, it's just a forecast. The customers' business changes over time and, you know, based on that most recent use for last year, often it will be higher or lower than first said. The plans change. It's hard to have five years correct. 13:33:34 13:33:37 13:33:40 13:33:42 13:33:46 13:33:48

But each year, we review it and then we come up with a price for the next coming year. 13:33:50 13:33:52 13:33:55

Q. Is that an agreement between you and the customer? 13:33:56 13:33:58

A. Yes, it is. 13:33:59

Q. This case is about Microchip's '243 Patent. 13:33:59 13:34:02

During your 27 years, have you seen Microchip invest in innovation? 13:34:02 13:34:05

A. Yes. Microchip has a large number of 13:34:07

engineers and their jobs are research and development to provide new features to new products. 13:34:12 13:34:15 13:34:18

Q. Does Microchip file patent applications to protect its innovations? 13:34:19 13:34:22

A. Yes, it does. 13:34:24

Q. And do you know how many patents Microchip currently owns worldwide? 13:34:25 13:34:28

A. Yeah, today roughly 7,000 worldwide patents. 13:34:30 13:34:32

Q. And during your 27 years, have you ever been granted a patent? 13:34:32 13:34:35

A. Yes, I have. One patent. 13:34:35

Q. Does Microchip use your invention? 13:34:39

A. No, it does not. 13:34:42

Q. Do you think there's a future market? 13:34:44

A. Potentially. You know, the patent has applicability. The challenge is to find a way to use it, and the price point has to be right for a customer, so some day. 13:34:47 13:34:50 13:34:54 13:34:59

Q. Okay. 13:35:01

I think you have your exhibit notebook there. Can you turn to Exhibit 1, please. 13:35:01 13:35:03 13:35:05

MR. SLAYDEN: Mr. Ferrer, can we look at Exhibit 1. 13:35:13 13:35:14

BY MR. SLAYDEN: 13:35:15

Q. Do you recognize Exhibit 1, Mr. Obolsky? 13:35:16 13:35:18

A. Yes, I do. 13:35:18

Q. And on the first page, do you see where it lists assignee? 13:35:19 13:35:21

A. Yes, I do. 13:35:23

Q. And what company does it identify? 13:35:24

A. It lists Standard Microsystems Corporation. 13:35:26 13:35:30

Q. And do you have a nickname for that? 13:35:30

A. Yeah, we call it SMSC. 13:35:32

Q. Did Microchip purchase SMSC? 13:35:35

A. Yes, we did. 13:35:37

Q. And when was that, if you know? 13:35:38

A. It was roughly 2012, when the deal closed. 13:35:40 13:35:43

Q. Do you know how much Microchip paid for SMSC? 13:35:44 13:35:46

A. Yes. Net we paid about $750 million for SMSC. 13:35:47 13:35:50

Q. Can you explain to the jury why you 13:35:52

would pay $750 million for SMSC? 13:35:53

A. Yes. Microchip buys many companies, 13:35:56

and the reason we buy the companies and why we would pay that price is we're buying their engineers, we're buying their technology, we're buying their product, we're buying their customers, and then often, ultimately, the market. 13:36:01 13:36:03 13:36:06 13:36:08 13:36:12 13:36:16

Q. You mentioned technology as part of the acquisition. Did Microchip acquire SMSC patents? 13:36:16 13:36:18 13:36:21

A. Yes, we did. All of their patents. 13:36:22

Q. And the '243 is one of those patents? 13:36:24

A. Yes, it is. 13:36:28

Q. Okay. 13:36:29

After the purchase, did SMSC remain a stand-alone company? 13:36:32 13:36:35

A. No, it did not. We merged the division of SMSC into Microchip, into what we call Microchip classic, the historical part of Microchip. 13:36:36 13:36:39 13:36:42 13:36:44

Q. And did you become responsible for any SMSC business units? 13:36:45 13:36:48

A. Yes. I took on what later became 13:36:50

named the USB Networking Business Unit which was responsible for the USB product line and the Ethernet product line. 13:36:54 13:36:57 13:37:00

Q. Did Mr. Bohm, the inventor of the patent here, join part of Microchip at the SMSC acquisition? 13:37:02 13:37:06 13:37:08

A. Yes, he did. 13:37:11

Q. And what position did he hold when he joined? 13:37:12 13:37:14

A. Yeah, so as you heard earlier from Mark, he was the manager for the architectural engineering group. 13:37:15 13:37:20 13:37:23

Q. And that group was part of your business unit? 13:37:24 13:37:27

A. Yes, it was. 13:37:27

Q. When Microchip purchased SMSC, did SMSC sell you products that used Mr. Bohm's multi-host patent? 13:37:32 13:37:35 13:37:40

A. No, they did not. Microchip did not. 13:37:41

Q. And after the purchase of SMSC, did Microchip immediately take any action to produce a product using Mr. Bohm's patent? 13:37:43 13:37:46 13:37:48

A. No, we did not. 13:37:50

Q. And can you explain to the jury why 13:37:51

you didn't produce a product under Mr. Bohm's patent? 13:37:53 13:37:56

A. So at that point, there was not yet a market that would clearly have that need where we could. 13:37:57 13:38:01 13:38:04

Q. Are you responsible for approving patent maintenance fees for your business unit? 13:38:09 13:38:12 13:38:13

A. Yes, I am. 13:38:14

Q. For example, have you approved the patent maintenance fees for Mr. Bohm's patents? 13:38:14 13:38:17 13:38:19

A. Yes, that's part of my responsibility. 13:38:19 13:38:21

Q. Did Microchip sell any products using Mr. Bohm's patent between 2012 and 2016? 13:38:21 13:38:24

A. No, we did not. 13:38:28

Q. Can you explain to the jury why Microchip would pay maintenance fees on Mr. Bohm's patent if Microchip was not using Mr. Bohm's invention? 13:38:29 13:38:30 13:38:33 13:38:36

A. Yes. If we believe a patent still has value today or in the future, you know, if we intend -- there's the possibility of using 13:38:37 13:38:40 13:38:43

that patent, we will pay maintenance fees to keep it alive. 13:38:46 13:38:49

Q. Is that because you think maybe in the future, a market might materialize? 13:38:51 13:38:53

A. Yes. It's not clear always what the future will bring, but we could see the value of the patent. 13:38:55 13:38:59 13:39:02

Q. Okay. 13:39:03

Did the market materialize for Mr. Bohm's multi-host invention? 13:39:04 13:39:07

A. Yes, it did. That was the advent of a complex spec. 13:39:09 13:39:13

Q. I'd like to transition to discuss Microchip's USB hub business. 13:39:15 13:39:17

What is a USB hub chip? 13:39:20

A. So at a high level, and I think it was a bit described earlier, but at a high level, USB hub chip, so normally you have a connection to a computer and you need more connections. What a USB hub chip will do is take a single host and fan that out into a lot more ports at that point. 13:39:22 13:39:25 13:39:27 13:39:31 13:39:34 13:39:38 13:39:40

Q. And what year did Microchip introduce the hub chip? 13:39:43 13:39:48

A. So Microchip, including its history of SMSC, started selling USB hub chips around 2006. 13:39:48 13:39:51 13:39:55

Q. Okay. Roughly 16 years? 13:39:57

A. About 16, 16 years, yeah. 13:39:59

Q. How many hub chip manufacturers are there? 13:40:02 13:40:04

A. There are actually many hub chip manufacturers. There are very few automotive hub chip manufacturers. 13:40:04 13:40:06 13:40:11

Q. And can you explain why there are few automotive USB hub chip manufacturers? 13:40:11 13:40:13

A. Yeah. So the primary high volume use of hub chips is into PCs and consumer products like monitors, and the hub you can go to the store and buy, and so those are usually -- they work over a temperature range, they don't have intrinsic quality requirements. 13:40:16 13:40:20 13:40:25 13:40:28 13:40:31 13:40:33

Taking that market to the automotive business is much different. We need higher reliability, higher qualities, we have to cover a wide temperature range. There is a lot of tougher requirements on an automotive hub. 13:40:37 13:40:38 13:40:41 13:40:43 13:40:45 13:40:47

Q. Just in general, automotive hubs seem to be more robust and tough -- 13:40:48 13:40:51

A. Absolutely. 13:40:53

Q. -- than consumer PC hub chips? 13:40:53

A. Sorry. Yes. They certainly do need to be more robust than a standard lower cost consumer product. 13:40:56 13:40:59 13:41:03

Q. Do you know, since it's in your business, about how many USB hub chips Microchip sells to the automotive industry each year? 13:41:05 13:41:06 13:41:09 13:41:11

A. Yeah. So roughly the last year or two, I would say about 35 million units per year. 13:41:12 13:41:14 13:41:17

Q. Have you heard of the term "The Big 3"? 13:41:18 13:41:21

A. Yes. 13:41:21

Q. What does it refer to? 13:41:22

A. It refers to the historical large three U.S. automotive manufacturers, so Ford, Chrysler, GM. Tesla may want to be called The Big 4 some day. 13:41:24 13:41:28 13:41:31 13:41:35

Q. Before Unwired began selling its dual role hub, who was the first supplier of hub 13:41:36 13:41:40

chips to the three big automakers? 13:41:42

A. So before Unwired entered the market 13:41:44
and even Unwired, itself, Microchip had almost 13:41:46
100 percent of the business with The Big 3; 13:41:50
all three of those manufacturers were using 13:41:54
Microchip's hub chip in their break out box. 13:41:56

Q. And where are Microchip's automated 13:41:59
USB hub chips produced? 13:42:03

A. So it's a little complex. Let me 13:42:05
take you through how you usually make a chip 13:42:07
so I can tell you how it's produced. 13:42:09

So the first step is we have to 13:42:11
produce a wafer. Those wafers today are 13:42:12
produced for all of the hub chips as a Taiwan 13:42:15
semiconductor, TS1C. 13:42:18

The second step is we bring them 13:42:20
back and we probe them and we separate out 13:42:22
which are the good, which are no good. We put 13:42:25
plastic around them. By the way, we probe 13:42:28
them in our facilities at Microchip. We put 13:42:30
the plastic around it. That can be done in 13:42:32
one of three places. We use Amcore, one 13:42:34
manufacturer that makes -- puts the plastic 13:42:37
around it; ASC is another one, or we do it in 13:42:39

our factories. 13:42:43

And as a final test, we bring them back to our Thailand facility, we test everything and then ship it out to the customer. 13:42:44 13:42:46 13:42:48 13:42:49

Q. What portion of Microchip's yearly chip production is automotive USB hub chip production? 13:42:50 13:42:52 13:42:56

A. Yeah, so at a high level, I gave you two numbers. We sell about 35 million chips to automotive USB hubs out of eight billion, so it is about one out of every 200 chips. 13:42:56 13:42:58 13:43:02 13:43:05

Q. Between 2017 and 2021, did Microchip have the capacity to produce an additional 10 million Sandia chips per year? 13:43:07 13:43:13 13:43:16

A. Yes. Certainly. If you look at our production of eight billion chips, you know, we talked about it being 20 million chips per day, so an entire year's worth of -- if you add 10 million more chips, was that the question? 13:43:17 13:43:20 13:43:22 13:43:25 13:43:29 13:43:31

Q. Yes. 13:43:31

A. It would only be about a half a day of our equipment production. So it's a very 13:43:32 13:43:34

small amount for Microchip. 13:43:36

Q. So what happens to Microchip's yearly sales and marketing calls when Microchip sells additional units of an existing product to an existing customer? 13:43:38 13:43:40 13:43:43 13:43:46

A. So a bit of a complex question. Let me break that down. 13:43:48 13:43:50

Q. Sorry. 13:43:51

A. Let me break that down in pieces. 13:43:52

So -- so if we're visiting a customer and -- a customer like Aptiv in this example, selling them a hundred parts already and we want to sell them one more, it's not a big expense. 13:43:55 13:43:58 13:44:01 13:44:03

So we go in there, he knows everybody, it's a very small incremental expense. 13:44:06 13:44:09

Now, if we are selling the same product family, we've always told the world the marketers have already prepared all the material, they have already sold all of their competitors, so the amount of effort to sell it to one more person is actually quite small of, essentially, the same product family to the same customers. 13:44:11 13:44:13 13:44:16 13:44:18 13:44:20 13:44:21 13:44:24 13:44:28

Q. Right. 13:44:28

Now, you mentioned that Microchip's chips are in a lot of car manufacturers. Can you give the jury a sense of which car manufacturers have Microchip chips in them? 13:44:30 13:44:32 13:44:35 13:44:38 13:44:42

A. Yeah. So across time, you can pretty much name almost every car manufacturer. Let me just take you through some of The Big 3 have it in U.S. across time, Tesla does; if you go to Europe, Audi, VW, BMW, Dimer, Mercedes, they all use our chips for at least some of their cars. 13:44:43 13:44:45 13:44:48 13:44:51 13:44:54 13:45:00 13:45:04

We go to Asia, a Kia, Mazda, Toyota, Honda, Nissan. You know, we pretty much at times have been in every one of those customers. 13:45:06 13:45:09 13:45:14 13:45:17

Q. And would that be true for what's at issue here; that is, in relation to USB hub chips? 13:45:17 13:45:19 13:45:21

A. Yes. Most certainly. And actually, that was my reference with the USB -- automotive USB hub chips have been, at times, pretty much in every one of them. 13:45:22 13:45:24 13:45:26 13:45:30

Q. Okay. 13:45:32

Was Microchip selling an automotive USB hub chip in 2014? 13:45:33 13:45:35

A. I'm sorry, repeat? 13:45:38

Q. Was Microchip selling a automotive USB hub chip in 2014? 13:45:39 13:45:41

A. Yes. Yep. We were. 13:45:43

Q. More than one? 13:45:46

A. Yeah, there were many products by that time. 13:45:47 13:45:49

Q. In 2014, could you connect the iPhone to a car using one of Microchip's USB hub chips? 13:45:50 13:45:54 13:45:57

A. Yes, you could. As you heard earlier, the Athens chip was in the marketplace and it offered two different solutions to CarPlay. You know, the single upstream solution, which we call FlexConnect or Flex, and then also the Dual upstream. 13:45:57 13:46:00 13:46:02 13:46:04 13:46:08 13:46:10

Sometimes a car wanted two wires so we gave them the Dual upstream solution, but either one of those two could have worked CarPlay in pretty much any car. 13:46:14 13:46:16 13:46:18 13:46:20

Q. I don't know if you were here yesterday, I think you were, Aptiv's counsel 13:46:23 13:46:24

referred to Microchip's old technology in opening statements. 13:46:26 13:46:29

Does Microchip still sell the Athens USB hub chip today? 13:46:30 13:46:32

A. Yes, it does. Athens was actually brand new in 2014, we were just reaching production, so -- and then today, Athens is still a very high seller. As a matter of fact, the volume continues to grow even this year. 13:46:35 13:46:37 13:46:39 13:46:43 13:46:45 13:46:48

Q. Are Athens hub chips compliant with USB standard? 13:46:48 13:46:51

A. Yes, they are. USB standard, I think one of the challenges in all of this discussion, a USB standard called out for one host and the Athens chip can give you one host and is compliant and has a USB logo, which means we have taken it to a third party lab, checked that we complied with the current standards, and they give us a logo to prove the compliance. 13:46:52 13:46:55 13:46:57 13:47:00 13:47:05 13:47:08 13:47:10 13:47:12 13:47:15

Q. Shifting gears a little bit, can you please describe for the jury the different players and their roles in the USB hub 13:47:15 13:47:18 13:47:20

business? 13:47:23

A. Yeah. This one -- so first you have 13:47:25
to understand how this fits in the car. So 13:47:27
you've heard some discussion today, there is a 13:47:31
head unit, that's one of the two computers in 13:47:34
the car, one of the computers in the car. 13:47:37
Then there is always a connector and a wire 13:47:39
and a break out box, okay. So those are all 13:47:41
pieces. 13:47:45

So if you go through the whole 13:47:45
sequence, there is a manufacturer of a head 13:47:47
unit, there is a manufacturer of connectors, 13:47:49
manufacturer of cables, another manufacturer 13:47:51
of the break out box very often and then there 13:47:53
are contract manufacturers for each of them. 13:47:57
And then, of course, the automotive 13:47:59
manufacturer would buy it all and puts it 13:48:01
together and Microchip makes the chip. So a 13:48:04
lot of different companies involved. 13:48:06

And there's software. So Apple 13:48:07
has, say, for instance, in CarPlay, so 13:48:10
everything had to work with Apple, and there's 13:48:12
always an operating system, so a lot of 13:48:14
different companies have to work together. 13:48:17

Q. So all of those companies you just mentioned need to work together to integrate a phone into a car? 13:48:21 13:48:23 13:48:26

A. Yes. They certainly all need to work together or it won't work. 13:48:27 13:48:30

Q. Were you in the courtroom yesterday when Aptiv's counsel referred to Microchip as a 900-pound gorilla? 13:48:36 13:48:38 13:48:41

A. Yes. 13:48:43

Q. Do you know the relative size of Aptiv compared to Microchip? 13:48:45 13:48:48

A. If you look at just raw head count, right, Microchip today has about 18,000, 19,000 employees and Aptiv has about 180,000 employees, so roughly 10 times the number of people in the size of Aptiv. 13:48:49 13:48:52 13:48:56 13:49:02 13:49:04

Q. Is Aptiv currently a customer of Microchip? 13:49:07 13:49:10

A. Yes. We sell many, many products to Aptiv today. 13:49:10 13:49:12

Q. Did you previously know Aptiv by a different name? 13:49:13 13:49:17

A. Yes, the history was just before being Aptiv, they were known as Delphi, and 13:49:17 13:49:21

before that, they were a subsidiary or a portion of General Motors before they were spun out separately in around 1999. 13:49:24 13:49:26 13:49:28

Q. How long has Aptiv or Delphi been a Microchip customer? 13:49:31 13:49:34

A. I've been with Microchip for 27 years, and they were a customer right when I came, so certainly more than 25 years. 13:49:36 13:49:38 13:49:40

Q. I don't know if you mentioned it already, but how many different products does Microchip supply to Aptiv each year today? 13:49:42 13:49:44 13:49:46

A. Today, and I did a quick check in preparing, but it's slightly more than 100 different part numbers are still sold to Aptiv today. 13:49:48 13:49:52 13:49:54 13:49:57

Q. Do multiple Microchip business units supply products to Aptiv today? 13:49:57 13:50:01

A. Yeah. At a high level, you know, roughly 12 of the 25 business units today are selling to Aptiv. 13:50:03 13:50:06 13:50:09

Q. Can you identify for the jury some of the products that Microchip supplies to Aptiv today? 13:50:12 13:50:14 13:50:17

A. Yeah. So let me start with the ones 13:50:18

that are directly under me and kind of fan out a little bit so you get an idea. 13:50:20 13:50:23

We talked about the USB chips from my USB networking division. Also the Ethernet chips are being sold to Aptiv. Another division that's under me, the automotive infotainment division, sells a lot of chips to Aptiv today. 13:50:25 13:50:27 13:50:31 13:50:33 13:50:36 13:50:39

And then from there, many other divisions, micro divisions selling to General Motors, we have RF division and I don't know exactly how Aptiv uses it, but they're typically used for buttons in your car that's the garage door opener or the key fob you push the button on. 13:50:40 13:50:41 13:50:47 13:50:49 13:50:51 13:50:53 13:50:57

But there are many, many, many products like that out there that we are partners together on. 13:50:58 13:51:00 13:51:02

Q. So you are still business partners in a sense? 13:51:03 13:51:05

A. Oh, absolutely. Absolutely. 13:51:05

Q. Switching gears a little bit, what is list price? 13:51:07 13:51:10

A. List price would be if you go to the 13:51:11

website, you know nobody at Microchip and you want to buy one or you want to buy 100 or a thousand, there's a price there. And many customers still do that today; they'll go there and push a button and that's the price you'll pay. 13:51:12 13:51:16 13:51:19 13:51:20 13:51:23 13:51:25

Q. Does Aptiv pay this price for Microchip products? 13:51:26 13:51:28

A. Aptiv certainly does not. 13:51:29

Q. Do they pay more or less than this price? 13:51:30 13:51:32

A. Aptiv -- as all large customers, I would say Aptiv today probably pays between one-third to one-half of our list price. 13:51:33 13:51:36 13:51:39

Q. And how is that price set? 13:51:42

A. So we talked a little earlier in that annual review, we discussed how many parts do you plan to buy, what is our future together in this family, assuming you have one product today, could be two tomorrow and then four, right. And so we'll set a price. 13:51:44 13:51:47 13:51:50 13:51:53 13:51:56 13:51:58

So it's based on how much they're currently buying and how much they plan to buy. We review that again every year, you 13:52:01 13:52:02 13:52:05

know, annually to chew everything up and then we do it again one year later. 13:52:08 13:52:12

Q. So even though this litigation is ongoing, you're still selling product to Aptiv and supporting those products on behalf of Aptiv? 13:52:13 13:52:15 13:52:18 13:52:20

A. Absolutely. That's -- you know, we have a narrow quarrel. We're here today on one item. As a matter of fact, even the last two weeks, Aptiv has been asking for a lot of help, essentially the same group of engineers on the Ethernet products. 13:52:21 13:52:24 13:52:27 13:52:30 13:52:32 13:52:35

Q. So are automotive industry customers like Aptiv treated differently by Microchip than some other customers? 13:52:39 13:52:41 13:52:44

A. Yes. We typically put dedicated teams in place. So, for instance, one of my responsibilities is something called automotive product group, and it has engineers and marketers that are able to do both, you know, applications support or technical support, and they put in place so that we can be far more responsive because the needs of this type of customer, you know, say you have 13:52:45 13:52:49 13:52:52 13:52:53 13:52:57 13:53:01 13:53:04 13:53:07 13:53:09

a single fail somewhere, if it's a consumer product, it can take a week or two to respond. If it's an automotive product, everybody wants to know what is going on, what is causing this, could there be more of them. 13:53:12 13:53:16 13:53:18 13:53:21 13:53:22

Did Microchip have some issue? Is it a software issue? Is it their issue? So very quickly we have to resolve issues for automotive customers. 13:53:24 13:53:26 13:53:28 13:53:31

Q. Understand. 13:53:32

Now, switching gears a little bit, are you familiar with a company named Unwired? 13:53:33 13:53:34

A. Yes, I am. 13:53:36

Q. And can you give a little background of your understanding of who Unwired was or is? 13:53:38 13:53:40 13:53:43

A. Yeah. So Unwired, prior to being acquired by Aptiv, was a customer of Microchip, and Unwired made break out boxes that originally were based on our technology and then decided to do some based on this new technology that was infringing our patents. 13:53:44 13:53:48 13:53:51 13:53:56 13:53:58 13:54:02

Q. You mentioned the term "break out box," and I don't want the jury to be 13:54:07 13:54:09

confused. I believe Mr. Bohm referred to a break out box also known by another name sometimes? 13:54:11 13:54:14 13:54:16

A. So it depends. And I know there may have been a little confusion because we make a chip, we make a USB hub chip, right? It goes into what we would call a break out box. Because we sell USB hub chips that go into thousands of applications, we identify that break out box as a plastic module in a car where one port goes over to the head unit and then brings out whatever they bring out, two or four. 13:54:16 13:54:19 13:54:21 13:54:25 13:54:27 13:54:29 13:54:31 13:54:34 13:54:37 13:54:39

We call that a break out box and it breaks out functionality. So that's my reference. And I think on the other side, sometimes they call that a hub. 13:54:39 13:54:41 13:54:44 13:54:47

Q. Call it a hub? 13:54:48

A. So I apologize if we don't use the same terminology. 13:54:49 13:54:51

Q. All right. 13:54:52

What parts did Unwired -- excuse me. Was Unwired ever a Microchip customer? I think you mentioned that. 13:54:53 13:54:57 13:55:00

A. Yeah. As I mentioned, yeah, certainly. Certainly they were. 13:55:01 13:55:03

Q. What parts did Unwired buy from Microchip? 13:55:04 13:55:06

A. So in the -- you know, the early part of their existence, in the early use of break out boxes, I believe they were using a standard hub, automotive hub, and they also used a hub car combo, but they were all automotive hubs. 13:55:06 13:55:12 13:55:17 13:55:18 13:55:21 13:55:26

Q. And when did they start to become a customer, about what timeframe? 13:55:27 13:55:28

A. So I would say 2010-ish. 13:55:30

Q. So you mentioned Aptiv is also a hub or break out box manufacturer. Before Aptiv acquired Unwired, were they competitors in the market? 13:55:35 13:55:37 13:55:40 13:55:43

A. They absolutely were competitors, trying to bid on the same programs against each other, at the end, automotive manufacturers. 13:55:43 13:55:47 13:55:50 13:55:53

Q. And were they both buying Microchip chips to put in their hubs to break out boxes? 13:55:54 13:55:59

A. Yes, they were both buying Microchip 13:56:01

hubs. 13:56:03

Q. In 2014, before Unwired was acquired by Aptiv, about how many USB hub chips did Microchip provide Unwired that year? 13:56:04 13:56:06 13:56:10

A. So I think right before they were acquired, you know, roughly two-and-a-half million chips per year. 13:56:13 13:56:15 13:56:17

Q. So did Unwired have a long-term customer relationship with Microchip? 13:56:19 13:56:22

A. So at that time, Unwired was a smaller company. You know, usually we have a long list of products and we do them based on the list. They were buying very few part numbers from us, and so a small company not buying many products, we did not have a long-term agreement. 13:56:24 13:56:26 13:56:28 13:56:31 13:56:33 13:56:35 13:56:38

Q. Did Unwired pay you more or less than list price for Microchip USB hub chips? 13:56:38 13:56:41

A. Yeah, Unwired was buying a reasonable volume so they did not pay list price. They probably were somewhere between 30 and 50 percent of list price. 13:56:44 13:56:47 13:56:50 13:56:52

Q. I think you mentioned it, but just to confirm, Unwired was a customer when Aptiv 13:56:53 13:56:55

purchased them in 2014? 13:56:57

A. Unwired was a customer of Microchip. 13:57:00

Q. Microchip? 13:57:02

A. Yes, when they were purchased by Aptiv. 13:57:03 13:57:06

Q. In 2014, did Unwired ask Microchip to quote USB hub chips for its hubs for any of The Big 3 automakers? 13:57:07 13:57:10 13:57:15

A. Yes. 13:57:16

Q. In 2014, besides Unwired, did other hub manufacturers ask Microchip to quote USB hub chips? 13:57:19 13:57:22 13:57:25

MS. DURIE: Your Honor, objection, leading. 13:57:27 13:57:27

THE COURT: Overruled. 13:57:28

Go ahead. 13:57:30

BY MR. SLAYDEN: 13:57:30

Q. In 2014, besides Unwired, did other hub manufacturers ask Microchip to quote USB hub chips for hubs for any of the three big automakers? That's a mouthful. 13:57:31 13:57:34 13:57:39 13:57:42

A. Besides Unwired, all of our current customers for hubs also were asking to quote the next generation of product for The Big 3. 13:57:45 13:57:48 13:57:52

Q. Okay. 13:57:54

When you quoted products to the 13:57:55

other hub manufacturers, did you have an 13:57:57

expectation that you would win the business? 13:58:00

A. Yes. You know, as we looked into 13:58:03

beginning of CarPlay being announced where we 13:58:08

had two solutions, we believed were the best 13:58:10

solutions on the market, they certainly were 13:58:12

the best on buying solution, but some wanted 13:58:16

one, some wanted the others. 13:58:18

But in the middle of 2014, we 13:58:19

thought we were going to win almost every one 13:58:21

of them. 13:58:24

Q. And who won The Big 3 USB hub CarPlay 13:58:24

business in 2014? 13:58:27

A. Yeah, so -- so we got to the middle 13:58:29

of the year, and later in the year, as we 13:58:33

learned more about Unwired, we learned that we 13:58:35

had lost all three of them to Unwired. 13:58:38

Q. And what was Microchip's reaction 13:58:41

when it found out its customer had now become 13:58:43

a competitor for USB hub chips? 13:58:45

A. As you saw earlier, as anybody would, 13:58:48

when you lose, we looked at, okay, what's it 13:58:52

take? What are their needs, what didn't we meet and what do we have to do to win the next one? 13:58:54 13:58:56 13:58:58

Q. So it's clear for the jurors, did Microchip have a CarPlay solution at that time? 13:58:58 13:59:02 13:59:03

A. Yes, we had two different CarPlay solutions; one for one wire and one for two, that pretty much every car manufacturer had planned to use. 13:59:03 13:59:05 13:59:09 13:59:11

Q. And was there a particular hub chip that was being used at that time? 13:59:12 13:59:13

A. Yes. The Athens family that was discussed earlier was the target for all of those discussions. 13:59:16 13:59:19 13:59:22

Q. Okay. 13:59:23

Going back to this timeframe around 2014, before Aptiv bought Unwired, did Aptiv contact Microchip about investigating what Unwired was doing? 13:59:24 13:59:26 13:59:30 13:59:33

A. Yes, they did. 13:59:36

Q. Okay. 13:59:38

Let's turn to -- can you turn in your binder to Exhibit 245. I can't find it. 13:59:39 13:59:42

A. There it is. I found it. 13:59:57

(Whereupon, Trial Exhibit 245 was 13:59:57
introduced.) 13:59:57

BY MR. SLAYDEN: 13:59:57

Q. Do you recognize this document? 14:00:02

A. Yes, I do. 14:00:04

Q. And what is it? 14:00:05

A. It's an internal Microchip email. 14:00:06

MR. SLAYDEN: Okay. I move to 14:00:09
admit Exhibit 245. 14:00:10

MS. DURIE: No objection. 14:00:13

THE COURT: All right. It's 14:00:14
admitted. 14:00:15

BY MR. SLAYDEN: 14:00:16

Q. This email is dated May 1st, 2014. 14:00:16
At this point, had Aptiv acquired Unwired yet? 14:00:19

A. No, not yet. 14:00:22

Q. And during -- 14:00:25

A. I think -- sorry. Can you ask again? 14:00:27

Q. I'm sorry, who were the -- do you 14:00:29
know any of the people on this email? 14:00:34

A. Yes. So this email was written by 14:00:35
one of our salesman to, it looks like, a range 14:00:37
of marketers and other salespeople and 14:00:40

applications engineers. 14:00:44

Q. Okay. 14:00:45

You see the first sentence there 14:00:46

it states, "The director of program management 14:00:48

of Delphi called." 14:00:52

Do you see that? 14:00:53

A. Yes, I do. 14:00:54

Q. And so this was referring to Delphi 14:00:54

contacting Microchip? 14:00:56

A. Yes, it appears to say that. 14:00:58

Q. Okay. 14:01:01

It goes on to state, "Delphi has 14:01:01

been promoting our Flexconnect solution to 14:01:03

some key OEMs like, GM and Chrysler." 14:01:06

Do you see that? 14:01:09

A. Yes, I do. 14:01:09

Q. What is that referring to? 14:01:11

A. Yeah, so what that means is in this 14:01:11

period of time, we had been working closely 14:01:14

with Delphi, and from what we had understood, 14:01:17

we were likely together to win both of them 14:01:20

with Microchip's FlexConnect solution for 14:01:23

CarPlay. 14:01:26

Q. Okay. 14:01:27

The next sentence, as you see there, refers to or references "Unwire Carplay silicon solution is around $1.60 range." 14:01:28 14:01:31 14:01:35

Can you provide some context for the jurors on how Unwired's pricing at this time compared to Microchip's pricing on its own USB hub chips? 14:01:40 14:01:41 14:01:45 14:01:47

A. Yes. So at this point of time, in the reasonable absence of competitors, we were selling products for about $3 each, and this was roughly half of what we were selling them for. 14:01:48 14:01:53 14:01:55 14:01:58 14:02:00

Q. And the last sentence there, this is an important point there, and the "He" referring there, "He requested us," first of all, who is "He"? 14:02:02 14:02:05 14:02:10 14:02:12

A. As I read this message, it appears to be that director or program management at Delphi. 14:02:14 14:02:16 14:02:19

Q. So that's Delphi? 14:02:19

A. Yes. 14:02:20

Q. And it reads, "He requested us" -- and I guess "us" is Microchip -- "to find out more information on this and want to work with 14:02:21 14:02:23 14:02:27

us to fight against this solution ASAP." 14:02:30

Do you have an understanding of 14:02:35

what he's referring to? 14:02:36

A. Yes, because at that point, we 14:02:36

thought we were likely to win our solution, 14:02:38

and all the sudden, this alternate solution 14:02:42

from Unwired had showed up, and they were 14:02:44

asking us to say what we could do to find a 14:02:48

solution for them to compete against it. 14:02:51

Q. So just to be clear, they were asking 14:02:54

you to investigate the Unwired solution? 14:02:57

A. Oh, absolutely. They were asking us 14:02:58

to look into it. 14:03:00

Q. And that's because Aptiv at that time 14:03:01

was a direct competitor with Unwired? 14:03:04

A. Yes. Aptiv was -- was still a 14:03:06

competitor of Unwired just three or 14:03:09

four months before they acquired this, it 14:03:11

appears. 14:03:13

Q. And at that time, was Aptiv promoting 14:03:14

Microchip's FlexConnect solution? 14:03:17

A. At this point, that was a solution 14:03:19

they were trying to use, as we understood it. 14:03:22

As we also understood it from, you know, 14:03:25

talking to Chrysler themselves, they were planning to use it also. 14:03:27 14:03:29

Q. And after Delphi's request, did Microchip investigate Unwired's solution and response to Aptiv? 14:03:30 14:03:32 14:03:36

A. Yes, we certainly did. 14:03:37

Q. Now, you explained earlier that Aptiv acquired Unwired later in 2014. After Microchip was informed that Aptiv had won The Big 3 USB CarPlay business in 2014, what did Microchip do? 14:03:40 14:03:42 14:03:45 14:03:49 14:03:52

A. So, yes, once we learned that we had lost, you know, we went down a path of what can we do to respond, what's our next chip, right? 14:03:54 14:03:59 14:04:02 14:04:05

So the reality of what -- where we were was we had two what we viewed as USB standard compliant solutions. They had come up with noncompliant solution, didn't match the standard. We didn't actually think anybody was going to buy it because it was noncompliant. 14:04:05 14:04:11 14:04:13 14:04:16 14:04:18 14:04:21 14:04:23

But if, at the end of the day, Apple was going to allow it and the automotive 14:04:23 14:04:25

manufacturers were going to allow it, then fine, we would bring one to market also. 14:04:28 14:04:30

Q. So did you determine what Microchip specifically needed to do to win The Big 3's business the next time? 14:04:38 14:04:40 14:04:43

A. Yes. So that's when we started on the path of developing the Sandia business plan, and began the investigation of what we would have to do. 14:04:44 14:04:47 14:04:50 14:04:52

Q. Do you understand the term "USB persistent"? 14:04:56 14:04:57

A. Yes. It's not a term I normally use, but yes, I do. 14:04:58 14:05:01

Q. And what relevance does this have in a car? 14:05:02 14:05:05

A. So -- so when you look at CarPlay, you plug in and your phone works and it all comes up on the display; that's the simple part. 14:05:06 14:05:09 14:05:12 14:05:14

What we view as a minor feature turned out to be something that both Unwired can do and became a request from The Big 3. So normally you would have, you're playing music with MP3 player, another phone, it's the 14:05:15 14:05:19 14:05:21 14:05:24 14:05:28

head unit playing in the car. The challenge was that that host needed to talk to that item so the two could stay connected and talk. 14:05:32 14:05:35 14:05:37

You plug in your iPhone, the iPhone became the host, the head unit no longer could talk to that item, but the only one host in the system would have been that one. So there needed to be a way -- so this notion of persistence needed to be a way to continue to talk to that music player, as an example. 14:05:39 14:05:42 14:05:46 14:05:49 14:05:51 14:05:54 14:05:57 14:06:00

It could have been Maps, it could have been something else, but there needed to be a way to continue to have the head unit talk to it. 14:06:01 14:06:03 14:06:04 14:06:06

So at the time, Apple said they do not want -- they don't want to take it over, they want to let the head unit deal with it. And the standard just at this point, normal set of products don't allow it because it would require two systems. 14:06:07 14:06:09 14:06:11 14:06:13 14:06:16 14:06:19

Q. What was it that The Big 3 wanted at the time back in 2014 that Microchip wasn't offering in their solution for CarPlay and 14:06:22 14:06:25 14:06:28

specifically -- I'm sorry? 14:06:32

A. So for CarPlay, itself, we could do 14:06:35

everything. What we couldn't do was, at the 14:06:37

point of the CarPlay connection, allow these 14:06:39

other items to stay connected to the end unit, 14:06:41

so that's this persistence. You could drop 14:06:44

temporarily and come back, but you couldn't 14:06:47

keep both active at the same time. 14:06:48

Q. So as you investigated further and 14:06:50

tried to determine how to win the business 14:06:53

next time, did you determine anything else 14:06:56

that Microchip needed to do to win the 14:06:59

business next time? I'm sorry, that was a 14:07:02

terrible question. 14:07:05

A. I'm sorry, maybe you can rephrase 14:07:06

that. 14:07:08

Q. Aside from what you've already 14:07:08

listed, when you were doing a determination of 14:07:10

what you needed to do to win The Big 3 14:07:12

business next time, was there anything else 14:07:15

you determined that must be offered by 14:07:16

Microchip to get that business? 14:07:19

A. So, yeah. So if you look -- if you 14:07:22

look at where we were in time, right, we 14:07:27

needed -- we needed a noncompliant solution. We looked at it and said, you know, there are lots of ways we could do this. The software we wanted to be a Microchip solution in some of the alternatives that were being proposed, but we began to look at it and we began to analyze what should the chip be, what should the features be. 14:07:29 14:07:32 14:07:35 14:07:39 14:07:43 14:07:45 14:07:49 14:07:53

Q. Did you ever come to understand that the '243 Patent was involved? 14:07:54 14:07:55

A. Yes. Yes. So a different question. So yeah, as you start to look at the fact that you need two hosts, multi-host system, yeah, at that point, right. And as you heard Mark say, in the background they were already thinking about what might it be. 14:07:58 14:08:00 14:08:03 14:08:07 14:08:10 14:08:12

At this point, we said we're going to do a chip and I put the burden on them guys; we're late, we have to use all the IP we already have, how do we get it to market quickly. 14:08:13 14:08:15 14:08:17 14:08:20 14:08:22

And so they said, yeah, we have all this IP. In fact, we already should be able to do this quite quickly. 14:08:22 14:08:24 14:08:27

Q. And in response to Aptiv's specific request for you to investigate Unwired's solution, did you determine anything relating to the '243 Patent at that point or had technology? 14:08:29 14:08:31 14:08:34 14:08:36 14:08:39

A. Yeah. So it also became obvious, as we started to get serious about what that next chip would have to be, we were looking at options again. We were constrained on cost, we were constrained on time. The team was looking to alternatives. 14:08:40 14:08:42 14:08:45 14:08:47 14:08:50 14:08:52

But what also started to become obvious was that, you know, we couldn't find another way to do it except for to do it the way that was outlined originally on the multi-host patent. And as we thought about it, we said well, okay, we can't do it a different way, then what is Unwired doing? Are they also doing it that same way, right? Are they, therefore, infringing our patent, right? 14:08:53 14:08:54 14:08:57 14:08:59 14:09:02 14:09:03 14:09:06 14:09:08 14:09:11 14:09:14

So that was that whole-sided discussion about if they're doing this, we don't know for certain, they may have 14:09:14 14:09:17 14:09:19

something clever or they were infringing on the patent, right? But if it's a multi-host, they are likely infringing on the patent. 14:09:21 14:09:23 14:09:26

Q. Changing gears a little bit, did it surprise Microchip that the car manufacturers would accept a non-standard USB hub chip? And I'm back in 2014 when they lost The Big 3 business. 14:09:28 14:09:29 14:09:31 14:09:34 14:09:38

A. Yeah, we were certainly surprised. Historically, the automotive industry is extremely conservative. They didn't want to put anything out there to start a problem in the field. So the fact that they would do something out of standard certainly is surprising. 14:09:38 14:09:41 14:09:44 14:09:47 14:09:50 14:09:52 14:09:53

Q. And can you explain to the jurors what you mean by standard or non-standard USB in the context of the iPhone? 14:09:55 14:09:56 14:10:00

A. Yeah. So we talked about this complex ecosystem where everybody makes different pieces of it and they all have to come together and work. The beauty of standard and why standards exist in the industry is that we define all of those 14:10:04 14:10:06 14:10:09 14:10:11 14:10:13 14:10:15

electrical connections and we know that the minute we plug them together, they all should work. 14:10:17 14:10:19 14:10:21

But when you don't follow the standard, you introduce risk. And you never know for sure whether all the pieces will work together. So our bias would have been to stay with something standard if, you know, if we could. 14:10:22 14:10:23 14:10:25 14:10:28 14:10:31 14:10:33

At the end, if we could not accomplish that one additional feature, they went to non-standard. And we were surprised. We were surprised that automotive manufacturers would allow it, also surprised Apple would allow it. 14:10:34 14:10:36 14:10:38 14:10:40 14:10:43 14:10:45

Q. And why were you surprised, just from historically that was a change? 14:10:48 14:10:51

A. Yeah. So we had sold -- every USB hub we had ever sold, they had always asked that we produce local documentation to prove it met the standard. So up until then, if it wasn't standard, we couldn't even show it to you. And then all of the sudden, they were going to allow something not standard. 14:10:53 14:10:56 14:10:58 14:11:01 14:11:03 14:11:06 14:11:07

Q. And did it surprise you that Microchip -- did it surprise you that Microchip -- that any of the manufacturers would accept something non-standard? 14:11:09 14:11:12 14:11:14 14:11:16

A. Yeah. The head manufacturers are a little less concerned; they don't directly talk to the outside world. The only thing that surprised us about it was that it added complexity. 14:11:19 14:11:22 14:11:23 14:11:25 14:11:28

So the solution on the table that was being offered added a lot of additional software and some custom drivers, and so we were surprised because a lot of the people say we have this, you buy it. They don't really want to go change it for, you know, specific special needs. But they did. 14:11:28 14:11:30 14:11:32 14:11:35 14:11:38 14:11:40 14:11:42

Q. And you mentioned that the solution on the table at that time back in 2014, whose solution was that? 14:11:44 14:11:46 14:11:49

A. The solution was the Unwired solution, but at that point, the head units had all changed their software. 14:11:49 14:11:52 14:11:54

Q. Was anyone from your USB and networking group -- business unit, excuse 14:11:58 14:12:01

me -- involved in designing the architecture for a new USB hub chip for CarPlay? 14:12:03 14:12:05

A. Yes. 14:12:08

Q. And who was it from your business unit who was involved? 14:12:09 14:12:12

A. As you saw earlier, Mr. Bohm was responsible for the architecture, the architecture team that did that work. 14:12:13 14:12:16 14:12:18

Q. And did your business unit determine that architecture for a new multiple-host hub chip? 14:12:20 14:12:22 14:12:26

A. Yes. Yes, it did. 14:12:26

Q. And did you give it a name? 14:12:27

A. Yes, that was the beginning of the Sandia chip that we've talked about earlier. 14:12:29 14:12:32

MR. SLAYDEN: Mr. Ferrer, can you bring up Exhibit 25, please. 14:12:36 14:12:37

BY MR. SLAYDEN: 14:12:40

Q. And do you have 25? You can look at it right here. 14:12:41 14:12:43

Are you familiar with this document? 14:12:44 14:12:45

A. I got it. Where am I supposed to look? 14:12:46 14:12:48

Q. You can look at 25, yep. I'll wait for you. 14:12:48 14:12:51

A. Okay. 14:12:52

Q. Are you familiar with it? 14:12:57

A. Yes, I am. 14:12:59

Q. Did you write it? 14:13:00

A. No, I did not write it. 14:13:01

Q. Who wrote this document? 14:13:02

A. This document was written by Dave Sroka. 14:13:04 14:13:09

Q. And who is Dave Sroka? 14:13:09

A. Dave Sroka is one of the marketing managers within the UNG business unit. 14:13:11 14:13:13

Q. He is not an engineer? 14:13:17

A. Yes, he is also an engineer. 14:13:18

Q. Oh, is he? 14:13:20

A. Yes. 14:13:20

Q. Does Mr. Sroka report to you? 14:13:21

A. He does report in to my group, but he doesn't report directly to me. 14:13:24 14:13:26

Q. When did Dave Sroka publish Exhibit 25, the Sandia business plan? 14:13:27 14:13:31

A. It appears to be published August of 2015. 14:13:33 14:13:34

Q. As a VP for the business unit, did you ultimately approve this plan, Exhibit 25? 14:13:36 14:13:38

A. Yes, I did. 14:13:40

Q. Before the Sandia business plan was published, had Mark Bohm's team already defined the Sandia architecture? 14:13:43 14:13:44 14:13:47

A. Yes. He would have had to. 14:13:50

Q. Why is that? 14:13:54

A. You want me to elaborate? 14:13:55

So to write a business plan, what's the purpose of a business plan? We have engineers. So what we have to do is define what is it we're going to do, okay? How much will the product cost to sell, how much time will it take to develop, right? 14:13:57 14:13:58 14:14:00 14:14:03 14:14:05 14:14:08

And then -- and then, you know, how many units might we sell given certain features; should this feature be in, should it be out? If we add a feature, that cost went up, take it out; it went down. Both ways impact sales. 14:14:10 14:14:13 14:14:15 14:14:19 14:14:21 14:14:24

So we have to know roughly what it is before we can agree to know what to build. 14:14:26 14:14:28

Q. Does Microchip sell Sandia hub chips 14:14:31

today? 14:14:35
A. Yes, we do. 14:14:35
Q. When did planet Microchip start selling Sandia hub chips? 14:14:37
14:14:40
A. So Sandia was first sampled somewhere in 2016 and the sales began in 2017. 14:14:41
14:14:43
Q. Does Microchip offer different Sandia solutions to support CarPlay? 14:14:46
14:14:49
A. Yes, we do. And as you saw earlier, we offer three different CarPlay solutions; the two that Athens previously had done and now this multi-host in Mark Bohm's patent. 14:14:51
14:14:54
14:14:57
14:15:00
Q. Okay. 14:15:04
Can you briefly identify, just by name, the three different solutions? 14:15:04
14:15:06
A. Yes. So there's the FlexConnect solution, that's a single upstream that allows different ports to take over and become the host; there is a Dual upstream with the two wires, and then there is the multi-hub solution where you have a single wire with two hosts simultaneously. 14:15:08
14:15:11
14:15:15
14:15:17
14:15:19
14:15:22
14:15:24
Q. About how many Sandia hub chips does Microchip make a year? 14:15:25
14:15:28

A. So today, we are running roughly 10 million a year. 14:15:29 14:15:31

Q. About what percentage of Microchip's annual chip production is Sandia production? 14:15:33 14:15:35

A. Yeah, so if you follow through the math, 10 million and eight billion, it is about one out of every 800 chips. 14:15:38 14:15:41 14:15:44

Q. How did the actual demand for Sandia compare to the forecast in the Sandia business plan, Exhibit 25? 14:15:46 14:15:49 14:15:51

A. So we are roughly on track, you know, volume is roughly on the same order of what was originally expected today. 14:15:53 14:15:55 14:15:58

Q. Okay. 14:15:59

And does Microchip's Sandia hub chip compete against Aptiv's Boston 2 hub chip that Microchip accuses of infringement in this case? 14:15:59 14:16:04 14:16:09 14:16:11

A. Yes, it does. 14:16:12

Q. How many multiple-host CarPlay units USB hub solutions are currently offered in the market? 14:16:15 14:16:18 14:16:21

A. Yeah, right now today, generally available, offered, I am only aware of two; 14:16:21 14:16:25

the one Microchip offers and the one that Aptiv offers. 14:16:29 14:16:31

Q. Okay. 14:16:32

And how does Aptiv's price of its USB hub chip compare to Microchip's Sandia chip? 14:16:32 14:16:35 14:16:38

A. So Aptiv's pricing was reasonably aggressive, and as we noted, prior generations were $3 and Aptiv was, you know, the equivalent because they sell modules for about a dollar and-a-half, and so reasonably impressive compared to what we were. 14:16:38 14:16:41 14:16:44 14:16:48 14:16:50 14:16:54

Q. So did Aptiv's USB hub pricing impact Microchip's Sandia pricing? And I meant to say chip pricing. 14:16:57 14:17:01 14:17:06

A. Yes, certainly. In the absence of a competitor, right, we would have -- you know, we would have reduced the price, but not as far as we had to, to continue to compete with that solution in the market. 14:17:07 14:17:09 14:17:12 14:17:14 14:17:20

Q. Just to be clear for the jurors, does this mean Microchip had to price Sandia chips lower than it would have if Aptiv was not selling its own multi-host chip? 14:17:22 14:17:23 14:17:27 14:17:29

A. Yeah, to be clear, certainly. Yeah. Having a competitor at a much lower price and we still go head-to-head in many dockets, we needed to lower our price in the marketplace. 14:17:32 14:17:35 14:17:38 14:17:42

Q. Does Microchip's USB hub solution offer any advantages over Aptiv's USB hub product? 14:17:44 14:17:46 14:17:49

A. So, yes. So Microchip offers many advantages over the Aptiv solution. The product itself, we talked about, had a lot of flexibility. We required far less software. We are not really invasive, very easy to implement, the head units don't have to change very much. We offer very high quality, very high reliability, large sales force that can help customers around the world very quickly. 14:17:50 14:17:54 14:17:58 14:18:01 14:18:03 14:18:06 14:18:09 14:18:11 14:18:16

And then compatibility. So one very strong advantage is we sell a lot of chips that go into PCs and into consumer products, and, you know, when you plug a USB product, right, into a car, we've already plugged in likely very similar products for many, many years in these other products that Microchip sells. 14:18:20 14:18:22 14:18:25 14:18:28 14:18:31 14:18:35 14:18:38 14:18:41

So we know pretty much any phone that comes out is going to come up. So compatibility, if you're going to buy your car, new phone comes out tomorrow, you plug it in, it doesn't work. 14:18:41 14:18:43 14:18:45 14:18:48 14:18:50

So our history and the very high number of parts we've sold helps with compatibility. 14:18:51 14:18:53 14:18:56

Q. Okay. 14:18:57

Is Microchip planning a next generation of USB hub chips? 14:18:59 14:19:00

A. We certainly are. 14:19:02

Q. Is your business unit presently in the development -- excuse me. 14:19:04 14:19:07

Is your business unit presently in the development phase of additional chips? 14:19:08 14:19:10

A. Certainly. The USB and networking business group typically works on about 12 different products at a time. The way they are used, usually we can start about three or four a year, so four products are year-end products, four in the early part of the development, and then we're doing the research work and the business planning work on four 14:19:13 14:19:15 14:19:19 14:19:23 14:19:25 14:19:28 14:19:30 14:19:32

about to start. 14:19:34

So pretty much about 12 being 14:19:35

debated at any one time and being developed. 14:19:37

Q. Is there any time when Microchip is 14:19:40

not developing the next generation USB hub 14:19:42

chip? 14:19:45

A. No, there is no time, and the roadmap 14:19:45

we have extends on. We have -- Sandia was 14:19:48

released, the next product after it was 14:19:51

already released, it's in production, and the 14:19:54

next part is in development, and the one 14:19:56

behind it is already in the plan, so there is 14:19:58

already a long process. 14:20:01

Q. And I don't know if I will say it 14:20:02

right, but is there already a next generation 14:20:04

past Sandia? 14:20:06

A. Yes. As I said, I mentioned briefly, 14:20:07

yeah, there is a product past Sandia, but 14:20:09

that's already -- called Olympus. That's 14:20:13

already selling in the marketplace. 14:20:15

Q. Does it have advantages over Sandia? 14:20:16

A. It does. We added -- so when you 14:20:19

plug in today into a car, you pick up two 14:20:21

things; you pick up charging of your phone and 14:20:24

you also pick up the ticket connection to the head unit or play music or whatever it might be. 14:20:27 14:20:29 14:20:32

And externally on Sandia, all the components that had to do with charging were external. With the next generation, we brought a lot more of those components into the chip. 14:20:33 14:20:36 14:20:39 14:20:42 14:20:43

Q. Okay. 14:20:44

Changing gears a little bit, did the fact that Unwired and Aptiv used Microchip's patented technology upset Microchip? 14:20:46 14:20:49 14:20:51 14:20:55

A. Yes. 14:20:55

Q. Can you explain to the jurors why that would upset Microchip? 14:20:56 14:20:57

A. We were bothered on two fronts. So up 'til then, you know, we had been partners. When we won, we won together. They knew our roadmap, they knew what we had planned. And so after that, fine, they decided to do their own chip. That, in itself, is not a problem. 14:20:59 14:21:03 14:21:07 14:21:10 14:21:12 14:21:15

But at that point, they became competitors; it starts to bother us. But now 14:21:18 14:21:19

they become unfair competitors because they are using technology that Microchip has developed as the key feature of their product. So yes, it bothered us. 14:21:22 14:21:24 14:21:25 14:21:29

Q. And did you have concerns about sharing products and pricing information with Aptiv going forward? 14:21:30 14:21:32 14:21:34

A. Yes. So we were still partners in many ways, but it became problematic to share our product roadmaps, our costs, our features with somebody who would be competing with us. 14:21:35 14:21:39 14:21:42 14:21:45

So more specifically, right, if you can sell both my product and yours and you know my pricing, pretty easy to figure out where you should set your pricing. So we did not want to share those products with them after that. 14:21:48 14:21:49 14:21:53 14:21:55 14:21:58 14:22:00

Q. That's because they're actually not selling chips, they're actually selling a break out box or a hub that the chip is inside; correct? 14:22:01 14:22:03 14:22:04 14:22:06

A. Yes. They are selling a module at the end of the day, and if that module could have either their internally developed chip or 14:22:07 14:22:09 14:22:11

our chip, it is a bit of a problem with us, because at that point, very often when they sell their chip, they win and we lose, right? Up until now, up until they have their own chip, when they win, we win, right? But now all the sudden, if they win, we lose, right? So that's very competitive. 14:22:13 14:22:14 14:22:17 14:22:19 14:22:23 14:22:25 14:22:28

Q. Did Microchip ever specifically inform Aptiv about Bohm's multi-host patent? 14:22:31 14:22:33

A. Yes, we did. 14:22:36

Q. And what did you expect Aptiv to do in response to your notice of infringement? 14:22:38 14:22:41

A. Yeah, so certainly in that period of time, what I really expected is we would sit together, given we were already working together, given we actually all knew each other, I thought we would sit down and work out some sort of business solution. I really did not expect us to be here, so... 14:22:43 14:22:45 14:22:48 14:22:50 14:22:53 14:22:54 14:22:56

Q. Okay. 14:23:00

And before this lawsuit then, did you personally talk to your customer, Aptiv, to resolve this dispute? 14:23:00 14:23:02 14:23:04

A. Yes, I -- we talked something like 10 14:23:06

different times. 14:23:10

Q. And no result? 14:23:11

A. We could not find a solution. 14:23:13

Q. Okay. 14:23:15

Has Aptiv asked Microchip to 14:23:16

supply Sandia hub chips for its product during 14:23:19

the period Aptiv has been selling its own 14:23:22

multi-host chip? 14:23:24

A. Yes, they did. 14:23:25

Q. Were any of Aptiv's requests for U.S. 14:23:28

carmakers? 14:23:30

A. Yes, our understanding is they were. 14:23:31

Q. And what was Microchip's response to 14:23:33

Aptiv's request? 14:23:36

A. So, you know, at first we said yes, 14:23:36

possibly -- a method by which we can do this. 14:23:40

But then it started to become obvious that it 14:23:42

was very hard to do this. And as a 14:23:45

competitor, we said fine, going forward, you 14:23:48

know, we won't offer you that product. You 14:23:50

can buy the early one still, but any of the 14:23:52

new ones that we're developing, we don't want 14:23:55

to give you those details anymore. 14:23:56

Q. Okay. 14:23:59

In 20 -- I want to change gears a little bit to some pricing questions. 14:23:59 14:24:03

In 2014, after -- after Aptiv won the new Big 3 business with Unwired's Boston 2 hub chip, did Microchip change any prices it charged to Aptiv? 14:24:05 14:24:08 14:24:15 14:24:17

A. Yes, we did. 14:24:18

Q. And what did you change? 14:24:19

A. So we got to the point where the long-term agreement was up for renewal and we knew we had a quandary. And as we discussed it, what we decided was -- at first we said let's give them all the pricing for everything but this sub-piece of the market, and for all the other products, we said everything is business as usual. We're still partners. We win together; we lose together. Nothing needs to change. 14:24:21 14:24:24 14:24:26 14:24:29 14:24:33 14:24:36 14:24:38 14:24:40 14:24:43 14:24:45

For this sub-piece, what we said is -- at first, you know, we wouldn't even give them an update, and then we decided that all the forecasts they had given us were no longer going to be true. They had their own alternate solution. It's very likely they're 14:24:46 14:24:48 14:24:50 14:24:52 14:24:55 14:24:57

going to buy far less chips than anything they had told us in the past. 14:24:59 14:25:02

So we did raise prices, but also, you know, our intent was not to -- not to stop relationships with the other parts of the company because they are -- we are both large companies. So to the point where what got interesting is another part of their company was buying the exact same chip and we said fine, as long as we can keep track of who buys what, do not touch the pricing for the other part of the company, just in this narrow area where we're directly competing and you are no longer going to buy the committed volume, so we are going to raise the pricing. 14:25:03 14:25:05 14:25:09 14:25:11 14:25:14 14:25:17 14:25:19 14:25:21 14:25:24 14:25:27 14:25:29 14:25:31 14:25:34

And we said -- we gave them a 10 to 20 percent increase; I don't remember exactly. 14:25:35 14:25:38 14:25:39

Q. And you talked about long-term agreements, and we talked about earlier that those long-term agreements were based on forecasted volumes. 14:25:41 14:25:42 14:25:44 14:25:47

Can you give an example, some context to the jury, for example, in 2017, how 14:25:49 14:25:51

the forecast may have changed from what you had agreed to previously? 14:25:54 14:25:56

A. So, yeah. Just at a high level, for instance, they were forecasting about seven million units to purchase and then I have around two million units instead. 14:25:57 14:26:01 14:26:02 14:26:06

Maybe a better way to look at it, right, actually look at the real history of what was going on. In the year before the acquisition, the two companies combined, the Delphi side and the Unwired side purchased $16 million worth of USB hub chips from us. The year after, that dropped to eight million. 14:26:07 14:26:09 14:26:11 14:26:13 14:26:17 14:26:21 14:26:23

And then, although we were just starting to reset pricing, what we then learned the year after was five million. None of the forecasts were for business to drop by a half and a third. Everything was up, up, up until they had this alternate solution all the sudden. 14:26:26 14:26:27 14:26:29 14:26:32 14:26:34 14:26:37 14:26:40

Q. So after removing Aptiv's advantageous long-term agreement, the pricing on USB hub chips alone, not affecting the other products, was Aptiv still paying less 14:26:40 14:26:43 14:26:45 14:26:48

than some other of Microchip's customers for the same products? 14:26:51 14:26:54

A. Yes. If you go look at the pricing, what you see is very often, they were in the bottom third of where the customers were. Even after the price increases, sometimes they still were almost the lowest price, but in no case were they the highest price. 14:26:55 14:26:58 14:27:00 14:27:03 14:27:06 14:27:08

There was often many other customers who, you know, we didn't have strong relationships that are paying much higher prices than Aptiv was paying. 14:27:10 14:27:12 14:27:14 14:27:16

Q. That's even after they continued in the market with Boston 2? 14:27:18 14:27:21

A. Even after we adjusted prices up, right, they are still nowhere near the top. So I still had hoped we would find a solution, right? 14:27:22 14:27:25 14:27:27 14:27:30

Q. Yeah. 14:27:30

A. So that was the essence of it. 14:27:31

Q. So I think you mentioned previously -- well, maybe not, but how many products does Microchip still supply to Aptiv today? 14:27:33 14:27:35 14:27:40 14:27:43

A. Yeah, so a brief check, it's a little bit more than a hundred different part numbers are being sold to Aptiv today. 14:27:43 14:27:45 14:27:47

Q. So how many parts were affected by this price change out of the hundred? 14:27:48 14:27:52

A. I think it's five or six part numbers total. And again, only in some parts of their business. 14:27:53 14:27:56 14:27:58

Q. And I guess I wonder why, since we're in this litigation, you didn't change the prices on all of Aptiv's parts? 14:28:00 14:28:05 14:28:07

A. Yeah, so at the end, obviously, you know, telling them that we were unhappy about our -- about their patent infringement, you know, led to a little more challenges in the business. But at the end of the day, we could easily win together in many, many other fields of play. 14:28:09 14:28:12 14:28:15 14:28:18 14:28:20 14:28:23 14:28:25

We kept a good relationship. We didn't bring this up. It didn't come up in any of our discussions with them. Who knows what happened on their side. And we continued to work together, and 'til this day, we continue to win new programs together and many 14:28:26 14:28:28 14:28:31 14:28:33 14:28:35 14:28:38

other products in the business. 14:28:40

Q. Can you turn to Exhibit 45 in your 14:28:42

notebook, please. 14:28:44

(Whereupon, Trial Exhibit 45 was 14:28:44

introduced.) 14:28:44

BY MR. SLAYDEN: 14:28:44

Q. Do you recognize this document? 14:28:52

A. Yes, I do. 14:28:54

Q. What is it? 14:28:55

A. So this document shows the unit 14:28:56

sales, revenue and sales price, and as well as 14:29:00

the costs and therefore profits for each of 14:29:03

the products in the automotive USB hub product 14:29:07

line. 14:29:11

Q. Okay. 14:29:11

How was it created? 14:29:11

A. Actually I created it. I pulled the 14:29:13

data, the sales data, from our sales database 14:29:15

and the cost data from our cost database. 14:29:19

MR. SLAYDEN: Move to admit 14:29:22

Exhibit 45. 14:29:24

MS. DURIE: No objection. 14:29:24

THE COURT: All right. It is 14:29:25

admitted. 14:29:25

BY MR. SLAYDEN: 14:29:25

Q. Can you turn to Exhibit 46 in your notebook. 14:29:26 14:29:28

A. Okay. 14:29:33

(Whereupon, Trial Exhibit 46 was introduced.) 14:29:33 14:29:33

BY MR. SLAYDEN: 14:29:33

Q. Are you there? Okay. 14:29:33

Do you recognize this document? 14:29:35

A. Yes, I do. 14:29:36

Q. What is it? 14:29:37

A. This is a subset of the data from the prior report. It doesn't include in it the cost of profit; it just shows the units, revenue and sales price for each of those same products. 14:29:39 14:29:41 14:29:44 14:29:47 14:29:49

MR. SLAYDEN: Move to admit Exhibit 46. 14:29:51 14:29:53

MS. DURIE: No objection. 14:29:53

THE COURT: Okay. It's admitted. 14:29:53

BY MR. SLAYDEN: 14:29:55

Q. Can you turn to Exhibit 48 in your notebook, please. 14:29:56 14:29:58

A. Okay. 14:29:59

(Whereupon, Trial Exhibit 48 was introduced.) 14:29:59

BY MR. SLAYDEN: 14:30:01

Q. And do you recognize this document? 14:30:01

A. Yes, I do. 14:30:04

Q. And what is it? 14:30:05

A. It's similar to the last one we just talked about, but just extends the period to add more years. So it has revenue units and sales price up through about two, three quarters ago. 14:30:06 14:30:09 14:30:11 14:30:15 14:30:19

MR. SLAYDEN: Move to admit Exhibit 48. 14:30:19 14:30:21

MS. DURIE: No objection. 14:30:21

THE COURT: It is admitted. 14:30:22

BY MR. SLAYDEN: 14:30:23

Q. Please turn to Exhibit 88 in your notebook, please. 14:30:24 14:30:26

A. This one is not here. 14:30:30

Q. 88 is not there? 14:30:33

(Brief pause.) 14:30:57

MR. SLAYDEN: One minute. Sorry. My apologies. 14:31:22 14:31:24

(Brief pause.) 14:31:25

THE COURT: I'm not sure what you're asking, Mr. Slayden. 14:31:39 14:31:40

MR. BANNER: Your Honor, we'd like to put it on the screen. 14:31:41 14:31:43

MR. SLAYDEN: It is a native document. We don't have a paper copy of it. There's no objection to it. We're just getting it into the record. 14:31:44 14:31:45 14:31:48 14:31:49

(Whereupon, Trial Exhibit 88 was introduced.) 14:31:49 14:31:51

THE COURT: Are you moving it into admission or are you putting it up for foundation purposes? 14:31:51 14:31:52 14:31:54

MR. SLAYDEN: I'm just going to move it into admission, yes, sir. 14:31:55 14:31:56

MS. DURIE: No objection. 14:31:58

THE COURT: Fine. It is admitted. If you want to show it, you can. 14:31:59 14:32:01

MR. SLAYDEN: Okay. 14:32:03

BY MR. SLAYDEN: 14:32:12

Q. I think we are getting about done here, Mr. Obolsky. Just one minute, and I apologize. 14:32:05 14:32:07 14:32:10

Now, you explained earlier that 14:32:12

Aptiv, the defendant in this case, had asked Microchip to look into the Unwired chip back in May 2014; correct? 14:32:14 14:32:16 14:32:19

A. Yes, I did. 14:32:21

Q. Okay. 14:32:22

I'd like to ask you a few questions about Microchip documents Aptiv's counsel referenced during her opening statement. 14:32:23 14:32:24 14:32:28 14:32:30

Can you turn to Exhibit 246 in your notebook. 14:32:30 14:32:33

A. Okay. 14:32:33

(Whereupon, Trial Exhibit 246 was introduced.) 14:32:33 14:32:33

BY MR. SLAYDEN: 14:32:38

Q. Do you recognize this document? 14:32:38

A. Yes, it's an internal Microchip email. 14:32:39 14:32:42

MR. SLAYDEN: Move to admit Exhibit 246. 14:32:44 14:32:46

MS. DURIE: No objection. 14:32:46

THE COURT: All right. It will be admitted. 14:32:47 14:32:48

MR. SLAYDEN: Mr. Ferrer, can you 14:32:48

please bring up Exhibit 246. 14:32:51

BY MR. SLAYDEN: 14:32:53

Q. Now, look at 246. This is an email 14:32:53

from July 20th, 2014. 14:32:56

Do you recognize the names on this 14:32:58

email? 14:33:00

A. Yes. 14:33:02

Q. And can you describe to the jury 14:33:03

generally who are the people on this email? 14:33:05

A. Yes. The first sent email is one of 14:33:08

the marketing managers in the group, and then 14:33:13

the people that are copied on it -- on the 14:33:14

"To" list are marketers, some salespeople and 14:33:18

some application engineers. 14:33:21

Q. Now, the second paragraph, second to 14:33:25

the last sentence, see if you can follow me, 14:33:27

it starts with, "Our 'Flex Hub.'" 14:33:32

Do you see that? 14:33:34

A. Yeah. 14:33:34

Q. It says, "Our 'Flex Hub' and the 14:33:35

associated AIPD solutions was generally well 14:33:37

received and is winning at many of the 14:33:40

automotive accounts." 14:33:42

Can you explain to the jury what 14:33:44

that means? 14:33:45

A. Yeah. So this was midyear 2014. The 14:33:46

salesmen went out, visited the customers at -- 14:33:51

you know, this is all The Big 3 and more, and 14:33:55

our belief at that time was our CarPlay flex 14:33:57

hub solution was likely to win almost all of 14:34:00

them. 14:34:04

Q. The next paragraph, the last sentence 14:34:06

starts with, "We have proposed that we do a 14:34:08

CES reference design with Delphi (both BoB and 14:34:13

head unit)" -- and BoB referring to break out 14:34:20

box -- "and we are proceeding..." 14:34:24

Now, this was referring to Delphi; 14:34:26

right? 14:34:28

A. Yes, I believe it is. 14:34:28

Q. Okay. 14:34:30

Can you explain what the sentence 14:34:30

is referring to? 14:34:32

A. So, yes. At this point, we were 14:34:33

still partners and this was all new, and so 14:34:35

what we wanted to do was go to the Consumer 14:34:40

Electronics Show, which is a very big show in 14:34:42

Las Vegas every January, and we wanted to show 14:34:45

a demonstration that showed a Delphi head unit 14:34:47

and then a Delphi break out box that uses Microchip's flex solution and show that, you know, as an example. 14:34:50 14:34:53 14:34:55

Q. Does Microchip sell chips to Aptiv for its head units also? 14:34:57 14:35:00

A. Yes, we do. 14:35:02

Q. And what do you sell to them? 14:35:03

A. We sell almost the same part numbers to them also. 14:35:05 14:35:08

Q. But -- okay. 14:35:09

So I take it the last sentence refers to jumping outside of USB standards and flex on every port. 14:35:10 14:35:15 14:35:18

Do you see that? 14:35:19

A. Where is that? 14:35:21

Q. Second to the last paragraph and it refers to stepping outside. There you go. And flex on every port. 14:35:24 14:35:34 14:35:38

Do you see that? 14:35:39

MR. SLAYDEN: Just keep going and highlight, please. 14:35:41 14:35:44

BY MR. SLAYDEN: 14:35:44

Q. Can you explain to the jury what this means? 14:35:45 14:35:47

A. Yeah. So this is the solution we did not have. So up 'til this point, all of our hubs, what was available to sell, were standard compliant. They all had one upstream port or one host and multiple downstream ports or endpoints. 14:35:48 14:35:50 14:35:55 14:35:56 14:35:59 14:36:03

And at this point, right, we could handle the idea of flexing on one port, no problem. You could plug in, you could switch from the head unit being the computer to our chip -- to the USB -- sorry, to the iPhone being the computer using our USB chip. 14:36:05 14:36:07 14:36:10 14:36:12 14:36:15 14:36:20

What we could not do was also allow all the ports to be able to stay connected to one or the other, right? The minute the iPhone shows up, the head unit computer would lose connection to everything else. 14:36:23 14:36:25 14:36:29 14:36:33 14:36:36 14:36:37

Q. Okay. 14:36:37

So can you explain to the jurors why Microchip did not want to make a chip that was not compliant with the USB standards? 14:36:38 14:36:40 14:36:42

A. So, yes. The point I was making a little bit earlier was, you know, the 14:36:44 14:36:48

automotive customers are generally pretty -- they don't want you to have problems. And up until this point, pretty much everything they had ever asked from us had to be standard compliant. 14:36:50 14:36:53 14:36:56 14:36:58 14:37:00

And also, Apple is very controlling, and we had quite a bit of concern would they allow chips that were non-standard compliance to be used in a system with the iPhone. 14:37:01 14:37:04 14:37:06 14:37:08 14:37:10

Q. Can you turn to Exhibit 66 in your notebook, please. 14:37:12 14:37:15

A. Okay. 14:37:25

(Whereupon, Trial Exhibit 66 was introduced.) 14:37:25 14:37:25

BY MR. SLAYDEN: 14:37:26

Q. Do you recognize this document? 14:37:26

A. Yes. It is an internal Microchip email. 14:37:28 14:37:31

MR. SLAYDEN: Move to admit Exhibit 66. 14:37:32 14:37:34

MS. DURIE: No objection. 14:37:34

THE COURT: Admitted. 14:37:35

MR. SLAYDEN: Mr. Ferrer, can you 14:37:36

bring up Exhibit 66. 14:37:37

Thank you, sir. 14:37:39

BY MR. SLAYDEN: 14:37:40

Q. Now, this is an email from 14:37:40

December 1, 2014, and just for reference, as 14:37:42

you talked about, this is before Aptiv 14:37:47

acquired Unwired. 14:37:50

Do you recognize the names on this 14:37:53

email? 14:37:55

A. Yes, I do. And I think it might be 14:37:56

after they were acquired, December. 14:38:00

Q. Excuse me? 14:38:02

A. I think this is slightly after they 14:38:03

were acquired in December. 14:38:05

Q. Okay. 14:38:06

Let's move down to -- do you 14:38:13

recognize the names on the email, first of 14:38:15

all? 14:38:18

A. Yes, I do. 14:38:18

Q. And who are they, in general? 14:38:19

A. In general, they are marketers inside 14:38:20

of the USB and networking group. 14:38:26

Q. And at the bottom of the page, last 14:38:28

paragraph, the first sentence, "When 14:38:30

persistent USB is a requirement we definitely have run into a wall." 14:38:38 14:38:41

Now, can you give some context to the jurors what is meant by that? 14:38:44 14:38:49

A. Yeah. What it means, and again, remember this is from a marketer's point of view, right? Their job is to sell the chips we already have and none of the chips we had could handle this requirement from Apple that was a dual host. So the fact that you needed a multiple host in the system and they tried, they tried to find potential answers, and at the end, we said we can't do it. All the chips we have are standard compliant. We cannot use these chips directly. We are going to need something different. 14:38:51 14:38:53 14:38:55 14:38:57 14:39:01 14:39:05 14:39:08 14:39:11 14:39:14 14:39:16 14:39:18 14:39:20

Q. Okay. 14:39:21

So was Microchip having trouble technically with developing a persistent USB solution at that time? 14:39:22 14:39:24 14:39:26

A. No, it wasn't a technical problem; it was a matter of having something that we had that would be, you know, available in the near term, right. It wasn't a longer term 14:39:27 14:39:29 14:39:31 14:39:33

question, it was an immediate type of question. Chips could not do it. 14:39:35 14:39:38

Q. Can you turn to Exhibit 36 in your notebook, please. 14:39:41 14:39:43

(Whereupon, Trial Exhibit 36 was introduced.) 14:39:43 14:39:43

BY MR. SLAYDEN: 14:39:43

Q. Do you recognize this document? 14:39:57

A. Yes, it's an email that I sent to our CEO. 14:39:59 14:40:02

Q. And what is it? You said it already. 14:40:04

MR. SLAYDEN: Move to admit Exhibit 36. 14:40:05 14:40:06

MS. DURIE: No objection. 14:40:07

THE COURT: All right. It's admitted. 14:40:07 14:40:08

MR. SLAYDEN: Mr. Ferrer, can you bring up 36, please. 14:40:09 14:40:10

BY MR. SLAYDEN: 14:40:11

Q. So I think you just stated, but is this an email you sent? 14:40:17 14:40:19

A. Yes, it is. Right. 14:40:20

Q. Okay. 14:40:22

The second bullet point, it says, 14:40:24

"We have been working on the business case and technical details to provide a single connection solution similar to Unwired." 14:40:28 14:40:31 14:40:34

Do you see that? 14:40:36

A. Yeah. 14:40:38

Q. Can you explain to the jurors what you meant by a "solution similar to Unwired"? 14:40:39 14:40:41

A. Yes. At this point, right, we had our compliant solutions, we had two solutions in the market, but at the end of the day, if a noncompliant solution could be sold, fine. If automotive manufacturers would accept it, if Apple would accept it, then we should add the missing features and bring out a noncompliant solution. 14:40:43 14:40:48 14:40:50 14:40:53 14:40:56 14:40:58 14:41:03 14:41:05

Q. So was Microchip copying Unwired? 14:41:06

A. I'm sorry? 14:41:08

Q. Was Microchip copying Unwired? 14:41:09

A. No, we were listening to the customers, right? This specific email was a discussion with Tecvox. Tecvox said, hey, we need this, and many other customers came in with difficult requirements. 14:41:11 14:41:12 14:41:16 14:41:20 14:41:23

But no, at the end, we were to 14:41:24

provide what the market had asked for, the spec with the requirement in place. Automotive dealers had asked for it and we were responding to, you know, a request from customers. 14:41:26 14:41:28 14:41:30 14:41:33 14:41:35

Q. And I think that point is made later in that paragraph, which states -- it is talking about "The key is to develop a solution that works for Chrysler, but also potentially works for another ten Automotive manufacturers." 14:41:35 14:41:38 14:41:41 14:41:45 14:41:47 14:41:50

Explain to the jury why it was important to Microchip to find a solution that worked for multiple auto manufacturers. 14:41:52 14:41:54 14:41:57

A. Yeah. So there's more here than may meet the eye. So we knew we had had a multi-host solution, but we also had chips like we saw from Sandia was a variety of chips that had -- do they want two connections, do they want four connections, do they want to have a car reader? 14:41:59 14:42:03 14:42:06 14:42:10 14:42:12 14:42:13 14:42:16

And by the way, in this period of time, a lot of you were buying SD cards and put your music on it and put it in to have it 14:42:17 14:42:19 14:42:23

play where car manufacturers were using SD cards to load Maps. So you pay, you know, and your car had the ability to run Maps, you would pay 200 bucks for a Map update, put the card in. 14:42:26 14:42:29 14:42:32 14:42:34 14:42:37

So each one of the automotive manufacturers had different requirements. So we were trying to sort out what is the chip we should build and how can we get it done at a cost point and reasonably quickly. But you get many requirements at the same time. 14:42:37 14:42:39 14:42:41 14:42:43 14:42:46 14:42:48

Q. I understand. 14:42:50

Can you turn to Exhibit 41 in your notebook, please? 14:42:51 14:42:55

A. Okay. 14:42:57

(Whereupon, Trial Exhibit 41 was introduced.) 14:42:57 14:42:57

BY MR. SLAYDEN: 14:42:57

Q. Do you recognize this document? 14:43:02

A. Yes, I do. 14:43:05

Q. And what is it? 14:43:06

A. It's a email from myself to Ganesh Moorthy, the CEO at the time. 14:43:08 14:43:16

MR. SLAYDEN: Move to admit 14:43:17

Exhibit 41. 14:43:19

MS. DURIE: No objection. 14:43:19

THE COURT: All right. It is 14:43:20

admitted. 14:43:21

BY MR. SLAYDEN: 14:43:21

Q. So this is another email by you dated 14:43:22

October 18th, 2015. 14:43:24

Do you see that? 14:43:26

A. Yes, I do. 14:43:27

Q. The first sentence refers to Unwired, 14:43:31

and the email reads later, "They also 14:43:33

mentioned they had been pushing for a 14:43:36

while...for lower prices, and later for a chip 14:43:39

to support single upstream head unit." 14:43:41

Do you see that? 14:43:44

A. Yes, I do. 14:43:45

Q. What pricing was Unwired pushing 14:43:47

Microchip for? 14:43:51

A. That's what -- in this period, and 14:43:51

even before the advent of CarPlay, Unwired was 14:43:54

buying chips from us and wanted them at lower 14:43:59

prices, so they were pushing for a very 14:44:01

specific subset, and they wanted to pay 14:44:03

roughly half of what we were selling them for. 14:44:06

Q. Okay. 14:44:08

Why didn't Microchip provide 14:44:09

Unwired with a single chip they requested? 14:44:12

A. So at the time when they first 14:44:14

requested, right, we didn't view it as 14:44:16

something that would necessarily be accepted. 14:44:18

Still was a lot of risk; it was one customer's 14:44:22

request. And if, at the end of the day, GM 14:44:25

and all the other car manufacturers wouldn't 14:44:28

accept it or Apple wouldn't accept it, it was 14:44:30

just not a priority for our investment, right? 14:44:33

Again, working on 12 chips, we are 14:44:35

going to continue on the ones we're working on 14:44:37

and we'll pick one of the slots in the future 14:44:40

if this becomes a viable solution. 14:44:42

Q. Right. 14:44:43

So later on in that next sentence, 14:44:44

it says -- and this was referred to in the 14:44:46

opening -- it says, "Bottom line we missed 14:44:49

it." 14:44:52

A. Yeah. 14:44:53

Q. Can you explain to the jury what you 14:44:53

meant by that? 14:44:55

A. We've seen it a couple times. What 14:44:55

it means is we had two solutions and, you know, we thought they would use it. The ability for the automotive manufacturers to accept what we viewed as non-standard, for Apple to accept it, we did not expect that to happen. So that's what this refers to, right. 14:44:57 14:45:01 14:45:05 14:45:08 14:45:11 14:45:14

And so, yeah, we did not develop that chip in that period of time because we did not believe it was going to be accepted. 14:45:17 14:45:20 14:45:23

Q. Mr. Obolsky, does Microchip have an issue with competition? 14:45:26 14:45:28

A. No, we do not. We do have an issue with unfair competition. 14:45:30 14:45:33

Q. Okay. 14:45:34

So this is my last question for you: Why is Microchip in court today? 14:45:35 14:45:37

A. Yeah, so -- so we're here because we made a large investment in developing new products, new features. You know, we do things that are proprietary, and so we have intellectual property and, you know, it's our job to protect that intellectual property to make sure nobody uses it without -- without paying for it, whether it be a royalty or some 14:45:42 14:45:45 14:45:48 14:45:52 14:45:54 14:45:57 14:45:59 14:46:02

other way.

MR. SLAYDEN: Thank you. That's all I have. Thank you, Mr. Obolsky.

THE COURT: Ms. Durie, before you step up, we have been going for about an hour-and-a-half. I have to stop today, as I said, somewhere between 3:30 and 3:45. Do you all want to take five minutes, or are you okay to press on? Really up to you.

Anyone who wants to take a drink, let me know, just raise your hand.

MS. DURIE: Could we take five minutes?

THE COURT: Absolutely. We will take five minutes, we'll head out. And remember, don't talk about the case, okay, no testimony and we are moving along.

(Whereupon, the jury was excused from the courtroom.)

THE COURT: Okay. Five minutes and be back at 2:50.

(Whereupon, a recess was taken at 2:45 p.m.)

THE COURT CLERK: All rise.

THE COURT: Get the jury, Mr. Koehler. 14:55:20 14:55:21

You can be seated. I'm sorry. 14:55:22

(Whereupon, the jury entered the courtroom.) 14:55:24 14:55:27

THE COURT: Be seated. 14:56:18

Ms. Durie. 14:56:24

MS. DURIE: Thank you, Your Honor. 14:56:24

\- - - 14:56:24

CROSS-EXAMINATION 14:56:24

\- - - 14:56:26

BY MS. DURIE: 14:56:26

Q. Mr. Obolsky, good afternoon. 14:56:27

You said that you are an inventor on a patent; is that right? 14:56:29 14:56:31

A. Yes, I am. 14:56:32

Q. You said, in fact, Microchip has paid maintenance fees on that patent; right? 14:56:33 14:56:35

A. No, not on my patent, I think that one has expired already. 14:56:37 14:56:40

Q. That's right. You filed for that patent in 2001; right? 14:56:42 14:56:44

A. Probably. 14:56:46

Q. And I think I heard you say you never 14:56:47

found a market opportunity for it; is that right? 14:56:49 14:56:52

A. Yeah, no, it was not used. 14:56:52

Q. Okay. 14:56:53

And -- and that happens; right? 14:56:54

A. (Indicates affirmatively.) 14:56:56

Q. Now, you said, in your direct examination, I think, that Microchip used to control 100 percent of sales of microchips to The Big 3; is that right? 14:56:58 14:57:02 14:57:05 14:57:12

A. Um-hmm, yes. 14:57:13

Q. So Microchip is the 900-pound gorilla of the automotive microchip world; right? 14:57:14 14:57:17

A. No, that's not correct. 14:57:21

Q. Well, Microchip is basically a monopolist with respect to those chips; right? 14:57:22 14:57:25

A. In this very narrow market, yes. 14:57:28

Q. Yes. And Microchip often would like to keep it that way; right? 14:57:29 14:57:33

A. Not necessarily. We actually prefer to keep a large market share. 14:57:35 14:57:37

Q. Okay. 14:57:38

Now, you said that Aptiv and Boston 2 chip compete with Microchip and the 14:57:39 14:57:41

Sandia chip; is that right? 14:57:46

A. Yes. 14:57:50

Q. You said Aptiv competes with a lower price; right? 14:57:50 14:57:53

A. Lower equivalent price, yes. 14:57:54

Q. Yeah. Can you name a single hub maker that was choosing between a Boston 2 chip and a Sandia chip? 14:57:55 14:58:01 14:58:03

A. Sorry? 14:58:04

Q. Sure. 14:58:05

Can you name a single hub maker, another company, that was choosing between Boston 2 or Sandia, between Aptiv and Microchip, for its hub? 14:58:06 14:58:09 14:58:12 14:58:15

A. When you say, "hub," this is what I would call the break out box, just to make sure. 14:58:18 14:58:22 14:58:24

Q. Sure. 14:58:24

A. Yeah, you want me to name one? Is that the question? 14:58:25 14:58:28

Q. Sure. 14:58:29

A. So, potentially Tecvox. 14:58:29

Q. Okay. 14:58:32

But Aptiv doesn't actually sell 14:58:32

its chips to anyone else; right? 14:58:35

A. As I understand it. I don't know 14:58:37

what Aptiv does, but as I understand it, yes. 14:58:39

Q. Right. 14:58:41

So there is no other hub maker 14:58:42

that is looking at buying chips from either 14:58:44

Aptiv or Microchip, because Aptiv doesn't sell 14:58:47

anything? 14:58:52

A. Okay. 14:58:52

Q. Okay? 14:58:53

A. That's true. 14:58:54

Q. So really, when you say that Aptiv 14:58:54

and Microchip are competing, what you mean is 14:58:57

that Aptiv isn't buying that category of chips 14:59:00

from Microchip anymore? 14:59:04

A. I'm not sure I follow. Can you ask 14:59:06

again? 14:59:08

Q. When you say that Aptiv and Microchip 14:59:08

are competing, what you mean is just that 14:59:12

Aptiv isn't buying those microchips from you 14:59:14

anymore? 14:59:18

A. No, that's not what I mean. 14:59:18

Q. In August of 2016, you sent a letter 14:59:21

to your customers and to the car companies 14:59:27

telling them that you had sued Aptiv for patent infringement; right?

A. Yes.

Q. You signed the letter; right?

A. Yes.

MS. DURIE: If we could please have PX-238 marked for identification, and I can hand copies out.

(Whereupon, Trial Exhibit PX-238 was introduced.)

BY MS. DURIE:

Q. Mr. Obolsky, you recognize what's been marked as Exhibit 238 as a copy of the letter that you sent?

A. Yes, I do.

MS. DURIE: We offer it.

MR. SLAYDEN: I have no objection.

THE COURT: Okay. It will be admitted.

MS. DURIE: If we can please see Exhibit 238.

BY MS. DURIE:

Q. You signed it; right?

A. Yes.

Q. And if we go back to the text of the letter, you said, "Dear Valued Customer, Microchip would like to inform you of legal action that is being taken by Microchip against a supplier of electronic components in the automotive USB connectivity market," and you listed three patents; right? 15:00:16 15:00:18 15:00:22 15:00:24 15:00:26 15:00:30 15:00:35

A. Yes. 15:00:37

Q. Now, you hold an engineering degree; right? 15:00:38 15:00:44

A. Yes, I do. 15:00:44

Q. You have been working at Microchip for around 27 years? 15:00:45 15:00:47

A. Yes. 15:00:49

Q. You are a senior vice president; right? 15:00:50 15:00:51

A. I am today. Not at this time. 15:00:52

Q. Okay. 15:00:53

Do you report to the CEO? 15:00:54

A. I do today, yes. 15:00:56

Q. Okay. 15:00:57

And you have some technical understanding of USB; right? 15:00:58 15:01:00

A. Yeah. High level understanding, yes. 15:01:02

Q. Now, you sent this letter to your customers so that they would have a bias against using -- or I should say a bias towards using Microchip's solution instead of buying a component from Aptiv that has a copy of the Aptiv chip in it; right? 15:01:05 15:01:07 15:01:12 15:01:15 15:01:19 15:01:23

A. That's a narrow part of the reason, yes. 15:01:26 15:01:29

Q. Okay. 15:01:30

But you wanted to inform them so they would have a bias to use the Microchip? 15:01:30 15:01:34

A. Certainly. 15:01:41

Q. Now, you didn't investigate, you personally as the person who signed this letter -- 15:01:43 15:01:46 15:01:49

A. Yeah. 15:01:49

Q. -- you didn't investigate how Aptiv's chip actually worked before you sent this letter; right? 15:01:49 15:01:52 15:01:54

A. I certainly personally didn't investigate, no. 15:01:55 15:01:58

Q. Right. 15:01:58

Your deposition was taken in this case; right? 15:01:59 15:02:00

A. Yeah. 15:02:01

Q. And obviously, that was after the lawsuit was filed and after this letter was sent; right? 15:02:01 15:02:04 15:02:06

A. Yes. 15:02:07

Q. Okay. 15:02:07

And at that point in time, you still didn't know any details about how the Aptiv chip actually worked; right? 15:02:08 15:02:09 15:02:14

A. We didn't know, we suspected. At that point, we did not have all the answers. 15:02:18 15:02:23

Q. And what it does, how it works, you couldn't explain? 15:02:26 15:02:30

A. I'm sorry? 15:02:31

Q. What it does, how it works, you couldn't explain? 15:02:32 15:02:34

A. I couldn't personally explain, right, how their chip works, no. 15:02:36 15:02:40

Q. Okay. 15:02:42

A. I could explain what it does, not how it works. 15:02:43 15:02:45

Q. All right. 15:02:46

MS. DURIE: Your Honor, I would like to -- I'm sorry. 15:02:48 15:02:49

BY MS. DURIE: 15:02:50

Q. And you're saying at the time of your deposition, you were capable of explaining what the Aptiv chip does? 15:02:51 15:02:52 15:02:54

A. At a high level. 15:02:56

Q. Okay. 15:02:57

At a high level? 15:02:58

A. At a high level. 15:02:59

Q. Not in any detail; right? 15:03:00

A. Not in any detail, no. 15:03:01

MS. DURIE: Now I'd like to mark for identification Exhibit 252. 15:03:06 15:03:08

(Whereupon, Trial Exhibit 252 was introduced.) 15:03:15 15:03:20

BY MS. DURIE: 15:03:20

Q. Now, Exhibit 252 is an email exchange with David Sroka and Don Perkins, among others, from August of 2014 timeframe; right? 15:03:29 15:03:34 15:03:39

A. Yes, it appears to be. 15:03:44

MS. DURIE: We offer it. 15:03:47

MR. SLAYDEN: No objection. 15:03:48

THE COURT: Okay. Received. 15:03:49

MS. DURIE: If we could publish, and I'd like to begin on page 2. If we can go 15:03:51 15:03:52

to page 2. 15:04:00

BY MS. DURIE: 15:04:01

Q. There's an email here that begins on the second page from Sal Canu; right? 15:04:01 15:04:03

A. You want me to look here or up there? I apologize. 15:04:09 15:04:11

Q. Sorry, it's on the second page of the exhibit, about a third, quarter of the way down. 15:04:11 15:04:14 15:04:16

Do you see where I am? 15:04:21

A. Yes. 15:04:22

Q. An email from Sal Canu; who is he? 15:04:23

A. Sorry? 15:04:28

Q. Who is he? 15:04:29

A. I didn't catch it. 15:04:29

Q. Mr. Canu, who is he? 15:04:30

A. Oh, yes. He's one of the sales engineers. 15:04:32 15:04:34

Q. Okay. 15:04:35

And this is August 14th, 2014; right? And it says, "We want to take a strong stance going into OEMs. We went into GM last week and we are going to Chrysler tomorrow. At GM we brought up a design showing 1 Host 15:04:36 15:04:41 15:04:49 15:04:53 15:04:55

coming down from the Head Unit. We didn't mention Unwired." 15:04:59 15:05:03

Do you see that? 15:05:05

A. Yes, I do. 15:05:06

Q. And if we take a look now at the response that is on the first page, there is a response from Don Perkins at the bottom of the page and then Mr. Sroka responds to that email at the top; right? 15:05:07 15:05:11 15:05:17 15:05:22 15:05:27

A. Yes, that appears right. 15:05:28

Q. Okay. 15:05:30

And if we take a look at Mr. Sroka's email -- and by the way, you've seen his name before; right? 15:05:31 15:05:34 15:05:37

A. Yes. 15:05:38

Q. Okay. 15:05:38

He is the person who wrote the specification or the product specification that we were looking at a little while ago for the Sandia chip; right? 15:05:39 15:05:44 15:05:45 15:05:48

A. Yes. He wrote the business plan. Yes. 15:05:50 15:05:52

Q. And you said, I think, he is both a marketing person, but also an engineer; right? 15:05:52 15:05:54

A. Yes. He is. 15:05:56

Q. And he says, "Couple additional 15:05:57

points: Carplay REQUIRES the head unit to 15:06:01

become a USB device. This is so the Apple 15:06:04

phone is the host and controls the USB bus. 15:06:07

In your diagram, the head unit stays the 15:06:10

host...NOT COMPLIANT...right there. CarPlay 15:06:12

requires a dedicated path...this solution 15:06:17

allows other USB devices to access the 15:06:19

host...this is NOT Compliant." 15:06:22

And then he goes on to note that 15:06:23

this is a completely non-standard USB; right? 15:06:25

A. Yes. 15:06:28

Q. And he says it's a completely 15:06:29

non-standard USB because two USB hosts are 15:06:31

implementing a single transaction by splitting 15:06:35

it into two serial transactions, instead of 15:06:39

one. "This goes against the primary 15:06:42

requirement of USB; one bus/one Host." 15:06:45

So the problem that he was 15:06:50

identifying here is that the way that 15:06:51

Microchip was conceptualizing of a solution to 15:06:55

this problem, it would require two hosts to be 15:07:01

controlling a single device in violation of 15:07:05

the USB standard; right? 15:07:07

A. At a high level. 15:07:11

MR. SLAYDEN: I'll object, Your 15:07:13
Honor. That's an awful long narrative to give 15:07:14
the witness. 15:07:16

THE COURT: Overruled. 15:07:17

BY MS. DURIE: 15:07:18

Q. Now, at the time of this email, 15:07:18
Microchip was promoting its FlexConnect 15:07:20
solution; right? 15:07:24

A. Let me check. Yes. 15:07:26

Q. Okay. 15:07:27

And FlexConnect did not allow for 15:07:27
persistent USB in all of the other ports in 15:07:32
the car; right? 15:07:35

A. Yes. As I understand it today, yes. 15:07:37

Q. Right. 15:07:39

So at this point in time, 15:07:40
Microchip's solution offered customers a 15:07:43
choice between either having a single-lane 15:07:46
solution or having persistent USB, but not 15:07:50
both; right? 15:07:53

A. Hang on. Can you say that again? 15:07:56

Q. Sure. 15:07:57

At this point in time, Microchip could offer its customers either a single-lane solution or persistent USB, but not both? 15:07:58 15:08:00 15:08:04

A. Or two upstream solutions if you wanted persistent. 15:08:09 15:08:12

Q. Right. 15:08:15

Two lanes instead of one, so not single lane; right? 15:08:15 15:08:17

A. Yes. Single lane would not have persistence, yes. 15:08:18 15:08:20

Q. Right. 15:08:22

And at this point in time when you learned that Unwired had a solution that was single lane, you thought at that point in time that carmakers weren't really going to care that much about the combination of single lane and persistent USB; right? 15:08:22 15:08:26 15:08:29 15:08:31 15:08:34 15:08:39

A. Yes, that's correct. 15:08:42

Q. Okay. 15:08:43

You also thought, during this period of time, that Unwired was never actually going to finish its chip; right? 15:08:44 15:08:46 15:08:50

A. Well, we certainly weren't sure. 15:08:52

Q. Okay. 15:08:54

You thought Unwired wasn't big enough to get it done; right? 15:08:54 15:08:57

A. Yeah, we thought it was hard and they may not get there, right. 15:08:58 15:09:00

Q. Okay. 15:09:01

Because they weren't big enough to get it done? 15:09:02 15:09:03

A. In essence, yes. 15:09:04

Q. Okay. 15:09:05

So you kept trying to sell the car companies on your FlexConnect solution that didn't provide for connectivity throughout the car; right? 15:09:06 15:09:09 15:09:12 15:09:15

A. That's not about connectivity through the car; it's about the persistent, right? We could be all four ports. 15:09:17 15:09:20 15:09:24

Q. Fair enough. Fair enough. That is absolutely fair. 15:09:25 15:09:27

You did not have the solution that would provide for persistent connections throughout the car? 15:09:28 15:09:29 15:09:31

A. Yeah, we didn't have the solution, and at that point, it hadn't even been asked for in the early part of the year, right? 15:09:32 15:09:34 15:09:37

Q. Now, you said before that you were concerned that you wouldn't be able to get USB certification for a one-lane persistent USB solution; right? 15:09:39 15:09:44 15:09:47 15:09:52

A. Yeah. Not those exact words, but yes, certification. 15:09:55 15:09:58

Q. And the way you get certification is you submit your product to a USB logo place that runs some tests on it; right? 15:09:59 15:10:00 15:10:03

A. Yes. 15:10:05

Q. And if it passes those tests, then you get a USB logo; right? 15:10:06 15:10:09

A. Yes, in essence. 15:10:11

Q. Now, you said you were also worried that Apple wasn't going to like your solution, right, that solution of a single-lane persistent USB, Apple might not like it? 15:10:12 15:10:14 15:10:17 15:10:18

A. I mean, allow it. 15:10:21

Q. Fair enough. I guess that's even stronger than not liking it. 15:10:23 15:10:25

And if Apple doesn't allow it, you can't sell it; right? 15:10:27 15:10:29

A. Yes. 15:10:30

Q. And so you didn't want to do what you 15:10:31

thought was going to be a noncompliant solution until you were sure that Apple was going to approve it; right? 15:10:35 15:10:37 15:10:39

A. Yeah, or at least had some confidence, we wouldn't have done it yet. 15:10:41 15:10:45

Q. Right. 15:10:46

You didn't know what the rules were going to be and you didn't want to spend the money until you knew what those rules were; right? 15:10:47 15:10:48 15:10:50 15:10:52

A. Yes, that's true. 15:10:54

Q. Okay. 15:10:55

MS. DURIE: Let me go to 246 in evidence, Mr. Glass, and if we could start on page 1. 15:11:03 15:11:05 15:11:11

BY MS. DURIE: 15:11:13

Q. So we looked at this email a little while ago. It's from July of 2014. And if we can pull up the paragraph that begins, "Competitive Threats have emerged." It's on the first page. There we go. 15:11:15 15:11:17 15:11:20 15:11:23 15:11:29

Now, this email is a trip report that Mr. Perkins made from a visit to the Detroit area; right? 15:11:31 15:11:33 15:11:36

A. Yes, it is. 15:11:38

Q. And he identified Unwired as the largest threat for the USB flex hub solution; right? 15:11:39 15:11:43 15:11:48

A. Yes, that's right. 15:11:49

Q. And Mr. Perkins said that he was gathering information on the Unwired solution and had begun to understand what their architecture is; right? 15:11:52 15:11:56 15:11:59 15:12:01

A. That's what it says, yes. 15:12:04

Q. And what Mr. Perkins thought was that the Unwired solution stepped outside of the USB standard because it offered flex on every port and connectivity throughout the car; right? 15:12:05 15:12:09 15:12:13 15:12:16 15:12:19

A. No, that's not a car, it's just combined. It did step out of Sandia. 15:12:21 15:12:24

Q. Okay. 15:12:29

A. I don't know that one causes the other. 15:12:29 15:12:33

Q. Okay. Fair enough. 15:12:33

And in the last sentence there, you said, "It is very important that we 'set the standard' for these architectures before 15:12:34 15:12:35 15:12:38

Unwired has an opportunity to compete with their ASIC solution." 15:12:41 15:12:44

So Mr. Perkins was suggesting that Microchip try to use its position to set the standard for what everyone was going to use before Unwired could get their chip to market; right? 15:12:47 15:12:49 15:12:53 15:12:56 15:12:59

A. Can you ask that question again? I'm not sure I completely understood what you said. 15:13:00 15:13:02 15:13:04

Q. Sure. 15:13:04

He was saying that Microchip should try to set the standard for the architecture before Unwired had an opportunity to get its solution to market? 15:13:05 15:13:06 15:13:08 15:13:11

A. That's what it says, yes. 15:13:14

Q. Okay. 15:13:16

Now, if we go to the second page -- 15:13:17 15:13:22

MS. DURIE: Mr. Glass, can you pull up the paragraph that begins, "Unwired is our largest threat." There we go. 15:13:23 15:13:24 15:13:26

BY MS. DURIE: 15:13:26

Q. And he says, "Unwired is our largest 15:13:30

threat for the USB Flex hub," and if we go down a little bit, he says, "It is difficult to believe that the car makers would commit to an ASIC from a small company like Unwired." 15:13:32 15:13:35 15:13:38 15:13:39

That was also your view; right? 15:13:43

A. Yeah, that's a fair estimate. Yes. 15:13:46

Q. Okay. 15:13:49

You thought that Unwired was too small to get it done? 15:13:49 15:13:51

A. At that time, yes. 15:13:55

Q. Now, if we could take a look at Exhibit 248. 15:13:59 15:14:05

(Whereupon, Trial Exhibit 248 was introduced.) 15:14:13 15:14:15

MR. SLAYDEN: No objection. 15:14:24

MS. DURIE: I hadn't offered it yet, but I will. I offer it. 15:14:27 15:14:28

THE COURT: All right. 15:14:29

Since there is no objection, we'll admit it. 15:14:30 15:14:32

MS. DURIE: Good. So if we can put up Exhibit 248. 15:14:32 15:14:34

BY MS. DURIE: 15:14:36

Q. This is an email again from Mr. 15:14:37

Sroka; right? 15:14:42

A. Hang on. 15:14:42

Yes, it appears to be. 15:14:44

Q. And it's from July of 2014; right? 15:14:45

A. Hang on. I'm not on the copy, I am just looking -- yes. 15:14:52 15:14:55

Q. Sure. 15:14:56

And the email's Subject line is, "Debunking Unwired"; right? 15:14:57 15:15:01

A. That's what it says, yes. 15:15:04

Q. And there is an attachment, and if we go to page 6 of the attachment -- actually page 6 of the PDF, I apologize, before the attachment, there is a slide that says, "Break Out Box Alternative Approach" {sic}; right? 15:15:06 15:15:12 15:15:18 15:15:21 15:15:26

A. Yes, I found it. 15:15:26

Q. Okay. 15:15:27

And this slide reflects what Microchip had learned about the Unwired solution from multiple customers; right? 15:15:28 15:15:31 15:15:34

A. I would assume that's true. I'm not sure if I've seen this one before, but yes, I assume that's true. 15:15:38 15:15:42 15:15:44

Q. Microchip was trying to figure out, 15:15:45

as best it could, how the Unwired solution worked; right? 15:15:47 15:15:50

A. Yes. 15:15:52

Q. And if we take a look towards the bottom, and it is the text that's in red there, it says, "Note if the iPhone connects to a standard Hub, the architecture is flawed." 15:15:54 15:15:59 15:16:02 15:16:05 15:16:08

Do you see that? 15:16:09

A. Yes, that's what it says. 15:16:11

Q. Okay. 15:16:12

Microchip thought that the architecture of the Unwired product was flawed because it was not USB compliant; right? 15:16:13 15:16:14 15:16:19

A. Yes, that's at least what someone thought, whoever wrote this. 15:16:23 15:16:27

Q. Well, it was apparently what Mr. Sroka thought, if we go to the first -- or Mr. Steele thought, if we go to the first page of the exhibit, it is an email from Brigham Steele, and is it Sroka or Sroka? 15:16:28 15:16:35 15:16:42 15:16:44 15:16:48

A. Either way is fine with me. 15:16:50

Q. Mr. Steele wrote, "More new slides, you may want to clean them up a little," and 15:16:53 15:16:56

then Mr. Sroka is the one who sent them around; right? 15:16:58 15:17:01

A. Yeah. 15:17:09

MS. DURIE: Now, let's go to Exhibit 62. 15:17:09 15:17:11

(Whereupon, Trial Exhibit 62 was introduced.) 15:17:12 15:17:16

BY MS. DURIE: 15:17:16

Q. Exhibit 62 is another email exchange among various individuals at Microchip in October 1, 2014; right? 15:17:26 15:17:29 15:17:32

A. Yes, it appears to be. 15:17:36

MS. DURIE: We offer it. 15:17:37

MR. SLAYDEN: No objection. 15:17:39

THE COURT: Okay. It is admitted. 15:17:40

BY MS. DURIE: 15:17:42

Q. And this is an email from October of 2014, if you look at the top, talking about "project for fiat and Chrysler"; right? 15:17:42 15:17:45 15:17:51

A. Hang on. Yes. 15:17:57

Q. And if we take a look at the second page, there is an email from Chris, is it Behal? 15:17:59 15:18:02 15:18:07

A. I don't know how to pronounce the 15:18:07

name. That's good. 15:18:09

Q. Well, he is a senior field 15:18:10

applications engineer at Microchip; right? 15:18:12

A. Okay. 15:18:16

Q. And I am cheating because it's on the 15:18:17

signature line. 15:18:19

A. Yeah. I trust you. 15:18:20

Q. And if we take a look at the email 15:18:21

from Mr. Behal, he is reporting on what he has 15:18:23

been told and he says, "Stefan, this does not 15:18:32

make sense to me and I believe Brigham 15:18:35

either" -- it is missing not -- "when this 15:18:37

came up a few months ago... 15:18:40

"However, Delphi is given that 15:18:41

requirement by their OEM's (Chrysler) and it 15:18:43

appears Fiat is wanting the same thing. They 15:18:46

somehow believe with carplay on one of the 15:18:50

Break Out Box's ports that they can still have 15:18:54

access data connectivity to the other Break 15:18:57

Out Box's ports." {Sic} 15:19:03

So this is saying Delphi has been 15:19:04

given the requirement by their customer, that 15:19:07

their customers want to have this persistent 15:19:10

USB solution; right? 15:19:14

A. Yes. 15:19:17

Q. And if you go down a little bit, a couple paragraphs down, there's a paragraph that begins, "It appears to me," four paragraphs down. 15:19:18 15:19:21 15:19:25 15:19:29

A. Okay. I found it. Yep. 15:19:30

Q. And he says, "It appears to me that the OEM's do not have good understanding of what is possible with Carplay... all they know is they want Carplay AND they want additional connectivity to head unit to other devices. 15:19:33 15:19:37 15:19:41 15:19:43 15:19:47

"How is that possible without an Iphone allowing it? I have no idea. Is it possible they know something about Carplay we don't? I don't think so but I can't figure out why they want this either..." 15:19:51 15:19:54 15:19:57 15:19:59 15:20:01

Now, at this point in time, Microchip was telling its customers that this solution wouldn't work; right? 15:20:07 15:20:09 15:20:12

A. Potentially, yes. 15:20:15

Q. Okay. 15:20:16

Mr. Behal is wondering how it could be possible to have persistent connectivity on downstream devices without the 15:20:17 15:20:20 15:20:22

iPhone allowing it; right? He says he has no idea? 15:20:25 15:20:28

A. Yeah. He didn't, yes. 15:20:29

Q. Okay. 15:20:30

MS. DURIE: Let's go to Exhibit 58. 15:20:35 15:20:37

(Whereupon, Trial Exhibit 58 was introduced.) 15:20:37 15:20:40

THE WITNESS: Are we done with this one? 15:20:41 15:20:42

MS. DURIE: We are. 15:20:43

Exhibit 58 is another email chain. This time, Brigham Steele and Mark Orlosky copying Chris Behal in some of it from the June 2014 timeframe. 15:20:55 15:21:00 15:21:04 15:21:07

BY MS. DURIE: 15:21:09

Q. Do you see that? 15:21:10

A. Yes, I do. 15:21:10

MS. DURIE: We offer it. 15:21:11

MR. SLAYDEN: I have no objection, Your Honor. 15:21:12 15:21:13

THE COURT: All right. It is received. 15:21:13 15:21:14

BY MS. DURIE: 15:21:15

Q. Now, Brigham Steele is another Microchip engineer; right? 15:21:15 15:21:18

A. Yes, he is an applications engineer. 15:21:19

Q. Right. 15:21:21

And he is talking to Mark Orlosky; right? 15:21:22 15:21:28

A. Yes. 15:21:28

Q. And Mark Orlosky was at Delphi; right? Actually the email at the very top, but that's fine. 15:21:28 15:21:32 15:21:34

A. Hang on. 15:21:36

Q. And Delphi was one of Microchip's customers at this time; right? 15:21:36 15:21:39

A. Yes, they were. 15:21:40

Q. This is before -- this is before Delphi bought Unwired; right? 15:21:41 15:21:44

A. Yeah. In June of 2014, yes. 15:21:48

Q. Right. 15:21:50

And if we look at the email that appears from Mr. Orlosky on the second page, it is the email in the middle of the page, and Mr. Orlosky writes, "Hi Brigham. Just ended a multiparty meeting with Chrysler and Harman." 15:21:51 15:21:53 15:22:02 15:22:04 15:22:10

Do you see where I am? 15:22:13

A. I found it, yes. 15:22:14
Q. Sorry. 15:22:15
"You were at Chrysler on the 18th 15:22:16
for a demo. Dave Diovardi does not want to 15:22:18
lose data capability on other ports not tied 15:22:21
to the Apple device. Is this an Apple CarPlay 15:22:24
spec requirement?" 15:22:27
Now, Dave Diovardi was from 15:22:29
Chrysler; right? 15:22:33
A. Yes. 15:22:34
Q. And if we turn to the response to 15:22:34
this from Mr. Steele at Microchip, it begins 15:22:36
on the first page; right? 15:22:39
A. Hang on. From who? 15:22:42
Q. Go to the first page of the document. 15:22:45
There is an email that begins in the middle of 15:22:47
the page, so we're going up, forward in time. 15:22:50
A. Okay. 15:22:53
Q. So there is a response from Brigham 15:22:53
Steele, June 18th, 2014, at 2:33 p.m.; right? 15:22:56
A. Okay. Yep. 15:23:01
Q. And he says, "Mark" -- so this is 15:23:02
back to Mark at Delphi -- "Just to be clear, 15:23:05
we need to make sure that the message is 15:23:07

consistent to Dave" -- at Chrysler -- "from his vendors. Dave likes to look at the big picture, so I love his ideas, but some items may be physically outside the capabilities of ANY USB system, and I think he needs to understand the capabilities of USB and some of the low level details. This is how I would break it down, let me know if you disagree with my analysis or if you have other questions." 15:23:09 15:23:12 15:23:15 15:23:18 15:23:21 15:23:25 15:23:28 15:23:30 15:23:33 15:23:35

And then he has a series of numbered paragraphs in which he is, in substance, explaining why this won't work; right? 15:23:36 15:23:38 15:23:41 15:23:46

A. I have not read this before, so I don't remember. 15:23:47 15:23:52

Q. Sure. 15:23:52

Let's take a look at it together. 15:23:52

No. 1, "With USB, you are only allowed 1 Host and multiple devices on a bus. This message is critical, so we need to make sure Dave understands this fact." 15:23:55 15:23:57 15:24:01 15:24:03

A. Okay. 15:24:05

Q. That's No. 1. 15:24:05

No. 2, "CarPlay passes the Host role from the head unit to the Phone itself." {Sic} 15:24:06 15:24:09 15:24:09

"3. Once the head unit has given up the Host role, it will not see any other ports. If the iPhone doesn't want to see the other ports, it will ignore them." {Sic} 15:24:11 15:24:14 15:24:16 15:24:19

And then it goes on to talk about the initial development that had been going on at Microchip; right? 15:24:21 15:24:23 15:24:26

A. Hang on. Where is that? 15:24:28

Q. A, "In our initial development we would plug in USB speakers and thumb drives into the other Hub ports. The iPhone would display a message that the speakers and thumb drive were not authenticated devices, so it would not support them. 15:24:30 15:24:33 15:24:36 15:24:39 15:24:42 15:24:45

"To avoid these annoying messages displayed on the phone, the head unit can disable those ports when entering Carplay." {Sic} 15:24:46 15:24:48 15:24:51 15:24:54

So Microchip had identified this issue in development, and its solution to the annoying messages that came up was to disable 15:24:54 15:24:56 15:25:00

those other ports; right? 15:25:03

A. That was one possible solution, yes. 15:25:04

Q. Okay. 15:25:07

So at this point in time, 15:25:09

Microchip was telling its customers this one 15:25:20

lane persistent USB thing isn't going to work 15:25:24

and you should go with the FlexConnect 15:25:28

solution instead? 15:25:30

A. That's about right. 15:25:32

Q. Okay. 15:25:33

Let's fast forward to 15:25:35

December 2014, and let me mark for 15:25:37

identification Exhibit 260 -- actually, it's 15:25:49

261, I believe, is in evidence. I apologize. 15:25:51

You know what, it may not be. 15:25:55

THE COURT: I don't think so. 15:25:58

MS. DURIE: No, you know what, 15:25:58

it's Exhibit 66. We have a couple of emails 15:25:59

that are duplicates of each other. I 15:26:03

apologize. 15:26:05

Let's take a look at Exhibit 66 15:26:06

which has been handed out. 15:26:08

BY MS. DURIE: 15:26:10

Q. Now, if we go to the second page of 15:26:11

this exhibit, the top of the second page -- actually, I take it back. The bottom -- there we go. The middle of the second page -- I'm sorry, go back. The second page is on the left. 15:26:15 15:26:26 15:26:28 15:26:31 15:26:36

In the middle of the second page towards the top, it says, "It appears that Chrysler is committed to the Unwired solution and Microchip Flex Connect solution is no longer being considered." {Sic} 15:26:36 15:26:38 15:26:40 15:26:44 15:26:46

This is from December of 2014; right? 15:26:48 15:26:52

A. Yes. 15:26:53

Q. Now, at this point in time, Tecvox was one of Microchip's customers; right? 15:26:53 15:26:57

A. Yes. 15:27:00

Q. And Microchip had been selling Tecvox on the FlexConnect; right? 15:27:01 15:27:04

A. Yes. 15:27:06

Q. And Tecvox was then trying to sell Chrysler on a module that incorporated that FlexConnect; right? 15:27:07 15:27:10 15:27:15

A. Yes, that's correct. 15:27:17

Q. And they were not successful in 15:27:17

convincing Chrysler to use that solution; right? 15:27:19 15:27:23

A. Yes, that's correct. 15:27:25

Q. And then if we take a look at the response to that up at the top of the first page, if we go to page 1, it says -- actually at the bottom, it says at the bottom there, from Mr. Sroka, "When persistent USB is a requirement we have definitely run into a wall." 15:27:27 15:27:31 15:27:36 15:27:45 15:27:48 15:27:52 15:27:56

Now, you said in your direct testimony that the wall that had been run into was just a marketing wall, not a technical wall; is that sort of the gist of it? 15:27:57 15:27:59 15:28:04 15:28:08

A. Well, I think in this context of this message right from a marketer, it was a marketing wall. The chips we had to sell couldn't do it. 15:28:12 15:28:14 15:28:16 15:28:19

Q. Right. You had run into a wall when it came to supplying a chip that was single lane and that had persistent USB? 15:28:20 15:28:22 15:28:26

A. Yes. 15:28:28

Q. Okay. 15:28:29

And right around the same time, 15:28:30

December of 2014, is when Mr. Sroka asked Mr. Bohm for a copy of his patent; right? 15:28:33 15:28:39

A. I don't remember the timeline, but yes, I believe that could be true. Yes. 15:28:43 15:28:45

Q. Okay. 15:28:47

THE COURT: Ms. Durie, before you move on to something new, can I give you a five-minute warning? 15:28:49 15:28:51 15:28:54

MS. DURIE: This is a perfect time to break. This would be a nice place. 15:28:56 15:28:57

THE COURT: All right. Then why don't we break for the day now. So as we break for the evening, I'm just going to repeat the caution I've given you about the testimony. You should not be conversing or talking about it among yourselves. 15:28:59 15:28:59 15:29:02 15:29:05 15:29:07 15:29:11

Second, I know it's tempting to go home and tell the people at home what you're listening to in court. I'm going to caution you not to do that because it will inevitably invite their responses and their thoughts to weigh in, and that is not what is going on in court. 15:29:13 15:29:15 15:29:17 15:29:19 15:29:22 15:29:24 15:29:28

And third, I'll repeat the caution 15:29:28

again. Don't go home and start looking things up. Google is not your friend in this context. Okay? You need to constrain what you know to what you hear in court. 15:29:30 15:29:32 15:29:35 15:29:39

So with that, I'll let you go. Is 9 o'clock good again for everybody tomorrow morning? Okay. Great. Let's plan to start at 9 tomorrow. We will have a full day tomorrow, and with that, we can let you step out and have a good night. Be safe with the weather. Okay. 15:29:41 15:29:44 15:29:46 15:29:48 15:29:51 15:30:00 15:30:06

(Whereupon, the jury was excused from the courtroom.) 15:30:07 15:30:09

THE COURT: Mr. Obolsky, you can step down. I am just going to caution you that you are still under oath and in the middle of cross-examination. You should not be discussing your testimony with anyone over the course of the evening. 15:30:20 15:30:23 15:30:25 15:30:26 15:30:28 15:30:30

THE WITNESS: I will go somewhere else. 15:30:32 15:30:33

THE COURT: Okay. All right. So you can step down. I don't know if there's any particular housekeeping? 15:30:33 15:30:35 15:30:37

MS. DURIE: I have one trivial one. This probably doesn't require Your Honor's attention. We have some physical devices that were admitted into evidence and I just want to make sure that we tender them for safekeeping. 15:30:40 15:30:41 15:30:43 15:30:45 15:30:46 15:30:49

THE COURT: That's fine. Mr. Koehler, can you take those and hang on to them? 15:30:50 15:30:52 15:30:54

THE COURT CLERK: Sure. 15:30:55

THE COURT: Okay. Anything else from the plaintiffs' side? 15:30:59 15:31:01

MR. RUSSELL: Your Honor, we did have one regarding particular exhibits...(inaudible). 15:31:03 15:31:04 15:31:12

THE COURT: That's fine. As long as there are no objections, that's fine. I mean even at the beginning of the examination, if you know you are going to use it, just let me know and I'll admit it then so you don't have to deal with that. I will just say give some thought to how you want to deal with those in terms of handing them amongst the jury when we submit the evidence. I don't 15:31:12 15:31:12 15:31:15 15:31:17 15:31:19 15:31:21 15:31:24 15:31:25 15:31:30

know whether you want to submit everything electronically or whether you plan to send back paper copies with them. If it's the latter, then there's no problem. Okay. All right. 15:31:32 15:31:33 15:31:36 15:31:38 15:31:40

So with that, again, if there are issues that I am going to need to take up tomorrow for conditional relevance kind of determinations, I would appreciate an email by about 9 o'clock to my chambers email and, you know, I certainly would appreciate the revised amended jury instructions tonight as well. Again, if you can email them, fine, just email them to chambers. That's fine, too. But I just want to be able to look at them and incorporate them into what I get you by the end of the day tomorrow. 15:31:41 15:31:44 15:31:45 15:31:47 15:31:50 15:31:53 15:31:58 15:32:01 15:32:04 15:32:07 15:32:09 15:32:12

MS. DURIE: Thank you. 15:32:14

THE COURT: All right. With that, we will stand in recess until tomorrow. I will see everyone here a few minutes before 9 in case there are any issues we need to take up. 15:32:15 15:32:16 15:32:18 15:32:21 15:32:23

MS. DURIE: Thank you, Your Honor. 15:32:23

THE COURT: All right. Everybody have a good night. 15:32:24 15:32:26

(Whereupon, the Court adjourned proceedings at 3:33 p.m.) 15:32:27 15:32:31

C E R T I F I C A T E

I do hereby certify that I am a Notary Public in good standing, that the aforesaid testimony was taken before me, pursuant to notice, at the time and place indicated; that said deponent was duly sworn to tell the truth, the whole truth, and nothing but the truth; that the testimony of said deponent was correctly recorded in machine shorthand by me and thereafter transcribed under my supervision with computer-aided transcription; that the deposition is a true and correct record of the testimony given by the witness; and that I am neither of counsel nor kin to any party in said action, nor interested in the outcome thereof.

WITNESS by hand and official seal this 7th day of April, 2022.

Notary Public

Job No. 5162168

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