UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROCHIP TECHNOLOGY INC.,	) Inter Parties Review
	) No. IPR2024-00228
Petitioner,	) No. IPR2024-00495
	) No. IPR2024-00229
vs.	) No. IPR2024-00230
	) No. PGR2024-00011
APTIV TECHNOLOGIES AG,	)
	)
Patent Owner.	)
_____	)

VIDEOTAPED DEPOSITION OF ERIC WELCH

Menlo Park, California

Thursday, October 10, 2024

REPORTED BY: Derek L. Hoagland

CSR No. 13445

Veritext Legal Solutions
Calendar-CA@veritext.com 866-299-5127

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Patent Owner.	)
_____	)

VIDEOTAPED DEPOSITION OF ERIC WELCH, taken before Derek L. Hoagland, a Certified Shorthand Reporter for the State of California, commencing at 9:10 a.m., Thursday, October 10, 2024, at Orrick Herrington & Sutcliffe LLP, 1000 Marsh Road Menlo Park, California, Menlo Park, California.

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I N D E X

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QUESTIONS WITH INSTRUCTIONS NOT TO ANSWER

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E X H I B I T S

EXHIBIT	DESCRIPTION	MARKED
Exhibit 2019	US Patent Publication Number 2009/0024746	16
Exhibit 2020	Declaration of Eric Welch, Exhibit 2050, From the IPR 2020-01391	96
Exhibit 2021	Errata Sheet	118

9:10 a.m. P R O C E E D I N G S

09:09:52

THE VIDEOGRAPHER: Good morning. We are going 09:09:52
on the record at 9:10 a.m. on October 10th, 2024. 09:10:13
Please note that microphones are sensitive and may pick 09:10:21
up whispering, private conversations and cellular 09:10:25
interference. Please turn off all cell phones or place 09:10:30
them away from the microphones, as they can interfere 09:10:34
with the deposition audio. Audio and video recording 09:10:36
will continue to take place unless all parties agree to 09:10:41
go off the record. 09:10:46

This is Media No. 1 of the video-recorded 09:10:47
deposition of Eric Welch taken by counsel for patent 09:10:51
owner in the matter of Microchip Technology Incorporated 09:10:56
versus Aptiv Technologies AG before the Patent Trial and 09:11:00
Appeal Board, Case Numbers IPR2024-00228, IPR2024-00229, 09:11:07
IPR2024-00230, IPR2024-00495, PGR2024-00011. This 09:11:19
deposition is being held at 1000 Marsh Road Menlo Park, 09:11:35
California. 09:11:41

My name is Pete Yaroschuk from the firm 09:11:41
Veritext. I am the videographer. The court reporter is 09:11:44
Derek Hoagland from the firm Veritext. I am not related 09:11:48
to any party in this action, nor am I financially 09:11:51
interested in the outcome. 09:11:55

Counsel, all present in the room, please now 09:11:56

1 state your appearances and affiliations for the record. 09:11:59
2 If there are any objections to proceeding, please state 09:12:03
3 them at the time of your appearance, beginning with the 09:12:07
4 noticing attorney. 09:12:09
5 MR. BRAUSA: Thank you. Adam Brausa from the 09:12:11
6 Morrison Foerster firm on behalf of Patent Owners Aptiv 09:12:15
7 Technologies AG and Aptiv Technologies Limited. I'm 09:12:18
8 joined by my colleagues Clint Ewell and Eric Wiener, 09:12:21
9 also from the Morrison Foerster firm. 09:12:25
10 MR. JENSEN: This is Travis Jensen from the law 09:12:27
11 firm Orrick Herrington & Sutcliffe on behalf of the 09:12:30
12 petitioner Microchip Technology Incorporated. 09:12:33
13 THE VIDEOGRAPHER: Thank you. 09:12:37
14 MR. JENSEN: And could I just ask, did we have 09:12:37
15 anybody on remote as well? 09:12:40
16 MR. BRAUSA: I think our colleague Andrew 09:12:41
17 joins -- Jones is on realtime. So if -- if there's an 09:12:43
18 additional realtime, Andrew Jones, also from -- 09:12:47
19 MR. JENSEN: Okay. 09:12:47
20 MR. BRAUSA: -- the Morrison Foerster firm may 09:12:51
21 be periodically following realtime. 09:12:52
22 MR. JENSEN: Thank you. 09:12:54
23 THE VIDEOGRAPHER: Would the court reporter 09:12:55
24 please swear in the witness. 09:12:56
25 (Whereupon, the deponent is duly sworn by the 09:13:05

court reporter.) 09:13:05

MR. BRAUSA: Good morning, Mr. Welch. Could you 09:13:08

just state your name for the record. 09:13:10

THE DEPONENT: My name is Eric Welch. 09:13:12

ERIC WELCH,

having first been duly sworn,

was examined and testified as follows:

EXAMINATION

BY MR. BRAUSA: 09:13:13

Q. And where do you currently reside? 09:13:13

A. I live in Berkeley, California. 09:13:15

Q. What's your current job? 09:13:17

A. I am president of Bramson Welch & Associates, 09:13:18

Inc. 09:13:21

Q. How long have you held that position? 09:13:22

A. About 15 -- 15-plus years. 09:13:23

Q. Okay. And what does Bramson Welch & Associates 09:13:26

do? 09:13:30

A. We are a consulting firm. We do technology and 09:13:30

embedded systems. We work a lot with USB. And I also 09:13:33

have an expert witness practice. 09:13:38

Q. Okay. When you say doing -- I guess, let me 09:13:40

back up. 09:13:44

1 The consulting work that you mentioned, you 09:13:45
2 consider that separate from the your expert witness 09:13:48
3 practice? 09:13:50
4 A. It's physically and financially separate in the 09:13:51
5 sense that the clients are never the same. There's 09:13:55
6 often technology overlap, though. 09:13:57
7 Q. Okay. And how long have you had an active 09:13:58
8 expert witness practice? 09:14:04
9 A. My first deposition was in 1980. I didn't do 09:14:07
10 much after that until -- the recent work dates from 09:14:11
11 2015. 09:14:18
12 Q. Okay. So you've been deposed before, correct? 09:14:18
13 A. Four or five times, that's correct. 09:14:21
14 Q. And so the general flow is, I will ask 09:14:25
15 questions; if you know the answer, you do the best of 09:14:27
16 your ability to provide an answer. 09:14:29
17 Can you agree to do that? 09:14:31
18 A. I can agree to do that. 09:14:32
19 Q. And if anything I say is unclear or uncertain, 09:14:33
20 you will ask me to clarify? 09:14:36
21 A. Yes, I will. 09:14:38
22 Q. And I will do my best, and I would ask you do 09:14:39
23 your best too, to not talk over one another so the court 09:14:42
24 reporter can take down a clean transcript. 09:14:45
25 A. That seems entirely reasonable. 09:14:47

Q. Okay. Is there anything that would prevent you 09:14:49
from providing truthful and accurate testimony here 09:14:51
today? 09:14:53
A. Nothing I'm aware of. 09:14:54
Q. When were you retained by Microchip in this 09:14:56
matter? 09:14:59
A. Approximately May of 2023. 09:15:00
Q. Okay. And you've authored several expert 09:15:04
declarations across the five proceedings we're here to 09:15:08
talk about today? 09:15:12
A. That's correct. 09:15:13
Q. Those were all served in the end of 09:15:14
December 2023, fair? 09:15:17
A. That's my memory, yes. 09:15:18
Q. Okay. In the course of your work as an expert 09:15:19
witness, your expert witness practice, do you have an 09:15:26
ordinary approach that you employ to analyze patent 09:15:29
problems and things of this nature? 09:15:33
MR. JENSEN: Object to form. 09:15:36
THE DEPONENT: Well, it's my practice to -- to 09:15:38
start with and focus on the language of the patents in 09:15:43
question. And I go from there to my own experience. I 09:15:46
consider the relevant viewpoint of a POSITA as of, you 09:15:52
know, the agreed and/or stated original date of the 09:15:57
patents, and I go from there. 09:16:03

BY MR. BRAUSA: 09:16:05

Q. Okay. And so it's fair to say the first thing 09:16:06

you do is you read the patents and you read the claims? 09:16:09

A. That's correct. 09:16:11

Q. Okay. And you employed that approach in the 09:16:11

proceedings here on behalf of Microchip? 09:16:15

A. I did, yes. 09:16:17

Q. Okay. And so your analysis started with the 09:16:18

claims of the patents and then you took it from there? 09:16:19

A. That's correct. 09:16:22

Q. Okay. At your consulting firm, what -- who is 09:16:22

the Bramson in Bramson Welch? 09:16:33

A. My brother-in-law, Jeremy Bramson. 09:16:35

Q. Okay. And are there any other employees at 09:16:38

Bramson Welch? 09:16:42

A. We have a staff of seven in all. 09:16:43

Q. Okay. Did any of the other individuals at 09:16:45

Bramson Welch & Associates assist or aid you in any way 09:16:47

in formulating your opinions in these proceedings? 09:16:51

A. No. This is all entirely on me. 09:16:53

Q. Okay. Speaking about you personally, can you 09:16:56

estimate what percentage of your compensation in a given 09:17:00

year is related to consulting work at Bramson Welch 09:17:05

versus your expert witness practice? 09:17:09

A. Well, it varies considerably. But, for example, 09:17:11

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over the last three years, it's 20 to 25 percent expert 09:17:14
and 75 percent other kinds of consulting. 09:17:18
Q. Okay. And so in the course of being an expert 09:17:21
witness as early as 1980, but then since 2015, you have 09:17:26
at least been exposed to the legal standards for patent 09:17:34
invalidity and patent infringement, understanding that 09:17:37
you're not an attorney? 09:17:40
A. I am not an attorney, and yes, I -- I have been 09:17:41
exposed to the legal standards, that's correct. 09:17:44
Q. Okay. Prior to working at Bramson Welch & 09:17:46
Associates, what did you do? 09:17:56
A. I was vice president of engineering and chief 09:17:56
technology officer at the firm of InnoSys Incorporated 09:18:02
from 1976 until 2007. 09:18:07
Q. And Keyspan was a division of InnoSys? 09:18:10
A. Keyspan was a division of InnoSys, that's right. 09:18:14
Q. And during your time at Keyspan, you had 09:18:16
occasion to be named as an inventor on several patent 09:18:19
applications. Those are listed in your CV? 09:18:22
A. That's correct. 09:18:24
Q. And did any of those inventions have anything to 09:18:25
do with USB? 09:18:29
A. One of them did, yes. One of them was a host -- 09:18:29
I'm sorry, a network-attached host controller. 09:18:35
Q. Okay. And did you consider that to be a 09:18:37

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1 patentable invention from your perspective? 09:18:39
2 A. I did, yes. 09:18:41
3 Q. Do you know whether a patent ever issued? 09:18:42
4 A. I do not believe it ever was. The Keyspan 09:18:45
5 business was sold and ownership of the patents and all 09:18:50
6 the intellectual properties went to somebody else. 09:18:53
7 Q. Okay. What did you consider to be inventive 09:18:56
8 about that particular work? 09:18:58
9 MR. JENSEN: Object to form. 09:19:01
10 THE DEPONENT: The -- the existing geography, if 09:19:02
11 you will, for USB con -- host controllers, there were 09:19:11
12 several different kinds outlined in the specifications 09:19:15
13 and on the market, so ours, as far as I know, was the 09:19:18
14 first instance of a USB host controller which was not 09:19:27
15 attached to a PC or another type of computer on -- on 09:19:32
16 its bus, you know, a PCI or ISA bus or something. 09:19:36
17 Instead, it was connected over a local area network. 09:19:41
18 This invention was in the early 2000s. WiFi was not 09:19:45
19 quite as common then, or we would have used that, but we 09:19:53
20 focused on Ethernet connectivity in that device. There 09:19:57
21 are -- there are numerous other details about things 09:20:00
22 that were in the claims for that invention having to do 09:20:03
23 with the way host protocol stacks work, the way vendor 09:20:05
24 and third-party device drivers work. A key part of 09:20:12
25 getting this invention to actually work and become a 09:20:16

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shippable product was rigorous testing with many 09:20:21
different kinds of devices and their associated device 09:20:24
drivers. 09:20:31
BY MR. BRAUSA: 09:20:31
Q. Were any of the components that you used in this 09:20:32
host controller new, or were these off-the-shelf 09:20:36
components? 09:20:38
MR. JENSEN: Object to form. 09:20:40
THE DEPONENT: The -- for the first version of 09:20:41
the device, which supported USB full speed, we used an 09:20:46
off-the-shelf micro controller which had a USB host 09:20:54
controller inside it, and that came from a company in 09:20:58
Taiwan, I think. 09:21:03
For the second version, they actually 09:21:04
constructed a custom chip for us that supported 09:21:06
high-speed USB in a limited way, and so we had a second 09:21:10
version of the product that supported high-speed USB. 09:21:14
Other than that, everything else, to the best of my 09:21:18
memory, was off the shelf. 09:21:21
BY MR. BRAUSA: 09:21:24
Q. Okay. And so the -- it sounds like in the first 09:21:24
version, everything was off the shelf, including the 09:21:28
micro controller, and then in the second version, 09:21:31
everything was off the shelf, except for a custom 09:21:33
micro-controller chip that you had them build for you? 09:21:38

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A. Yeah, thinking back more than 20 years, that is 09:21:40
the -- that's the best of my memory right now. 09:21:43
Q. Okay. And did the fact that you were using only 09:21:45
off-the-shelf components in the first version of it mean 09:21:47
that it wasn't an invention, from your perspective? 09:21:52
A. Not in the least. 09:21:55
Q. Why not? 09:21:56
A. What made this an invention was very 09:21:57
sophisticated firmware that ran on this micro controller 09:22:01
and very specialized and sophisticated host software, 09:22:05
both for Mac OS 10, and for Windows, which interoperated 09:22:10
in extremely subtle and sophisticated ways with the -- 09:22:15
the host operating systems. Nobody had done that 09:22:21
before. We know that because we met with engineers both 09:22:26
at Microsoft and Apple, and we talked about doing this 09:22:29
and we got various sorts of feedback from them. For 09:22:33
example, from Microsoft they said, okay, you guys have 09:22:37
right idea about this. Other people have tried to do 09:22:42
this in such-and-such a way and that didn't work out so 09:22:44
well, but, you know, I think you have a better chance 09:22:47
with this. 09:22:48
There were a lot of details about that, which -- 09:22:50
which required a lot of engineering problem solving, and 09:22:52
we came up with a bunch of -- of unique things. The key 09:22:56
in projects like this is you want compatibility between 09:23:03

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an application or a custom device driver on the one end, 09:23:06
and especially when it was custom at the other end. You 09:23:10
had a product that was associated with that device 09:23:13
driver, and you wanted those things to be able to 09:23:15
interoperate and communicate with each other without 09:23:17
having to know that we had taken away and completely 09:23:19
replaced the interconnecting geometry. 09:23:23
Q. Okay. 09:23:26
A. So there was no question that was innovative and 09:23:26
patentable. 09:23:29
Q. Okay. And just to be clear, it was innovative 09:23:29
and patentable because of the way that you configured 09:23:33
the off-the-shelf components using your firmware, I 09:23:37
believe you said, and the software as well? 09:23:42
A. I wouldn't limit it quite in that way. The -- 09:23:43
the hardware design as well, even though we were using 09:23:56
standard components, was also creative and innovative. 09:24:00
So it was a combination of those off-the-shelf 09:24:03
components, but I would list host software, firmware, 09:24:06
and hardware design as well. 09:24:11
Q. Okay. And so you would agree with me, then, 09:24:12
that the hardware design of something using 09:24:14
off-the-shelf components can nonetheless be patentable 09:24:17
if it's creative and innovative, right? 09:24:22
MR. JENSEN: Object to form. 09:24:24

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1 THE DEPONENT: Well, okay. It isn't 09:24:25
2 automatically patentable. 09:24:31
3 MR. BRAUSA: Sure. 09:24:33
4 THE DEPONENT: But I would say in this example 09:24:34
5 and others I can think of, it's possible to create 09:24:35
6 something innovative enough, including a hardware design 09:24:39
7 using standard components, that it could be compatible, 09:24:42
8 yes. 09:24:45
9 MR. BRAUSA: Okay. Let me mark as an 09:24:46
10 Exhibit 2019. And I will just go in sequence in the 09:24:50
11 proceeding. 09:24:53
12 (Exhibit No. 2019 marked for identification.) 09:24:54
13 MR. BRAUSA: This is a copy of US patent 09:24:55
14 publication number 2009/0024746. 09:24:58
15 BY MR. BRAUSA: 09:24:58
16 Q. And Mr. Welch, you can take a moment to look 09:25:41
17 over this. But is this the patent application that we 09:25:43
18 were just talking about? 09:25:45
19 A. Well, I will start by saying it has my name on 09:25:51
20 it. I'm laughing because I haven't seen this in 09:25:54
21 decades. 09:25:57
22 Q. Sure. 09:25:57
23 A. Okay. On the face of it, it does -- it does 09:26:01
24 look like my original patent. Wow. Okay. And... 09:26:03
25 Q. And I'm just going to have a couple questions 09:26:41

about the claims. You can, of course, take as much time 09:26:43
as you need to familiarize yourself with the document. 09:26:45
A. I note that there are 80 claims in this. 09:27:24
Q. I'm just going to ask you about claims 1 and 09:27:34
maybe 2, to cut down on the reading. 09:27:37
A. Okay. Ask your questions. 09:28:45
Q. Okay. So if we go to claim 1, it refers to a 09:28:46
stand-alone host controller, right? 09:28:49
A. That's what's written here. 09:28:51
Q. Okay. And it includes several components, 09:28:53
right? 09:28:56
A. It does. 09:28:56
Q. The first one is listed as a network 09:28:59
interface -- 09:29:03
A. That's correct. 09:29:05
Q. -- right? 09:29:06
And certainly, that's an off-the-shelf component 09:29:07
you can purchase, right? 09:29:09
MR. JENSEN: Object to form. 09:29:12
THE DEPONENT: In the -- in the context of the 09:29:12
original plans for this, yes, that's true. 09:29:23
BY MR. BRAUSA: 09:29:25
Q. Okay. And then the second component is a bus. 09:29:25
Do you see that? 09:29:28
A. Mm-hmm. 09:29:30

Q. And buses were also off-the-shelf components you could purchase? 09:29:33

MR. JENSEN: Object to form. 09:29:34

THE DEPONENT: That's true. Yes. 09:29:34

BY MR. BRAUSA: 09:29:38

Q. And it says: 09:29:38

"And at least one external port coupled to the bus." 09:29:39 09:29:42

Right? 09:29:42

A. That's right, yes. 09:29:42

Q. And ports were obviously external -- or I'm sorry. 09:29:51 09:29:51

External ports were off-the-shelf components you could purchase too, right? 09:29:55 09:29:59

A. That's correct. 09:29:59

Q. And then the last item listed as part of the stand-alone host controller is a processor coupled to the bus and the network interface. 09:30:01 09:30:04 09:30:07

Do you see that? 09:30:11

MR. JENSEN: I object to form. 09:30:11

THE DEPONENT: I do. 09:30:13

BY MR. BRAUSA: 09:30:13

Q. And processors could also be purchased off the shelf, as you did in the first version of your product, right? 09:30:13 09:30:16 09:30:18

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A. That's correct. 09:30:18
Q. And then the processor would be configured to 09:30:19
process communications passed between the network 09:30:21
interface and the bus, right? 09:30:25
A. That's correct. 09:30:26
Q. In claim 2, it specifies that the external port 09:30:26
is a USB port and the bus is a universal serial bus, or 09:30:33
USB, right? 09:30:40
A. That's what claim 2 is, that's correct. 09:30:41
Q. Okay. And certainly USB and USB ports were also 09:30:44
off-the-shelf components available for purchase, right? 09:30:48
MR. JENSEN: Object to form. 09:30:52
THE DEPONENT: The hardware for those things was 09:30:53
off the shelf, certainly. 09:31:03
BY MR. BRAUSA: 09:31:04
Q. Okay. And notwithstanding the fact that all of 09:31:04
these components listed in claim 1 and claim 2 are 09:31:08
off-the-shelf components, you thought you had come up 09:31:11
with something creative and innovative, as set forth in 09:31:17
this patent, right? 09:31:20
MR. JENSEN: Object to form. 09:31:21
THE DEPONENT: Yes, with one important proviso. 09:31:27
Before the firm was done with this patent, even 09:31:32
though I was the listed inventor, other people besides 09:31:34
me did work on -- did -- worked -- worked on the patent 09:31:37

1 document and responded to office actions from the -- 09:31:47
2 from the patent office. For complicated business 09:31:52
3 reasons, I myself was not as involved in those things as 09:31:55
4 I had been in the original invention. So there may be 09:32:00
5 things in here -- I can't say without analyzing it -- 09:32:05
6 which -- which varied from the original filing. 09:32:08
7 BY MR. BRAUSA: 09:32:11
8 Q. Okay. But -- 09:32:11
9 A. Other than that, ye -- what -- I mean, yes, 09:32:13
10 what's listed in patents 1 and 2 can be constructed from 09:32:17
11 off-the-shelf hardware, that's true. But made to 09:32:24
12 operate and to -- to perform their function with -- with 09:32:27
13 software and firmware which was definitely off the 09:32:33
14 shelf. 09:32:36
15 Q. Okay. But sitting here today, the controller 09:32:36
16 set forth in claims 1 and 2 of Exhibit 2019 is something 09:32:40
17 you considered to be an invention that you made, right? 09:32:46
18 MR. JENSEN: Object to form. 09:32:48
19 THE DEPONENT: If by controller you mean the 09:32:49
20 language we adopted here, which was that this was a 09:32:56
21 different kind of USB host controller, yes. 09:32:59
22 BY MR. BRAUSA: 09:33:01
23 Q. Okay. You alluded to complicated reasons -- 09:33:03
24 complicated reasons surrounding your involvement in the 09:33:11
25 prosecution of this project? 09:33:14

A. Yes. 09:33:16
Q. What did you mean by that? 09:33:16
A. Boy. There was some complicated interpersonal 09:33:27
issues in the company at that time. We'd -- we were 09:33:32
three partners originally, and another partner had 09:33:35
joined as president and there was some amount of 09:33:37
disagreement about how things should be managed. The 09:33:43
upshot of that was that the fellow who was the new 09:33:48
president really wanted me to spend 100 percent of my 09:33:51
time on engineering, and he himself took on the job, 09:33:55
which I reluctantly agreed with, of dealing with the 09:34:00
patent office about this patent. 09:34:03
Q. Why were you reluctant to agree to that? 09:34:07
A. Well, he wasn't the inventor. I was. He was a 09:34:09
technical person, bought not in the way that I was. In 09:34:11
retrospect, I frankly regret doing that. I -- I don't 09:34:15
think it was in the best interest of -- of getting the 09:34:21
patent. And as you may know, it was never issued. That 09:34:23
was for other reasons. 09:34:26
A couple years after this, that company, 09:34:28
InnoSys, sold the Keyspan division and all of its 09:34:32
assets, of which this was one. So the ownership of this 09:34:36
patent went to somebody else at that point, and I wasn't 09:34:39
involved with it anymore. 09:34:42
Q. Was there any other disagreement about how 09:34:42

things would be run, beyond whether you'd be 09:34:45
enrolled -- you'd be involved in patent prosecution or 09:34:49
not going forward? 09:34:51
A. No. That was the main one. 09:34:52
Q. Okay. Did that have anything to do with why you 09:34:53
left InnoSys or Keyspan? 09:34:56
A. No, no, not at all. 09:34:59
Q. Why did you leave -- is it Keyspan or InnoSys? 09:35:00
Sorry. 09:35:05
A. InnoSys is a corporate entity founded in 1976. 09:35:05
Q. Mm-hmm. 09:35:09
A. It still exists to this day. I'm still a part 09:35:09
owner to this day. I left -- okay. InnoSys was a 09:35:13
product company, and I was, frankly, tired of doing that 09:35:16
and having to fund receivables and inventory and all 09:35:18
these different kinds of things, and I really wanted my 09:35:21
own consulting practice. I was a partner in this, vice 09:35:25
president, you know, one of many voices. In my present 09:35:28
firm, I'm the main guy. And I was more interested in -- 09:35:31
in doing consulting. It's a longer story than that, but 09:35:35
that's the -- that's the summary. 09:35:38
Q. Okay. And when did you set up Bramson Wilson -- 09:35:39
Welch & Associates? 09:35:42
A. We started operating in 2007 as an LLC and we 09:35:44
switched to a subchapter S in 2008. 09:35:48

Q. During your time at InnoSys, did you have 09:35:50
occasion to develop any adapters for Apple products? 09:35:57
A. I certainly developed adapters for Apple 09:36:01
products, yes. It was while I was at -- at Keyspan. 09:36:08
And, frankly, the -- sorry. The -- while I was at 09:36:11
InnoSys, the Keyspan division was set up for that 09:36:16
purpose. The InnoSys corporation had done a whole bunch 09:36:19
of other things leading up to -- or starting to be 09:36:23
involved with adapter products. We set up Keyspan for 09:36:30
the purpose of creating a retail brand, and, yes, we 09:36:33
created serial adapters and infrared remotes and other 09:36:36
things, initially as plug-in cards, and after that -- 09:36:43
well, there's a whole long story about how we were one 09:36:47
of the first serial adapters that worked with the iPad, 09:36:49
which shipped in 1998, and that was a huge business for 09:36:54
us. It was an extremely successful product, the first 09:36:59
working Keyspan serial adapter. And the -- the sort of 09:37:06
amazing irony there is that particular product is still 09:37:10
shipping today, even though the business has been -- you 09:37:14
know, it's been purchased several different times. It's 09:37:17
now owned by a completely different company. But I -- 09:37:19
they contract with me to maintain the technology. 09:37:23
So an interesting way in which I was involved in 09:37:27
the beginning and 25 years later I'm still involved. 09:37:30
But the answer to your question is, yes, at 09:37:33

1 InnoSys/Keyspan, we developed lots of different kinds of 09:37:35
2 adapters. 09:37:38
3 Q. Let me ask you a few follow-up questions about 09:37:38
4 this first serial adapter for the iPad that was released 09:37:43
5 in 1998. Can you explain to me what the purpose behind 09:37:46
6 that was, why it was developed? 09:37:50
7 A. Well, okay. The sequence of events as a sort of 09:37:51
8 high-affect memory to me is that Steve Jobs had come 09:38:01
9 back to Apple, and he was shaking things up. Everybody 09:38:06
10 knew that. And he was planning for a new line of 09:38:09
11 products to be released. This was about 1996. Now, we 09:38:14
12 knew people at Apple at that point because of the work 09:38:18
13 we had been doing, and they came and met with us and 09:38:21
14 they said, look, we really think you guys ought to pay 09:38:24
15 attention to this USB thing. I knew what it was, but as 09:38:27
16 far as I knew, it wasn't a sort of widely used 09:38:29
17 technology at that point. But they really encouraged 09:38:33
18 us, and at the developers conference where the iPhone -- 09:38:38
19 no, I'm sorry, where the iMac was announced in, I think 09:38:44
20 August of 1998, the thing that surprised everybody was 09:38:49
21 here was a computer that had these USB ports on it, but 09:38:52
22 it had nothing else. All of these other ports where you 09:38:56
23 plugged in keyboards, printers, modems, the mice, all 09:38:58
24 those kinds of ports were gone and all of a sudden it 09:39:03
25 was USB. The first version of the iMac only supported a 09:39:06

1 USB mouse and keyboard. The second version was designed 09:39:08
2 to support other things. 09:39:13
3 And I went to a session at the developers 09:39:15
4 conference where people realized that especially the 09:39:18
5 serial port was gone, and they were incredibly angry. 09:39:20
6 And a friend of mine who worked at Apple and who had 09:39:23
7 come to us suggesting we get involved in this actually 09:39:27
8 answered that question by saying, well, we think that 09:39:31
9 Keyspan ought to answer this problem. It was one of 09:39:34
10 those incredible moments. I stood up in the back of 09:39:37
11 this packed session, and I said, my name is Eric Welch. 09:39:39
12 I work for Keyspan. Look for an announcement. It was 09:39:42
13 one of those moments. 09:39:46
14 Q. Sure. And so in that context, it sounded -- you 09:39:48
15 said people were angry? 09:39:51
16 A. Yeah, they were. 09:39:52
17 Q. So eliminating or changing the available ports 09:39:53
18 on a device can -- can cause problems, right? 09:39:55
19 A. In particular at that time, a good quality 09:39:59
20 raster printer with color was just -- had just become 09:40:03
21 available for under $1,000, is my memory. And this was 09:40:07
22 a very popular product to plug into a Macintosh, and 09:40:10
23 these all had serial ports on them. They weren't 09:40:14
24 network printers. They weren't all kinds of different 09:40:17
25 things. They had old-fashioned serial ports. And all 09:40:19

of a sudden, here was this computer everybody wanted to 09:40:22
buy because it looked good, it had all these great 09:40:25
specs, but you couldn't plug that in. And our product 09:40:29
was designed to solve that problem. The first version 09:40:31
actually had two serial ports using the exact connector 09:40:34
that Apple had removed, not -- not the connector that 09:40:37
later versions of the serial adapter had, but this funny 09:40:40
DIN 8 connector that Apple had pioneered some years 09:40:44
earlier, and its special wiring and capabilities and 09:40:48
various other kinds of things. We made it possible for 09:40:51
those printers to be supported with our -- with our 09:40:54
product. 09:40:57
It was a huge hit. You know, the day we started 09:40:57
shipping, every campus bookstore in the country ordered 09:41:01
two, as far as we could tell, and the next day they 09:41:04
ordered two more and two more. Two or three of my 09:41:07
engineers had to go work in shipping for about a month 09:41:10
just to get the product out the door. 09:41:12
Q. Sure. 09:41:14
A. Anyway. 09:41:15
Q. Yeah. And so prior to the solution that you 09:41:15
came up with at Keyspan, Apple 's decision to change and 09:41:19
modify the ports on its new computer, that caused 09:41:22
problems for the industry, right? 09:41:26
MR. JENSEN: Object to form. 09:41:27

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BY MR. BRAUSA: 09:41:28

Q. It was a problem you needed to solve? 09:41:29

A. It -- it did. It was -- it was a problem we 09:41:30

were encouraged to solve. And in the moment, I thought, 09:41:33

okay, this is an opportunity. We go, you know, we 09:41:37

should commit to this. A bit rash perhaps, but that's 09:41:39

what we did. 09:41:43

Q. Okay. 09:41:44

A. It was hard work. But anyway, that's -- that's 09:41:44

that story. 09:41:47

Q. Okay. Do you think the adapter you came up with 09:41:47

was an invention? 09:41:50

A. It was. 09:41:51

Q. Okay. What was inventive about it? 09:41:52

MR. JENSEN: Object to form. 09:41:53

THE DEPONENT: Well, like the host controller, 09:41:54

it was built of off-the-shelf components, but it was -- 09:41:57

the particular hardware design, it was the details of 09:42:01

the firmware that ran on the -- on the micro controller 09:42:05

in the adapter, and in particular, a very special 09:42:07

purpose host software initially just for Macintosh, but 09:42:12

then we went on to support most other platforms, Windows 09:42:16

certainly, but also Linux and other things. It was the 09:42:20

combination of all of those things that made it 09:42:22

patentable. But at the time, you know, I wasn't really 09:42:28

thinking about that. It didn't -- it didn't -- it 09:42:32
didn't occur to me to do that. I wish I had, but it 09:42:34
didn't occur to me. 09:42:37
BY MR. BRAUSA: 09:42:37
Q. Okay. And you said it's still being sold today, 09:42:38
the -- 09:42:42
A. Still being sold today. 09:42:42
Q. Okay. And so that's -- theres' still a use case 09:42:43
for an adapter -- 09:42:46
A. Mm-hmm. 09:42:48
Q. -- for legacy ports on devices -- 09:42:48
A. Mm-hmm. Mm-hmm. 09:42:51
Q. -- notwithstanding the industry has advanced and 09:42:51
modernized? 09:42:55
A. It's been 25 years, yes, that's right. 09:42:55
Q. Okay. If I can direct you back to Exhibit 2019, 09:42:58
your patent application ending in No. '746. We were 09:43:02
looking at claim 1, and I wanted to direct your 09:43:06
attention to the top of the same page. It's page 12, 09:43:10
and it's just above what's marked paragraph 231, the 09:43:14
sentence that starts, "The invention may also be 09:43:19
implemented." It's line 2 of the left-hand column on 09:43:21
page 12. 09:43:29
A. Mm-hmm. 09:43:31
Q. Do you see that? 09:43:32

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A. I do. 09:43:33
Q. And it says that it can be implemented by the 09:43:33
preparation of application-specific integrated circuits, 09:43:36
correct? 09:43:39
MR. JENSEN: Object to form. 09:43:40
THE DEPONENT: Right. Or by the interconnecting 09:43:40
of appropriate network of conventional components as 09:43:44
will be readily apparent to those skilled in the art, 09:43:48
blah, blah, blah. 09:43:48
Yes. 09:43:53
BY MR. BRAUSA: 09:43:53
Q. Right. 09:43:53
A. I see that. 09:43:53
Q. And so I'll confess, my background is in 09:43:55
chemical engineering. 09:43:55
A. Mm-hmm. 09:43:55
Q. So I just wanted to understand, how would you 09:43:58
define an integrated circuit? 09:44:00
MR. JENSEN: Object to form. 09:44:02
THE DEPONENT: Well, in the context of this 09:44:03
document, that sentence refers to what often goes by the 09:44:06
acronym of ASIC, where for a specific purpose the -- the 09:44:12
economies of scale make it financially justifiable to 09:44:18
spend a lot of money to produce the ASIC in exchange for 09:44:24
being able to sell a part which costs much less than the 09:44:27

1 components separately. So that's one kind of integrated 09:44:33
2 circuit. The term obviously goes back many decades 09:44:37
3 before this. There are many integrated circuits which 09:44:42
4 I -- I wouldn't describe as application specific, but 09:44:46
5 they are more general purpose. 09:44:49
6 You know, Texas Instruments published a very 09:44:53
7 important catalog of all of their then, you know, latest 09:45:00
8 and greatest integrated circuits in about 1969 or '70, 09:45:05
9 and my memory of that was high affect because at that 09:45:10
10 time I was 13, 14 years old and I was really interested 09:45:14
11 in this computer and electronics stuff and I was 09:45:17
12 fascinated by the idea that you could buy these 09:45:19
13 components that did all of these interesting things. So 09:45:22
14 that's my own personal story. 09:45:25
15 But -- but the point is that I think a POSITA 09:45:28
16 would understand integrated circuit to include a lot of 09:45:32
17 different kinds of things, the ASIC mentioned in this 09:45:35
18 sentence, standard off-the-shelf things like TI was 09:45:37
19 shipping in the early '70s, and a whole bunch of other 09:45:40
20 things as well. 09:45:43
21 BY MR. BRAUSA: 09:45:43
22 Q. Okay. But you referred to a POSITA. That is a 09:45:44
23 person of ordinary skill in the art? 09:45:46
24 A. Ordinary skill in the art. 09:45:48
25 Q. And this POSITA would know what an integrated 09:45:49

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circuit is, right? 09:45:49
A. That's right. 09:45:52
MR. JENSEN: Object to form. 09:45:52
BY MR. BRAUSA: 09:45:53
Q. In 2013? 09:45:53
A. I agree. 09:45:54
Q. And -- and they'd know that an integrated 09:45:56
circuit is composed of circuit components or structures, 09:45:58
right? 09:46:01
MR. JENSEN: Object to form. 09:46:01
THE DEPONENT: I'm hesitating. A POSITA would 09:46:02
know what an integrated circuit did functionally from 09:46:15
the outside. They may have some -- they may have a 09:46:17
limited idea of what goes on inside. I'll leave it at 09:46:20
that, yeah. 09:46:32
BY MR. BRAUSA: 09:46:33
Q. I'm not sure that answered my question. I was 09:46:33
just trying to understand. 09:46:35
A POSITA would understand that an integrated 09:46:36
circuit is made up of circuit components or structures, 09:46:39
right? 09:46:42
MR. JENSEN: Object to form. 09:46:42
Are you talking about a POSITA in the document 09:46:43
you are asking about or a POSITA in the Aptiv patents. 09:46:46
MR. BRAUSA: I'm just using his own language. 09:46:51

He referred to a POSITA. 09:46:53

MR. JENSEN: Well, okay. 09:46:55

THE DEPONENT: All right. I will restrict 09:47:02

myself to what I -- what I meant when I said POSITA was 09:47:05

POSITA in the context of these things that the present 09:47:07

proceeding is about. That's different than a POSITA 09:47:10

with respect to this patent, which is a slightly 09:47:13

different area. It's -- it's a slightly different 09:47:20

timeframe. 09:47:22

So I would say that a POSITA with respect to 09:47:23

these IPRs and PGRs and so on would understand that an 09:47:26

integrated circuit included functional components put 09:47:31

together to perform some function. 09:47:37

BY MR. BRAUSA: 09:47:38

Q. Okay. And what do you mean when you say 09:47:38

functional components? 09:47:40

A. Well, okay. I'm drawing a distinction between 09:47:41

understanding an integrated circuit functionally, which 09:47:46

I think a POSITA would do, and understanding the details 09:47:50

of how you create an integrated circuit. So there's 09:48:01

some fine points there which I wasn't actually asked 09:48:09

to -- to opine on for this case, and so I'm not going to 09:48:13

spend a lot of time on that. 09:48:16

In terms of general understanding, the answer to 09:48:19

your question is -- is yes. Generally speaking, a 09:48:22

1 POSITA would understand what an integrated circuit does. 09:48:25
2 That is to say an integrated circuit in their particular 09:48:28
3 area. And so, you know, it's -- it's to do with the 09:48:32
4 subject matter of these patents, USB and other things. 09:48:35
5 Whether that extends to knowing how to actually create 09:48:44
6 a -- an integrated circuit, I don't actually have an 09:48:47
7 opinion about that. 09:48:50
8 Q. Okay. And we'll get to that in a moment because 09:48:51
9 I think one of your errata changes that you provided 09:48:57
10 before the deposition touches on that. But I want to 09:48:59
11 make sure I understand your opinion. 09:49:02
12 If we can find confine it to the POSITA you were 09:49:04
13 referring to, which is the POSITA with respect to the 09:49:09
14 Aptiv patents in 2013 -- 09:49:11
15 A. Mm-hmm. 09:49:15
16 Q. -- your testimony is that a POSITA would 09:49:15
17 generally know what an integrated circuit is, right? 09:49:19
18 A. Generally, that's right. 09:49:22
19 Q. And they would know that it's composed of 09:49:23
20 circuit components to perform a certain function, right? 09:49:25
21 A. At a high level, a POSITA would know that an 09:49:27
22 integrated circuit included circuit elements, yes. 09:49:33
23 Q. Okay. And a circuit element is something like a 09:49:36
24 resistor, transceiver, those types of things? 09:49:38
25 MR. JENSEN: Object to form. 09:49:40

1 THE DEPONENT: Certainly a POSITA would know 09:49:47
2 that an integrated circuit is composed of transistors 09:49:52
3 because that's widely published. The extent to which 09:49:57
4 integrated circuits include other things is, in my 09:49:59
5 opinion, less widely published, so I -- I wouldn't go so 09:50:02
6 far as to say a POSITA would understand the bestiary of 09:50:07
7 stuff that goes on and goes into an integrated circuit 09:50:12
8 in more detail than that. 09:50:16
9 BY MR. BRAUSA: 09:50:18
10 Q. Okay. But it sounds like we can agree that a 09:50:18
11 POSITA would know that there are transistors as 09:50:21
12 structures in an integrated circuit, right? 09:50:24
13 A. A POSITA would know that there are transistors 09:50:27
14 in an integrated circuit. 09:50:30
15 Q. Okay. Are there any other structures that a 09:50:32
16 POSITA would know are part of a circuit or could be part 09:50:35
17 of a circuit? 09:50:38
18 MR. JENSEN: Object to form. 09:50:38
19 THE DEPONENT: I'm not going to speculate about 09:50:39
20 that. I don't -- I don't have an opinion about whether 09:50:48
21 a POSITA would understand the inner workings of an 09:50:51
22 integrated circuit at that level of detail. 09:50:54
23 BY MR. BRAUSA: 09:50:56
24 Q. So respectfully, I'm not asking about the inner 09:50:56
25 workings of any integrated circuit. My question is just 09:50:59

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1 whether a POSITA would know there are other structures 09:51:02
2 that could be included in an integrated circuit in 09:51:05
3 addition to transistors. 09:51:09
4 A. I haven't actually studied that. I haven't 09:51:10
5 studied that question. I can't rule out that a POSITA 09:51:16
6 would only have the knowledge I indicated before and 09:51:19
7 still be a POSITA with respect to this material. 09:51:23
8 Q. Okay. So sitting here today as a -- as an 09:51:26
9 expert -- 09:51:32
10 A. Mm-hmm. 09:51:32
11 Q. -- with, I think your CV says 49 years of 09:51:33
12 experience -- 09:51:35
13 A. Mm-hmm. Mm-hmm. 09:51:36
14 Q. Beyond transistors, there is no other circuit 09:51:37
15 component you can identify that can be part of an 09:51:41
16 integrated circuit? 09:51:44
17 A. I wasn't, for this matter, asked to opine on or 09:51:45
18 do an analysis of what appears inside an integrated 09:51:54
19 circuit. If asked, I could have an opinion about that, 09:51:58
20 but I don't just sitting here. 09:52:01
21 Q. Okay. Well, I'm asking you now. Do you not 09:52:03
22 have an opinion? 09:52:05
23 A. I don't have an opinion on that. I could study 09:52:05
24 it and have an opinion, but I don't have an opinion 09:52:08
25 right at this moment. 09:52:11

Q. Okay. So you would need to study what in order 09:52:12
to tell me what other structures are included in an 09:52:15
integrated circuit beyond transistors? 09:52:18
A. Well, I have to think about it for a few minutes 09:52:20
first, and then I would gather together some material 09:52:22
that I'm not prepared to name at the moment. Then I 09:52:25
would study that, and I would consider the other 09:52:28
contexts to a fully formed question of the four, 09:52:30
Mr. Welch, will you please look at this matter as of 09:52:35
this date, you know, considering these sorts of issues, 09:52:38
and all the other related context. I would study that, 09:52:42
and I could give an opinion about the appropriate 09:52:45
POSITA, and in particular to your question about what 09:52:51
would a POSITA understand goes into an integrated 09:52:54
circuit. 09:52:58
Q. Okay. Do you have an opinion on whether a 09:52:59
pull-down resistor could be a structure included in an 09:53:02
integrated circuit as of 2013? 09:53:06
A. I don't have an opinion about that. 09:53:07
Q. What about a pull-up resistor? 09:53:09
A. I don't have an opinion about that. 09:53:11
Q. Okay. And when you say you don't have an 09:53:12
opinion about that, you just don't know? 09:53:14
A. I didn't say that. I said I don't have an 09:53:16
opinion about that. 09:53:18

Q. Okay. Well, help me understand. What's the 09:53:18
difference between saying you don't have an opinion 09:53:21
about it and you just don't know? 09:53:23
A. Well, the kinds of work that I have been asked 09:53:29
to do as an expert which results in an opinion is always 09:53:31
about an extremely well-formulated question where the 09:53:35
context, the background, the subject matter, you know, 09:53:38
patents and all these other kinds of things, are given 09:53:43
to begin with. Then as a technical expert, I take all 09:53:46
that material and, as we discussed earlier, I look at 09:53:50
the claims and I look at the other language and I 09:53:53
consider, well, okay, given my background and what I 09:53:55
know and all these other sorts of things, what other 09:53:58
information do I need. We have a lot of exhibits in 09:54:01
here, various technical stuff that I pulled into the 09:54:05
opinion in order to support the -- the final opinion 09:54:11
that I have rendered here. That's what I would do if 09:54:15
asked to have an opinion about, you know, any particular 09:54:19
thing. 09:54:22
Q. And so it sounds like you weren't asked as part 09:54:22
of your retention in this case to offer an opinion on 09:54:26
whether a circuit includes any structural components? 09:54:30
MR. JENSEN: Object to form. 09:54:34
THE DEPONENT: I wouldn't say it that way. I 09:54:35
was asked to consider what constitutes a POSITA in 09:54:43

respect of the material presented here, the background, 09:54:48
the technical issues, the things outlined as the 09:54:55
technical challenges, and as part of that, I recognize 09:54:59
that there are a number of things here which could -- 09:55:03
which a POSITA would know could be implemented using an 09:55:07
integrated circuit or not using an integrated circuit. 09:55:10
And when I did a sort of preliminary analysis of those 09:55:14
two cases, I found that the obviousness questions that I 09:55:17
was asked to look into didn't come out any differently 09:55:22
whether -- whether you considered using off-the-shelf 09:55:25
integrated circuits or creating custom integrated 09:55:28
circuits or using discrete components. And because of 09:55:34
that, I did not add to my definition of a POSITA the 09:55:36
kinds of things that you are asking about; and, 09:55:43
therefore, in context of this particular case, those 09:55:47
things are not part of what I considered. 09:55:50
BY MR. BRAUSA: 09:55:54
Q. Okay. And so I just want to make sure I 09:55:54
understand. I'm not so much interested in the 09:55:58
definition of a POSITA at this point, but I just want to 09:56:00
understand what you were asked to do. Okay? 09:56:03
MR. JENSEN: Object to form. 09:56:06
THE DEPONENT: Is that a question? Are you 09:56:07
asking me? 09:56:08
/// 09:56:08

BY MR. BRAUSA: 09:56:08

Q. I'm just wanting to clarify. Is that okay? 09:56:09

A. Of course. 09:56:11

MR. JENSEN: Object to form. 09:56:12

THE DEPONENT: Ask your question. 09:56:13

BY MR. BRAUSA: 09:56:14

Q. Were you asked to consider whether a POSITA, 09:56:15

applying your definition, considers a circuit to have 09:56:19

structure? 09:56:23

MR. JENSEN: Object to form. 09:56:25

THE DEPONENT: I was not asked -- I was not 09:56:26

asked that specific question, no. 09:56:28

BY MR. BRAUSA: 09:56:30

Q. Okay. And so you haven't offered an opinion in 09:56:30

these matters on that specific question, correct? 09:56:33

MR. JENSEN: Object to form. 09:56:35

THE DEPONENT: Okay. I -- I may have misheard 09:56:40

part of what you're talking about. 09:56:44

Up to now, you've been making a distinction 09:56:46

between circuit elements that might be stand-alone and 09:56:48

circuit elements that might be inside an integrated 09:56:51

circuit. With respect to that distinction and what form 09:56:54

these might take inside an integrated circuit, I was not 09:56:59

asked to consider that. On the other hand, it's 09:57:02

definitely within the context of these patents that a 09:57:06

POSITA would have some circuit knowledge because it's 09:57:10
necessary to -- to assemble various components and 09:57:13
circuit elements to implement some of the art or prior 09:57:19
art or -- or whatever it is. And it is certainly the 09:57:22
case that some of the prior art has to do with custom 09:57:27
circuits, Chang 2, for example. It's true that some of 09:57:32
the claims talk about things being done inside an 09:57:37
integrated circuit. In the context of all of those 09:57:41
things, that's certainly the realm of the POSITA. 09:57:44
But -- but to your specific question, I wasn't 09:57:48
asked to consider or opine about, well, Mr. Welch, you 09:57:52
know, how would it have been different if this claim 09:58:02
were in -- were implemented in an integrated circuit 09:58:03
versus if this wasn't. But nevertheless, because I'm a 09:58:09
curious guy, I thought about both of those cases. It's 09:58:13
just that -- and this is the important part -- as I 09:58:16
considered those cases, they did not render the analysis 09:58:19
of obviousness any different. And so I stopped at that 09:58:22
point. Okay? I don't really care if this is done with 09:58:26
an integrated circuit or not, except for the claims that 09:58:29
talk about integrated circuits; and, therefore, I don't 09:58:32
have to consider the precise details of how much a 09:58:36
POSITA knows what goes on inside an integrated circuit, 09:58:40
because -- because, again, it doesn't -- it doesn't make 09:58:44
any difference to the analysis. 09:58:47

BY MR. BRAUSA: 09:58:48

Q. Okay. I think you just testified that you would 09:58:49

agree that the POSITA would have some circuit knowledge 09:58:55

because it's necessary to assemble various components 09:58:59

and circuit elements to implement some of the art or 09:59:02

prior art or whatever it is. 09:59:05

A. I did say that. 09:59:07

Q. Okay. What did you mean when you said various 09:59:08

components and circuit elements? 09:59:10

A. Well, some of the things you mentioned, 09:59:12

transistors, pull-up resistors, pull-down resistors, 09:59:16

other things that we could -- we could name. 09:59:19

Q. Okay. What are some other circuit elements that 09:59:21

you can name besides transistors, resistors? 09:59:25

A. Switches, multiplexors, cross/bar switches, 09:59:27

devices that -- that detect digital or analog signals, 09:59:33

logic elements which may be built up together to perform 09:59:42

some logic function between and amongst signals which 09:59:45

are logic-level voltages, things like that. 09:59:52

Q. Okay. And these are all circuit structures that 09:59:54

a POSITA would have known about as of 2013, correct? 09:59:57

A. To the -- if I've listed things beyond what's -- 10:00:00

what's in here, then not necessarily. But generally, 10:00:10

yes, those things are all representative of the kind of 10:00:13

technology involved here, and, therefore, a POSITA would 10:00:16

1 know about them. 10:00:18
2 Q. Okay. I've been remiss. You have several, I 10:00:18
3 think six, handsome bound volumes of what I believe are 10:00:25
4 your reports in this case. 10:00:30
5 A. They are. 10:00:31
6 Q. Can I just confirm that you have the following 10:00:32
7 at least five reports in front of you? 10:00:36
8 A. Yeah. Yeah. I -- well, okay. I have -- I have 10:00:38
9 five of the major reports. I also have five that are 10:00:42
10 short of the -- of this thing, which is the 10:00:45
11 supplementary declaration. 10:00:50
12 Q. All right. 10:00:52
13 A. I have one of these for each of these as well. 10:00:53
14 Q. Understood. So let's focus on, just to make 10:00:56
15 sure we're on the same page -- 10:00:59
16 A. Please. 10:01:00
17 Q. -- the five you have in front of you. 10:01:01
18 A. Yeah. 10:01:03
19 (Referencing Exhibit 1013.) 10:01:03
20 BY MR. BRAUSA: 10:01:04
21 Q. Somewhat confusingly, they're all marked 10:01:04
22 Exhibit 1013 in their respective proceedings. 10:01:07
23 A. Yes. 10:01:10
24 Q. But I have one declaration of Eric Welch from 10:01:10
25 case number IPR 2024-00228 -- 10:01:13

A. Yes, I have that one. 10:01:17
Q. -- regarding US Patent No. 9,619,420? 10:01:18
A. Yep. 10:01:22
Q. I have another one, also Exhibit 1013, from 10:01:23
proceeding IPR 2024-00229, relating to US Patent 10:01:27
No. 9,645,962? 10:01:35
A. Yep, I have that one. 10:01:37
Q. The third is an Exhibit 1013 in proceeding 10:01:38
IPR 2024-00230 relating to US Patent No. 11,176,072. 10:01:44
A. That's correct. 10:01:54
Q. Number 4 is Exhibit 1013 from PGR2024-0011 10:01:54
relating to US Patent No. 11,681,643. 10:02:06
A. I have that one. 10:02:12
Q. And then the last one, also Exhibit 1013, from 10:02:13
proceeding IPR 2024-00495, also relating to US Patent 10:02:17
No. 9,619,420. 10:02:23
A. I have -- I have all those. 10:02:25
Q. Okay. And as -- as you state in your report, 10:02:27
there are several sections of these reports that are 10:02:34
effectively the same across the five proceedings, 10:02:36
correct? 10:02:36
A. Mm-hmm. That's correct. 10:02:39
Q. And I think that's up to Section -- Section 1 10:02:40
through 12 are largely the same across the different -- 10:02:44
A. That's close. Sections 1 through 12 are 10:02:48

1 essentially the same in four out of five of these. I 10:02:51
2 think 12 in one of these, I couldn't tell you exactly 10:02:54
3 which, I think 12 is different in one of them. 10:02:57
4 Q. Okay. Got it. For the most part, I can tell 10:02:59
5 you I'm going to spend our time, for efficiency 10:03:02
6 purposes, on Exhibit 1013 from the 228 proceeding. 10:03:05
7 A. Okay. 10:03:10
8 Q. And that's with respect to the '420 patent. 10:03:10
9 A. Mm-hmm. 10:03:13
10 Q. But as I'm asking questions, if it's ever 10:03:13
11 unclear what declaration I'm referring to or which 10:03:17
12 specific patent or claim -- 10:03:20
13 A. Mm-hmm. 10:03:21
14 Q. -- please don't hesitate to clarify. 10:03:22
15 A. I won't hesitate. 10:03:24
16 Q. I want to make sure it's clear for the record. 10:03:25
17 A. I won't hesitate. Right. 10:03:27
18 Q. And if the answers to any questions, in your 10:03:28
19 mind, differs based on the proceeding, if you can let me 10:03:31
20 know that as well, I'd appreciate it. 10:03:34
21 MR. JENSEN: Object to form. 10:03:35
22 BY MR. BRAUSA: 10:03:38
23 Q. I see in the copies that you have in front of 10:03:41
24 you, there are various sticky -- sticky notes on the 10:03:45
25 side. 10:03:48

A. Mm-hmm. Do you want to see? 10:03:48
Q. Sure. Why don't I take a look. 10:03:49
A. You won't be able to read my chicken scratch, 10:03:54
but for what it's worth, there it is. 10:03:57
Q. Okay. Beyond the -- 10:03:58
A. Yeah, there's nothing written -- 10:04:07
Q. -- Post-it Notes, is there any margin -- 10:04:08
A. No, no, no. 10:04:11
Q. And what do the Post-It Notes referring to? 10:04:12
A. They are -- they are just an adjunct to the 10:04:14
state -- the table of context to remind me how to find 10:04:17
certain things. 10:04:20
Q. Okay. 10:04:21
A. So only one of these has -- has sticky notes on 10:04:21
the first 12. 10:04:24
Q. Okay. 10:04:24
A. And the rest of them begin with sort of ground 10:04:25
1, claim 1. 10:04:28
Q. Okay. 10:04:28
A. And probably have a sticky note that has those 10:04:29
letters on it. 10:04:31
Q. Okay. So I'm looking at your copy of 10:04:32
Exhibit 1013 from the 229 proceedings relating to the 10:04:36
'962 patent. There are yellow sticky notes that appear 10:04:40
to refer to the sections. For instance, there's one 10:04:43

that says "prior art," "legal standards," et cetera. 10:04:47
A. Mm-hmm. 10:04:49
Q. There are also pink sticky notes. One says 10:04:50
"priority date." One says "hub." One says "initiate," 10:04:55
"enumerate." What are the pink sticky notes for? 10:05:00
A. I ran out of yellow. 10:05:04
Q. Okay. 10:05:06
A. I was just going -- it was a different day I was 10:05:06
going back and reviewing certain things that were not 10:05:09
sort of structural in nature. Anyway, that's -- that's 10:05:12
what they are. 10:05:14
Q. Okay. And how did you decide to put additional 10:05:15
sticky notes that don't correspond to a heading there? 10:05:18
A. There's no hard and fast rule. But for some of 10:05:21
these things -- well, okay. For all of this stuff, I 10:05:32
had to go back over a lot of months. I wrote all these 10:05:37
things, finalized them -- wrote them last year and 10:05:39
finalized them in December, so that's ten months ago. 10:05:42
So I had to go back and sort of remind myself. 10:05:45
There's a -- there's a -- I don't want to 10:06:05
belabor this point, but there's a thing that goes on in 10:06:09
all technology patents -- USB is no different -- where 10:06:12
the inventors make use of -- of certain terminology, 10:06:15
which -- which may or may not be in the original spec. 10:06:20
And so let's focus on terminology and patents that have 10:06:25

1 to do with USB, terms that do not appear in the -- in 10:06:29
2 the original specification. One example of that is the 10:06:35
3 term "master slave." Now, when terms like that appear 10:06:37
4 in one of these patents, I have to ask myself, two 10:06:42
5 questions. Number 1, apart from what's written in here, 10:06:46
6 would a POSITA understand what this means? And then the 10:06:50
7 second question is, if they don't understand it, what 10:06:53
8 definition is given to that term in the patent itself? 10:06:57
9 Because, of course, that's -- that's the point. The 10:07:01
10 patent is attempting to teach something that's allegedly 10:07:03
11 special; and, therefore, the specifications, details, 10:07:07
12 drawings and so on are meant to put together an idea, 10:07:11
13 and that sometimes may involve using the terms a little 10:07:16
14 differently. In some cases, in some contexts, I would 10:07:18
15 even consider those uses of terminology to be 10:07:25
16 potentially misleading. 10:07:29
17 For that reason, I have marked a couple of these 10:07:31
18 things where my memory said, oh, yeah, remember that 10:07:34
19 this one is a little special, remember in the sense of 10:07:37
20 when I first wrote this. 10:07:40
21 Now, what I tried to do about that, as much as 10:07:42
22 possible, is to capture those things specifically in the 10:07:45
23 background section. So I talk about master slave, what 10:07:48
24 do I think a POSITA means by that. It isn't in the 10:07:52
25 spec. It's well enough understood in my opinion, at 10:07:55

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1 large, that I don't have to worry about a POSITA reading 10:08:05
2 that and then having to shuffle through the documents to 10:08:07
3 sort of figure out what's meant. In other words, it's 10:08:09
4 sort of self-defining. 10:08:13
5 There are other terms used about USB processes 10:08:14
6 that don't have -- and we will probably come to these, 10:08:17
7 that don't have that quality. They are used in a 10:08:21
8 particular way here. Even if they -- even if they map 10:08:23
9 to something in the -- in the specification, there's a 10:08:25
10 different emphasis or a different connotation perhaps. 10:08:26
11 And, again, because patents are about their own words, 10:08:31
12 you know, I try and single those out, and I have 10:08:33
13 rendered my opinion about that. I have rendered my 10:08:36
14 opinion about this, not about USB. I wasn't asked to do 10:08:38
15 that. Of course, I bring tremendous knowledge of USB. 10:08:42
16 That's why I was hired. But it's really, my opinion is 10:08:45
17 really about these things. 10:08:48
18 Q. Okay. When you say you weren't -- you weren't 10:08:49
19 asked to render your opinion about USB, what do you mean 10:08:52
20 by that? 10:08:55
21 A. I wasn't asked, Mr. Welch, how would you compare 10:08:56
22 the performance and cost tradeoffs between USB high 10:09:03
23 speed and USB full speed? I wasn't asked to do that. 10:09:06
24 If I was asked, I could render an opinion about that. I 10:09:12
25 certainly have the background and knowledge. I wouldn't 10:09:15

do it off the cuff, but I could. What I meant to say 10:09:17
was, I wasn't asked to render an opinion about USB as it 10:09:21
exists completely separate from this stuff. I was asked 10:09:24
to, you know, opine about these things in the context, 10:09:27
the critical context, that all this stuff is it -- is in 10:09:30
the world of -- of USB. 10:09:34
So there -- there are many, many points about 10:09:36
these patents which have to be considered specifically 10:09:39
from that viewpoint, and I'd read them very carefully, 10:09:42
you know, is this patent offering up an alternative to 10:09:46
some fundamental function in USB. And no, I didn't find 10:09:49
anything like that. And what that means is, okay, the 10:09:53
people that wrote this are assuming that USB is kind of 10:09:56
a given. Okay? Well, it 's my job to know what that is 10:10:00
because I do. I understand how USB works. And the 10:10:03
POSITA in this case understands how USB works. And so 10:10:05
these things, it is appropriate to read them in that 10:10:08
context. That's all I meant. 10:10:11
Q. Okay. And I -- you may have just answered my 10:10:13
next question. But just to clarify, earlier you said 10:10:16
sometimes patents can use terms in misleading ways or 10:10:19
supply their own definition? 10:10:23
A. Mm-hmm. 10:10:24
Q. I think you just testified, but I want to 10:10:26
confirm, that the patents you were asked to consider, 10:10:28

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1 the Aptiv patents, don't include any terms that you view 10:10:31
2 as misleading or having a special definition. 10:10:35
3 MR. JENSEN: Object to form. 10:10:38
4 BY MR. BRAUSA: 10:10:40
5 Q. Is that fair? 10:10:41
6 A. Not that I can recall. I can't rule out that as 10:10:42
7 we read through a particular thing I might say, oh, I'm 10:10:45
8 sorry, Adam, here's one of those things I said there 10:10:49
9 weren't any of. 10:10:52
10 Q. Okay. But sitting here today -- 10:10:53
11 A. Sitting here today, I don't remember. I don't 10:10:55
12 remember. I wouldn't say it was egregious misuse. 10:10:57
13 Q. Okay. So when you were hired in May of 2023, 10:10:59
14 what -- what was the task you were given? 10:11:03
15 A. I was asked to work on a series of IPRs. I 10:11:05
16 think we had eight at that point that we were going to 10:11:11
17 do, maybe, maybe more. And so I was given the original 10:11:14
18 patents, you know, please look at these and give us 10:11:17
19 your -- give us your opinion about the -- you know, 10:11:27
20 whether there's prior art and there's an obviousness 10:11:29
21 point and so on. At the same time, I was given quite 10:11:32
22 detailed legal standards. It's true that I have done 10:11:37
23 this enough times that I know what a lot of -- I mean, I 10:11:40
24 know what obviousness is, but always in these cases I 10:11:43
25 ask the lawyers to provide -- you know, assume I know 10:11:47

1 nothing about the law, because I'm not a lawyer. So 10:11:51
2 it's appropriate. You know, give me all of the legal 10:11:53
3 requirements and legal standards as if I didn't know 10:11:56
4 anything, and then I use that as -- as it is. I don't 10:11:58
5 evaluate it. I don't say, oh, that's different than the 10:12:00
6 last time, or at least I try not to. So that -- briefly 10:12:03
7 put, I was asked to look at these patents. One final 10:12:09
8 thing that I was given at that point was some 10:12:17
9 prospective prior art. 10:12:19
10 Q. Okay. 10:12:20
11 A. You know, Mr. Welch, would you evaluate these 10:12:20
12 patents in the light of this prospective prior art that 10:12:23
13 somebody or other has -- has located. 10:12:27
14 Q. Okay. And you're putting the emphasis on 10:12:29
15 prospective in prospective prior art. Why is that? 10:12:32
16 A. Well, in respective constructing an opinion, it 10:12:36
17 isn't really prior art until I -- okay. In my opinion, 10:12:41
18 it's only prior art once I've done the analysis, once I 10:12:43
19 say it is. You know, if someone else says, oh, this 10:12:47
20 is -- this is of -- this is prior art, we want you to 10:12:49
21 write up why, no, no, that's not how it works. This is 10:12:53
22 prospective prior art. We think this is relevant here, 10:12:55
23 or it might be relevant, or whatever. I mean, my job as 10:12:58
24 I see it is to render an opinion about the patents -- 10:13:02
25 they are what they are -- and to consider prior art if 10:13:06

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there is some supplied, to go and look for prior art -- 10:13:10
I always do that -- and then to try and put together, 10:13:12
you know, the entire picture. You know, as you know, 10:13:18
obviousness is all about the prior art and the POSITA 10:13:21
view. So that's -- in some ways, my main job here is to 10:13:25
hold up the POSITA view. 10:13:29
Q. So when you were hired by Microchip in May 10:13:34
of 2023, it sounds like you were provided with the task 10:13:39
of looking at the Aptiv patents, including the four 10:13:44
we're talking about today -- 10:13:47
A. Mm-hmm. 10:13:48
Q. -- and then some others, and you were also 10:13:49
provided with prospective prior art, as you've 10:13:51
characterized it. 10:13:54
Correct? 10:13:55
A. That's right. 10:13:56
Q. Were there any other materials that you were 10:13:56
provided initially by Microchip counsel? 10:13:58
A. I don't remember about initially, but one 10:14:01
example of something that was provided eventually was to 10:14:08
do with the -- the issue of secondary considerations. I 10:14:12
was given the interrogatory response -- I was told this 10:14:18
was the interrogatory response from Aptiv about certain 10:14:24
things, you know, and would you -- would you consider 10:14:26
these comments in the light of -- of these -- of these 10:14:30

1 legal points of potential secondary art. So there's a 10:14:34
2 section in here where I render an opinion about that. 10:14:40
3 The input to that is those two things. It's the 10:14:43
4 material that I was given, described as coming from 10:14:47
5 Aptiv in an interrogatory response. I noted, for 10:14:50
6 example, it wasn't about specific claims or patents, but 10:14:52
7 just sort of more generally. And then the legal 10:14:55
8 standard for what these things are. And I -- I looked 10:14:57
9 at that in that way. So that was something else I was 10:15:01
10 given. 10:15:03
11 (Reference Exhibit 1014.) 10:15:03
12 BY MR. BRAUSA: 10:15:03
13 Q. Okay. Do you recall whether one of the pieces 10:15:03
14 of prospective prior art you were given was Exhibit 1014 10:15:09
15 in these proceedings, what we call the Chang reference? 10:15:14
16 A. I was certainly given the Chang reference. I 10:15:17
17 don't remember what its number was. Let me just pull up 10:15:22
18 the -- 10:15:24
19 Q. Okay. I can represent for the record that it's 10:15:25
20 Exhibit 1014. 10:15:27
21 A. Okay. I will take your word for it. 10:15:27
22 Q. Okay. So the Chang reference that is the 10:15:29
23 primary reference in each of your opinions on 10:15:32
24 obviousness was provided to you by counsel, correct? 10:15:36
25 A. Among other things, yeah, that's right. 10:15:38

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(Referencing Exhibit 1015.) 10:15:38
BY MR. BRAUSA: 10:15:38
Q. Okay. And I -- my next question, and it's good 10:15:43
you have the exhibit listing in front of you because I'm 10:15:46
going to ask what those other things that were provided 10:15:48
to you by counsel were. 10:15:51
Turning to Exhibit 1015 is the Chang 2 10:15:52
reference. Was that provided to you by counsel? 10:15:55
A. It was. 10:15:57
(Referencing Exhibit 1016.) 10:15:57
BY MR. BRAUSA: 10:15:58
Q. Okay. What about Exhibit 1016, the Overtoom 10:15:58
reference. Was that provided to you by counsel? 10:16:03
A. Okay. Actually, I don't remember. 10:16:05
Q. Okay. 10:16:07
A. There are several here that I found. 10:16:07
Q. Okay. 10:16:11
A. There are several I found, some which we used, 10:16:11
some which we didn't use. I don't remember which the -- 10:16:14
and that's true about Hesse too. Anyway, yeah, the 10:16:18
primary two that you asked about, yes, those I was given 10:16:21
as prospective. 10:16:26
Q. Okay. Prior to your retention in this case in 10:16:27
May of 2023, do you ever recall having seen the Chang 10:16:29
reference, Exhibit 1014 -- 10:16:34

A. No. 10:16:36
Q. -- or the Chang 2 reference, Exhibit -- 10:16:36
A. I don't -- I don't remember seeing either of 10:16:40
those. 10:16:42
Q. Okay. And then I think with respect to 10:16:42
Exhibit 1016, Overtoom, you weren't sure whether that 10:16:45
was something you found or counsel provided you? 10:16:48
A. And equally, I don't remember if I had -- if I 10:16:50
had provided, because I had seen it elsewhere. I just 10:16:53
don't remember. 10:16:56
Q. Okay. 10:16:56
A. Yeah. 10:16:56
(Referencing Exhibit 1017.) 10:16:56
BY MR. BRAUSA: 10:16:56
Q. With respect to Exhibit 1017 to Hesse, is that 10:16:56
one that you provided, counsel provided, or you don't 10:17:00
remember? 10:17:04
A. I don't remember. 10:17:04
Q. Okay. 10:17:04
A. Yeah, same. 10:17:05
(Referencing Exhibit 1025.) 10:17:05
BY MR. BRAUSA: 10:17:06
Q. What about Exhibit 1025 to Castelbury, do you 10:17:06
remember how that was located? 10:17:10
A. I don't remember. No. 10:17:11

(Referencing Exhibit 1029.) 10:17:11
BY MR. BRAUSA: 10:17:13
Q. What about Exhibit 1029 to Chutorash, do you 10:17:13
remember whether that was something you located or 10:17:19
counsel for Microchip provided? 10:17:21
A. Well, that was provided to me, but I will admit 10:17:23
a sense of deja vu looking at certain drawings in there. 10:17:27
So I can't swear I hadn't seen it before. 10:17:32
(Referencing Exhibit 1033.) 10:17:32
BY MR. BRAUSA: 10:17:35
Q. Okay. So Exhibit 1033 is a patent to an 10:17:35
individual with the surname of Bohm. 10:17:38
A. Mm-hmm. 10:17:40
Q. Do you see that? 10:17:40
A. Mm-hmm. 10:17:41
Q. Do you know who that person is? 10:17:42
A. Not offhand, no. 10:17:43
Q. Do you know who they work for? 10:17:45
A. I don't know that, either. Well, I -- 10:17:46
notwithstanding it might be in the record, but I -- 10:17:48
offhand, I don't know. 10:17:52
Q. Okay. So you never talked to a Mr. or Ms. Bohm 10:17:53
as part of your analysis in this case? 10:17:56
A. Not to the best of my memory, no. 10:17:58
Q. Okay. So you don't have any ideas as to whether 10:18:00

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that person works for Microchip, Aptiv, or some other 10:18:02
company? 10:18:06
A. Not offhand, no. 10:18:06
Q. Are there any other references that you can 10:18:11
remember that were provided to you as prospective prior 10:18:15
art by counsel in May of 2023 in addition to 10:18:18
Exhibit 1014 and Exhibit 1015, the Chang 1 and 2 10:18:24
references? 10:18:27
A. Well, all of these other things fall into the 10:18:28
same category. Somebody provided them as prospective 10:18:31
prior art, possibly amongst other things we ultimately 10:18:34
didn't pick. So that includes 1016, 17, 29, 30, 32, 33, 10:18:37
34 -- what's that -- 38, 39, 40, 41, 42 -- wow, there's 10:18:44
a lot here -- 47, 52, 53, just jogging my memory from 10:18:55
looking at this list here, 66 and 7. It looks like -- 10:19:02
well, okay. There are other -- okay. Those are 10:19:10
prospective prior art patents. 10:19:18
Now, in the fullness of the analysis, all of the 10:19:21
USB specifications were considered as prior art as well, 10:19:26
sometimes cited directly. Personally, because of the 10:19:29
way these things work, if I have two potential 10:19:38
references for some point about USB, for example, if I 10:19:42
can cite to a patent, I prefer that because it's easier 10:19:47
for the PTAB people to find it. But frequently, the 10:19:50
same thing appears in a -- in a USB standard. In 10:19:54

addition to its being easier to locate by -- by somebody 10:19:59
reading the declaration, there are cases when I -- I 10:20:05
cite to either a patent or I have some other 10:20:08
publications in here that are books about USB or -- or 10:20:11
other sort of related material, and I cite to those when 10:20:16
I think it's sort of easier. 10:20:20
But pretty much without exception, just on this 10:20:21
one issue, issues about USB, what is it, how does it 10:20:24
work, and so on, those are all fundamentally answered by 10:20:28
the -- by the standards and they are the final word, so 10:20:32
they're in here for that reason. If I don't cite them 10:20:33
in all cases, it's not because the information is there. 10:20:37
No, it is there. It's just it's there, you know, and 10:20:39
it's every single word about a particular topic. And to 10:20:43
get a certain reference, you know, it's easier to cite 10:20:47
to a summary which I read and consider to be accurate. 10:20:51
If I read it and it's not accurate, then, of course, I 10:20:55
don't use it. Anyway, that's -- so. 10:20:57
Q. Okay. 10:21:00
A. There's a lot of UBS specs in here. They're all 10:21:00
potential and/or actual prior art. Or if they're not 10:21:04
literally prior art, they certainly inform the knowledge 10:21:10
of the POSITA. You know, a POSITA in my definition of a 10:21:14
POSITA, they know about these specs, and so it's 10:21:18
appropriate for that reason to cite them. 10:21:21

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Q. Okay. Putting the USB specifications to one 10:21:22
side, looking at the exhibits, are there any exhibits 10:21:25
that you see that you can recall that you specifically 10:21:29
located? 10:21:32
A. Oh, sure. 10:21:32
Q. And if you can just name those for me. 10:21:35
A. Okay. But you don't want me to include USB? 10:21:37
Q. Correct. We'll put the specifications to one 10:21:41
side. 10:21:43
A. Okay. Okay. 1031, I don't remember. This is 10:21:43
an off-the-shelf USB bridge packaged as something. I 10:21:57
don't remember who supplied this. I have used a couple 10:22:03
of USB bridges in my engineering work. This might have 10:22:05
been one of them. I don't remember. And I might have 10:22:09
provided that document. 10:22:11
Q. So just in the interest of time, I can -- I can 10:22:12
grant you that if you don't know, we don't -- we don't 10:22:15
need to list it. 10:22:19
A. Okay. 10:22:19
Q. We'll put that in the I don't know bucket. I'm 10:22:19
just interested in ones that you can conclusively say -- 10:22:21
A. All right. 10:22:21
Q. -- I provided this or located this myself. 10:22:25
A. I think we cite to -- okay. Okay. 1060, we 10:22:44
cite to a specific Fairchild USB switch. I provided 10:22:49

1 that because I happened to actually have used that 10:22:53
2 switch on another project. 10:22:55
3 Q. Okay. 10:22:57
4 A. Oh, wait. Sorry. It's not -- okay. Here it 10:22:58
5 is. It's 1068. 10:23:04
6 Q. Okay. 10:23:08
7 A. Yeah, 1068. 10:23:08
8 (Referencing Exhibit 1068.) 10:23:08
9 BY MR. BRAUSA: 10:23:09
10 Q. 1068, is a reference you provided? 10:23:09
11 A. 1068, I provided. 10:23:11
12 Q. Any others? 10:23:11
13 A. 1069, Horowitz and Hill. 10:23:12
14 (Referencing Exhibit 1069.) 10:23:12
15 BY MR. BRAUSA: 10:23:15
16 Q. Exhibit 1069 was located by you, too? 10:23:15
17 A. That's right, 1069. 10:23:18
18 Q. Okay. 10:23:19
19 A. 1073 and 1074. 10:23:20
20 Q. Okay. So just to confirm, Exhibits 1073 and 10:23:25
21 1074 were located by you? 10:23:30
22 A. Right. 10:23:31
23 (Referencing Exhibits 1073 and 1074.) 10:23:31
24 BY MR. BRAUSA: 10:23:31
25 Q. Any others? 10:23:31

A. No. 10:23:32
Q. Okay. 10:23:32
A. Except for the I don't remember category. 10:23:35
Q. Okay. And so the exhibits we just mentioned, 10:23:37
those were located by you, the patents that you 10:23:39
considered, and Chang 1 and 2 those were provided by 10:23:43
counsel? 10:23:47
A. Mm-hmm. 10:23:47
Q. Correct? 10:23:47
A. Mm-hmm. 10:23:48
Q. And most of the other exhibits, it sounds, fall 10:23:48
into the I don't -- I don't remember bucket? 10:23:50
A. Well, okay. Counsel provided the prosecution 10:23:52
history -- 10:23:55
Q. Sure. 10:23:56
A. -- for the subject patents, yeah. 10:23:56
Q. Sure. Okay. So the patents -- the file 10:23:59
histories for the subject patents and Chang 1 and 2 were 10:24:02
provided to you by counsel. The exhibits you just 10:24:06
mentioned were located by you? 10:24:09
A. Mm-hmm. 10:24:10
Q. And the balance of the exhibits, you just don't 10:24:10
remember whether you provided them -- 10:24:14
A. Yeah. 10:24:15
Q. -- or counsel provided them? 10:24:15

A. That's correct. 10:24:17
Q. Okay. About how much time have you spent to 10:24:17
date collectively on the IPRs and PGRs you were hired by 10:24:19
Microchip for? 10:24:26
A. Somewhere between 250 and 275 hours. 10:24:26
Q. Okay. And remind me what your hourly consulting 10:24:30
rate is? 10:24:32
A. 395. 10:24:33
Q. Okay. And have you invoiced Microchip for all 10:24:33
that time? 10:24:38
A. I have invoiced everything through the 30th of 10:24:38
September, yes. 10:24:42
Q. Okay. Were you aware there -- outside of the 10:24:43
PTAB proceedings that we're here today dealing with and 10:24:48
the other PTAB proceedings that you've been a consultant 10:24:51
with, that Aptiv and Microchip have been involved in 10:24:55
litigation with one another in district court? 10:24:58
A. I have -- I've heard that said, yes. 10:25:00
Q. Okay. And have you talked with any experts that 10:25:02
Microchip has used in those proceedings? 10:25:04
A. I have not. 10:25:06
Q. Okay. Do you know why Microchip isn't using any 10:25:07
of those experts in these proceedings? 10:25:10
A. I don't. 10:25:12
MR. JENSEN: Object to form. 10:25:12

THE DEPONENT: I don't know. 10:25:13
BY MR. BRAUSA: 10:25:14
Q. Okay. 10:25:14
A. I don't know that. 10:25:15
Q. We've been going a little over an hour. Do you 10:25:16
want to take -- 10:25:18
THE REPORTER: I want to take a break. 10:25:19
THE DEPONENT: Okay. That's fine. 10:25:21
THE VIDEOGRAPHER: I'll switch media. 10:25:23
This marks the end of Media No. 1 in the 10:25:24
deposition of Eric Welch. The time is 10:25 a.m. We 10:25:26
are off the record. 10:25:29
(A recess transpires.) 10:25:30
THE VIDEOGRAPHER: This marks the beginning of 10:45:35
media No. 2 in the deposition of Eric Welch. The time 10:45:39
is 10:45 a.m. We are on the record. 10:45:44
BY MR. BRAUSA: 10:45:44
Q. Welcome back, Mr. Welch. During the break, did 10:45:47
you talk with counsel at all? 10:45:49
A. Only to the extent of his reminding me of 10:45:50
something he has told me before, which is to not speak 10:45:54
too quickly. 10:45:57
Q. I see. 10:45:57
A. It's a habit. 10:45:59
Q. Understood. 10:46:00

1 Did you discuss the substance of your testimony 10:46:01
2 at all? 10:46:03
3 A. Not at all. 10:46:03
4 Q. When we broke, we were talking about the 10:46:04
5 materials that you were provided by counsel -- 10:46:09
6 A. Mm-hmm. 10:46:11
7 Q. -- in the May 2023 timeframe when you were 10:46:12
8 retained in these five proceedings as well as the 10:46:15
9 additional IPR proceedings. 10:46:19
10 A. Let me just interject. That's not quite 10:46:20
11 accurate. 10:46:24
12 Q. Okay. 10:46:24
13 A. I was provided some of this stuff in May, but 10:46:25
14 some of this stuff was developed. 10:46:27
15 Q. Okay. 10:46:28
16 A. You know, they found things, I found things, and 10:46:29
17 it happened over time. 10:46:32
18 Q. Okay. Got it. In May, you were provided with 10:46:33
19 the four patents that we're dealing with today, right? 10:46:35
20 A. Yep. Mm-hmm. 10:46:37
21 Q. And in May, were you provided with copies of 10:46:38
22 Chang and Chang 2 -- 10:46:40
23 A. To the best of my memory, yes. 10:46:42
24 Q. Okay. And so it sounds like in your ordinary 10:46:44
25 approach when you get an assignment like this, you start 10:46:46

1 with the patent and you start with the claims, and then 10:46:48
2 you look to the prospective prior art. Correct? 10:46:51
3 A. That's right. And then beyond that too, 10:46:53
4 whatever appropriate background there is. 10:46:57
5 Q. Okay. And you employed that general approach in 10:46:59
6 these five proceedings, correct? 10:47:02
7 A. That's correct. 10:47:04
8 Q. Okay. And so after looking at the claims of the 10:47:04
9 four patents we're dealing with, you then looked at the 10:47:12
10 Chang 1 and Chang 2 references -- 10:47:15
11 A. Mm-hmm. 10:47:15
12 Q. -- that you've been provided? 10:47:17
13 A. Mm-hmm. 10:47:18
14 Q. And your task was to look at their disclosures 10:47:18
15 and see whether they taught or made obvious what was in 10:47:21
16 the claims? 10:47:25
17 A. That's right. That's right. 10:47:25
18 Q. And, ultimately, you concluded in all of these 10:47:27
19 proceedings, all five of these proceedings, that the 10:47:30
20 Chang references in combination with one another, the 10:47:33
21 knowledge of a POSITA? 10:47:38
22 A. Mm-hmm. 10:47:39
23 Q. And in some instances, another reference -- 10:47:39
24 A. Mm-hmm. 10:47:43
25 Q. -- was sufficient to render the challenge claims 10:47:43

1 obvious in your view, correct? 10:47:47
2 A. That's correct. Right. 10:47:49
3 Q. Okay. 10:47:51
4 A. I mean, different ones have different grounds. 10:47:51
5 Q. Sure. 10:47:53
6 A. So, yeah, put the things together in different 10:47:54
7 ways, but that's right. 10:47:57
8 Q. Sure. But just to be clear in, though, that 10:47:58
9 original combination of Chang 1 and Chang 2 was provided 10:48:00
10 to you by counsel at the outset; that wasn't 10:48:03
11 something -- 10:48:05
12 A. That's right. 10:48:05
13 Q. -- you went out an found? 10:48:06
14 A. That's right. 10:48:06
15 Q. Okay. In forming your opinions or during your 10:48:07
16 work, beyond the legal standards that I understand were 10:48:12
17 provided to you by counsel, were you asked to make any 10:48:17
18 assumptions by counsel? 10:48:19
19 A. Not that I can recall, no. 10:48:26
20 Q. Okay. And in formulating your opinions, beyond 10:48:27
21 the documents provided to you by counsel, some of which 10:48:31
22 we've discussed, were there any other facts or data that 10:48:38
23 were provided to you by counsel that you relied on in 10:48:41
24 forming your opinions? 10:48:44
25 A. Well, I mentioned the interrogatory -- 10:48:46

interrogatory response before. 10:48:48
Q. Sure. 10:48:50
A. No, not that I can recall. 10:48:51
Q. Okay. And we're dealing with five primary 10:49:01
declarations here. You were retained in May of 2023, 10:49:07
and I believe you testified, to date you have spent 10:49:12
about 250 to 275 hours total in your work with 10:49:14
Microchip? 10:49:17
A. That's roughly. 10:49:18
Q. How much of that time would you estimate was 10:49:18
spent preparing these five declarations that were filed 10:49:22
in December of 2023? 10:49:27
A. It's a little hard to say. I mean, we did eight 10:49:28
in all. I don't remember the exact filing. I think 10:49:43
four were filed in December and maybe four more in 10:49:50
January. As you know, there's -- in many of these, 10:49:53
patents there's a common specification, and much of the 10:50:02
analysis of prior art sort of applies to all of them. 10:50:07
There was at least one that has some other material to 10:50:15
do with power delivery, and of course that was separate. 10:50:18
Boy, at a -- at a very rough guess, I'd say 10:50:26
three-quarters of the time was spent on these four 10:50:29
because, you know, the primary analysis, which was then 10:50:32
adapted for the next four, there was a lot of common 10:50:36
stuff there. So that's just a very crude guess. 10:50:41

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Q. Okay. And when you say these four, you're 10:50:44
referring to -- 10:50:47
A. Sorry, these four patents. 10:50:47
Q. -- these four patents, these five declarations? 10:50:49
A. That's right. 10:50:50
Q. Okay. Got it. 10:50:51
And you anticipated my next question, which was: 10:50:52
Were these five declarations written in parallel? Were 10:50:55
they written in sequence? Something in between? 10:51:00
MR. JENSEN: Object to form. 10:51:03
THE DEPONENT: I did a lot of analysis sort of 10:51:11
separate -- okay. Before we decided exactly how the 10:51:17
documents would be structured, before I decided how 10:51:22
these would be structured, I did a lot of analysis sort 10:51:24
of stand alone, because of the commonality, and 10:51:27
eventually came up with this idea, I asked counsel if it 10:51:31
would be okay, could we, guys, could we have common 10:51:36
sections in all of these things and say so, you know, is 10:51:39
that -- is the board going to object to that or 10:51:45
whatever. And they said, no, that's not a bad idea. 10:51:46
And so there's a lot of analysis done before -- 10:51:48
before each separate document was produced. Okay? Then 10:51:54
the job was, okay, here's this common analysis that has 10:51:58
to do with the specifications, Figure 4 particularly, 10:52:01
and related things in the specifications. Again, PD 10:52:05

1 came later. 10:52:12
2 (Reporter clarification.) 10:52:12
3 THE DEPONENT: I'm sorry. PD. It's short for 10:52:13
4 power delivery. That came later. 10:52:14
5 Okay. So after a lot of analysis had been done, 10:52:19
6 then I went back to each -- each patent by itself and 10:52:21
7 reread the claims, which of course are different between 10:52:29
8 each patent. That's the whole point. And then at that 10:52:32
9 point, I wrote the final version of the analysis based 10:52:35
10 on this sort of common work that had been done. And as 10:52:40
11 I started doing that, I then reduced the common work 10:52:43
12 into, okay, what should we have in the background, what 10:52:46
13 should we have in these other sections, which really 10:52:50
14 could be the same in all of them. In other words, I had 10:52:52
15 to sort of start working on writing the individual 10:52:56
16 analyses to see what would work as the common section. 10:52:58
17 So this is sort of a crude version of the 10:53:01
18 process that I use, but that's -- that's basically how 10:53:04
19 this stuff came together. Obviously, for each 10:53:08
20 individual patent, the key is, what are the words in the 10:53:11
21 claims themselves. And so the final analysis of each 10:53:14
22 claim builds on the initial analysis, which says, okay, 10:53:18
23 generally this is what's going on here, and generally, 10:53:22
24 the prior art applies in this way. I have to go back 10:53:24
25 and redo that, rethink it, reword it for each different 10:53:27

claim. 10:53:32

Now, some of the claims were common too, and 10:53:33

there were sections where claims were repeated with so 10:53:36

much commonality that I did a different thing. I said, 10:53:39

well, this one is so much like that, let me put the 10:53:42

words down here and different words down over here, and 10:53:45

maybe even color them to show where they're common. And 10:53:47

then I'd say, this -- this is really like this other 10:53:50

claim in the same patent; and, therefore, my analysis is 10:53:53

substantively the same in this case as it was in that 10:53:56

other case, or not. You know, well, okay, this one 10:53:59

has -- this one has slightly fewer words; and, 10:54:03

therefore, it's got one less limitation; therefore, it's 10:54:06

more general; and, therefore, you have to think about it 10:54:08

in that sense. And there were a few of those which 10:54:12

required more words because of, you know, some nuance or 10:54:14

whatever. Anyway, that's -- that's generally how this 10:54:17

worked. 10:54:19

BY MR. BRAUSA: 10:54:19

Q. Okay. So it -- let me see if I can summarize. 10:54:20

I think I understand what you're -- you're saying. 10:54:23

You started with the claims of the patent, then 10:54:26

you went to the prior art, you did a general analysis, 10:54:28

you put together that general analysis, and then you 10:54:33

essentially made that general analysis more specific in 10:54:40

view of the specific language in the claims. Is that 10:54:42
fair? 10:54:46
MR. JENSEN: Object to form. 10:54:47
THE DEPONENT: I would say it very slightly 10:54:50
differently. 10:54:52
I certainly started with the -- each patent on 10:54:53
its own, the claims, but also all the specifications, 10:54:55
drawing and everything else, and then I went from there 10:54:57
to do an analysis. And because the specifications are 10:55:02
so similar, I chose at that point to really focus on 10:55:04
that. In other words, the work felt like it divided up 10:55:09
a little bit that way, but -- but then the latter part 10:55:12
of what you said is substantially accurate. The final 10:55:15
analysis was -- was done specifically for the claims in 10:55:20
each patent. 10:55:22
BY MR. BRAUSA: 10:55:22
Q. Okay. Are you aware that the declarations that 10:55:26
you authored were themselves filed as exhibits to 10:55:30
something called an IPR petition or in one instance a 10:55:35
PGR petition? 10:55:39
A. I am certainly aware of that. I couldn't off 10:55:40
the top tell me the difference between those two things. 10:55:42
Q. Okay. 10:55:45
A. But I'm aware these were filed as part of an 10:55:45
IPR, or IPR like. 10:55:51

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Q. Okay. And in the context of your preparation of 10:55:53
these reports, all of which have been marked as 10:55:56
Exhibit 1013 in the respective proceedings, did you ever 10:55:59
review the petition that was submitted by Microchip 10:56:02
alongside your report? 10:56:05
A. I did not. 10:56:06
Q. Okay. And that's true for all five of the 10:56:07
proceedings we're dealing with? 10:56:10
A. It is. 10:56:11
Q. Okay. And do you have an understanding that 10:56:11
Aptiv filed what are called preliminary -- or I'm sorry, 10:56:15
patent owner preliminary responses -- 10:56:19
A. I'm aware of that, yes. 10:56:21
Q. -- in response to the petition? 10:56:22
A. Right. 10:56:23
Q. Okay. Have you reviewed those? 10:56:24
A. No. What I reviewed was the -- the PTAB ruling. 10:56:25
Q. Okay. 10:56:29
A. I reviewed those in some detail and, of course, 10:56:30
they reference both of these things. 10:56:33
Q. Okay. And the PTAB ruling you're referring to 10:56:35
is called the institution decision? 10:56:38
A. That's right. 10:56:39
Q. Okay. And so you have reviewed the institution 10:56:40
decisions in all of these proceedings? 10:56:42

A. To be -- these five, yes. 10:56:44
Q. Okay. 10:56:46
A. There are some others. I haven't actually 10:56:47
looked at those. 10:56:48
Q. Okay. Are you aware that in some of the others, 10:56:49
the PTAB has denied institution? 10:56:51
A. I understand that. But I haven't read those. 10:56:54
Q. Okay. So you don't have an understanding as to 10:56:56
why the PTAB -- 10:56:58
A. I don't. 10:56:59
Q. -- denied institution? 10:56:59
A. No. 10:57:00
Q. And you don't know whether the PTAB critiqued 10:57:01
your opinions at all in those opinions? 10:57:04
A. I don't. 10:57:06
Q. After the declarations were submitted in 10:57:07
December of 2023, it sounds like you -- you reviewed the 10:57:16
PTAB's institution decisions? 10:57:21
A. When it came, yes. 10:57:23
Q. Sure. 10:57:24
A. Was June, I think, yeah. 10:57:25
Q. Okay. For your deposition here today, or for 10:57:26
your work on behalf of Microchip, beyond the PTAB's 10:57:29
institution decisions, are there any other documents you 10:57:33
reviewed after submitting your declaration that you had 10:57:36

not reviewed at the time you submitted your 10:57:41
declarations? 10:57:43
A. Not to the best of my memory, no. 10:57:43
Q. Okay. So the -- the -- the universe of 10:57:45
additional documents that you reviewed after submitting 10:57:50
your declarations are limited to the PTAB's institution 10:57:52
decisions? 10:57:56
A. Mm-hmm. 10:57:56
Q. Okay. 10:57:57
A. That's correct. 10:57:57
Q. And I take it you spent some time preparing for 10:57:57
your deposition today as well? 10:58:03
A. I did. 10:58:04
Q. How long did you spend preparing for your 10:58:04
deposition? 10:58:06
A. A couple days. 10:58:06
Q. Okay. Can you tell me -- I don't want to get 10:58:07
into the substance of any communications with counsel. 10:58:08
But what did you do to prepare for your deposition? 10:58:11
A. I wrote on the Blackboard 900 times, "Don't talk 10:58:13
too fast." I mean, I've done a number of these things 10:58:17
and, you know, I have high -- high-affect memories of 10:58:21
the question would come and I would just start talking 10:58:24
immediately. And the person sitting next to me, they 10:58:27
needed to make a comment, and I didn't -- I was talking 10:58:31

over him. It's just a habit. So talking fast and 10:58:33
talking over them. So I had to -- I had to really 10:58:36
practice about that. 10:58:38
Otherwise, since it had been ten months, the 10:58:40
other thing I did was I just reviewed the documents 10:58:45
carefully, reminding myself of everything, rereading the 10:58:47
prior art, rereading the patents, occasionally rereading 10:58:51
other things, but mostly limited to -- to the specific 10:58:57
matter here, that is, the -- the patents and the -- the 10:59:02
prior art. I didn't feel it necessary to go back to the 10:59:06
USB specs and say, okay, let me remind myself of how 10:59:12
that works or -- or whatever. In general, that's what 10:59:15
the preparation was. 10:59:17
Q. Okay. To prepare for your deposition, did you 10:59:18
meet with anyone? 10:59:20
A. I met with Mr. Jensen and the other attorney, 10:59:21
Mr. Lane. 10:59:24
Q. Okay. And how long did you meet with them? 10:59:25
A. It was a couple of hours over a couple of days. 10:59:30
I don't remember exactly. 10:59:33
Q. Okay. In total, do you recall how long you met 10:59:33
with counsel for Microchip? 10:59:36
A. Let's say two full days. 10:59:38
Q. Okay. And then was there additional prep that 10:59:40
you did beyond those two full days? 10:59:43

A. No, just this -- just this self-talk reminder. 10:59:45
Q. Okay. Got it. 10:59:49
In -- in all of your declarations, there are 10:59:52
obviousness grounds based on Chang 1 and Chang 2? 10:59:57
A. Mm-hmm. 11:00:01
Q. And then there's also a reference to including 11:00:01
the knowledge of the POSITA -- 11:00:03
A. Mm-hmm. 11:00:05
Q. -- correct? 11:00:06
How did you determine whether to rely just on 11:00:07
the knowledge of the POSITA or to add an explicit 11:00:10
reference like you did with Chutorash or -- well, we can 11:00:15
use Chutorash as an example? 11:00:18
MR. JENSEN: Object to form. 11:00:21
THE DEPONENT: Okay. Chutorash is a good 11:00:22
example because that reference, to the best of my 11:00:32
memory, at the risk of mistaking one name for another, 11:00:36
is about USB in automobiles and the fact that USB in 11:00:39
automobiles usually involves devices that a POSITA would 11:00:44
see were hubs, even though they're not actually 11:00:49
described that way. The value of that is it provides 11:00:52
context for somebody reading this thing and try to 11:00:56
understand, and it just felt better to me, when 11:00:59
possible, to start by saying, well, a POSITA would 11:01:04
understand that you could use USB in a car. Okay. 11:01:07

That's nice and that's my say-so, but it's a slightly 11:01:10
better statement, it occurs to me, if you have a 11:01:13
reference for it. In some ways, fundamentally what I 11:01:15
had to learn to do in order to be an expert witness is, 11:01:20
yes, I'm an expert, but it's usually better if I can say 11:01:24
you know, it is the case that X, Y, and Z, and, oh, by 11:01:28
the way, here are these high-quality references. 11:01:30
And so, you know, another example of that is, 11:01:32
you know, I have Horowitz and Hill in here, 11:01:34
spectacularly high-quality electronics textbook, you 11:01:37
know, probably 1500 pages, you know, and it's in here 11:01:43
for the purpose of talking about voltage dividers and, 11:01:45
you know, a couple of other really simple circuit 11:01:50
elements. Did I need that reference for my own 11:01:53
knowledge? No, of course not. But it's better, I have 11:01:57
learned, in these declarations to be able to cite 11:02:00
something. So that's the -- that's the -- sort of the 11:02:05
primary thinking. You know, I start off with USB in -- 11:02:08
in cars makes sense. But we have several of the other 11:02:10
references, like the article about, you know, the car is 11:02:13
like a PC on Wheels. I like that very much because it's 11:02:16
easy to read and it makes the point. 11:02:20
Chutorash is spectacular and it sort of has a 11:02:24
different view of the same thing. It likes to show 11:02:27
some -- some rather busy drawings showing a lot of 11:02:29

1 different sort of interconnected pieces. That's useful, 11:02:34
2 too. 11:02:38
3 BY MR. BRAUSA: 11:02:38
4 Q. Okay. So do you have an understanding of what I 11:02:39
5 say when you -- if I say that you included Chutorash as 11:02:43
6 part of the grounds explicitly? 11:02:46
7 Does that make sense? 11:02:48
8 A. I understand that, yes. 11:02:49
9 Q. Okay. And you're aware that you did not 11:02:50
10 include, for instance, Hill and Horowitz or Horowitz and 11:02:53
11 hill as part of any grounds explicitly? 11:02:56
12 A. I am aware of that. 11:02:59
13 Q. Okay. And so understanding your opinion that 11:03:00
14 it's better to have a reference supporting your 11:03:02
15 opinions -- 11:03:05
16 A. Mm-hmm. 11:03:05
17 Q. -- how did you go about deciding whether a given 11:03:06
18 reference that you think a POSITA would have been aware 11:03:09
19 of should be part of the grounds or just part of the 11:03:13
20 background knowledge of a POSITA? 11:03:16
21 MR. JENSEN: Object to form. 11:03:17
22 THE DEPONENT: Using the Horowitz and Hill 11:03:20
23 example, there's a way that reference is almost 11:03:25
24 gratuitous. I mean, everybody understands about voltage 11:03:33
25 dividers. Any possible definition of a POSITA that you 11:03:35

1 might consider here, and I'm aware that PTAB considered 11:03:38
2 ours and yours as being different, you know, that would 11:03:40
3 be -- that would be obvious. That would be known to a 11:03:43
4 POSITA. But the idea there is that that reference is 11:03:47
5 about explaining what voltage dividers are and putting 11:03:53
6 it in context as, you know, it appears in the H&H 11:03:57
7 chapter called Fundamentals, you know, there's a bunch 11:04:02
8 of stuff in there about, you know, what a -- what an 11:04:04
9 engineering student in the sort of first course or a 11:04:08
10 second course, you know, might be asked to work through 11:04:11
11 this to remind them or to learn anew about all of these 11:04:14
12 different sorts of things. It's a fundamental aspect of 11:04:17
13 electrical engineering. And so, you know, that -- that 11:04:21
14 just makes it clear that I haven't just invented this or 11:04:23
15 that I'm misusing the term or whatever, but once we have 11:04:26
16 it in the declaration, that's good enough. 11:04:30
17 Horowitz and Hill is not really part of the 11:04:32
18 argument about -- argument -- it's not really about the 11:04:34
19 analysis that's -- that comprises one of these grounds. 11:04:40
20 Or let me say it a different way. Voltage dividers are 11:04:43
21 in here as an example of one possible detection scheme 11:04:47
22 that might be used in a case where you have an incident 11:04:50
23 device which, you know, you analyze it and, you know, 11:04:54
24 you think that it may have a pull-up or a pull-down 11:04:57
25 resistor. Well, the explanation there, the analysis is 11:04:59

that a POSITA would understand that you would -- amongst 11:05:02
other things, you could use a voltage divider in that 11:05:06
case to figure out what it is; is there a resistor 11:05:08
present, what's the value, is the resistor not there, 11:05:11
all of these different kinds of things. But Horowitz 11:05:14
and Hill aren't part of that analysis. They're just 11:05:17
part of saying that voltage dividers were well known. 11:05:19
So that's why, just to take that to a possible extreme 11:05:23
in that particular case, H&H is part of background for 11:05:26
the -- the overview background section and talking about 11:05:32
different well-known detection schemes and not part of 11:05:37
the grounds. 11:05:41
BY MR. BRAUSA: 11:05:41
Q. Okay. But I guess my confusion is, Chutorash, 11:05:41
you rely on to show that USB was used in vehicles, 11:05:45
correct? 11:05:45
A. We don't -- we don't rely on it as if without 11:05:50
Chutorash we couldn't say that. I just think it makes 11:05:54
it clearer. I think it makes it more complete. Same 11:05:56
with the PC on Wheels reference. Just makes the -- just 11:06:00
makes the -- makes the explanation a little more clear. 11:06:06
Q. Okay. Well, the PC on Wheels article isn't part 11:06:11
of any grounds, is it? 11:06:13
A. No, but -- I'm sorry. I'm answering your 11:06:16
question by going back and forth between the sort of 11:06:18

1 background analysis and -- and the grounds themselves. 11:06:21
2 I -- I take your point that there's a difference between 11:06:23
3 those -- those things. I think -- I think Chutorash fit 11:06:28
4 as part of the grounds because language in the patents 11:06:33
5 suggested that USB and automobiles was a point that 11:06:41
6 needed to be addressed specifically and not -- if we 11:06:44
7 could, not just with the POSITA knowledge. 11:06:48
8 Q. Okay. 11:06:49
9 A. And Chutorash respect for that. 11:06:50
10 Q. Was it your decision as to which specific 11:06:52
11 reverences to explicitly call out in the grounds, versus 11:06:56
12 relying on the POSITA's general knowledge? 11:06:58
13 A. Well, yes. I put together the analysis and, 11:07:01
14 therefore, I put together these grounds using the prior 11:07:10
15 art that had been supplied. And in these details, yes, 11:07:14
16 I had to decide which references were just part of the 11:07:22
17 background and which references might useful and become 11:07:25
18 part of the grounds in regards to the example I gave. 11:07:29
19 Q. Okay. Do you know whether you -- there's a 11:07:31
20 difference in terms of what you have to show for a 11:07:35
21 motivation of combined that turns on whether a reference 11:07:38
22 is in the grounds or not? 11:07:42
23 A. Well, I'm not a lawyer. So my understanding is 11:07:43
24 there's a legal standard that obviousness requires, I 11:07:51
25 think the term is preponderance of -- of evidence that 11:07:58

1 it's more likely than not that given these different 11:08:00
2 references and the knowledge of the POSITA, the -- the 11:08:06
3 claim language in question would have been obvious. 11:08:11
4 That's my layman's understanding of that. 11:08:16
5 Q. Okay. And do you have a layman's understanding 11:08:18
6 of what a motivation to combine is referring to, or a 11:08:20
7 motivation to modify? 11:08:24
8 A. Yes. My -- my idea about that is, again, given 11:08:25
9 by the definition of obviousness. You don't have to 11:08:27
10 have a single reference. It's -- obviousness can be 11:08:30
11 shown, I've been given to understand, by finding several 11:08:34
12 things, such that if you consider them together with the 11:08:38
13 knowledge of the POSITA, that consideration would have 11:08:41
14 rendered the -- the claim language in question obvious. 11:08:43
15 That's -- that's my understanding. 11:08:46
16 Well, okay. Sorry. That doesn't quite answer 11:08:49
17 your question motivation combine -- to combine has to do 11:08:51
18 with, it's not enough -- certainly it's not enough in 11:08:55
19 hindsight to say, oh, we've got these things, therefore, 11:08:58
20 we'll find this prior art. No. What you have to show, 11:09:01
21 and I think I have shown here, is that these things 11:09:05
22 existed, they would have been known and could have been 11:09:07
23 known to a POSITA, they had their own knowledge, and it 11:09:09
24 would have made sense to combine them. 11:09:14
25 Well, what's the motivation? The motivation is 11:09:15

that we have a problem to be solved, which is the need 11:09:18
for dual-role ports, plural, and having them in an 11:09:22
automobile or other kinds of contexts where having fewer 11:09:26
ports is better than more ports. That gives you the 11:09:32
idea of multiple dual-role ports could be beneficial. 11:09:35
And these two reference give you, each of them, 11:09:41
a part of that. Chang 1 has a hub where one of the 11:09:44
ports has a host interface by virtue of a bridge. 11:09:48
Chang 2 has what it has, which is essentially a single 11:09:53
port, but which is dual role, not multiple ports. So if 11:09:56
you -- if you consider those two things, the motivation, 11:10:00
I think, is -- is this: 11:10:04
A POSITA in this area has experience doing 11:10:06
development with USB systems. Fundamental components in 11:10:10
that development, as you have -- you have hosted, you 11:10:13
have hubs, you have devices, you have a couple of other 11:10:16
things. Hubs are a fundamental part of the process. 11:10:21
The USB hub did not somehow come on later as a -- an 11:10:26
improvement on the process. The USB hub was there at 11:10:31
the very beginning because it is the fundamental and 11:10:34
sole mechanism for a single host to be able to 11:10:36
communicate with more than one device, and the people 11:10:40
that designed USB understood that that was -- that was 11:10:42
important. Now, there's a lot of other details about 11:10:46
why the 1-1 spec and its version of a hub had -- had 11:10:48

fairly simple functionality, and that -- some of that 11:10:54
has to do with the economics of building those things. 11:10:57
But in the relevant timeframe, a POSITA with, as I 11:11:00
suggest, knowledge about how to put these USB systems 11:11:02
together, a fundamental building block, they would have 11:11:05
a toolbox of things, and one of the fundamental tools in 11:11:08
that toolbox is the hub. 11:11:11
You know, you're putting these things together. 11:11:13
Hubs were off-the-shelf components. There were -- there 11:11:16
were integrated circuits with two, four and seven ports 11:11:20
available prior to the data of these things, and those 11:11:23
of us that design these things use those naturally. You 11:11:27
know, at Keyspan, we had a compound device. Compound is 11:11:32
a term of art from the USB spec that refers to two 11:11:36
devices in an enclosure that are brought together with 11:11:39
an embedded hub. That's very important. The 11:11:44
specification has a lot of detail about the hub can 11:11:48
actually explain to the host that a given device is 11:11:50
connected with a captive connection rather than being 11:11:53
plugged or unplugged. That's a -- that's a detail 11:11:56
that's not important here. I'm just making the point 11:11:59
that the USB specification is all about making this 11:12:02
possible, making it well known, how to do it, and what 11:12:06
would work. 11:12:09
So okay. So given that, looking at Chang and 11:12:11

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Chang 2, it would be obvious to a POSITA, okay, there's 11:12:14
a hub over here and there's this one thing, but we can 11:12:17
improve that one thing with the teachings. We don't 11:12:19
have to take the details and the precise implementation 11:12:23
of Chang 2. We can take those teachings and combine 11:12:25
them here and expand what's being done with the hub, 11:12:29
because the hub was so fundamental to this process that 11:12:33
it would be obvious to a POSITA to do that, and 11:12:37
therefore, the combination of those things, so says my 11:12:39
analysis, renders the claims obvious. 11:12:44
Q. Okay. I think when you started that line of 11:12:46
testimony, you mentioned that one of the -- or a 11:12:51
motivation to combine references was the need for 11:12:55
dual-role ports, plural. Correct? 11:12:58
A. That's correct. 11:13:00
Q. Okay. I just want to make sure I understand. 11:13:01
Chang 1, as we've been calling it, Exhibit 1014, 11:13:05
has ports, plural? 11:13:09
A. Mm-hmm. 11:13:11
Q. None of them are dual role, right? 11:13:12
A. That's correct. 11:13:14
Q. Okay. Chang 2, Exhibit 1015, has a port, 11:13:15
singular? 11:13:19
A. Mm-hmm. 11:13:20
Q. And it's dual role, correct? 11:13:20

A. Mm-hmm. Mm-hmm. 11:13:21
Q. So neither Chang 1 nor Chang 2 explicitly 11:13:22
disclose multiple dual-role ports, right? 11:13:27
A. That's correct. 11:13:29
Q. Okay. And it's your view that a POSITA, looking 11:13:31
at those two references, which were provided to you by 11:13:34
counsel, would conclude that it's obvious to make all 11:13:38
the ports in a hub dual-role ports? 11:13:42
A. Mm-hmm. That's right. The reason for that -- 11:13:46
Q. Respectfully, we'll get to the reason. I just 11:13:50
want to make sure I understand. 11:13:53
A. Okay. 11:13:54
Q. And I want to go back to -- 11:13:54
A. I wasn't sure if you asked a question or not. 11:13:56
Q. That's quite all right. My fault. 11:13:58
I want to go back to the question we were 11:14:00
talking about before that testimony, though. You can 11:14:01
turn to the table of contents in your report from the 11:14:03
'228 proceedings. 11:14:08
A. Mm-hmm. Mm-hmm. 11:14:09
Q. Exhibit 1013. 11:14:10
And there is a Section 9 that is modify -- 11:14:13
Motivation To Modify Chang In View Of Chang 2 and the 11:14:16
Knowledge of a POSITA. 11:14:18
A. Mm-hmm. 11:14:19

Q. There's a Section 10 that is Motivation To 11:14:19
Modify Chang In View Of Chang 2, Chutorash and the 11:14:22
Knowledge of a POSITA. 11:14:26
A. Mm-hmm. 11:14:26
Q. And then there's a section 11 that is Motivation 11:14:26
to Modify Chang in View of Chang 2, AN96527 and the 11:14:29
Knowledge of the POSITA, correct? 11:14:36
A. I see those three here, yes. 11:14:37
Q. Okay. And your report in this proceeding, all 11:14:38
right, the Exhibit 1013 we're looking, at doesn't have 11:14:41
any other sections about motivation to modify Chang, 11:14:44
correct? 11:14:48
A. That's correct. 11:14:48
Q. Okay. And so there's not a section in your 11:14:49
report, for example, about the motivation to modify 11:14:51
Chang in view of Overtoom? 11:14:55
A. No. That's correct. 11:14:58
Q. And there's not a section in your report about 11:14:59
any motivation to modify Chang in view of the Hesse 11:15:02
reference, Exhibit 1017? 11:15:06
A. No. 11:15:11
Q. And there is not a section in your report about 11:15:11
any motivation to modify Chang in view of the Castelbury 11:15:14
reference, Exhibit 1025? 11:15:17
A. That's correct. 11:15:19

Q. Okay. And so why did you not include any 11:15:20
sections about motivation to modify Chang in view of, 11:15:24
for example, the Castelbury reference, Exhibit 1025? 11:15:28
MR. JENSEN: Object to form. 11:15:32
THE DEPONENT: Okay. The simple answer to that 11:15:34
is that those other references, and I would have took 11:15:40
look at them carefully to get the details, but in 11:15:42
general, those are the references, bring us components. 11:15:46
In one case, the -- well, I think there are several 11:15:50
examples of cross/bar switches. Earlier in the analysis 11:15:54
and in background, I make the point that a POSITA would 11:15:58
understand what a cross bar switch is and what it's used 11:16:02
for, and that, therefore, it was justified to use that 11:16:05
in the toolbox, just like a voltage divider. 11:16:08
In -- in Reference No. 9, this other thing 11:16:10
that's added here, the AN96527, may not itself apply to 11:16:15
the this patent, but it's here for completeness. And 11:16:20
that is -- that has to do with power delivery, again 11:16:22
another tool in the toolbox. And there's one other. I 11:16:25
forget offhand. The point is that those things give us 11:16:29
components, they give us pieces. And all of those 11:16:33
pieces were known to a POSITA. So there's not sort of 11:16:36
motivational issues that come up there. Rather, these 11:16:41
things populate the toolbox, just like with the voltage 11:16:44
divider, whereas in the Chutorash case, it's possibly a 11:16:48

fine line here, but I felt that its references to USB in 11:16:54
automobiles spoke to the language of the claims in ways 11:16:59
that were useful, whereas these other things, it was 11:17:05
different. They spoke to the details about components 11:17:07
that were used to solve a problem. 11:17:10
Okay. I won't try and anticipate your 11:17:17
questions. But there are other questions that we might 11:17:18
get to later where some of the details of that, you 11:17:21
know, we could come back to and -- and flesh out a bit. 11:17:26
BY MR. BRAUSA: 11:17:26
Q. Okay. And so if I understood you to -- your 11:17:27
testimony, it was that if a reference is just describing 11:17:30
a component in a toolbox -- 11:17:34
A. Mm-hmm. 11:17:36
Q. -- you haven't provided any motivation to 11:17:38
combine that particular tool with Chang or Chang 2 in 11:17:40
your report explicitly? 11:17:45
MR. JENSEN: Object to form. 11:17:46
THE DEPONENT: Those things show up in addition, 11:17:46
possibly, to other ways. Those things show up in the 11:18:04
motivation as part of the knowledge of the POSITA. 11:18:06
Another way to think about all this stuff is 11:18:10
that I've given it as my opinion that a POSITA would 11:18:14
know about certain things, voltage dividers, switches, 11:18:17
multiplexors and so on, and each of these motivation 11:18:20

sections has the knowledge of the POSITA. The purpose 11:18:25
in the background section to bring in some of those 11:18:28
other references is to provide a reference for some of 11:18:32
these points about knowledge of the POSITA, the USB 2 11:18:36
spec for USB things, the Horowitz and Hill for a couple 11:18:40
of electrical details. Hesse or Overtoom, I forget 11:18:44
which one it is, because they have a very nice cross/bar 11:18:49
and a cross/bar which is used in the context of USB. We 11:18:52
have a lot of other things like that, too. We have data 11:18:55
sheets from -- from Fairchild and -- and micro analog 11:18:58
devices, I think is another one, showing sort of 11:19:03
off-the-shelf components. 11:19:06
So I think the answer to your question is that 11:19:08
those things, in a way, all show up in the motivation to 11:19:11
combine, but they're packaged as part of the POSITA 11:19:15
knowledge; it's just in the background. I wanted to 11:19:19
clarify and provide background about, you know, why a 11:19:21
POSITA would know these things if they're working in 11:19:28
USB. That's the first point, a POSITA is somebody who 11:19:30
works here in USB and knows about the fundamental USB 11:19:33
pieces. 11:19:37
Given these various references, it's my opinion 11:19:38
that they would know about those things as well, not 11:19:42
only for those, the purpose of those references, there 11:19:44
might be other references. But the point is that those 11:19:46

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things become part of the toolbox, therefore, part of 11:19:50
the knowledge of the POSITA; therefore, they -- they are 11:19:52
part of the motivation to combine. 11:19:56
BY MR. BRAUSA: 11:19:56
Q. Okay. So is it your testimony that Chang 1, for 11:19:58
instance, is not part of the toolbox or knowledge of the 11:20:04
POSITA? 11:20:06
A. There is a process in -- in engineering which 11:20:07
makes it a little difficult to answer that question. As 11:20:28
engineers, we are asked to solve problems, and if we're 11:20:31
good engineers, we start out by really trying to 11:20:36
understand the problem rather than doing a common thing, 11:20:39
which is somebody says, you know, do you know about X or 11:20:41
could you solve Y, and you think, oh, yeah, I worked on 11:20:45
Z and that's sort of like that, and so you say yes and 11:20:48
you go down a bad path. No. What's best in engineering 11:20:52
is trying to understand the problem. You have the 11:20:54
toolbox as a sort of starting point for all of those 11:20:58
kinds of things, but it's not uncommon that you get 11:21:02
presented with a problem which is not obviously or 11:21:05
immediately solved by the things in your toolbox. 11:21:10
So what do you do? Well, you know, you go back 11:21:12
to what you know and you see if you have worked on 11:21:15
anything in the past which is like this, and what did 11:21:23
you do or you see -- you go back to the past and you 11:21:25

say, well, I had a similar problem and I looked up a 11:21:29
bunch of different possible references. You know, did I 11:21:32
come across anything there which wasn't useful then but 11:21:34
which could be useful now? 11:21:38
My point is that beyond the toolbox, engineers 11:21:39
are called on to be creative, to find other things, to 11:21:42
go out into the world and look for stuff. This happens 11:21:46
all the time. Now, if we're good engineers, the 11:21:51
experience of doing that means that your toolbox is 11:21:54
expanding all the time. I've been doing this for 50 11:21:58
years and I have a pretty big toolbox. 11:22:01
So I'm not saying that a POSITA here would have 11:22:03
had Chang in their toolbox a priori. I am saying that a 11:22:06
POSITA is the kind of person that has the toolbox, has 11:22:11
the various understandings as what I've described, and 11:22:14
the ability to go out and look for things. 11:22:17
Q. Okay. Well, just to confirm, as of 2023 in May, 11:22:19
when you were retained, neither Chang or Chang 2 were in 11:22:23
your personal toolbox, right? 11:22:26
MR. JENSEN: Object to form. 11:22:28
THE DEPONENT: Not as such. I may have known 11:22:28
more -- no, never mind that. Yes, they were not in my 11:22:39
toolbox. 11:22:45
BY MR. BRAUSA: 11:22:45
Q. Okay. And it sounds like you agreed with me. I 11:22:46

1 think you testified that there are problems that come up 11:22:50
2 that are not obviously or immediately solved by the 11:22:52
3 things in your toolbox. Right? 11:22:55
4 A. That's correct. 11:22:57
5 Q. And for those types of problems, you have to be 11:22:57
6 creative, you have to be innovative to solve the 11:23:01
7 problem, right? 11:23:03
8 A. That's correct. 11:23:03
9 Q. All right. Have you, in preparing your opinions 11:23:04
10 in this case, talked with anyone about Microchip about 11:23:09
11 what approaches they use to solve the problem of 11:23:13
12 integrating CarPlay in an automobile? 11:23:17
13 A. I have not talked to anybody about that. No. 11:23:19
14 Q. Okay. Have you reviewed any materials from the 11:23:22
15 district court litigations between Microchip and Aptiv 11:23:25
16 about what Microchip was saying about the problem of 11:23:32
17 integrating CarPlay into automotive devices? 11:23:36
18 A. The only information which even mentions CarPlay 11:23:40
19 at large is the interrogatory response. I have nothing 11:23:46
20 else. 11:23:49
21 Q. Okay. So you hadn't done any investigation of 11:23:49
22 any vexing problems that were related to CarPlay and 11:23:52
23 automotive manufacturers? 11:23:58
24 A. Well, two things. Number 1, I don't necessarily 11:24:01
25 agree that there is a vexing problem there. Number 2, I 11:24:05

1 have not looked at any -- at anything related to the 11:24:08
2 CarPlay problem other than to determine that the 11:24:14
3 specifications for CarPlay are proprietary information 11:24:21
4 of Apple computer. 11:24:26
5 Q. Okay. And so just to confirm, you didn't talk 11:24:27
6 with anyone by the name of Mitch Obolsky from Microchip? 11:24:30
7 A. I have not talked to Mitch Obolsky. 11:24:36
8 Q. Okay. And you didn't talk with Mark Bohm from 11:24:38
9 Microchip about -- 11:24:42
10 A. I haven't talked to Mark Bohm. 11:24:43
11 Q. Okay. And you haven't reviewed any of their 11:24:44
12 trial testimony that they provided about Aptiv's 11:24:47
13 solution to a problem involving CarPlay? 11:24:50
14 A. I haven't talked to them about anything. 11:24:52
15 Q. Okay. And you -- 11:24:54
16 A. Or reviewed their testimony about anything. 11:24:55
17 Q. Okay. Have you reviewed any testimony from 11:24:57
18 microchip's damages expert in the litigation? 11:25:02
19 A. No. I haven't reviewed any damages testimony 11:25:05
20 related to Microchip, no. 11:25:10
21 Q. Okay. And so you weren't aware that Microchip 11:25:11
22 alleged that they had lost almost 45 million units of 11:25:16
23 sales due to Aptiv's product design? 11:25:20
24 MR. JENSEN: Object to form. 11:25:23
25 THE DEPONENT: I wasn't aware of that, no. 11:25:24

BY MR. BRAUSA: 11:25:24
Q. Okay. And so you don't have any opinion and you 11:25:25
don't have any information about why Aptiv was able to 11:25:27
capture that share of the market? 11:25:32
A. I have -- 11:25:34
MR. JENSEN: Object to form. 11:25:34
THE DEPONENT: I have no opinion about that. 11:25:34
BY MR. BRAUSA: 11:25:34
Q. Okay. In preparing for your deposition today, 11:25:36
did you review any of your prior declarations from 11:25:49
different cases? 11:25:53
A. Full disclosure. During the months of August 11:25:54
and September, I did have another expert case that I 11:26:06
worked on, and I provided declarations for two -- two 11:26:09
IPRs in another case that has nothing to do with the 11:26:18
subject matter here and nothing to do with any of the 11:26:22
parties here. 11:26:24
Q. Okay. 11:26:26
A. But not otherwise. 11:26:26
Q. So -- so you reviewed those for that work? 11:26:27
A. Yeah, for -- 11:26:29
Q. You didn't review those in preparation for your 11:26:30
work here today? 11:26:33
A. Not for this, no. 11:26:34
Q. Fair point. 11:26:35

1 You were an expert for a patent owner known by 11:26:36
2 the name of Martin Coaster? 11:26:39
3 A. Mm-hmm. 11:26:40
4 Q. And that was in an IPR against Western Digital 11:26:40
5 Corporation and SanDisk, correct? 11:26:43
6 A. That's correct. 11:26:46
7 Q. Okay. And you provided an expert declaration in 11:26:46
8 that case on behalf of the patent owner? 11:26:49
9 A. That's correct. 11:26:52
10 Q. Okay. 11:26:53
11 A. Yes. 11:26:54
12 Q. Okay. And do you know what ultimately happened 11:26:55
13 in that proceeding? 11:26:57
14 A. I think, to the best of my memory, when I went 11:26:58
15 back, you know, a year later or something, and looked at 11:27:08
16 the -- at the PTAB database and briefly skimmed the -- 11:27:11
17 the final decision, it appeared that Coaster had lost 11:27:18
18 some of his claims and -- and retained some as well. 11:27:25
19 Q. Okay. Were you deposed in that case? 11:27:30
20 A. Yes. 11:27:32
21 MR. BRAUSA: I'm going to mark as an 11:27:35
22 Exhibit 2020, the declaration of Eric Welch, 11:27:38
23 Exhibit 2050, from the IPR 2020-01391. 11:27:45
24 (Exhibit No. 2020 marked for identification.) 11:27:50
25 MR. BRAUSA: So this is marked as Exhibit 2020. 11:27:51

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1 And please take a moment to review that. I can direct 11:28:19
2 you to the last page. It's dated May 24th, 2021, and I 11:28:21
3 believe that's your DocuSign signature. 11:28:25
4 THE DEPONENT: I -- I can see my DocuSign 11:28:40
5 signature on here from May 24th, 2021. 11:28:42
6 BY MR. BRAUSA: 11:28:42
7 Q. Okay. And does this look to be a copy of the 11:28:47
8 expert declaration you submitted on behalf of patent 11:28:49
9 owner Martin Coaster? 11:28:52
10 A. On the face of it, yes. It would take me a 11:28:56
11 while to really validate it. 11:28:59
12 Q. Okay. 11:29:01
13 A. There's a lot of moving parts here. 11:29:01
14 Q. If I can direct your attention to paragraph 11. 11:29:03
15 It's in the legal standards section under Obviousness. 11:29:18
16 A. Mm-hmm. 11:29:29
17 Q. And this states forth your understanding that 11:29:32
18 prior art in combination of prior art references may not 11:29:41
19 be based on hindsight, reconstruction, or ex-post 11:29:46
20 reasoning, right? 11:29:49
21 A. Give me a second here. 11:29:51
22 Q. Okay. I've read that paragraph. Ask your 11:30:07
23 question. 11:30:10
24 A. Okay. 11:30:10
25 Q. And you understand that at least in the context 11:30:11

of this proceeding, your prior art references should not 11:30:15
be combined based on hindsight, reconstruction, or 11:30:20
ex-post reasoning, right? 11:30:24
A. You said the key phrase there, "this 11:30:26
proceeding." You know, so for each of these things, I'm 11:30:27
given the appropriate legal standard. I'm not a lawyer. 11:30:31
If you were to ask me the differences between this one 11:30:35
and the one that I provided here, you know, I don't -- I 11:30:38
would have to -- I would have to analyze that. It's 11:30:43
certainly the case that for each of these things I'm 11:30:45
given various legal standards, including things like 11:30:47
this, and I perform my analysis based on that -- based 11:30:50
on that standard or, you know, that -- that information 11:31:01
that's provided. If you were going to ask me did I 11:31:04
apply the language here to this, no, I didn't, because 11:31:10
that isn't how it works. 11:31:13
Q. Okay. 11:31:15
A. I -- I am given the appropriate -- maybe the law 11:31:16
has changed or, you know, maybe the lawyers have a 11:31:19
different view of it. Okay? That's their job. My job 11:31:21
is to take the -- the legal standards as provided and 11:31:24
apply them to the best of my understanding. 11:31:30
Q. Understood. If we can go to the background 11:31:33
section of this declaration. It starts on page 8 at 11:31:36
paragraph 17 and 18. Again, this is Exhibit 2020. 11:31:39

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These two paragraphs provide a very brief background on 11:31:51
the USB standard, agree? 11:31:55
A. Give me a sec. 11:32:00
Q. Sure. 11:32:01
A. Okay. I've read those. Ask your question. 11:32:42
Q. Sure. In paragraph 18, you say that the 11:32:44
standard therefore sets forth requirements as needed. 11:32:49
A. Mm-hmm. 11:32:52
Q. You are reviewing -- referring to the USB 11:32:53
standard there, right? 11:32:55
A. Yes, that's what that says this is about. 11:32:56
Q. Okay. And it says that the USB standard sets 11:33:02
forth requirements as needed, but leaves as much to -- 11:33:10
let me start over. 11:33:13
The sentence says: 11:33:15
"The USB standard, therefore, sets forth 11:33:16
requirements as needed, but leaves as much as possible 11:33:19
to suppliers, which could include promoter companies as 11:33:21
well as their competitors, to decide on the actual 11:33:24
implementation through innovation." 11:33:27
A. Mm-hmm. 11:33:30
Q. Is that a -- still your view of the USB 11:33:31
standards sitting here today? 11:33:34
A. It is. 11:33:35
Q. Okay. The next sentence says: 11:33:35

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"The form and content of the USB standards, the 11:33:45
practices of the USB IF organization" and the market 11:33:48
self itself -- "or the marketplace itself promotes 11:33:52
innovation in the UBS product space, including 11:33:55
connectors, cables, and devices, both class and vendor 11:33:58
specific." 11:34:03
Do you see that? 11:34:03
A. Mm-hmm. 11:34:04
Q. Is that an accurate characterization of your 11:34:05
opinion today? 11:34:09
A. I have a slightly complicated answer. 11:34:22
In general, yes. But when I do these 11:34:24
declarations, a background section is appropriate. What 11:34:30
do I say? Well, I know a lot about USB. I could write 11:34:34
a thousand pages. I could write 10,000 pages. And 11:34:37
that's inappropriate. I pick the parts of the 11:34:40
background that seem most relevant, A, to the sort of 11:34:43
matter at hand, but B, also to the nature and structure 11:34:47
of the balance of the declaration. 11:34:50
So the answer to your question generally is yes. 11:35:02
But you have to take it in context with -- with what 11:35:03
this section is about and -- and its purpose in the 11:35:07
entire document. I'm not saying I have a different 11:35:09
opinion about this stuff now, but, you know, I choose -- 11:35:12
if you were to ask me, you know, well, in this one you 11:35:15

said X, but in this one you said Y, well, again, it's 11:35:17
because, you know, I could say thousands of things and 11:35:21
frequently do, but I just -- I have to reduce it down to 11:35:23
what seems appropriate to the patents and to the -- the 11:35:27
matter at hand. So for example, at the end of the last 11:35:31
sentence here, I go to some lengths to say the -- the 11:35:35
standard does not specify how to construct the USB 2 and 11:35:39
3 contacts within a plug. Well why did I do that? 11:35:46
Well, it's because that's what this case was about. It 11:35:48
was all about the -- those contacts and a plug. That's 11:35:50
a major portion, if not the primary portion, of the 11:35:54
invention in question here. And so it -- it seemed 11:35:57
appropriate to me to point out at this level, okay, 11:36:01
everybody should understand that this -- that the 11:36:05
specification, it does say a lot of things about these 11:36:08
signals, but this is something it doesn't say. You 11:36:10
know, that's -- that was just my judgment at the time, 11:36:15
that it was appropriate to put that in. I didn't put 11:36:17
that in here because it didn't seem appropriate. 11:36:19
Q. Okay. 11:36:21
A. Anyway, that's... 11:36:22
Q. But you would agree with me that on subject 11:36:23
matter in which the standards are silent, the USB 11:36:25
standards are silent, those are areas where the USB 11:36:28
standard-setting organization has left it for industry 11:36:30

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1 to innovate, as you've said here? 11:36:33
2 A. That's true generally. One always has to 11:36:36
3 remember that that innovation is meant -- is meant to 11:36:45
4 fit in with the USB standard. It's not -- you know, 11:36:48
5 there may be a zillion thou shalt not do X, Y, and Z 11:36:51
6 kind of things that you could say and they don't, even 11:36:56
7 though those are implied by the specification. If you 11:36:59
8 were to scour the spec and you didn't find some 11:37:02
9 particular thing that's prohibited, a POSITA might 11:37:05
10 nevertheless understand, no, you can't actually do that 11:37:07
11 for these reasons here in the standard. 11:37:10
12 These standards are very complicated and 11:37:12
13 sophisticated, and they're of unusually high quality, in 11:37:15
14 my opinion. They tell you a lot about what it is and 11:37:17
15 how it works and how it's supposed to work and how 11:37:20
16 interoperation is governed, all these different things, 11:37:23
17 but they're not perfect. So a blanket statement that 11:37:26
18 anything left out is open to innovation has to be 11:37:31
19 tempered with the understanding that, okay, the USB 11:37:36
20 world has these rules and you have to follow those rules 11:37:39
21 in order to play nice. 11:37:42
22 Q. If we go to paragraph 36 on page 17 of 11:37:44
23 Exhibit 2020, this is an under -- under a heading titled 11:37:50
24 "A POSITA Would Not Have Been Motivated To Combine Hay 11:37:54
25 With Chang." 11:37:58

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1 Do you see that? 11:37:58
2 A. I'm sorry. What paragraph? 11:38:05
3 Q. Paragraph 36 on page 17. 11:38:06
4 A. Oh, I was looking, of course, at page 36. I see 11:38:08
5 that. 11:38:43
6 Q. Okay. And so your -- obviously, it's a 11:38:43
7 different patent, different parties. But in this case, 11:38:46
8 you were arguing against a motivation to combine in 11:38:51
9 saying, I disagree that a POSITA would have combined 11:38:53
10 these two references, the Hay and the Chang reference, 11:38:55
11 in this proceeding, correct? 11:38:58
12 A. I do see that, for reasons that are developed 11:38:59
13 elsewhere in this document and which have everything to 11:39:05
14 do with the details of this. Again, this statement 11:39:08
15 shouldn't be taken out of context. 11:39:12
16 Q. Sure. Under -- understood. And I wanted to 11:39:13
17 direct you to just a -- one statement in paragraph 36 11:39:15
18 where you say: 11:39:20
19 "A POSITA would not have been motivated to 11:39:21
20 combine Hay with Chang for the simple fact that Chang's 11:39:23
21 teachings are contrary to a primary goal of 11:39:26
22 Mr. Coaster's claimed invention." 11:39:29
23 And then it goes on explaining what that goal 11:39:31
24 is, correct? 11:39:34
25 A. I can see the sentence, yeah. 11:39:34

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Q. Okay. And so you would agree with me -- I 11:39:49
understand that the specifics matter, but in general, 11:39:51
one reason that there might not be a motivation to 11:39:54
combine two references is if one of the reference's 11:39:58
teachings are contrary to a primary goal of the 11:40:03
invention, right? 11:40:06
A. I don't know that I would generalize this in 11:40:07
that way. I can't -- I can't say that it's impossible, 11:40:16
but I can't rule out that -- that this -- the statements 11:40:20
in here are intentionally oversimplified, because of 11:40:24
other matter here. In other words, for me to agree with 11:40:30
you might be taking this sentence out of context. In 11:40:35
general, there might be reasons that you -- one could 11:40:38
argue that a POSITA would not have been motivated to 11:40:44
combine something with something else, but -- but this 11:40:46
sentence about the claimed goals, that's -- that's 11:40:50
highly dependent upon the context that this -- of this 11:40:55
matter, and I -- I'm not going to generalize on that. 11:40:58
Q. Okay. What are some reasons, as you mentioned, 11:41:00
that a POSITA would not have been motivated to combine 11:41:03
references, at a high level? 11:41:06
A. I'm not going to speculate about that. I mean, 11:41:08
there's just -- I wasn't -- I wasn't asked to consider 11:41:10
the universe of non-combination, so I -- I can't really 11:41:14
answer that. 11:41:18

Q. Okay. Well, as it says here, at least one 11:41:19
possible reason you wouldn't combine two references is 11:41:22
if the reference's goals are contrary to the stated goal 11:41:25
of the invention, right? 11:41:28
A. Sort of. My point about this document and that 11:41:29
sentence is, yes, as developed in the previous 35 11:41:37
paragraphs, there are a bunch of issues here that are 11:41:40
summarized by talking about the -- this in a -- in a 11:41:43
shorthand form, the primary goal of Coaster's claimed 11:41:47
invention, but I wouldn't -- pulling this sentence out 11:41:54
by itself, I wouldn't say, okay, therefore, if you look 11:41:57
at some other art someplace and some other patents 11:42:00
someplace and you -- you find something that you think 11:42:04
is the primary goal, that this logic would apply. 11:42:07
This -- this statement is developed as part of the whole 11:42:10
analysis. 11:42:13
So I would agree with you only to the extent of 11:42:14
once you have the complete picture, once you have all of 11:42:21
the issues surrounding this issue, what the primary 11:42:23
goals are or aren't, and, you know, any number of other 11:42:26
things. And I -- it's been, you know, five years since 11:42:30
I wrote this, or four years or something, and I don't -- 11:42:33
although pictures are nice, I don't really remember 11:42:37
all -- what all the issues were. 11:42:39
Q. Sure. So it's your testimony, if I understand 11:42:41

it, that there are potentially instances where the prior 11:42:43
art can be contrary to the primary goal of the 11:42:47
invention, but nonetheless, you'd believe there's a 11:42:50
motivation to combine? 11:42:53
A. I don't know that I would say it quite that way. 11:43:00
Let -- let's leave it that I -- I agree in a given 11:43:01
circumstance there may be good reasons why a POSITA 11:43:05
would not have been motivated to combine teachings. I'm 11:43:09
not -- I'm not willing to generalize on this point of 11:43:13
primary goals. I think that's too context dependent. 11:43:16
Q. Okay. Why don't we go to paragraph 40 on 11:43:23
page 19 of Exhibit 2020. And, again, this is under a 11:43:27
section in which you're opining that a POSITA would not 11:43:40
have been motivated to further combine certain 11:43:44
references. 11:43:46
A. Mm-hmm. 11:43:47
Q. And this adds a reference called Hiller to Hay 11:43:47
and Chang, right? 11:43:50
A. Mm-hmm. I see that phrase, yeah. 11:43:51
Q. Okay. And in the second sentence, you say: 11:43:57
"Hiller nowhere indicates that its 11:44:01
memory-related teachings may be incorporated into a USB 11:44:04
flash drive." 11:44:06
Right? 11:44:07
A. That's what's written here. 11:44:08

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Q. Okay. And then you go on to say: 11:44:08
"There's no reason that a POSITA would have 11:44:11
consulted a reference that did not concern USB flash 11:44:13
drives when considering how to construct a USB flash 11:44:16
drive." 11:44:19
Correct? 11:44:20
A. Yep. 11:44:20
Q. Okay. And so if a piece of prior art doesn't 11:44:22
relate to the specific subject matter of an invention, 11:44:27
that's a reason that you wouldn't combine it with other 11:44:30
prior art? 11:44:34
MR. JENSEN: Object to -- 11:44:35
BY MR. BRAUSA: 11:44:35
Q. That's what you're saying here, right? 11:44:36
A. Well -- 11:44:37
MR. JENSEN: Object -- let me get my objection 11:44:38
in. 11:44:40
THE DEPONENT: I figured. 11:44:40
MR. JENSEN: Object to form, and I'll object to 11:44:41
this as beyond the scope. This is a separate 11:44:43
declaration. He's got five declarations in this actual 11:44:45
case that you're welcome to ask him questions about, but 11:44:48
I think this is beyond the scope of what we're -- we're 11:44:52
here to do and discuss. And it seems like a tremendous 11:44:54
waste of time. You've asked him more about this 11:44:58

1 declaration, I think, almost than the ones that he wrote 11:45:03
2 for this proceeding. So I'll just make that as a 11:45:05
3 standing objection to this line of questions. 11:45:08
4 MR. BRAUSA: That's fine. 11:45:10
5 THE DEPONENT: Well, okay. I will just 11:45:11
6 summarize by saying I'm -- I'm not going to generalize, 11:45:19
7 I'm not going to speculate. I don't remember enough 11:45:21
8 about this thing here to know exactly why this was 11:45:25
9 written and what it's meaning is in the context of the 11:45:28
10 entire document. So, you know, there was an internal 11:45:31
11 sort of logic to this which I stand by, because I signed 11:45:36
12 it, but I can't and won't generalize this to anything 11:45:40
13 else because that's inappropriate. 11:45:43
14 BY MR. BRAUSA: 11:45:43
15 Q. Okay. When you were preparing your declarations 11:45:45
16 in this case, did you have any understanding as to 11:45:47
17 whether it was appropriate to combine references that 11:45:53
18 didn't mention the specific subject matter of the 11:45:59
19 claims? 11:46:03
20 MR. JENSEN: Object to form. 11:46:04
21 THE DEPONENT: This matter, we have the 11:46:09
22 overwhelming background context of USB, and a POSITA has 11:46:20
23 knowledge of that, which I have detailed in my 11:46:24
24 declaration. And as a sort of shorthand way of talking 11:46:28
25 about that, I have mentioned this concept of toolbox. 11:46:33

1 The USB toolbox is very broad, and there are a lot of -- 11:46:35
2 there are a lot of ways in which you could innovate. 11:46:44
3 I'd say as I've defined a POSITA with his tool or her 11:46:47
4 toolbox, that the prior art references here are 11:46:54
5 perfectly appropriate. And, in fact, I looked at dozens 11:46:58
6 of other ones that were about USB things, you know, sort 11:47:04
7 of related to this or whatever. It's just that in the 11:47:07
8 end, I thought that these were the best. These are 11:47:13
9 about USB and they do have to do with the matter at 11:47:15
10 hand. They have to do with plugging in a host device 11:47:21
11 in -- into a place where in the previous, you know, use 11:47:25
12 of USB, you would have only plugged a device. Now, it 11:47:30
13 turns out that the bridge that makes that possible is -- 11:47:35
14 was a well-known thing. I used it myself in the -- in 11:47:38
15 the timeframe of 2003 or '4 in a project that I detailed 11:47:42
16 somewhere in here. 11:47:48
17 So in this case, I think that the context is 11:47:48
18 entirely appropriate for these prior art references to 11:47:53
19 be considered and, as I say, we considered a lot of 11:47:56
20 others too, for the simple reason that they have to do 11:47:59
21 with USB. 11:48:01
22 BY MR. BRAUSA: 11:48:01
23 Q. Okay. So in your analysis here, any reference 11:48:03
24 touching on USB would be potentially relevant to your 11:48:07
25 analysis? 11:48:11

A. They are only relevant -- okay. A USB 11:48:13
reference, of which there are hundreds of thousands 11:48:22
probably, they only approach relevance if they start to 11:48:25
get into this area of dual-role ports or devices and -- 11:48:29
and hosts being able to be plugged into the same place, 11:48:35
and various other variations on that. That would be -- 11:48:37
that would be the kind of context that I would look for. 11:48:41
Q. Okay. So just to go back to Chang, 11:48:44
Exhibit 1014, I think we talked about the fact already, 11:48:51
it doesn't describe any dual-role ports, right? 11:48:54
A. Not to the best of my memory, no. 11:48:57
Q. It doesn't describe any switching mechanisms or 11:49:03
switch components? 11:49:06
A. I think that's right. 11:49:06
Q. And it doesn't mention any automotive 11:49:07
applications for USB, right? 11:49:09
A. That's -- well, I don't remember. But I 11:49:11
don't -- not as far as I remember, no. 11:49:17
Q. Okay. If we turn to Chang 2, Exhibit 1015, it 11:49:18
doesn't mention USB in automotive applications either, 11:49:23
does it? 11:49:29
A. No. That's right. 11:49:29
Q. And it has -- I think we talked about just one 11:49:30
downstream dual-role port, not multiple downstream 11:49:34
dual-role ports, correct? 11:49:37

A. Mm-hmm. Mm-hmm. 11:49:39

Q. And it has a switch, but it's more like a MUX, 11:49:39

not a cross/bar switch, right? 11:49:41

A. Mm-hmm. 11:49:43

Q. Because there's only one port? 11:49:44

A. There is only one port. 11:49:45

Q. Chutorash, Exhibit 1029 that we've been talking 11:49:46

about, it doesn't have any dual-role ports, right? 11:49:51

A. I don't remember. 11:49:56

Q. Okay. Maybe we'll look at that. 11:49:57

Do you remember whether Chutorash described any 11:49:58

bridge or head-to-head -- or I'm sorry, host-to-host 11:50:01

communication? 11:50:04

A. I don't remember that, either. My primary 11:50:04

memory and the way in which Chutorash is used primarily 11:50:08

is to talk about the general context of USB being used 11:50:11

in cars, and the POSITA's view of that is that the 11:50:15

underlying technology for USB is low voltage and has a 11:50:24

very high degree of safety and, you know, positive end 11:50:32

user experience. In some ways, it's an ideal 11:50:37

application to move into an automobile. The PC on 11:50:39

Wheels article is just one example of that. I think in 11:50:46

the POSITA view, using -- using USB in an -- in an 11:50:48

automobile makes a lot of sense. 11:50:53

I'm not sure where I was going with that. Never 11:51:01

1 mind. Ask your next question. 11:51:03
2 Q. Okay. So you don't remember whether Chutorash, 11:51:05
3 Exhibit 1029, discloses any dual-role ports? 11:51:08
4 A. I don't remember, no. 11:51:11
5 Q. And do you know whether it describes any 11:51:12
6 host-to-host communication? 11:51:16
7 A. I don't remember that, either. 11:51:16
8 Q. If I say the phrase a "persistent downstream" or 11:51:17
9 a "persistent downstream device port," do you know what 11:51:22
10 that means? 11:51:25
11 MR. JENSEN: Object to form. 11:51:26
12 THE DEPONENT: I have several ideas about that. 11:51:27
13 If you want to talk about that phrase in detail, I would 11:51:34
14 ask you -- I would ask you to mention a patent and a 11:51:36
15 claim -- 11:51:38
16 MR. BRAUSA: Okay. 11:51:38
17 THE DEPONENT: -- where it shows up. 11:51:40
18 BY MR. BRAUSA: 11:51:40
19 Q. How about claim 2 of the '420 patent? 11:51:41
20 A. Fine. Let's look at that. 11:51:43
21 Q. And I can give you a copy of the patent if that 11:51:45
22 would be helpful. 11:51:47
23 A. Well, I'll start with my documents. 11:51:48
24 Okay. Claim 2. Okay. It's going to be in this 11:51:55
25 one. 11:51:58

It's my hand. Okay. Claim 2. 11:51:58

THE REPORTER: What's the exhibit we're 11:52:02

referencing? 11:52:03

MR. BRAUSA: So the exhibit we're referencing is 11:52:04

1013 from the '228 proceeding. 11:52:06

BY MR. BRAUSA: 11:52:06

Q. And if you want, I can direct you. The text of 11:52:34

the claim appears at page 141, paragraph 249 of 11:52:36

Exhibit 1030 -- 1013, excuse me. 11:52:40

A. Mm-hmm. Okay. Yeah, I remember this one. My 11:52:43

analysis of this one is lengthy, and I think necessarily 11:53:08

so. 11:53:11

Okay. So I have the -- I have the general area. 11:53:13

Now, let me know what your question is, and then I'll 11:53:17

review the analysis on that point. 11:53:22

Q. Okay. My question was just, do you know what 11:53:24

I'm referring to elsewhere -- actually, you know what, 11:53:29

maybe I can provide a little better context and then 11:53:33

we'll come back to your analysis of claim 2. Let's go 11:53:35

to paragraph three -- let me give you the right cite -- 11:53:38

307 in the same document. 11:53:49

A. Okay. 11:53:52

Q. And it's in a subheading called "Commercial 11:53:53

Success." And my question is just about this phrase 11:53:57

that appears in the middle of this paragraph, 11:54:36

"Persistent USB." 11:54:38
Do you see that? 11:54:38
A. I see it, yeah. 11:54:44
Q. Okay. Sitting here today, do you -- do you have 11:54:44
an understanding of what persistent USB means in the 11:54:47
context of the claims you analyzed? 11:54:50
MR. JENSEN: Object to form. 11:54:53
THE DEPONENT: Hang on. Let me read the 11:54:54
analysis here. 11:54:58
Okay. Yes, I see -- no. I'm sorry. Your 11:55:31
question was, do I have an idea about what it means? 11:55:34
MR. BRAUSA: Yes. 11:55:38
THE DEPONENT: Okay. In the context referred to 11:55:38
here, my best sense -- no. Let me preface that a 11:55:41
different way. 11:55:49
This analysis suggests that a couple of the 11:55:50
claims actually require the concept of persistent USB. 11:55:56
To be -- to be completely thorough, we probably ought to 11:56:03
look at those claims. But generally speaking, I -- I 11:56:05
understand -- all right. Sorry for interrupting myself. 11:56:13
Now, I don't remember offhand if this is a term 11:56:15
of art or if it appears in the spec, but my 11:56:17
understanding about this generally, and what I mean by 11:56:19
that is, I start with this idea, but if a given claim 11:56:23
uses the term differently, then I have to use that 11:56:26

1 differentness in that claim to do the analysis in that 11:56:29
2 claim. 11:56:32
3 But let me just say generally, as a bias or 11:56:33
4 pre-standing notion, I think what this is talking about 11:56:38
5 is the -- the idea that in a host and a series of things 11:56:40
6 plugged into it, devices, although in the context here 11:56:46
7 some of those things might be dual role or -- or those 11:56:51
8 things might actually be USB hosts, the idea of 11:56:54
9 persistence is that everything is running. If you 11:56:58
10 unplug one of those things, obviously it stops working, 11:57:00
11 but the system as a whole is persistent if everything 11:57:04
12 else keeps working. 11:57:07
13 Similarly, everything is working. There's a 11:57:08
14 free port. You plug something in there, and then the 11:57:10
15 system recognizes it and does something with it, 11:57:13
16 according to what it is, that doesn't disrupt everything 11:57:18
17 else. That's my general understanding, to be modified 11:57:21
18 by a specific claim if necessary. 11:57:26
19 BY MR. BRAUSA: 11:57:26
20 Q. Okay. And if we turn back to paragraph 249 in 11:57:29
21 claim 2. 11:57:36
22 A. Paragraph 249. Yes. Right. 11:57:41
23 Q. It requires a switch configured to 11:57:48
24 simultaneously connect two downstream ports to the 11:57:53
25 upstream port, right? 11:57:55

A. Okay. Let's walk through it carefully. I don't 11:57:57
want to oversimplify any of this. 11:58:09
"Second USB port to the first port, thereby 11:58:11
providing bidirectional initiation of communication." 11:58:13
Okay. That language is used here to talk about 11:58:16
the connection of two hosts through some appropriate 11:58:21
mechanism. It's the bridge in this context. So by 11:58:25
directional initiation of communication between the USB 11:58:35
host and the consumer device when that device is a host. 11:58:38
Okay. So that's one part. And then 11:58:41
simultaneously to connect another port through the hub, 11:58:43
thereby only responding to communication initiated by 11:58:54
the host. Again, that phrase is the convention used 11:58:57
frequently here to talk about and to characterize 11:59:02
communication between a host and a device. And my 11:59:06
section on background talks about the convention of that 11:59:09
term and discusses other views of this. But anyway, you 11:59:15
know, a POSITA reading this would understand that phrase 11:59:20
in context and that this second thing is about 11:59:22
connecting a device simultaneously to a host. 11:59:27
Q. Okay. 11:59:31
A. That's what I read claim 2 as. 11:59:32
Q. Okay. So in generally speaking, claim 2 is 11:59:34
referring to a scenario where you have one upstream 11:59:41
host, one downstream host, and a simultaneous connection 11:59:44

with a downstream device, right? 11:59:46
A. That's recognize. 11:59:48
Q. Okay. And as you say in 250, the claim requires 11:59:48
a downstream host and a downstream device that 11:59:52
simultaneously communicate with the upstream host, 11:59:55
correct? 11:59:55
A. That's correct. 12:00:00
Q. Okay. And so the scenario where you have a 12:00:00
downstream device already plugged in and you plug in a 12:00:04
downstream host, the USB communications would continue, 12:00:08
right? 12:00:08
A. Mm-hmm. 12:00:15
Q. You have simultaneous communication? 12:00:15
A. That's what the claim says. 12:00:16
Q. Okay. And similarly, if you plug in a USB host 12:00:18
and then unplug a device and you have other ports, it 12:00:20
doesn't cut the communication from the other ports, 12:00:23
right? 12:00:25
A. Mm-hmm. 12:00:26
Q. Okay. That's what the simultaneous 12:00:26
communication in claim 2 is referring to, right? 12:00:29
MR. JENSEN: Object to form. 12:00:31
THE DEPONENT: Okay. You might be adding the 12:00:38
persistence comment here, even though it isn't actually 12:00:44
in the claim language. All -- all the claim language 12:00:48

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1 says is that you can plug these two things in 12:00:50
2 simultaneously, and that the communication works. It 12:00:53
3 doesn't go on to say what happens if you unplug one of 12:00:56
4 them. 12:00:59
5 BY MR. BRAUSA: 12:00:59
6 Q. Okay. But you would agree with me, as you wrote 12:00:59
7 and opined in paragraph 250, that the claim 2 does 12:01:01
8 require a downstream host and a downstream device that 12:01:05
9 simultan -- simultaneously communicate with the upstream 12:01:10
10 host, right? 12:01:12
11 A. It does say that. That is my opinion, yes. 12:01:12
12 Q. Okay. And that's your opinion sitting here 12:01:14
13 today? 12:01:17
14 A. Yes. 12:01:17
15 MR. BRAUSA: Okay. Maybe we can take care of a 12:01:17
16 little bookkeeping before the next break. 12:01:22
17 I'm going to mark as Exhibit 2021 an errata 12:01:24
18 sheet that was handed to me this morning by your 12:01:30
19 counsel. 12:01:32
20 (Exhibit No. 2021 marked for identification.) 12:01:34
21 BY MR. BRAUSA: 12:01:34
22 Q. And do you recognize this document, Mr. Welch? 12:01:52
23 A. I do. It has my signature. 12:01:54
24 Q. Right. And a signature of today's date, 12:01:56
25 October 10th? 12:01:58

A. Today's date, yep, that's right. 12:01:59
Q. Okay. Who prepared this document? 12:02:01
A. I did. 12:02:02
Q. Okay. When did you prepare it? 12:02:03
A. I have been taking notes over the last couple of 12:02:06
days of my own personal review and review with the 12:02:08
lawyers, and when I talked about this, we agreed it 12:02:11
would be a good idea to get this in writing. And so 12:02:14
based on my notes, the lawyers had somebody write this 12:02:17
up, and I read it, made sure it was right, and signed it 12:02:21
this morning. 12:02:25
Q. Okay. Sounds good. And just so I understand 12:02:25
the contents of this, this has three columns in it, the 12:02:27
first column is the location. This refers to paragraphs 12:02:31
in your reports or report? 12:02:33
A. Mm-hmm. 12:02:35
Q. And if there's no parenthetical, for instance, 12:02:35
after paragraph 39, the first row -- 12:02:39
A. Mm-hmm. 12:02:42
Q. -- that means it's paragraph 39 of all five of 12:02:42
your declarations, all of which are designated as 12:02:45
Exhibit 10 -- 12:02:49
A. Yes. 12:02:49
Q. -- 13 in the respective proceedings? 12:02:49
A. I'm sorry about that. Yes, that's right. 12:02:52

Q. And then for the rows that follow, there's a 12:02:55
parenthetical that refers to paragraphs, and those 12:02:57
identify specific proceedings, so those are specific to 12:02:59
those reports in those proceedings, right? 12:03:02
A. Mm-hmm. Mm-hmm. That's right. 12:03:04
Q. I want to talk to you -- and you said that -- 12:03:05
let me back up. 12:03:09
You said that as you were taking notes you -- 12:03:10
you came across these corrections that needed to be 12:03:15
made? 12:03:17
A. Mm-hmm. 12:03:18
Q. When were you taking these notes? 12:03:18
A. Over the last couple of days, including 12:03:20
preparation I did by myself and -- okay. I shouldn't 12:03:29
say anything about what I did while talking because 12:03:34
that's privileged. But let me just say generally, in 12:03:37
the last couple of days' worth of my own review. Let's 12:03:40
put it that way. 12:03:43
Q. Okay. Do you still have these notes in your 12:03:45
possession? 12:03:47
A. Some of them were mental. Okay. The notes that 12:03:48
I took were all, frankly, during conversations with 12:04:01
counsel. I think they're, therefore, privileged. 12:04:04
Q. Okay. 12:04:07
A. Yeah, so I have them, but you can't have them. 12:04:08

Q. We may have a debate about that. But do you 12:04:10
still have them -- 12:04:13
A. Yeah. 12:04:13
Q. -- is the initial question? 12:04:14
A. I do. 12:04:14
Q. Okay. Where are they? 12:04:15
A. There are some in a notebook in my pocket and 12:04:17
there are some in a file on my computer, which is sort 12:04:19
of general notes for this case. 12:04:25
Q. Okay. We may be coming back to that. But 12:04:26
focusing on this document, one correction that you made, 12:04:31
and I guess after you specified the location of the 12:04:36
correction in column 1, you identify what the as-served 12:04:41
or as-filed text was that's labeled current text, 12:04:46
correct? 12:04:50
A. That's right. 12:04:50
Q. And then you identify a change. That's what you 12:04:51
want to correct it to, right? 12:04:53
A. Right. 12:04:55
Q. Okay. So in paragraph 39 of all five of your 12:04:56
reports, you stated your understand -- that, quote, I 12:04:59
understand that lack of written description must be 12:05:04
proven by clear and convincing evidence." 12:05:07
Do you see that? 12:05:08
A. Mm-hmm. Mm-hmm. 12:05:09

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Q. And then you say that the change you want to 12:05:09
make is just delete this paragraph entirely from all 12:05:11
five of your reports, and you state that the correct 12:05:14
legal standard is stated in paragraph 17? 12:05:18
A. That's exactly right. 12:05:20
Q. Okay. And your testimony is that you realized 12:05:23
that paragraph 39 set forth the wrong legal standard? 12:05:25
A. Let me update that to say that there may or may 12:05:29
not have been conversations about this that were 12:05:33
privileged. 12:05:34
Q. Okay. Well, did counsel tell you that the legal 12:05:35
standards set forth in 39 was not the applicable legal 12:05:40
standard for this case? 12:05:42
MR. JENSEN: You can answer that question, Eric. 12:05:44
I'll waive the privileges to this. 12:05:45
THE DEPONENT: Okay. All right. The exact 12:05:48
thing that happened here was that I was rereading this 12:05:50
and I thought, oh, wait, this looks like it's wrong. So 12:05:52
I asked him and he said, oh, yeah, you're right, this 12:05:55
should be taken out. That was it. 12:05:58
BY MR. BRAUSA: 12:05:58
Q. Who wrote paragraph 39 in all five of your 12:06:00
reports? 12:06:03
A. This is part of the provided legal standards. 12:06:03
So all of that stuff was provided by counsel. 12:06:05

Q. Okay. So your attorneys provided you with 12:06:08
paragraph 39, which you identified as the wrong legal 12:06:11
standard? 12:06:14
A. Well, it just -- coming across it, it didn't -- 12:06:15
it seemed like it conflicted with something else and so 12:06:19
I asked about it. I mean, you know, it doesn't hurt to 12:06:22
ask, right? 12:06:24
Q. Okay. Do you know if there's a scenario where a 12:06:25
written description must be proven by clear and 12:06:27
convincing evidence? 12:06:30
A. I'm not a lawyer. So no, I can't answer that. 12:06:31
Q. You don't know? 12:06:33
A. No, I really don't know. I -- I understand 12:06:35
about the -- okay. The -- the legal standards written 12:06:41
in and included in my document guided what I did in the 12:06:46
analysis. If you ask me to go back the other direction 12:06:54
and say, where did you use this exact standard, I 12:07:00
couldn't do that off the top of my head. I certainly 12:07:04
used the standards in the way that I understand they're 12:07:07
meant to be used, but since I'm not an expert in them, 12:07:09
you know, as -- as a -- as a technical expert, you know, 12:07:15
I can read stuff in here and I read a few words and I 12:07:18
say, okay, I know exactly what that is, I know why 12:07:22
that's there, I know where it comes from, I know 12:07:24
everything. Since I'm not a lawyer, I can't -- I don't 12:07:26

1 have the same sort of presence of mind about this stuff. 12:07:28
2 I used it. I think I used it correctly in the sense of 12:07:30
3 starting from those things and letting that inform sort 12:07:32
4 of general processes about putting together the 12:07:36
5 analysis. But taking this apart and saying, well, 12:07:42
6 that's why it was used or, you know, under what 12:07:45
7 circumstances would you use something else, I can't 12:07:48
8 answer that kind of question. 12:07:50
9 Q. Okay. So I just want to make sure I'm 12:07:51
10 understanding. 12:07:54
11 The text about the lack of written description 12:07:55
12 must be proven by a clear and convincing evidence, you 12:07:58
13 testified that that -- you used that standard in forming 12:08:02
14 your opinions? 12:08:05
15 A. I think I actually used the correct one, which 12:08:05
16 is the preponderance of evidence, and I didn't notice 12:08:08
17 that this was here. That's why it seemed like it was 12:08:11
18 out of place. 12:08:13
19 Q. Okay. So the incorrect standard, the one that 12:08:14
20 was in all five of your reports, that was provided to 12:08:18
21 you by counsel? 12:08:21
22 A. Mm-hmm. 12:08:21
23 Q. How did you know which of the two standards, 12:08:22
24 between paragraph 17 and 39, was correct? Why did you 12:08:26
25 think 39 was wrong? 12:08:30

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1 MR. JENSEN: Object to form. Asked and 12:08:32
2 answered. 12:08:33
3 THE DEPONENT: Yeah, I think I've already 12:08:33
4 answered. I don't think I can say anything else beyond 12:08:39
5 what I've already said. 12:08:41
6 BY MR. BRAUSA: 12:08:41
7 Q. Okay. But you're the one who brought 12:08:42
8 paragraph 39 to the attorneys' attention. 12:08:45
9 A. That's correct. 12:08:47
10 Q. Okay. When was that? 12:08:47
11 THE DEPONENT: Well, do you wave privilege? 12:08:54
12 MR. JENSEN: You can say -- yeah, you can answer 12:08:55
13 that question. I'm sorry. Yes. 12:08:57
14 MR. BRAUSA: Probably not all of it, but -- 12:08:58
15 MR. JENSEN: As to this question, you can -- 12:09:00
16 THE DEPONENT: Yeah. 12:09:02
17 MR. JENSEN: -- if you remember when -- 12:09:02
18 THE DEPONENT: I think it was -- 12:09:03
19 MR. JENSEN: -- brought it up. 12:09:03
20 THE DEPONENT: -- two days ago. 12:09:04
21 I think this came up in a conversation -- what's 12:09:06
22 today? Thursday. I think it came up Tuesday. 12:09:08
23 BY MR. BRAUSA: 12:09:08
24 Q. Okay. And so the legal standard section of your 12:09:10
25 reports, was that all written and provided for you by 12:09:14

1 counsel? 12:09:19
2 A. That's correct. 12:09:19
3 Q. Okay. You didn't have any input into that. You 12:09:20
4 just took that as the standard and did your best to 12:09:23
5 apply it? 12:09:26
6 A. Not input, but I asked questions about it. I 12:09:26
7 needed to make sure I understood it. 12:09:29
8 Q. Okay. 12:09:30
9 A. You know, as I said, in talking about some of 12:09:31
10 these other things, I'm aware that sometimes there are 12:09:33
11 differences or nuances or whatever, and none of that is 12:09:36
12 my job, except to follow it. 12:09:39
13 Q. Right. But prior to two days ago, at no point 12:09:40
14 between May of 2023 and October of 2024 did you ask, 12:09:44
15 hey, what's the correct standard for legal -- or for 12:09:49
16 written descriptions? 12:09:53
17 A. I don't remember. There were a number of 12:09:58
18 conversations along the way at points that it seemed 12:10:03
19 appropriate. 12:10:05
20 Okay. Let me -- let me answer this question a 12:10:08
21 different way. 12:10:10
22 As I understand it, these -- these different 12:10:11
23 standards, clear and convincing, preponderance, or 12:10:13
24 whatever, those are sort of levels of -- of gradations 12:10:17
25 and I -- i can't pretend to really understand that 12:10:22

stuff. In general, my goal is to -- is to be able to 12:10:24
find and state things which would meet the highest legal 12:10:29
standard, just because that's the easiest. Now, if in 12:10:31
coming across a particular thing, you know, I had some 12:10:34
question in review or in drafting about, you know, how 12:10:38
would standards apply in this particular case, then we 12:10:44
would -- then we would talk about them. 12:10:46
So, frankly, if changing one of these standards 12:10:50
from a less restrictive one to a more restrictive one, 12:10:53
that didn't change my analysis because, except in very 12:10:58
specialized cases, I effectively made my analysis based 12:11:01
on -- on the highest possible standard, just because 12:11:06
that's what I'm inclined to do. 12:11:09
Q. Okay. Hopefully this will be brief. But in the 12:11:12
second row, you refer to a paragraph 268 that's only in 12:11:14
a change you want to make in PGR2024-0011, correct? 12:11:20
A. Mm-hmm. 12:11:25
Q. And it looks to me like the change that you are 12:11:25
making is, instead of saying in grounds 6 through 8, 12:11:28
you're saying in ground 6 through 7. Right? 12:11:33
A. Mm-hmm. 12:11:36
Q. There is no ground 8 in PGR2024-11, right? 12:11:36
A. Yeah, yeah, right. 12:11:41
Q. And then you cross out the reference to the 12:11:42
limitation being not enabled, right? 12:11:44

A. Right. 12:11:47
Q. Okay. And you don't offer any enablement 12:11:47
opinions in PGR2024-11 either, right? 12:11:52
A. Right. 12:11:57
Q. Do you have any idea how that error made its way 12:11:57
into your report that you signed in -- and filed in 12:12:00
December of 2023? 12:12:04
A. I don't know. I can only guess. I mean -- 12:12:05
MR. JENSEN: I would -- I would instruct you not 12:12:07
to answer -- 12:12:08
THE DEPONENT: Fine. 12:12:09
MR. JENSEN: -- on the basis of privilege. 12:12:09
THE DEPONENT: Okay. Fine. Fine, fine, fine. 12:12:13
I won't guess. 12:12:15
MR. BRAUSA: I'll just be left to wonder. 12:12:16
BY MR. BRAUSA: 12:12:16
Q. Beyond the changes that are set forth in this 12:12:18
table, are there any other errors, changes, 12:12:20
modifications, et cetera, that you want to make to your 12:12:24
opinions and declarations sitting here today? 12:12:27
A. Not at this point, no. 12:12:30
Q. Okay. If there is anything that comes up as the 12:12:30
day goes on, could you please identify that for me? 12:12:33
A. Of course. Absolutely. Yes. 12:12:35
MR. BRAUSA: Okay. I'm going to shift gears, so 12:12:37

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I don't know if we want to take a break now. 12:12:43
THE DEPONENT: What time is it? Oh, it's 12:13. 12:12:46
Yeah, we can break for lunch. 12:12:50
MR. JENSEN: How much longer do you think you 12:12:52
have? 12:12:54
MR. BRAUSA: I'm going to go into another topic, 12:12:54
so it will be a longer -- longer exam. 12:12:56
MR. JENSEN: It's up to you. 12:12:59
MR. BRAUSA: Why don't we go off the record 12:13:01
briefly. 12:13:02
THE VIDEOGRAPHER: This marks the end of Media 12:13:04
No. 2 in the deposition of Eric Welch. The time is 12:13:05
12:12 p.m. We are off the record. 12:13:08
(A recess transpires.) 12:13:09
THE VIDEOGRAPHER: This marks the beginning of 12:50:17
Media No. 3 in the deposition of Eric Welch. The time 12:50:22
is 12:50 p.m. We are on the record. 12:50:26
MR. BRAUSA: Welcome back, Mr. Welch. 12:50:33
THE DEPONENT: Thank you. 12:50:35
BY MR. BRAUSA: 12:50:35
Q. At the lunch hour, did you talk with counsel at 12:50:35
all? 12:50:37
A. No. 12:50:37
Q. Okay. Before we broke, you mentioned that you 12:50:37
had a notebook in your pocket of notes? 12:50:41

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A. Mm-hmm. 12:50:43
Q. Did you refer to that at any point today after 12:50:44
your deposition? 12:50:47
A. No, not at all. 12:50:47
Q. Okay. We had also been talking about the Chang 12:50:48
reference, which is Exhibit 1014, and we have also 12:50:53
referred to that as Chang 1. 12:50:59
A. Mm-hmm. Yes. 12:51:01
Q. We talked about the fact that it doesn't ex -- 12:51:04
it doesn't describe or disclose any dual-role ports on 12:51:08
its own, right? 12:51:12
A. That is correct. 12:51:13
Q. Okay. Now, dual-role ports were known at the 12:51:13
time Chang was filed, correct? 12:51:19
A. I can't speculate about that. 12:51:20
Q. Okay. Dual-role ports were at least set forth 12:51:33
in the first version of OTG, which published in 2001, 12:51:37
right? 12:51:40
MR. JENSEN: Object to form. 12:51:48
THE DEPONENT: Yes, that's true. But as has 12:51:49
been detailed at length, the kind of dual-role ports 12:51:51
that you get from OTG are different from the kind we're 12:51:53
talking about here and that you can get with a bridge. 12:51:56
So, yeah, OTG might have come out before Chang. I don't 12:51:59
remember. 12:52:03

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BY MR. BRAUSA: 12:52:03

Q. Okay. How are the types of dual-role ports that 12:52:03

you get from OTG different from the kind that we're 12:52:05

talking about here? 12:52:10

A. OTG doesn't have a mechanism for a host to talk 12:52:11

to a host. 12:52:14

Q. Okay. 12:52:17

A. Instead, OTG has a mechanism for a device to 12:52:18

connect and identify what it is, and there are further 12:52:22

mechanisms that OTG can use for the -- the sides to 12:52:27

negotiate what they want to be; and, therefore, one or 12:52:29

the other side can be the host, but necessarily the 12:52:35

other side has to be the device. 12:52:37

Q. Okay. 12:52:40

A. That's how OTG works. 12:52:40

Q. Okay. And so OTG, as a result of the 12:52:41

negotiation protocol, you might flip which port is 12:52:44

asking as the host, but there's never a scenario where 12:52:48

they're acting as a host at the same time? 12:52:52

A. That's right, although the details of and then 12:52:54

they flip can be somewhat complicated, yes. 12:52:57

Q. Right. Right. And if you had a dual-role OTG 12:52:59

port, wanted to be OTG compliant, you'd have to have all 12:53:02

this additional OTG circuitry and -- and logic, this 12:53:07

complication, as you said? 12:53:13

MR. JENSEN: Object to form. 12:53:14

THE DEPONENT: Well, that -- not to belabor it, 12:53:15
but that's a little complicated too. More than most USB 12:53:17
specs, the OTG spec devolved into a -- into additional 12:53:22
items in the toolbox. It is not uncommon for people to 12:53:28
take different parts of the OTG spec and use them for 12:53:33
different purposes. They're not necessarily 12:53:36
incompatible, but, for example, the OTG spec says an OTG 12:53:39
device has exactly one port on it, it's a micro AB 12:53:43
connector. There are no other cases. That's the 1.2, I 12:53:48
believe. Anyway, the fact is the OTG mechanisms are 12:53:53
used in a lot of other places that aren't exactly that 12:53:57
and people feel free to pick and choose different OTG 12:54:01
things to put them together in different ways. It's 12:54:04
just -- it's the way the thing has ended up being used. 12:54:07
So saying what is exactly -- what exactly is OTG 12:54:11
compliant or not, that's in the -- in the art, that's a 12:54:15
little complicated. 12:54:17
BY MR. BRAUSA: 12:54:18
Q. Okay. So when we're talking about the dual-role 12:54:19
ports that you refer to in -- or I'm sorry, dual-role 12:54:23
ports that you refer to in your reports, are you 12:54:28
referring to OTG ports or a different type of dual-role 12:54:30
port or both? 12:54:35
A. In some ways, and I will be specific about this, 12:54:38

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a dual-role port is something that will accept -- in the 12:54:45
general case, will accept the connection of a host, a 12:54:48
traditional host, a traditional device, and in some 12:54:52
cases another dual-role port. In the details of how all 12:54:54
of that works, what I suggested in the report is that 12:54:59
there are mechanisms for detecting what something is, 12:55:01
and some of those mechanisms are taken from or borrowed 12:55:03
from OTG, for example, the ID pin that you see in the 12:55:08
mini AB, micro AB, and certain other connectors. In 12:55:12
other words, you can use mechanisms from OTG to do 12:55:17
something which is not exactly anticipated in OTG, like 12:55:20
host to host. 12:55:23
Q. Okay. Let me hand you what's already been 12:55:24
marked Exhibit 1014 that we've been talking about for a 12:55:35
little bit now. This is the Chang reference. And this 12:55:38
particular copy of it comes from PDR2024-11, but as with 12:55:46
your declaration, I believe it's Exhibit 1014 across all 12:55:51
five proceedings. 12:55:55
A. Okay. So I see this. 12:56:06
Q. So this, on its face, refers to a filing date of 12:56:07
August 16th, 2005? 12:56:10
A. Yes. 12:56:12
Q. And do you know whether dual-role ports of the 12:56:17
type you were talking about that can allow for 12:56:20
host-to-host communication would be known to a POSITA as 12:56:22

of August 16th, 2005? 12:56:25

MR. JENSEN: Object to form. 12:56:27

THE DEPONENT: I have no specific evidence one 12:56:29

way or the other. 12:56:34

Wait a minute. Wait a minute. Let me go back. 12:56:42

I almost said the wrong thing. 12:56:44

Yes, dual-role -- okay. Host-to-host 12:56:46

connections were certainly known because the first USB 12:56:48

bridges were around at the time of this patent and, in 12:56:56

fact, are used in this patent. 12:56:58

MR. BRAUSA: Sure. 12:57:02

THE DEPONENT: So we certainly had that 12:57:03

capability. I don't -- so -- but beyond that, I don't 12:57:04

know whether somebody had implemented a dual-role port 12:57:12

before this. It wouldn't surprise me, but I don't have 12:57:14

any specific evidence. 12:57:16

BY MR. BRAUSA: 12:57:17

Q. Okay. And as part of your analysis in this 12:57:17

case, you didn't do any investigation of whether a 12:57:20

POSITA would have known about dual-role ports as of the 12:57:24

filing date of the Chang reference, August 16th, 2005? 12:57:28

A. No. I used the -- I used the reference dates of 12:57:31

the subject patents, the 2013 date. 12:57:35

Q. Okay. Now, the primary figure that you rely on, 12:57:47

or one of the primary figures that you rely upon, Chang, 12:57:50

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as a starting point for your opinions is set forth in 12:57:54
Figure 3, correct? 12:57:57
A. That's correct. 12:57:59
Q. Okay. Now, Figure 3 has three dedicated 12:57:59
downstream ports. Those are labeled as 44, right? 12:58:07
A. That's right. 12:58:09
Q. A dedicated -- and those are all device ports? 12:58:10
A. Mm-hmm. 12:58:12
Q. A dedicated host port downstream, which is 50? 12:58:13
A. Mm-hmm. 12:58:16
Q. And then a dedicated host port upstream, which 12:58:16
is 42, correct? 12:58:21
A. Mm-hmm. That's right. 12:58:22
Q. And in the Chang disclosure, it identifies the 12:58:23
hub as essentially the entire box labeled 40 in 12:58:26
Figure 3, correct? 12:58:31
A. I would have to read it to be sure, but I think 12:58:33
that's right. 12:58:35
Q. Okay. And within the hub, there is something 12:58:36
called a hub control unit, right? 12:58:38
A. I -- that's certainly in this drawing, yeah. 12:58:41
Q. Okay. And that's labeled 46, right? 12:58:43
A. Mm-hmm. 12:58:45
Q. Hub -- or I'm sorry. 12:58:45
Chang never refers to the hub control unit 12:58:47

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1 labeled 46 as a hub in and of itself, does it? 12:58:51
2 A. I would have to reread it to be sure. Let me 12:58:55
3 take a look at 46. Hold on a sec. Let me just take a 12:59:09
4 look at what he says about that. 12:59:12
5 Okay. When I first read this, I considered that 12:59:29
6 point, but the fact is that in paragraph 19 he describes 12:59:31
7 the function of this box 46 between ports 42 and 12:59:36
8 ports -- port 42 and ports 44 in such a way that a 12:59:44
9 POSITA would trivially know that's a -- that's the 12:59:51
10 function of a USB hub. And so, okay, I got that sense 12:59:53
11 of this, you know, within -- within minutes of reading 13:00:01
12 this. It seems to me to just leap out of -- as being 13:00:04
13 clear that that's what this is, even if he doesn't use 13:00:08
14 those exact words. 13:00:13
15 Q. Now, this is complicated in the larger sense 13:00:14
16 because we have the word "hub" and "USB hub" used in 13:00:17
17 different places, sometimes to mean slightly different 13:00:22
18 things. Offhand, I would say USB hub more often is 13:00:24
19 intended to mean and would certainly convey to a POSITA 13:00:31
20 the function of a USB hub as given by the USB standards, 13:00:36
21 but not necessarily always. In other words, this is one 13:00:43
22 of those things which sometimes refers to a functional 13:00:47
23 entity from the USB spec and other times looks more to a 13:00:52
24 POSITA like a local construct. And I have tried to 13:00:57
25 conduct my analysis throughout to be sort of agnostic on 13:01:01

that term. 13:01:07

So, for example, if you look at this figure, 13:01:07

Figure 53, yes, we certainly use this as a starting 13:01:09

point. And I came up with several drawings for which 13:01:12

the attorneys provided a good graphics person to provide 13:01:14

colors and things. 13:01:18

THE REPORTER: You're hitting the mic with your 13:01:21

paper. 13:01:23

THE DEPONENT: Oh, sorry. Sorry. 13:01:23

So Figure 3 of Chang was certainly our starting 13:01:25

point, and what we did with this was a couple of 13:01:27

different things, adding the teaching of Chang 2 and we 13:01:30

add a box or cross/bar and various things you may ask me 13:01:33

questions about. But in some cases, we wanted to 13:01:36

consider the analysis two ways. That is to say, in 13:01:40

relation to the sort of local content of a given claim, 13:01:47

we may wanted to clarify that it's 46 that's the hub, in 13:01:50

other cases we may wanted to have clarified that it's 40 13:01:54

that's the hub, or in other ways we did the analysis 13:01:57

both ways. There's lots of places in my report where I 13:02:01

say, well, if you consider the hub to be the whole 13:02:05

thing, and therefore, you know, you don't modify this in 13:02:07

the modifications that I talked about before, are 13:02:11

displayed outside, that's one case. Or if you consider 13:02:13

46 to be the hub, then you can do those modifications 13:02:16

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1 inside, in line with what's in this drawing. The 13:02:22
2 purpose of all that is -- is to show through those 13:02:25
3 different analysis that the -- the application of Chang 13:02:27
4 plus Chang 2, plus the knowledge of the POSITA, provides 13:02:34
5 obviousness either way you read on this point. So that 13:02:39
6 was a long answer to your question. 13:02:42
7 BY MR. BRAUSA: 13:02:46
8 Q. Right. Just to get back to what the question 13:02:46
9 was, Chang never refers to item 46, the hub control 13:02:48
10 unit, as a hub, right? That's your interpretation of 13:02:54
11 what it functionally does, but Chang never actually says 13:02:59
12 hub unit or hub control unit 46 -- 13:03:02
13 A. It's not just -- 13:03:05
14 (Simultaneous speakers.) 13:03:10
15 THE DEPONENT: It's not just my interpretation. 13:03:10
16 It's my opinion that a POSITA would -- would understand 13:03:12
17 what 46 is functionally, both from this drawing and from 13:03:15
18 what I think was paragraph 19. 13:03:18
19 BY MR. BRAUSA: 13:03:20
20 Q. Okay. And you're basing that exclusively on 13:03:21
21 what's written in paragraph 19 about the hub control 13:03:26
22 unit for establishing several transmission paths between 13:03:29
23 the up link port and downlink port. That's the portion 13:03:33
24 of paragraph 19? 13:03:39
25 A. That's right, paragraph 19. There may be 13:03:39

1 discussion elsewhere in the patent. I don't remember. 13:03:41
2 But it's 19 plus this drawing. Well, and perhaps -- 13:03:43
3 perhaps -- hold on. Let me just see if it appears 13:03:46
4 anywhere else. Not there. 13:03:49
5 Q. We're lucky it's only 26 paragraphs long. 13:03:57
6 A. Yeah, right. 13:04:00
7 No. In Figure 2 prior art, he called this 16. 13:04:02
8 Okay. Yes. 13:04:06
9 But the answer is, yes, because of these 13:04:07
10 drawings, plural, and because of paragraph 19, possibly 13:04:10
11 in addition to other things, and the POSITA's knowledge, 13:04:14
12 I think a POSITA would see this as a functional hub, not 13:04:18
13 precisely a physical one, but a functional hub as 13:04:23
14 outlined in the USB. 13:04:27
15 Q. Understood your opinion that that's how a POSITA 13:04:29
16 would interpret those words. 13:04:31
17 A. Mm-hmm. 13:04:32
18 Q. I just want to make sure we're clear on the fact 13:04:32
19 that Chang doesn't actually call 46 a hub by name 13:04:35
20 anywhere in the Chang reference. Right? It's always 13:04:42
21 referred to as a hub control unit? 13:04:45
22 A. I couldn't swear to that without rereading every 13:04:49
23 word, but okay, yeah. 13:04:51
24 Q. Okay. So it's your opinion that a POSITA would 13:04:52
25 read Chang and conclude that looking at Figure 3, there 13:04:57

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are two hubs shown, one labeled 40, one labeled 46? 13:05:01
A. Not exactly. I mentioned that not because of 13:05:07
Chang or what a POSITA would make of this picture, no. 13:05:11
I think a POSITA would make of this picture what I said 13:05:16
first. 46 is a -- I'm sorry. 40 is a construct of this 13:05:19
patent, you know, so it's -- it's the thing that Chang 13:05:25
said, hub with host-to-host transmission function. 13:05:28
That's what that is. That's obvious. It's clear. It's 13:05:31
titled. It's described. In that, a POSITA would 13:05:35
understand that 46 is the USB IF function that's part of 13:05:37
that thing in Chang's invention. My other comments had 13:05:42
to do not with Chang by itself, but with these things. 13:05:45
You know, we talk about hubs in these things many, many 13:05:48
times, many different contexts, lots of words. Lots of 13:05:51
combinations, lots of different things. 13:05:55
Q. Right. 13:05:57
A. And -- 13:05:58
Q. So let's turn to some of those lots of different 13:05:59
words at paragraph 65 of Exhibit 1013 in the '420, where 13:06:01
you talk about USB hubs. 13:06:10
A. Yep. 65. 13:06:23
Q. And there you set forth the USB definition of a 13:06:24
hub as a USB device that provides additional connections 13:06:27
to the USB, right? 13:06:29
A. Yes. 13:06:32

Q. And you then go on, on page 31, to say the hub's 13:06:32
attachment points are called ports, right? 13:06:35
A. That's right. 13:06:37
Q. Okay. The hub control unit, 46 in Chang, does 13:06:40
not have ports. Those are separate from the hub control 13:06:44
unit, right? 13:06:47
MR. JENSEN: Object to form. 13:06:48
THE DEPONENT: That's -- that's a subtlety. The 13:06:50
answer to your question is no. And the reason it's no 13:06:54
is that as used in the USB IF standards, ports in this 13:06:56
sense are functional. Elsewhere in this standard, they 13:07:05
talk about connectors and their role, and in many ways 13:07:08
that they strive to make clear, even though they spend 13:07:12
100 pages doing it, they try and make it clear that 13:07:16
connectors are used to implement ports. But in the 13:07:18
bigger picture, port in the sense of Figure 4-5 is not 13:07:21
the same as a connector. You know, these things could 13:07:27
be pins on an IC. They could be non-USB internal 13:07:30
connectors inside a box. They could be lots of 13:07:36
different things. 13:07:39
BY MR. BRAUSA: 13:07:39
Q. Okay. So is it your testimony that hub control 13:07:41
46 shown in Chang has attach ment points called ports? 13:07:45
A. Called ports in respect of the way the Figure 13:07:52
4-3 is. I -- I'm -- I'm sort of anticipating some of 13:07:55

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the problem here by acknowledging that port -- it gets 13:08:01
reused throughout this stuff in ways that are not always 13:08:04
obvious. 13:08:08
So I'm to be clear here. A POSITA's view of a 13:08:10
hub, which ultimately comes from the USB IF definition, 13:08:12
is a functional item. The physicality of that depends 13:08:16
on the implementation. It could be verilog inside of a 13:08:20
larger FPGA. It could be a chip. It could be, you 13:08:24
know, a box with a plastic around it. It could be a 13:08:27
plugin board, all kinds of different things, and the 13:08:33
ports on that hub, as referred to in -- in the USB IF, 13:08:37
just talking about hub functionality, can be a lot of 13:08:42
different things physically, wires, connectors, captive 13:08:45
cables, all kinds of stuff. 13:08:50
Q. So it's your testimony that a POSITA would 13:08:51
understand the word "hub" to be a functional term and 13:08:55
not corresponding to any specific structure? 13:09:01
A. Well, slightly beyond -- no. More than that. 13:09:06
The POSITA's view here has a tolerance for ambiguity 13:09:09
where the word "hub" gets used lots of different ways. 13:09:14
And I think taken in context with the individual 13:09:17
specifications and claims, a POSITA would know what's 13:09:20
being talked about. I'm not saying that this particular 13:09:22
view of a hub, which I'm talking about a POSITA having 13:09:25
about looking at Chang Figure 3, is the exact view they 13:09:28

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1 would have looking at everything else. No. There's a 13:09:31
2 lot of different views. That's my point. There's a lot 13:09:33
3 of different ways that the word "hub" is used. But as 13:09:36
4 part of that universe of the way hubs are used, it is 13:09:39
5 the case that the USB IF specification for hub is a 13:09:45
6 functional one, not necessarily a physical one. 13:09:48
7 Q. Okay. Anywhere in your report, paragraph 65 13:09:52
8 through 68, which is your background discussion of USB 13:10:01
9 hubs, do you state what you just stated here, that you 13:10:05
10 think the USB specification of the term -- or definition 13:10:09
11 of the term "hub" is a functional one? 13:10:13
12 A. No, I don't. I don't have a discussion of that 13:10:15
13 here. 13:10:49
14 Q. Okay. Turning back to Figure 3 of Chang, 13:10:49
15 Exhibit 1014, the -- the bridge is shown as item 52, 13:10:55
16 right? 13:11:02
17 A. That's right. 13:11:02
18 Q. Okay. And it's only connected to one of the 13:11:03
19 downstream ports shown, the host port 50, right? 13:11:07
20 A. In this picture, that's correct. 13:11:09
21 Q. And so in Chang, there is no discussion of 13:11:11
22 switching between -- the bridge between different ports 13:11:17
23 or routing the signal coming from port 50 to a different 13:11:20
24 path depending on the device connected to port 50, 13:11:25
25 right? 13:11:29

A. I would agree with that. 13:11:29
Q. Okay. And Chang also doesn't explicitly 13:11:30
disclose any simultaneous communication with upstream 13:11:36
port 42 by downstream ports 44 and 50, right? 13:11:42
A. I would say in Chang that's implied. 13:11:46
Q. Okay. 13:11:53
A. Yeah. It doesn't have to be said. Like many 13:11:54
other things here, all this stuff is backstopped by the 13:11:57
USB specification, which is very clear about the 13:12:00
simultaneity of traffic on downstream ports and hubs 13:12:07
known to a POSITA clear in the original spec and implied 13:12:11
here. 13:12:13
Q. Okay. When you say implied, my question was 13:12:14
that Chang doesn't explicitly say that ports 44 and 50, 13:12:17
the device and host ports are simultaneously 13:12:23
communicating with upstream port 42, correct? 13:12:29
A. Not that I remember. 13:12:31
Q. Okay. You think that's implied, correct? 13:12:31
A. It is my opinion that that's implied, yes. 13:12:34
Q. Okay. Is there anything in Chang that supports 13:12:37
that implication, or is it just based on the POSITA's 13:12:40
knowledge of the USB spec, in your view? 13:12:44
A. Chang could have invented lots of different 13:12:50
things and put this bridge in something that doesn't 13:12:53
have anything to do with USB. The choice to put this 13:12:55

1 into USB brings with it, necessarily, a lot of stuff, 13:12:58
2 and that stuff was known to Chang and it's known to 13:13:02
3 people that read this. It's known to the POSITA and so 13:13:05
4 on. So, yeah, that -- that comes along by -- by 13:13:07
5 relating this to the USB spec. 13:13:14
6 Q. Okay. But just again to confirm, Chang doesn't 13:13:15
7 explicitly say that anywhere, right? 13:13:19
8 A. That's right. 13:13:21
9 MR. BRAUSA: Let me hand you what's already been 13:13:30
10 marked as Exhibit 1015, which is the Chang 2 reference. 13:13:32
11 And this copy is also from PGR2024-0011. 13:13:47
12 THE REPORTER: It's here if you need it, sir. 13:14:06
13 THE DEPONENT: I do. Thank you. 13:14:08
14 BY MR. BRAUSA: 13:14:19
15 Q. And this is the second Chang reference that you 13:14:19
16 were provided by counsel as part of your analysis in 13:14:22
17 this case, right? 13:14:24
18 A. That's correct. 13:14:25
19 Q. And I think you say this in your report 13:14:26
20 somewhere. But just to be clear, even though we're 13:14:28
21 calling these Chang 1 and Chang 2, that individuals 13:14:31
22 named Chang are different people, different -- different 13:14:34
23 inventors, right? 13:14:39
24 A. That's my understanding. 13:14:41
25 Q. Okay. In Chang 2, we see one diagram of the 13:14:41

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device that's described that's referenced in your report 13:14:56
shown in Figure 1, right? 13:14:59
A. That's correct. 13:15:00
Q. Okay. And the upstream port is essentially the 13:15:01
first connection interface 11, right? 13:15:07
A. That's correct. 13:15:09
Q. And that connects to a first host device? 13:15:10
A. Right. 13:15:13
Q. And then the downstream port is the section -- 13:15:13
second connection interface that -- that can connect to 13:15:17
a second host or a slave device or a device mode? 13:15:21
A. That's right. 13:15:26
Q. Okay. And what's shown in between them is what 13:15:26
Chang refers to -- Chang 2 refers to as a bridge, right? 13:15:32
A. Well, in Figure 1, it's a control chip, and it's 13:15:35
No. 13. And then in Figure 2, we see an expanded 13:15:45
schematic or where 13 is a chip called U1. 13:15:49
Q. Okay. Just to confirm, in Figure 1, the big box 13:15:57
labeled 1 is titled "Data Transmission Bridge Device," 13:16:00
right? 13:16:04
A. Yes, that's right. 13:16:04
Q. Okay. And within that bridge device, there's a 13:16:06
control chip 13, right? 13:16:09
A. Right. 13:16:10
Q. And then with Figure 5 shows a blown-up 13:16:11

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schematic of that control chip located in the bridge, 13:16:23
correct? 13:16:25
A. That's correct. Yes. 13:16:46
Q. Okay. And within the control chip 13 shown in 13:16:46
Figure 5 of Chang 2, that's where the switching 13:16:51
mechanism, switching circuitry, resides, correct, to 13:16:57
toggle between the host or device at the second 13:17:00
connection interface? 13:17:05
A. Yes, that's correct. 13:17:06
Q. Okay. And what functional blocks or what 13:17:07
structures shown in Figure 5 correspond to the switch 13:17:10
used to toggle between host mode and device mode at the 13:17:15
downstream port? 13:17:22
MR. JENSEN: Object to form. 13:17:22
THE DEPONENT: Give me a minute here. 13:17:23
Okay. I always have to remind me that the use 13:19:14
of the word "bridge" here has slightly different meaning 13:19:17
than it does in some other places. But to your 13:19:21
question, I think -- I think Figure 5 -- okay. You were 13:19:23
asking about Figure 5, and your question, I think, was 13:19:29
where -- where is the switch? 13:19:32
MR. BRAUSA: That's correct. 13:19:37
THE DEPONENT: Okay. My understanding is the 13:19:40
switch is physically in this bypass circuit unit, 133. 13:19:42
MR. BRAUSA: Mm-hmm. Okay. 13:19:47

BY MR. BRAUSA: 13:19:52

Q. Anywhere else or just in the bypass circuit 13:19:53

unit? 13:19:56

A. I'm taking your question to mean the circuit 13:19:59

element that is set one way or another way, and taking 13:20:02

that definition of switch, and I hesitate because 13:20:05

sometimes people talk about sort of abstract switching 13:20:10

units by including what caused the decision to be 13:20:15

switched this way or that way. So obviously, we have -- 13:20:17

we have other things going on here that bear on that. 13:20:20

Q. Okay. Well, I'm talking about the routing 13:20:22

switch that's referenced in claim 2 of the '420 patent. 13:20:25

Is there a routing switch in Figure 5? 13:20:29

A. Yes. 133 is a routing switch. 13:20:35

Q. Okay. And that's located within the control 13:20:36

chip? 13:20:39

A. Right. 13:20:39

Q. And that control chip is located within the 13:20:40

bridge, right? 13:20:42

A. Right. 13:20:43

Q. So the routing switch in Chang 2 is part of the 13:20:43

bridge, right? 13:20:46

A. It's part of what -- 13:20:47

MR. JENSEN: Object to form. 13:20:52

THE DEPONENT: -- Chang calls a bridge, yes. 13:20:53

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This could get tricky if you look at Figure 4. 13:20:55
There's a thing in Figure 4 in '420 which is also called 13:20:58
bridge, and it apparently has some decision logic in it 13:21:02
about detection, and there's a switch control circuit. 13:21:05
So bearing in mind that these different people have used 13:21:08
bridge in different ways, yes, this is the -- this is 13:21:13
the analog of the routing switch in Chang 2. 13:21:19
BY MR. BRAUSA: 13:21:22
Q. Okay. Chang 2 in Figures 1 and Figures 5, it 13:21:22
never characterizes any of this circuitry or any of 13:21:34
these components as a hub, right? 13:21:40
A. Not that I can remember, no. 13:21:41
Q. Okay. And then just to round it out, Figure 3 13:21:45
in Chang 2, that's a physical embodiment of the overall 13:21:51
bridge, right? 13:21:58
A. Yes, it looks like it. 13:21:59
Q. Okay. And we see the control chip located at 13:22:02
13. It's a little box inside the plug, right? 13:22:06
A. Box, yep, yep. 13:22:10
Q. And what's 121 in Figure 3 of Chang 2? 13:22:11
A. Okay. Hold on one second. Okay. Fortunately, 13:22:21
it's short. 13:22:53
Okay. The key language seems to be in paragraph 13:23:21
29, in the middle, where Chang 2 goes on to say: 13:23:23
"Additionally, if the second connection 13:23:28

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interface, 12, needs to connect to a slave device, 4," 13:23:30
which I specify means a USB device, which he says in 13:23:36
parentheses, "normally has a B-type female connector of 13:23:43
the USB specification, then an adapter one to one can be 13:23:50
further attached to transform the connector type of the 13:23:54
second connection interface 12 so that the required 13:23:59
B-type male connector of the USB specification can be 13:24:02
available. Thus, a user would only need one USB bridge 13:24:07
transmission line 5 for connecting with a normal host 13:24:12
device and a slave" or -- sorry, "and/or their 13:24:16
associated host-to-slave operation. But in addition, 13:24:20
you can use bridging function between a first host and a 13:24:25
second host, called 2 and 3, elsewhere called 1 and 2." 13:24:28
Q. And so 121 in Figure 3 is an adapter used to 13:24:35
connect to a slave device, right? 13:24:39
A. That's correct. 13:24:41
Q. Okay. And that's something that would be 13:24:42
operating in device mode, correct? 13:24:44
A. Right. 13:24:46
Q. Okay. If we just look at what Chang 2 seems to 13:24:47
be saying is, without adapter 121, the cable we see at 13:24:53
item 5 in Figure 3, that prong labeled 12, that would 13:24:57
typically connect to another host, right? 13:25:03
A. Mm-hmm. 13:25:05
Q. Okay. And so then in Figure 4, if we go to 13:25:05

that, we see here two different cords without the 13:25:10
adapter. One is for connecting to a host, which is 13:25:17
shown as a PC 3. The other appears to me to be shown 13:25:19
connected to a solid-state drive or something of that, 13:25:24
labeled No. 4, right? 13:25:27
MR. JENSEN: Object to form. 13:25:29
THE DEPONENT: Okay. I'm looking at Figure 4. 13:25:30
The scale is much reduced, and so you sort of have to 13:25:37
squint to answer your question. But let me try and be 13:25:41
clear. 13:25:46
Okay. All right. He's referring to something 13:25:55
called 122, which looks a little bit like Figure 3, but 13:25:57
it's not -- the label is not actually on Figure 3. So 13:26:06
let me -- let me be sure not to misquote him. 13:26:10
Okay. All right. You know, sometimes -- 13:26:41
sometimes there are mistakes made here. 13:26:43
BY MR. BRAUSA: 13:26:48
Q. You think there's a mistake in the Chang 2 13:26:48
reference? 13:26:50
A. Well, it's possible. 13:26:50
Q. What's the mistake you think there is? 13:26:52
A. Well, it's possible that -- oh, I see. He's got 13:26:53
122 prime and 122. God, nomenclature. Okay. No, no 13:26:58
it's not an error. All right. 13:27:10
Okay. These appear to be slightly -- these 13:27:16

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appear to be versions of what appear on Figure 3. On 13:27:20
the face of it, what's called 122 prime in Figure 4 is 13:27:27
the Device No. 5 on Figure 3, whereas the thing called 13:27:34
in Figure 4 122 looks like it's a composite of 5 plus 13:27:41
121. That's based on sort of what's -- appears to be 13:27:49
drawn here where you see on the left side looks 13:27:52
something that could be an A connector on the right 13:27:54
side, looks like it could be a B connector. And also, 13:27:56
the language in -- where was I? 39 or 40. No, no. 13:27:59
Sorry. 32. Okay. Well, based on a quick reading, that 13:28:06
looks like that's what's going on. 13:28:15
Q. Okay. But in Figure 4 -- I guess maybe this 13:28:16
would help clear it up. In Figure 4, the control chip 13:28:19
with the switch in it is shown as part of the PC labeled 13:28:22
2, right? The control chip 13 is no longer part of the 13:28:24
cord, in Figure 3? 13:28:31
A. Oh, I see. You're right. You're right. I 13:28:33
misread that. Okay. All right. You're right. So I 13:28:35
didn't -- I didn't spend enough time reading what 122 13:28:39
is. That makes it look like 122 and 1 -- and 122 -- 122 13:28:42
prime and 122, those are both standard -- quote/unquote, 13:28:48
standard USB cables without any intelligence. 13:28:52
Q. Right. And in the implementation in Figure 4, 13:28:56
the control chip is shown as part of the circuitry in 13:28:59
the PC, correct? 13:29:04

A. That's what's in Figure 4, yeah. 13:29:05
Q. Okay. And so the bridge is part of the PC and 13:29:07
the switch within the bridge is part of the PC in 13:29:09
Figure 4 as well, right? 13:29:11
A. That's right. 13:29:13
Q. And there's no hub shown in Figure 4, is there? 13:29:13
A. Okay. Not in the picture. But the -- the 13:29:15
POSITA knowledge suggests that every PC has a root hub, 13:29:24
and oftentimes, ordinary PCs like this have internal 13:29:28
hubs even beyond the root hub. 13:29:33
Q. Okay. But certainly -- 13:29:35
A. You can't -- you can't -- 13:29:36
Q. Chang's disclosures -- 13:29:37
A. Yeah, you can't -- 13:29:39
Q. -- description of a bridge is not talking about 13:29:39
a hub? 13:29:41
A. Doesn't talk about hub. He doesn't show a hub. 13:29:42
A POSITA could know there's hubs in the background. The 13:29:46
point there is the upstream view of a USB device of a 13:29:49
downstream-facing port either of a host or from a hub 13:29:52
are identical, and almost without exception 13:29:56
indistinguishable. That's just how USB works. 13:29:58
Q. Sure. But just to confirm, in Figures 1, 3, 4, 13:30:01
and Chang 2's disclosure as a whole, he doesn't 13:30:06
explicitly describe any hubs, right? 13:30:10

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A. Not explicitly, no. 13:30:11
Q. All right. In some of the claims of the patent, 13:30:13
there's -- the claims of the Aptiv patents, there's 13:30:40
reference to an infotainment system. Do you recall 13:30:42
that? 13:30:45
A. I do recall that. 13:30:45
Q. Okay. And what's your understanding of what an 13:30:46
infotainment system is? 13:30:49
A. Which claim? 13:30:51
Q. Sure. Let me -- why don't we go to claim 2 of 13:30:53
the '643 patent, which I can hand to you and is 13:30:57
Exhibit 1011. 13:31:06
(Referencing Exhibit 1011.) 13:31:10
THE DEPONENT: Okay. Yep. Claim 2. 13:31:37
BY MR. BRAUSA: 13:31:38
Q. Okay. And this refers to an infotainment 13:31:39
system, right? 13:31:41
A. Right. 13:31:42
Q. What is your understanding of what a POSITA 13:31:43
would understand an infotainment system to be in 2013? 13:31:46
A. I -- I believe that a POSITA would have 13:32:09
understood infotainment system to refer to, certainly, 13:32:11
electronics in a car that provided information and 13:32:15
entertainment. So it could have had a radio or CD 13:32:21
player or various other kinds of things, and in the 13:32:24

1 context of these things may also, as it is in claim 2, 13:32:26
2 have a USB host embedded in it. 13:32:32
3 Q. Okay. And does an infotainment system require 13:32:34
4 streaming audio or video, as of 2013? 13:32:39
5 MR. JENSEN: Object to form. 13:32:44
6 THE DEPONENT: I could only -- yeah, I won't 13:32:45
7 speculate about that. I don't actually know. And that 13:32:52
8 question doesn't come up in any of the claims or in my 13:32:55
9 analysis, so that's sort of outside the scope. 13:32:57
10 BY MR. BRAUSA: 13:33:01
11 Q. Okay. So you sitting here today don't have an 13:33:01
12 opinion on whether infotainment system in at least 13:33:03
13 claim 2 of the '643 patent requires streaming audio or 13:33:07
14 video capabilities? 13:33:10
15 A. As of 2013, that's right, I don't have an 13:33:12
16 opinion about that. 13:33:14
17 Q. Okay. Do you have an opinion about that today? 13:33:15
18 A. No. 13:33:17
19 Q. Let's turn to column 6, lines 65 through 67, of 13:33:18
20 the '643 patent, Exhibit 1011. 13:33:25
21 MR. JENSEN: What lines did you say? 13:33:48
22 MR. BRAUSA: I'm sorry. Column 6, lines 65 13:33:50
23 through 67, or the start of the sentence is at line 63. 13:33:53
24 So column 6, line 63 through 67. 13:33:58
25 THE DEPONENT: "Number of supported devices, 13:34:10

1 such as data connections, streaming audio and streaming 13:34:11
2 video to and from the vehicle via the USB bridge." 13:34:14
3 BY MR. BRAUSA: 13:34:20
4 Q. Right. And so this is referring to one of the 13:34:21
5 capabilities of an infotainment system, right? 13:34:23
6 MR. JENSEN: Object to form. 13:34:26
7 THE DEPONENT: On the face of it, yeah. 13:34:26
8 BY MR. BRAUSA: 13:34:28
9 Q. Okay. Are you aware that there's a USB audio 13:34:28
10 standard? 13:34:31
11 A. I am aware of that. Generally, I wasn't asked 13:34:35
12 to opine on its relevance to this, but yes, I am aware 13:34:38
13 that such a standard exists. 13:34:41
14 Q. Okay. Do you know who was the primary 13:34:42
15 contributor to the USB audio standard? 13:34:45
16 A. I don't know that. 13:34:47
17 Q. Okay. Do you know if it was another expert of 13:34:48
18 microchips? 13:34:50
19 A. Expert of Microchip's? No, I don't -- I don't 13:34:50
20 know that. 13:34:57
21 Q. Okay. To facilitate streaming audio, is it 13:34:57
22 correct that you have to have a chip that supports 13:35:02
23 isochronous data transfer? 13:35:07
24 MR. JENSEN: Object to form. 13:35:09
25 THE DEPONENT: Okay. Outside the scope. But my 13:35:10

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knowledge of USB includes understanding what isochronous 13:35:17
is, how it works, how it's used. And I do know that the 13:35:22
USB standard for USB audio includes the use of 13:35:25
isochronous endpoints. 13:35:34
BY MR. BRAUSA: 13:35:36
Q. Okay. Do you know whether streaming audio could 13:35:37
be accomplished using control endpoints? 13:35:39
MR. JENSEN: Object to form. 13:35:50
THE DEPONENT: Control endpoints. Okay. This 13:35:51
is a hypothetical. Well, I do know that control 13:35:57
endpoints were not intended for such a purpose. I can't 13:36:09
rule out that they could be used at a -- at a very low 13:36:12
bandwidth perhaps. 13:36:16
BY MR. BRAUSA: 13:36:16
Q. Okay. Maybe taking a step back in, general USB, 13:36:17
my understanding is it specifies four different types of 13:36:20
data transfers, control, interrupt, bulk and 13:36:23
isochronous, right? 13:36:28
A. Mm-hmm. 13:36:28
Q. Okay. Isochronous is the only one of these four 13:36:28
that is intended for streaming audio and video 13:36:32
applications, right? 13:36:35
MR. JENSEN: Object to form. 13:36:36
THE DEPONENT: Okay. This is interesting. It's 13:36:45
outside the scope, but I will comment on it anyway. 13:36:49

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It's true when the standard was written that 13:36:54
they were -- the authors of the standard were aware that 13:36:56
there was a -- there were different categories of 13:36:59
time-sensitive data, and audio was an example of that 13:37:01
and video is another example of that, and they had this 13:37:06
idea that the isochronous endpoint could be designed in 13:37:08
such a way that you could sort of guarantee how much 13:37:12
bandwidth was available to the isochronous -- a given 13:37:15
isochronous endpoint, and the devices could even 13:37:18
negotiate about it based on descriptors and -- and other 13:37:21
sorts of minutiae about how USB works so that you could 13:37:24
have other devices on the same bus, like mice, keyboards 13:37:29
and so on, but that the isochronous traffic would get 13:37:32
priority. So I do know that that was -- that was 13:37:35
amongst the original ideas. And the same applies to 13:37:40
video, although to do video over even full speed USB, it 13:37:44
has to be compressed. Isochronous was intended to 13:37:48
support uncompressed audio, amongst other things. 13:37:51
Okay. So I know that that was amongst the 13:37:56
original intention. In my experience, developers of USB 13:37:57
systems have made use of those original ideas in any 13:38:06
number of different ways. It's like this toolbox thing. 13:38:11
Oh, isochronous, okay, here is what they thought 13:38:13
originally, here is what it actually does, how can that 13:38:15
help me. Oh, well, I can use it for X or I can use it 13:38:18

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for this. 13:38:21

Or conversely, an audio person might think, I 13:38:22

don't want to do it that way because of blah, blah, 13:38:24

blah, you have to worry about clock and this and that, 13:38:26

and my audio system is going to use buffered stuff 13:38:28

anyway and it's going to be the only device in the bus. 13:38:31

So I'm only going to use -- I'm only going to use bulk 13:38:34

endpoints. 13:38:38

My point here is that the USB IF promulgating 13:38:39

these standards, and going back to my -- my original 13:38:42

background thing about, you know, if it's not in the 13:38:46

standard, the standard doesn't say you may only use 13:38:47

isochronous for audio. It says, here is what 13:38:50

isochronous is, you might want to use it for audio. 13:38:53

And then they also published a specification for 13:38:54

standard audio over USB, and it does use isochronous. 13:38:57

Okay. That's fine. None of that means that a person 13:39:00

wanting to do streaming audio has to do it that way. 13:39:03

They could do it other ways if they wanted, and there 13:39:06

might be good reasons to do in other ways. 13:39:09

BY MR. BRAUSA: 13:39:11

Q. Okay. Sitting here today, are you aware of any 13:39:13

implementations of streaming audio in an infotainment 13:39:15

system in a vehicle that don't rely on isochronous 13:39:19

transfer? 13:39:24

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1 MR. JENSEN: Object to form. 13:39:25
2 THE DEPONENT: I wasn't asked to look at that, 13:39:27
3 so I don't actually have an opinion about that. 13:39:28
4 BY MR. BRAUSA: 13:39:32
5 Q. Okay. Let's turn back to your declaration from 13:39:32
6 the '420 -- or regarding the '420 patent, IPR 2024-228. 13:39:40
7 It's Exhibit 1013. And -- 13:39:47
8 A. Okay. I got that. 13:39:57
9 Q. I want to go to the section of your report -- 13:40:00
10 you have it tabbed -- about secondary considerations. 13:40:04
11 A. Mm-hmm. 13:40:06
12 Q. It starts on page 177, paragraph 302. Are you 13:40:07
13 there? 13:40:36
14 A. I am here. 13:40:37
15 Q. Okay. And I believe you alluded to this 13:40:37
16 earlier. But as part of formulating your opinions on 13:40:40
17 the secondary considerations of non-obvious, you were -- 13:40:43
18 non-obviousness, you were provided with a copy of at 13:40:47
19 least one of Aptiv's interrogatory responses -- 13:40:52
20 A. Mm-hmm. 13:40:56
21 Q. -- from a litigation between Aptiv and 13:40:56
22 Microchip, correct? 13:41:00
23 A. Mm-hmm. Yeah. That's right. 13:41:01
24 Q. And so you refer to that in this section, and 13:41:02
25 then at paragraph 305 you say that after reading about a 13:41:05

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PACE Award referenced in that -- 13:41:13
A. Mm-hmm. 13:41:15
Q. -- interrogatory response, you -- you Googled it 13:41:15
and there's a URL link and search result pasted below 13:41:18
for the winners of that award in 2016, correct? 13:41:24
A. That's right. 13:41:27
Q. Okay. Beyond the interrogatory response and the 13:41:28
PACE Award website that you looked up, did you rely on 13:41:38
any other materials to provide your opinions regarding 13:41:42
the secondary considerations you set forth in your 13:41:47
report? 13:41:53
A. No. I was asked to consider that based on this 13:41:53
information. 13:41:55
Q. Okay. And what's your understanding of what the 13:41:56
secondary considerations of non-obviousness that you 13:41:59
refer to in the subsection B on page 177 of your report 13:42:04
refer to? 13:42:09
A. Well, again, I'm not a lawyer. But as it's been 13:42:12
explained to me, when considering the question of 13:42:14
whether certain prior arts or various combinations 13:42:20
thereof may render something, a claim or set of claims, 13:42:24
obvious, that there can be this so-called secondary 13:42:28
considerations. So I don't want to go through all of 13:42:34
them just by way of answering your overview question, 13:42:43
but the idea is, if the patent in question, particularly 13:42:46

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1 the claims in question, somehow could be shown in some 13:42:50
2 of these secondary considerations to be of a kind of 13:42:56
3 importance that whoever wrote this legal stuff to begin 13:43:00
4 with, the law about -- about non-obviousness or 13:43:04
5 whatever, Chang referenced that these things were 13:43:07
6 important and, therefore, they could be considered 13:43:11
7 alongside. 13:43:14
8 So in other words, you have all these other bits 13:43:15
9 of information, you know, party A thinks that they have 13:43:19
10 grounds that this is non -- this is obvious for this and 13:43:21
11 grounds and all sort. You can have all those things. 13:43:25
12 My understanding is that it's okay, it's actually 13:43:27
13 encouraged, that the people that decide this stuff, 13:43:31
14 presumably the patent board, can consider these other 13:43:34
15 things, and that's why people are interested in them. 13:43:36
16 So I approach these things from that standpoint. 13:43:40
17 I don't know anything about this stuff myself, but I was 13:43:42
18 given this information, A, of what Aptiv said, and B, 13:43:45
19 what these different things are, and I proceeded 13:43:48
20 accordingly. 13:43:52
21 Q. Okay. And I think you testified to this 13:43:52
22 earlier. But in considering these secondary 13:43:58
23 considerations, and really with respect to all of your 13:44:01
24 opinions, you never asked anyone from Microchip about 13:44:04
25 their view of an industry award or their view of Aptiv's 13:44:08

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1 success or -- 13:44:12
2 A. Mm-hmm. 13:44:13
3 Q. -- or their view of why Aptiv was successful? 13:44:13
4 MR. JENSEN: Object to form. 13:44:16
5 THE DEPONENT: No. I thought it was my job 13:44:17
6 to -- you know, to be the sort of independent view here, 13:44:19
7 you know, and I -- I tried to look at this from that 13:44:28
8 standpoint. I mean, I'm -- I'm -- I'm more than a 13:44:30
9 POSITA. I'm an expert here, and I have the POSITA view 13:44:32
10 in addition. And the point is, we want to look at this 13:44:35
11 stuff from that standpoint to consider, you know, what 13:44:37
12 we think about these different categories of -- of 13:44:45
13 secondary considerations. 13:44:47
14 BY MR. BRAUSA: 13:44:48
15 Q. Okay. Have you ever heard of a solution that 13:44:48
16 BMW had called iPad Out or iPod Out? 13:44:54
17 MR. JENSEN: Object to form. 13:44:57
18 THE DEPONENT: Not by that name. I did work on 13:44:58
19 an accessory for Microsoft's sync system, which I 13:45:05
20 mentioned in here somewhere. But no, I don't know 13:45:10
21 anything about what BMW did. 13:45:16
22 BY MR. BRAUSA: 13:45:18
23 Q. Okay. In paragraph 305 of your report, you say 13:45:18
24 that prior to your involvement in this case, you had 13:45:21
25 never heard of the Automotive News PACE Award? 13:45:23

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A. That's correct. 13:45:26
Q. Prior to your involvement in this case, had you 13:45:27
ever consulted with companies making automotive 13:45:29
equipment or accessories? 13:45:34
A. In the case I mentioned, yes. 13:45:35
Q. Okay. 13:45:37
A. Microsoft and Ford came together, or one came on 13:45:37
behalf of both of them, I forget which, to ask my 13:45:43
previous company, Keyspan, to build an adapter for one 13:45:46
of their use cases. 13:45:50
Q. Okay. What kind of adapter was it? 13:45:52
A. Okay. This system was meant to allow an early 13:45:53
app -- an early Apple device -- this was pre iPhone. 13:46:00
This is when it was an iPod. So Apple had this music 13:46:03
player that was very popular and people wanted to use 13:46:09
them in cars. And Ford and Microsoft already had a 13:46:10
solution for newer iPods that had USB in them. They 13:46:15
came to us because of our experience with the serial 13:46:24
adapter I told you about earlier -- 13:46:26
Q. Mm-hmm. 13:46:26
A. -- and asked us, basically, to make a version of 13:46:28
that serial adapter that would interface an older iPod, 13:46:31
which only provided a serial interface. And at that 13:46:34
company we had done some Smart Dock kinds of products 13:46:39
and we had experience with serial interfaces, 13:46:41

1 particularly interfacing to these -- to these iPods and 13:46:45
2 controlling them. 13:46:49
3 So that's what we did for Ford and Microsoft. 13:46:51
4 We basically adapted some existing technology we had and 13:46:55
5 a couple of different things that we had. 13:46:58
6 Q. In the course of that work, did you have any 13:47:00
7 understanding as to what the solution Ford and Microsoft 13:47:02
8 had come up with for connecting an iPod to a presumably 13:47:05
9 Ford car or truck? 13:47:10
10 MR. JENSEN: Object to form. 13:47:12
11 THE DEPONENT: I don't actually remember any of 13:47:13
12 the details of that because that -- that wasn't the part 13:47:17
13 of the solution we worked on. 13:47:20
14 MR. BRAUSA: Sure. 13:47:22
15 THE DEPONENT: All I knew was that they had a 13:47:23
16 solution for USB. They came to us for -- for something 13:47:25
17 that did serial, because the other side of our product 13:47:27
18 did do USB. So I guess in that sense, I knew that -- 13:47:30
19 that the system in the car knew how to be a host, a USB 13:47:38
20 host, because our device was a USB device. That's it. 13:47:41
21 That's sort of as much as I know about technology there. 13:47:45
22 BY MR. BRAUSA: 13:47:48
23 Q. Okay. So in that embodiment, the iPod was 13:47:48
24 functioning as a USB device? 13:47:51
25 MR. JENSEN: Object to form. 13:47:54

THE DEPONENT: Not actual -- no. It was 13:47:55
actually our adapter which was the USB device. The iPod 13:47:57
wasn't a USB device at all. 13:48:00
BY MR. BRAUSA: 13:48:01
Q. Okay. 13:48:01
A. In the use case that we solved. 13:48:02
The one that they sort of already had solved, 13:48:03
that we didn't work on, I don't know what the iPod did. 13:48:05
Q. Okay. In the use case you had, though, your 13:48:09
adapter -- 13:48:12
A. Was a device. 13:48:12
Q. -- adapted from a USB to the legacy port of the 13:48:13
older iPods? 13:48:17
A. Yeah, that's right. 13:48:17
Q. And that adapter functioned as a downstream 13:48:18
device in the system? 13:48:22
A. That's it. That's exactly right. 13:48:22
Q. Okay. And was the port that that was plugged 13:48:24
into a dual-role port? 13:48:29
A. No idea. 13:48:30
Q. Okay. When was this? 13:48:31
A. Oh, Jesus. 2003, 2004, something like that. 13:48:33
Q. Okay. 13:48:41
A. I don't remember exactly. 13:48:41
Q. Got it. 13:48:42

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A. It certainly predated the iPhone of 2007. 13:48:42
Q. Turning back to paragraph 305 of Exhibit 1013, 13:48:47
you state that you immediately observed, after Googling 13:48:54
the PACE Award, that the PACE Awards have little (if 13:48:57
anything) to do with USB technology? 13:49:03
A. Mm-hmm. That's right. 13:49:07
Q. And then you go on to say that there were other 13:49:08
winners that had products that didn't have to do with 13:49:10
USB technology, right? 13:49:16
A. That's right. 13:49:17
Q. Okay. Why did you feel that was important to 13:49:18
note in your expert report? 13:49:21
A. Okay. I took the term "industry praise" as 13:49:24
somehow fundamentally relating to the technology of the 13:49:31
patent that this was about, and the -- these patents 13:49:33
talk about USB devices, hosts and devices. And the 13:49:37
problem that they solve has to do with, what if you have 13:49:42
two USB hosts that need to talk to each other? And 13:49:45
that's what that was. And I would have said that that 13:49:48
plays out, those claims and those patents, they play 13:49:51
out -- if they play out in an industry at all, they play 13:49:55
out in the USB industry. So I would have said, just my 13:49:58
own view of this is, that if you were interested in 13:50:03
praise about that, it would be praise about what the 13:50:07
claims were actually about, which is about USB and about 13:50:09

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hosts and devices talking to each other in unusual ways. 13:50:11
That's why my opinion is what it is. 13:50:15
Q. Okay. Now, you would agree, though, that the 13:50:17
specification of the Aptiv patents, the '420 patent and 13:50:19
the '643 patent, talks about the use of USB systems in 13:50:22
vehicle infotainment systems, right? 13:50:27
A. That's true. 13:50:29
Q. Okay. And we just looked at claim 2 -- 13:50:30
A. Which says that. 13:50:33
Q. -- of the '643 patent is about use of USB in 13:50:34
infotainment systems -- 13:50:37
A. Mm-hmm. 13:50:39
Q. -- as embedded hosts in vehicles? 13:50:39
A. Right. 13:50:42
Q. And so in that sense, it would make sense that 13:50:43
Aptiv would win an award from an automotive publication 13:50:46
because its solution was used in automobiles? 13:50:49
MR. JENSEN: Object to form. 13:50:53
THE DEPONENT: But was the award to do with this 13:50:56
clever USB thing or something else? See, I wasn't 13:50:59
persuaded that this award really -- as an automotive 13:51:05
award really met what I understand to be this idea of 13:51:10
secondary considerations. 13:51:14
BY MR. BRAUSA: 13:51:18
Q. Why would you think that it wouldn't be a 13:51:19

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1 secondary consideration? 13:51:21
2 A. Again, I would have -- I would have thought that 13:51:22
3 it's the USB industry where you ought to be praised 13:51:24
4 because that's what -- okay. The point about USB in 13:51:27
5 cars in this sense is secondary. It turns out USB could 13:51:31
6 be used in cars, but there's sort of nothing magical 13:51:35
7 about that. All of this stuff works equally well 13:51:38
8 outside of cars. A POSITA's view of this is that at the 13:51:42
9 level of these claims and this prior art and so on, cars 13:51:44
10 are mentioned, but they are not the important thing. 13:51:47
11 Now, if it were different, if USB had a version 13:51:49
12 from the USB IF, which was called USB automotive and 13:51:52
13 have all the rules were different, okay, that would 13:51:56
14 be -- these circumstances would be different, and 13:51:59
15 possibly in that case an automotive award would make 13:52:00
16 sense. But I'm an expert in USB, and from my 13:52:03
17 perspective, I wouldn't have said an automotive award 13:52:06
18 about USB stuff is actually what the -- the law about 13:52:10
19 secondary considerations is about. 13:52:18
20 Q. Okay. But you're -- 13:52:20
21 A. That's -- 13:52:23
22 Q. You're not an attorney, though, correct? 13:52:23
23 A. Not an attorney. 13:52:25
24 Q. Okay. And do you have any understanding as to 13:52:26
25 whether awards from other areas can be considered for 13:52:28

evaluating praise or commercial success? 13:52:33
A. I will be the first to admit that I look at this 13:52:36
from my own perspective as an expert in USB, and so 13:52:39
that's the perspective of this report and should be read 13:52:43
that way, certainly. 13:52:46
Q. Okay. So because the award is not from a USB 13:52:47
organization, you don't think it's indicative of any 13:52:51
secondary consideration of non-obviousness? 13:52:56
A. That's right. 13:52:58
Q. Okay. Did you ask anybody at Microchip what 13:52:58
they thought about the PACE Awards? 13:53:00
A. I did not. 13:53:02
Q. Do you know whether Microchip considers those to 13:53:02
be prestigious in its own practice? 13:53:06
A. I have no idea. 13:53:08
Q. Okay. You didn't think to ask? 13:53:09
A. What I thought was that I had been asked with 13:53:11
respect to these items to do a very specific thing, and 13:53:16
that was to look at this interrogatory response and to 13:53:21
consider that as a source for potential information 13:53:24
about secondary considerations, so that's what I did. 13:53:27
Q. On paragraph 306, which spans pages 180 to 181, 13:53:39
you say that you note that the article touts that Aptiv 13:53:52
achieved a lower cost and cost-effective solution, which 13:53:56
could be a reason for the award, correct? 13:54:01

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A. Hold on a sec. Yes, okay, I find the language 13:54:03
you're talking about. 13:54:44
Q. Okay. And you say that could be a reason for 13:54:45
the award, lower cost or cost effectiveness, right? 13:54:48
A. Right. 13:54:51
Q. Okay. What if that were the reason for the 13:54:52
award. Couldn't that be -- 13:54:57
A. My understanding of this is it has to do with 13:54:58
what the -- what the claims are. 13:55:00
Q. Sure. But if the claims allowed for a lower 13:55:02
cost or cost-effective solution, wouldn't that be a 13:55:06
benefit? 13:55:09
MR. JENSEN: Object to form. 13:55:10
THE DEPONENT: I will stick with what I wrote 13:55:22
here. All I say is these things could be the -- could 13:55:24
be the reason for the award. I don't know. But, you 13:55:26
know, across all the things that I talked about, I -- I 13:55:32
don't think this stuff at large qualifies as industry 13:55:34
praise in the sense set out for the standard that I was 13:55:38
asked to look at. 13:55:42
BY MR. BRAUSA: 13:55:42
Q. Okay. So you don't actually know why Aptiv 13:55:43
received this award, fair? 13:55:46
A. That's true. I don't know. 13:55:48
Q. Okay. And you didn't ask anyone at Microchip 13:55:49

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about that or do any other investigation -- 13:55:52
A. That's correct. 13:55:54
Q. -- beyond Googling the PACE Award? 13:55:55
A. That's correct. 13:55:57
Q. Okay. 13:55:57
A. Nothing else. 13:55:58
Q. You say in paragraph 306 that -- it's the second 13:56:02
full sentence. 13:56:07
"And even the unmodified version of Chang 13:56:08
Figure 3's hub, which included a host-to-host bridge 13:56:10
alongside several other simultaneous device connections, 13:56:16
allows a downstream USB product to," quote, "operate as 13:56:18
the sole host device without denying access to other 13:56:22
devices," end quote. 13:56:26
Do you see that? 13:56:26
A. The word "sole" is a little confusing in that 13:56:40
sentence, but I do see it, yes. 13:56:44
Q. That was going to be my first question. 13:56:45
A. Sure. 13:56:46
Q. Is where is that quoted portion of the sentence 13:56:46
coming from? 13:56:49
A. Well, it comes from this quote, which is 13:56:49
presumably from the award: 13:56:51
"iPhone running CarPlay wanted to operate as the 13:56:53
sole host" -- 13:56:53

(Discussion off record.) 13:56:53
THE DEPONENT: I'm quoting from the bottom of 13:56:59
page 180. 13:57:00
"iPhone running CarPlay wanted to operate as the 13:57:01
sole host device, taking control of the car radio and 13:57:05
denying access to other devices." 13:57:09
I wasn't asked to render an opinion about 13:57:17
CarPlay, and I really couldn't because I don't know -- I 13:57:20
don't know how it works. 13:57:22
The claims that this -- appear to refer to about 13:57:36
a downstream host being able to operate along with an 13:57:42
upstream host, yeah, I can't -- I can't actually explain 13:57:45
why I included the word "sole" here from the original 13:57:55
quote, but it's in brackets because I sort of question 13:58:00
the accuracy of that. 13:58:02
The point is that. 13:58:05
BY MR. BRAUSA: 13:58:05
Q. Sorry. Sorry. 13:58:05
You question the accuracy of what? 13:58:06
A. Okay. This -- the original statement, the 13:58:08
statement that I quoted, "iPhone running CarPlay wanted 13:58:10
to operate as the sole host," blah, blah, blah, in 13:58:13
quoting that, I put the word "sole" in brackets because 13:58:16
I'm not sure I agree that the original statement was 13:58:20
correct. I don't know, but it would frankly surprise 13:58:23

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me. 13:58:28
Q. Well -- 13:58:32
A. So -- 13:58:32
Q. What about the word "without." That's also in 13:58:32
brackets. Is that accurate or not? Because if it's in 13:58:34
a sentence, it says without denying access to other 13:58:39
devices, and if it's not there, it says denying access 13:58:41
to other devices. 13:58:43
A. Right. Right. We have the limitations of the 13:58:44
English language with its sort of editorial things. The 13:58:46
fact is, this first sentence, this first quote, is sort 13:58:49
of wrong on two points. It's probably not -- I'm not an 13:58:56
expert. I don't see the spec. But it would surprise me 13:59:00
if CarPlay wanted to operate as the sole host. It would 13:59:03
also surprise me if CarPlay wanted to do whatever it is 13:59:07
it wanted to do and deny access to other devices about 13:59:11
anything. And therefore, to try and say -- I'm trying 13:59:14
to -- I'm trying to put over a complicated idea here. 13:59:20
If you just look at the problem to be solved as 13:59:23
let's plug in a downstream host, I'm saying Chang 13:59:26
unmodified does that. Look at Figure 3. And what it 13:59:29
does, and here I'm trying to track the original 13:59:31
language, operate as the sole, but it actually doesn't 13:59:34
do that. Something something, denying access to other 13:59:36
devices, but without because we're actually not doing 13:59:40

that. 13:59:43

I apologize for the sort of editorial complexity 13:59:44

here, but the point I'm making is that the only 13:59:47

information I have to go on here is that CarPlay 13:59:51

reportedly has to do with the claims -- practicing these 13:59:57

claims in some ways. What else it might have, I don't 14:00:00

know and that's outside the scope anyway. 14:00:02

So with that view of CarPlay, that's my 14:00:04

statement about Chang -- Chang and -- and his Figure 3 14:00:11

hub. 14:00:14

Q. Okay. I think you just testified, if you just 14:00:14

look at the problem to be solved as let's plug in a 14:00:18

downstream host. 14:00:21

A. I did say that. 14:00:23

Q. Okay. Is it your testimony that you view the 14:00:24

problem solved by the Aptiv patents as plugging in a 14:00:27

downstream host? 14:00:31

MR. JENSEN: Object to form. 14:00:33

THE DEPONENT: That's not the only problem. 14:00:34

BY MR. BRAUSA: 14:00:36

Q. What other problems do the patents address? 14:00:36

MR. JENSEN: Object to form. 14:00:38

THE DEPONENT: Okay. 14:00:41

BY MR. BRAUSA: 14:00:47

Q. What other problems do the Aptiv patents 14:00:48

address? Excuse me. 14:00:50
A. Okay. Let me -- let me answer that with a -- 14:00:51
let's find it here -- answer that with a reference to 14:00:53
Figure 4. 14:00:57
Q. And just for the record, you are in the '420 14:01:00
patent? 14:01:02
A. I'm in the -- I'm in the -- this -- this just 14:01:02
because it's convenient. I'm in the '643 patent. 14:01:05
MR. BRAUSA: Okay. And that's Exhibit 1011, for 14:01:10
the reporter. 14:01:13
THE DEPONENT: Okay. This is -- this is 14:01:14
Figure 4. The largely common specifications in these 14:01:15
various patents can be summarized, to -- to some extent, 14:01:26
by Figure 4, and the problem being solved by Figure 4 is 14:01:36
that these consumer-facing ports will accept plugging in 14:01:39
a USB host or a USB device. And there's a lot of 14:01:43
discussion about how that works. This thing on the face 14:01:47
of it is a traditional USB hub. That's how a POSITA 14:01:50
would view it. 14:01:53
MR. BRAUSA: Mm-hmm. 14:01:55
THE DEPONENT: And these things are whatever 14:01:57
they are. If you plug in a host, the switch routes it 14:01:58
through the bridge. If you plug in a device, the switch 14:02:00
routes that away from the bridge over here, which Chang 14:02:03
2 also does, but not with a hub. That's why we use 14:02:06

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Chang 2. If you plug in two hosts, this particular 14:02:09
configuration doesn't support that. But that's okay 14:02:13
because, you know, my idea about a POSITA is that they 14:02:17
can generalize both from here and from the prior art to 14:02:21
do more than is just in the limited case. 14:02:23
But anyway, this -- when I talk about the 14:02:27
problem to be solved, if the problem to be solved is 14:02:30
plugging in a downstream host, I probably should have 14:02:33
said if -- if it's to be able to support these things 14:02:35
here, in the sense that you could either plug in a -- a 14:02:39
host or you could plug in a device, you get that by 14:02:44
Chang alone. Now, of course, as we discussed at length, 14:02:48
Chang is limited in the sense that it's a hub and some 14:02:51
of its ports are one kind and one of its ports is 14:02:54
another kind and there's value in having dual-role 14:02:58
ports. But all I'm saying here is that the one thing 14:03:00
about being able to plug in a downstream host, which is, 14:03:02
you know, maybe what this is about, if that's what this 14:03:07
is about, let me say it that way, then Chang 2 meets 14:03:09
that, Chang 1 meets that. 14:03:16
BY MR. BRAUSA: 14:03:16
Q. Okay. When you say "if that's what this is 14:03:19
about," you were gesturing to paragraph 306 of your 14:03:21
report? 14:03:24
A. What I mean by that is there's a discussion here 14:03:24

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about CarPlay without any sort of detail and I don't 14:03:28
know what CarPlay is. The implication is -- I'll say, 14:03:31
is that if this is the vexing problem, that iPhone's 14:03:39
CarPlay needed a device to be -- to be downstream USB 14:03:43
host, then these patents are aimed at that by the virtue 14:03:48
of -- of what they have, and so is the prior art. 14:03:54
But I say -- I preface that by saying if because 14:03:58
if, in fact, CarPlay is -- is about something else here, 14:04:01
then I don't have any opinion about that because I don't 14:04:05
know anything about it. 14:04:08
Q. Okay. So in paragraph 306, there's a reference 14:04:08
to a vexing problem, and then we have the quote about an 14:04:13
iPhone running CarPlay wanting to operate as the sole 14:04:17
host device, taking control from the car radio and 14:04:20
denying access to other devices. 14:04:22
A. Mm-hmm. Mm-hmm. 14:04:25
Q. That comes from the award for 14:04:26
Delphi Automotive's dual-role hub that it -- that it won 14:04:29
the PACE Award that we've been talking about for -- in 14:04:32
2016, right? 14:04:35
A. Mm-hmm. Mm-hmm. 14:04:36
Q. And so that came from the award organization, 14:04:36
right, their characterization of the vexing problem? 14:04:38
A. Mm-hmm. Mm-hmm. 14:04:41
Q. And this is an automotive award organization? 14:04:42

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A. Mm-hmm. 14:04:44

MR. JENSEN: Object to form. 14:04:45

BY MR. BRAUSA: 14:04:47

Q. And so presumably, they know the problems that 14:04:47

are vexing the automotive industry, right? 14:04:49

MR. JENSEN: Object to form. 14:04:52

THE DEPONENT: Well, I frankly question that, 14:04:52

given the inaccuracy of this statement, or potential 14:04:55

inaccuracy of it. You might be right but, you know, I'm 14:04:58

not impressed with the language here. 14:05:01

BY MR. BRAUSA: 14:05:04

Q. Okay. So you think the PACE Award body who 14:05:05

provides this -- 14:05:14

A. I -- I -- 14:05:14

Q. -- didn't know what they were talking about when 14:05:15

they said this was a vexing problem? 14:05:17

MR. JENSEN: Object to form. 14:05:18

THE DEPONENT: I don't know if they knew what 14:05:19

they were talking about. I don't -- I don't deny that 14:05:20

award was given. I don't deny that it might have been 14:05:25

deserved. I actually don't know anything about that at 14:05:29

all. 14:05:31

The question I was faced with is, does that 14:05:31

award add up to industry praise. And I'm not persuaded 14:05:34

that it does, for the reasons that I said. I mean, is 14:05:38

CarPlay part of that? Well, I don't really know. And 14:05:40
I'm not going to speculate about that. You know, I 14:05:45
could go on for hours, but it's a waste of time. I 14:05:48
just -- I don't know. I just don't know. 14:05:51
BY MR. BRAUSA: 14:05:52
Q. Turning back to the statement in, I guess it's 14:05:54
still paragraph 306 on page 181, about Chang Figure 14:05:57
3's -- 14:06:01
A. Mm-hmm. 14:06:02
Q. -- unmodified hub. 14:06:02
A. Mm-hmm. 14:06:04
Q. You say that it allows a downstream USB product 14:06:04
to operate as the sole host device without denying 14:06:08
access to other devices, right? 14:06:12
MR. JENSEN: Object to form. 14:06:14
THE DEPONENT: Well, strike the word "sole," but 14:06:16
yes, that is what I say here. 14:06:18
BY MR. BRAUSA: 14:06:19
Q. Okay. So is -- is that an errata we want to 14:06:19
make to cross out the word "sole"? 14:06:22
A. No. No. I'm not admitting that it might not be 14:06:24
obvious what I meant by writing the sentence this way, 14:06:27
but I did mean it. Operate as the sole. That's because 14:06:29
that's the quote from here. 14:06:31
There is an editorial convention where if you 14:06:32

1 want to quote something and yet point out places where 14:06:35
2 you disagree with it or it's accurate, inaccurate, or 14:06:37
3 there's a misspelling or there's a date which can't be a 14:06:40
4 real date, sometimes you put in sic, and sometimes you 14:06:43
5 put it in brackets. I put it in brackets. 14:06:45
6 Q. Okay. 14:06:48
7 A. And then down here, I added the word "without" 14:06:48
8 in brackets because that's my addition to this thing 14:06:50
9 over here. 14:06:53
10 Okay. Given how much trouble we're having here, 14:06:55
11 it would have been better for me to have -- to have 14:06:58
12 written a couple of paragraphs here to make it clear. I 14:07:00
13 was just trying for shorthand here. 14:07:03
14 Q. Well, unfortunately, I got to ask another 14:07:05
15 clarifying question. 14:07:08
16 A. Okay. That's all right. 14:07:08
17 Q. Which is, I think you said there's a convention 14:07:10
18 where you use brackets to indicate an error, but then 14:07:11
19 you said you use brackets around "without" to indicate 14:07:14
20 that you were adding that word. 14:07:18
21 A. Mm-hmm. I did. 14:07:19
22 Q. It's that latter convention I'm familiar with 14:07:20
23 is. It your testimony that when you put "sole" in 14:07:22
24 brackets, what you intended to convey is that that might 14:07:25
25 not be accurate? 14:07:27

A. Frankly, yes. I'm not an expert, but yes, 14:07:28
that's what I had in mind here. 14:07:32
Q. Okay. Where in Chang does it describe a 14:07:33
downstream host that operates as the sole host without 14:07:38
denying access to other devices? 14:07:44
A. I'm sorry. I haven't made myself clear. 14:07:46
There's nothing about Chang which requires that. There 14:07:48
is nothing about USB or the backdrop to all the stuff 14:07:50
that requires that. I think that this statement here, 14:07:52
wherever it came from, is just wrong. The iPhone 14:07:56
probably doesn't want to be the sole host. It never 14:07:59
did. It doesn't require that. And doesn't deny access 14:08:01
to anything else. 14:08:04
Okay. That's just my opinion from the 14:08:06
standpoint of how USB works and something that I know 14:08:10
about Apple, but -- but it's a guess. 14:08:14
Okay. Now, if you want to quote something and 14:08:17
then take exception to it, you do need -- you know, you 14:08:21
do -- you do need to do something. This is a convention 14:08:23
that I've seen. Yes, the -- adding something and 14:08:25
subtracting something, I -- I agree that's confusing. 14:08:28
Q. Okay. Let's -- assume that we actually just 14:08:30
take out the word "sole." 14:08:34
A. Mm-hmm. 14:08:35
Q. Chang also doesn't describe any USB product 14:08:35

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1 operating as a host device downstream that denies access 14:08:39
2 to other devices, or does it? I mean -- 14:08:43
3 A. Well, no. Again, the -- the word "without" 14:08:45
4 is -- is added here. Apologies again. But what I'm 14:08:48
5 saying here is that Chang allows a downstream host to 14:08:52
6 operate without denying access to other devices. 14:08:56
7 Q. Okay. 14:09:00
8 A. Meaning the other devices are plugged into that 14:09:00
9 hub, and the way hubs work is that it's persistent and 14:09:03
10 it's simultaneous. 14:09:07
11 Q. Okay. 14:09:08
12 A. That's what hubs do. 14:09:08
13 Q. So that's my question. Where in Chang does it 14:09:10
14 disclose that you plug in a host downstream and that 14:09:12
15 doesn't deny access to the other downstream ports and 14:09:15
16 their simultaneous communication? 14:09:19
17 A. He discloses that by giving you a picture of a 14:09:21
18 hub. 14:09:24
19 Q. Okay. 14:09:25
20 A. See if I can find that. 14:09:25
21 MR. JENSEN: Sorry. That one is my copy. 14:09:27
22 THE DEPONENT: Oh, okay. 14:09:29
23 If we printed Chang -- okay. This -- yeah, this 14:09:29
24 picture -- this picture discloses it. When you say 14:09:32
25 "hub," that conveys something to a POSITA. Hubs allow 14:09:34

activity on ports independently. 14:09:39

MR. BRAUSA: Okay. 14:09:43

THE DEPONENT: That's the background of this 14:09:43

whole activity. You have to -- the POSITA knowledge has 14:09:45

to be in there. And so the POSITA knowledge here, even 14:09:47

if Chang didn't say it -- I don't remember if he did or 14:09:51

not -- that does certainly supply the other words in 14:09:53

that sentence. 14:09:55

BY MR. BRAUSA: 14:09:55

Q. Okay. And so my specific question is, does 14:09:56

Chang explicitly say that you can plug a downstream host 14:09:59

into port 50, not deny access to any of the other 14:10:04

downstream ports, and simultaneously have communication 14:10:09

between the host port downstream, the other downstream 14:10:14

device ports, and the upstream port, or is that 14:10:18

something a POSITA would provide based on their 14:10:22

knowledge? 14:10:24

MR. JENSEN: Object to form. Asked and answered 14:10:24

several times already. 14:10:27

THE DEPONENT: The answer is, again, that 14:10:27

whether Chang talks about that or not, and I think he 14:10:33

doesn't, he does provide that information implicitly by 14:10:36

including this hub control unit and clearly providing 14:10:39

the context that this is USB. A POSITA would know, 14:10:43

since it's USB and this is a hub -- 14:10:46

1 MR. BRAUSA: Okay. 14:10:48
2 THE DEPONENT: -- those other things you get. 14:10:48
3 So I'd say he discloses them implicitly, not 14:10:49
4 explicitly. 14:10:53
5 BY MR. BRAUSA: 14:10:53
6 Q. Okay. Got it. I think that answers the 14:10:54
7 question. 14:10:57
8 Earlier you referenced to there being value with 14:11:07
9 having dual-role parts? 14:11:10
10 A. I -- yes, we did talk about that. 14:11:12
11 Q. Okay. Is there value with having dedicated host 14:11:15
12 or device ports? 14:11:18
13 A. You have to give me some context for that 14:11:19
14 question. 14:11:21
15 Q. Well, sure. We can go right back to Chang, 14:11:21
16 Figure 3. It has dedicated device ports 44 and 14:11:24
17 dedicated host port 50. Is there any value to keeping 14:11:28
18 those as dedicated ports rather than dual-role ports? 14:11:32
19 A. You can imagine that hypothetically. I wasn't 14:11:36
20 asked to opine about that specifically, but it's not 14:11:38
21 beyond the realm of possibility that you could have a 14:11:41
22 hub where one port was special. I mean, we have that 14:11:44
23 today. Everybody has USB-C on their laptops. If you 14:11:49
24 buy a hub, even though there are USB-C ports on there, 14:11:51
25 you have sometimes have to look closely at those to say, 14:11:55

oh, you can plug power into this one, you can plug only 14:11:58
data into this one. It's not great. The USB-IF would 14:12:01
prefer nobody ever did that, but it's done here and it's 14:12:04
done today. 14:12:07
Q. Okay. 14:12:07
A. So value, I don't know. The value is that it's 14:12:09
not uncommon. The value is maybe it's cheaper. I don't 14:12:13
know. 14:12:15
Q. Okay. It might be cheaper to have dedicated 14:12:15
ports as disclosed in Figure 3 of Chang than having 14:12:17
dual-role ports in each location? 14:12:20
A. That's possible, yeah. 14:12:21
Q. Okay. Are there any other advantages or value 14:12:22
or reasons that you'd want to keep the dedicated ports 14:12:26
of Chang instead of switching them all to dual-role 14:12:31
ports as you proposed? 14:12:34
MR. JENSEN: Object to form. 14:12:35
THE DEPONENT: Other things being equal -- 14:12:36
that's a mouthful here -- in general, the world of USB, 14:12:37
certainly the USB-IF would like there to be as few ports 14:12:44
as possible and for them to not be special purpose. The 14:12:47
whole original idea of USB is you have a port on your 14:12:49
computer and you could tell what it does just by looking 14:12:52
at it at a distance. You don't have these -- these old 14:12:55
things where you have these funny connectors and you 14:12:57

1 don't always know. They're proprietary and all this 14:12:59
2 kind of stuff. Fundamental to the existence of USB is 14:13:02
3 this idea that you don't have a lot of extra ports, you 14:13:04
4 just have enough ports to do what you want, and you can 14:13:06
5 do it simply. You know which end of the cable to plug 14:13:09
6 in. It's not a mistake. And, you know, the other end 14:13:12
7 does what it does. That's just the raison d'etre that 14:13:14
8 the USB-IF had for their original work. 14:13:19
9 BY MR. BRAUSA: 14:13:23
10 Q. Okay. Besides dedicated ports being cheaper, 14:13:23
11 are there any other changes that you can think of for 14:13:27
12 having a dedicated port versus a dual-role port? 14:13:29
13 MR. JENSEN: Object to form. 14:13:33
14 THE DEPONENT: No. I don't want to -- I mean, 14:13:35
15 yeah, I could make up reasons, but no, I don't want to 14:13:37
16 speculate about that. 14:13:40
17 BY MR. BRAUSA: 14:13:40
18 Q. Okay. But there are a lot of devices today that 14:13:41
19 still have dedicated ports, right? It's not -- all 14:13:43
20 ports aren't dual-role ports on USB devices? 14:13:46
21 A. All role -- all ports are not dual role, no. 14:13:49
22 That's true. 14:13:54
23 Q. Why is that? 14:13:54
24 A. Oh, God. I could go on for hours about that. I 14:13:55
25 think that's outside the scope, so let's not do that. 14:13:58

Q. Well, can you give me two or three reasons why 14:14:00
we continue to have dedicated USB device or host ports 14:14:03
if dual-role ports make more sense to you? 14:14:07
A. Well, okay. History and cost, and the extremely 14:14:09
complex adaptation and adoption of USB-C. I mean, I 14:14:12
talk about that a little bit in the report here. But 14:14:18
USB-C takes all this past history and rolls it all up 14:14:21
into one and says, okay, let's cover everything and 14:14:25
we'll invent, you know, 97 different possible ways you 14:14:27
can negotiate everything. 14:14:30
The history is that SOCs inside laptops tend to 14:14:31
have host ports. Microcontrollers with USB ports tend 14:14:37
to be cheaper if they're device. So in some way, 14:14:41
economics drives this. History drives it. Yeah, that's 14:14:45
enough. As I say, I could go on and on, but let's not. 14:14:53
Q. Okay. If we turn to paragraph 312 of your 14:14:56
report, Exhibit 1013, again, from IPR 2024-228 -- 14:15:02
A. Mm-hmm. 14:15:02
Q. -- there's a section on copying. 14:15:08
A. Mm-hmm. 14:15:10
Q. And you state in your opinion that Aptiv's 14:15:10
allegations regarding copying are vague and unclear. 14:15:13
A. Mm-hmm. 14:15:17
Q. Did you ask anyone from Microchip for help 14:15:18
understanding what allegations Aptiv was making? 14:15:21

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A. I was asked to take this on its own terms, and 14:15:24
no, I wasn't encouraged to go ask other people what they 14:15:28
thought this meant. 14:15:30
Q. Okay. And you didn't ask anyone -- 14:15:31
A. I didn't ask anybody, nope. 14:15:32
Q. -- whether there was more information that might 14:15:34
help you understand? 14:15:35
A. Nope. 14:15:36
Q. Okay. Do you know what a breakout box is? 14:15:36
A. Yes. I could give you dozens of examples, but. 14:15:39
Q. Just at a high level, what does that terminology 14:15:47
refer to? 14:15:49
A. From the POSITA's view, often it's used to mean, 14:15:50
you know, you've got -- you've got two things plugged 14:15:55
together, and if you need to figure out what's going on 14:15:56
on these signals, you could plug these into a breakout 14:16:02
box, which would have the same relevant ports on each 14:16:04
side and then it would bring out all the signals to a -- 14:16:06
a header, or in some cases switches, so that you could 14:16:09
put volt meter, scope probes on it, or whatever. That's 14:16:13
one view of a breakout box. 14:16:17
Q. Okay. And -- and so a breakout box, at a high 14:16:20
level, helps you understand how a product is working. 14:16:22
Is that fair? 14:16:24
MR. JENSEN: Object to form. 14:16:25

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THE DEPONENT: Well, in my world it is. But 14:16:25
then I'm an engineer and a lot of my job has to do with 14:16:29
what's actually going on on the wire. 14:16:33
MR. BRAUSA: Sure. 14:16:35
THE DEPONENT: Now, I could imagine breakout 14:16:35
boxes being used for other kinds of things. Maybe you 14:16:38
have a breakout box with lights on it, and what it's 14:16:41
intended to show is, okay, when these lights are on in a 14:16:44
certain way, then power is being delivered in this 14:16:46
direction. That's not necessarily a debugging tool, but 14:16:48
maybe it's a user tool. 14:16:51
MR. BRAUSA: Okay. 14:16:53
THE DEPONENT: So I'm not -- that's just 14:16:53
speculation. You know, you could have a lot of 14:16:56
different things. 14:16:57
BY MR. BRAUSA: 14:16:57
Q. Do you know whether Microchip had a breakout box 14:16:57
of Aptiv's product? 14:17:00
A. I don't know. 14:17:01
MR. JENSEN: Object to form. 14:17:02
BY MR. BRAUSA: 14:17:03
Q. Can you think of why a competitor would have a 14:17:03
breakout box of it's competitor's product? 14:17:05
MR. JENSEN: Object to form. Beyond the scope. 14:17:08
THE DEPONENT: Yeah, I think that's beyond the 14:17:11

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scope. 14:17:12

MR. BRAUSA: Okay. 14:17:14

THE DEPONENT: I'M not going to speculate about 14:17:15

that. 14:17:17

BY MR. BRAUSA: 14:17:17

Q. Let me ask the question again. Your attorney 14:17:17

can make the objections. 14:17:19

Do you have any reason that a competitor -- or 14:17:20

any reason to think as to why a competitor would have a 14:17:23

breakout box of its competitor's product? 14:17:25

MR. JENSEN: Same objections. 14:17:28

THE DEPONENT: I'll limit my answer to this. 14:17:28

Writ large in the industry that I participate in, many 14:17:33

people often look at some amount of reverse engineering 14:17:36

for some device, whether it's a competitor's or not, in 14:17:41

order to understand what it is, what it does. And for 14:17:46

that reason, I am aware of people using breakout boxes 14:17:49

to try and understand what something is. 14:17:52

BY MR. BRAUSA: 14:17:55

Q. Okay. 14:17:55

A. What something does. 14:17:56

Q. And if an implementation or the way something 14:17:57

works were obvious, you wouldn't need to use a breakout 14:17:59

box for it, right? You'd just know? 14:18:02

MR. JENSEN: Object to form. 14:18:04

THE DEPONENT: In general, yes. It's also -- 14:18:05
oh, God. We're sort of wasting time on this. I was 14:18:14
asked in another case to reverse engineer how some video 14:18:18
cameras worked, and the issue for the patented question 14:18:21
was, where is a certain function on the camera 14:18:23
implemented, is it implemented in the camera or in the 14:18:27
host. So we had to reverse engineer how it worked to 14:18:30
figure that out. We used breakout boxes and logic 14:18:33
analyzers and things like that. That was a -- that was 14:18:37
a -- I was an expert consultant, non-testifying 14:18:39
consultant, on a particular case where that -- that 14:18:43
question came up. 14:18:46
BY MR. BRAUSA: 14:18:46
Q. Okay. And you did that because without doing 14:18:46
the experiments, without using the breakout box, you 14:18:48
didn't know exactly how that worked, right? 14:18:52
A. That's right. 14:18:55
MR. JENSEN: Object to form. 14:18:56
BY MR. BRAUSA: 14:18:57
Q. All right. I'm going to switch gears. Do you 14:18:57
want to take another break or should we keep going? 14:18:59
A. What time is it? It's 2 o'clock. 14:19:01
Yeah, let's break for five minutes, something. 14:19:08
THE VIDEOGRAPHER: This marks the end of Media 14:19:10
No. 3 in the deposition of Eric Welch. The time is 2:19 14:19:12

p.m. We are off the record. 14:19:18

(A recess transpires.) 14:19:20

THE VIDEOGRAPHER: This marks the beginning of 14:33:54

Media No. 4 in the deposition of Eric Welch. The time 14:33:56

is 2:33 p.m. We are on the record. 14:34:00

BY MR. BRAUSA: 14:34:00

Q. Welcome back. Did you talk with counsel at all 14:34:04

during the break? 14:34:07

A. Not at all. 14:34:08

Q. And did you refer to the notes in the notebook 14:34:09

in your pocket at all? 14:34:10

A. Not at all. 14:34:11

Q. If I can direct you back to Exhibit 1013, your 14:34:12

declaration in the '420 proceedings, to page 15, 14:34:20

paragraph 18 and 19. 14:34:23

A. This is 228? 14:34:25

Q. Yes, it is. Thank you. 14:34:27

A. Okay. Page 13, you said. Okay. 13. Okay. 14:34:32

Thir -- and paragraphs 13 and 14. Got it. 14:34:39

Q. I'm sorry. I may have misspoke. Page 15. 14:34:42

A. Oh, okay. 14:34:45

Q. Paragraphs 18 and 19. It's the subsection 14:34:45

titled "Anticipation." 14:34:49

A. Oh, yes. Yes. Okay. 14:34:50

Q. And in paragraphs 18 and 19, you set forth the 14:34:51

legal standard you were provided by counsel -- 14:34:55
A. Mm-hmm. 14:34:57
Q. -- for something called anticipation, right? 14:34:57
A. Mm-hmm. 14:35:00
Q. You're not offering any opinions that any of the 14:35:00
prior art you considered in this case anticipates any of 14:35:03
the challenged claims, right? 14:35:09
A. I don't. That's correct. I'm not offering an 14:35:10
opinion like that. 14:35:12
Q. Okay. Why did you include an anticipation legal 14:35:13
standard in your report? 14:35:16
A. For completeness. You know when, we started, I 14:35:17
said, okay, you know, I have some experience with this, 14:35:27
but would you guys provide all the unusual stuff, and I 14:35:30
sort of listed these different things. I find it -- I 14:35:33
find it helpful for myself to go back occasionally and 14:35:37
reread obviousness versus anticipation, especially at 14:35:41
the beginning, you know, if it's been a while. These 14:35:45
concepts are a little foreign to my regular engineering 14:35:48
work, even though, you know, a lot of the technical 14:35:51
concepts, there's a lot of overlap. But that's 14:35:54
interesting. So that's the short answer to your 14:35:58
question. 14:36:00
Q. Okay. Can I direct you to page 21, paragraphs 14:36:00
41 and 42? And this sets forth your understanding of 14:36:05

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the legal standard for indefiniteness. Is that correct? 14:36:14
A. It does. 14:36:24
Q. Okay. 14:36:24
A. Just rereading it to remind myself. 14:36:25
Q. Sure. Go ahead. 14:36:28
A. Yeah. 14:36:33
Q. Okay. Paragraph 42, you say that you understand 14:36:33
a claim can be found unpatentable due to the prior art, 14:36:36
i.e., anticipated or obvious in certain circumstances, 14:36:39
even if the claim is indefinite, right? 14:36:43
A. That's correct. 14:36:45
Q. And then you go on to say: 14:36:48
"One example is where the outer bounds of the 14:36:49
claim limitation are not reasonably certain, but the 14:36:51
prior art disclosure falls within the scope of the 14:36:54
limitation that is not subject to uncertainty." 14:36:57
A. Yes. 14:36:59
Q. Do you see that? 14:37:00
A. That's exactly right. Yeah. 14:37:00
Q. What do you mean by that? 14:37:01
A. Well, the key phrase to me -- again, I'm not a 14:37:04
lawyer, but this spoke to me -- is in the above, under 14:37:06
indefiniteness, "POSITA of the invention is able to 14:37:10
determine what the claim covers and then what it does 14:37:13
not cover." 14:37:15

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1 So if we have a claim that covers X, Y, and Z, 14:37:17
2 but it might have other things in it, it might be 14:37:20
3 indefinite. But we might still be interested in 14:37:23
4 finding -- we are still interested in finding prior art 14:37:25
5 for A, B, C. It's as simple as that. If there are more 14:37:29
6 complicated legal issues here, you know, this -- this is 14:37:33
7 what I've -- I'm not saying it the right way. 14:37:37
8 That's how I understand indefinite -- 14:37:42
9 indefiniteness. And the reason why I have opined that 14:37:45
10 some claims are indefinite and yet have gone on, despite 14:37:48
11 that, to show an obviousness argument related to the -- 14:37:52
12 you know, the prior art, POSITA knowledge, all that kind 14:37:58
13 of stuff. 14:38:01
14 Q. And so I guess that's where my question is. 14:38:01
15 How -- how are you able to perform the obviousness 14:38:04
16 inquiry and your obviousness analysis if in your view 14:38:08
17 the scope of the claim was not reasonably certain? 14:38:12
18 MR. JENSEN: Object to form. 14:38:14
19 THE DEPONENT: Well, I'm not sure what else to 14:38:14
20 say about that. But it's -- it's this idea that if we 14:38:22
21 know -- if we have some ideas of what the claim does 14:38:25
22 cover and we're certain -- we're confident about that, 14:38:27
23 we could look for prior art about that, but if at the 14:38:32
24 same time we're not sure what it doesn't cover, that we 14:38:36
25 might have an indefinite argument -- indefiniteness 14:38:40

argument about the same claim. That's my understanding 14:38:43
about how this stuff works, and I have proceeded from 14:38:49
that understanding. 14:38:51
BY MR. BRAUSA: 14:38:52
Q. Why does it matter if -- if you're not sure what 14:38:54
the claim doesn't cover? Isn't all the validity 14:38:57
analysis you've done relating to what the claim actually 14:39:00
covers? 14:39:02
A. It is. But, again, in my brief for this, I was 14:39:02
asked to consider not just, you know, unpatentability 14:39:08
due to obviousness, but secondary considerations and 14:39:13
also indefiniteness. I was asked to include that and I 14:39:16
was asked to consider these standards for that. That's 14:39:19
why. 14:39:24
Q. Okay. Can you give me any specific example of 14:39:24
this situation you describe in paragraph 42 where the 14:39:27
outer bounds of a claim limitation are not reasonably 14:39:31
certain, but the prior art disclosure falls within the 14:39:35
scope of the limitation that is not subject to 14:39:39
uncertainty? 14:39:41
A. Yes, but not quickly. There are claims in here 14:39:41
that fall into that. It would take me a few minutes to 14:39:44
find one. 14:39:47
Q. Okay. One of the materials that you said you 14:39:47
were provided by counsel in May of 2023, when you were 14:40:07

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1 retained, are the file histories to the various Aptiv 14:40:10
2 patents, correct? 14:40:16
3 A. Mm-hmm. Mm-hmm. 14:40:17
4 Q. And one of the file histories you were provided 14:40:17
5 was for the '037 patent -- 14:40:20
6 A. Mm-hmm. 14:40:22
7 Q. -- which is actually not -- 14:40:23
8 A. Mm-hmm. 14:40:23
9 Q. -- one of the patents that we're dealing with 14:40:25
10 here -- 14:40:26
11 A. Mm-hmm. 14:40:27
12 Q. -- in these five proceedings, that it's the 14:40:27
13 subject of other proceedings, right? 14:40:30
14 A. Mm-hmm. Mm-hmm. 14:40:31
15 Q. And you reviewed the file history for the '037 14:40:32
16 patent, right? 14:40:35
17 A. That's correct. 14:40:35
18 Q. Okay. And do you recall a portion of the file 14:40:36
19 history where the applicants clarified that if an 14:40:40
20 element is part of another element, it's not considered 14:40:43
21 interconnected with that element? 14:40:48
22 MR. JENSEN: Object to form. 14:40:50
23 THE DEPONENT: In a general sense, yes. If you 14:40:51
24 want to talk about this in detail, I should -- I should 14:40:59
25 pull up the actual document. But -- 14:41:01

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BY MR. BRAUSA: 14:41:01

Q. Okay. 14:41:04

A. -- go ahead, we'll see if that's necessary. 14:41:04

Q. Sure. Why don't I hand you -- 14:41:07

A. Probably a good idea. 14:41:10

Q. Well, wait till you see the size. 14:41:11

A. Oh, wow. Okay. Wow. 14:41:14

MR. BRAUSA: This is Exhibit 1002 as filed in 14:41:16

PGR2024-11. This is a copy of the file history for the 14:41:21

'037 patent. 14:41:26

(Referencing Exhibit 1002.) 14:41:18

THE DEPONENT: Okay. All right. Well, I'll 14:41:28

give it back. I won't take this away because I don't 14:41:29

need more paper. 14:41:33

Boy, the short answer is I do remember the -- I 14:41:40

remember the issue you're talking about. I don't 14:41:43

remember where it appears in here. So you'll have to -- 14:41:46

BY MR. BRAUSA: 14:41:48

Q. Sure. 14:41:49

A. -- give -- 14:41:49

Q. I won't ask you to find it. 14:41:50

So it's on -- if you look in the lower 14:41:53

right-hand margin, there are page numbers. 14:41:55

A. Yes. Mm-hmm. 14:41:57

Q. It's on page 132 in a section called "Remarks 14:41:58

and Arguments." 14:42:02

A. Okay. Got it. Page 132. All right. 14:42:04

Okay. Just so that I know what I'm reading. 14:42:23

Okay. No. Here it is at the top. This is a reply to 14:42:25

the final office action of February 9, reply dated 14:42:28

April 11. Okay. All right. All right. 14:42:32

Q. And it's the last full paragraph that I'm going 14:42:37

to direct your attention to, that starts out, "Applicant 14:42:39

respectfully points out the hub controller 203." 14:42:45

Do you see that? 14:42:45

A. I do -- I do see that. 14:42:48

Q. Okay. And so in this paragraph, the applicant 14:42:50

is saying the hub controller and switching logic are 14:42:53

components of the hub, rather than separate elements, 14:42:56

right? 14:42:58

A. That's what -- yeah, that's the first sentence, 14:43:03

right. 14:43:04

Q. Okay. And so then they go on to say it's not 14:43:05

logical that the controller -- or the hub controller and 14:43:07

downstream switching logic are components of the USB 14:43:10

switching hub contained with the hub, and at the very 14:43:14

same time interconnected to that same USB switching hub, 14:43:17

right? 14:43:22

A. Yes. That does sound like a tangle on the face 14:43:22

of it. 14:43:27

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Q. Okay. And so what they're essentially saying 14:43:27
is, if a component like a hub controller is part of the 14:43:29
hub, you wouldn't say it's interconnected with the hub, 14:43:32
right? 14:43:35
MR. JENSEN: Object to form. 14:43:36
THE DEPONENT: I pause because throughout this 14:43:39
stuff there's -- there are different ways in which hub, 14:43:43
hub controller, hub unit, custom hub, whatever, get 14:43:47
used, and you might hypothetically back into just 14:43:51
exactly that situation where it wasn't entangled because 14:43:56
you were actually talking about things that were inside 14:44:01
other things or things interconnected to other things 14:44:04
that were actually separate, and that part of the 14:44:07
problem of untangling them is trying to understand the 14:44:10
scope of what word is used. I say that as a general 14:44:12
remark. I don't actually remember the drawing that this 14:44:15
refers to. 14:44:18
So in general, I understand what's being said 14:44:18
here, but just as a caveat, I say, okay, I can visualize 14:44:21
a case where, you know, this might be rendered 14:44:26
non-problematic based on some appropriate POSITA 14:44:31
knowledge. 14:44:37
MR. BRAUSA: Okay. 14:44:37
THE DEPONENT: Anyway. Forget that. 14:44:37
/// 14:44:37

BY MR. BRAUSA: 14:44:37

Q. Well, let's look back at unmodified Figure 3 14:44:40

from the Chang reference, Exhibit 1014. 14:44:43

A. Mm-hmm. 14:45:12

Q. And here if we -- you know, and I acknowledge 14:45:13

your testimony from earlier today that you think a 14:45:18

POSITA would view hub control unit labeled 46 as -- 14:45:21

A. Mm-hmm. 14:45:25

Q. -- satisfying what you consider to be the 14:45:25

functional definition of a hub. 14:45:26

But Chang also refers to the entire box 40 as 14:45:28

the hub in the patent -- 14:45:33

A. Mm-hmm. 14:45:34

Q. -- itself, right? 14:45:34

A. Mm-hmm. That's right. 14:45:35

Q. And, in fact, when you created various drawings 14:45:36

of what you call the cross/bar and MUX implementations 14:45:40

of Figure 3, two of those are where you analyzed it from 14:45:45

the perspective of a POSITA thinking that box 40 is the 14:45:49

hub, right? 14:45:53

A. That's right. 14:45:53

Q. So I want to focus on that implementation where 14:45:54

box 40 is the hub. 14:45:57

A. Okay. 14:45:58

Q. In that implementation, the bridge, you wouldn't 14:46:00

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say is interconnected to the hub, it's -- it's part of 14:46:03
the hub, right? 14:46:06
MR. JENSEN: Object to form. 14:46:08
THE DEPONENT: Okay. That would be -- let me 14:46:10
look at that. 14:46:20
Okay. What I'm doing is pulling up the 14:46:40
picture -- well, it was actually a series of pictures. 14:46:43
But I'm pulling up the pictures from the section on 14:46:47
motivation to combine where there's the most discussion. 14:46:49
BY MR. BRAUSA: 14:46:49
Q. Sure. If you're looking at the colored modified 14:46:53
cartoons that got created, those are on page 1 of 3 of 14:46:56
your report. 14:47:00
A. Yep. Okay. 14:47:01
Okay. All right. All right. Now I have the 14:47:13
context. Ask your question again. 14:47:14
Q. Okay. So I guess maybe it's worth laying this 14:47:15
out because I don't actually think these colored 14:47:19
cartoons relate to my question, because what I want to 14:47:22
know is, if you look at Figure 3 of Chang unmodified -- 14:47:26
A. Mm-hmm. 14:47:31
Q. -- and you shade box 40 blue, is the hub -- 14:47:31
A. Mm-hmm. 14:47:31
Q. -- which is what you've done on the right-hand 14:47:37
pictures -- 14:47:38

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A. Mm-hmm. 14:47:39
Q. -- but you don't move the bridge out of box 40, 14:47:39
as you did in both the cartoons we see on page 103 -- 14:47:42
A. Mm-hmm. 14:47:46
Q. -- and the bridge is still within box 40 of 14:47:46
Chang Figure 3 -- 14:47:51
A. Mm-hmm. 14:47:54
Q. -- then the bridge wouldn't be interconnected 14:47:54
with 40, it would be part of 40, right? 14:47:58
MR. JENSEN: Object to form. 14:48:02
THE DEPONENT: No. I think the POSITA's view 14:48:03
here is that you have a USB hub at the center. It 14:48:11
happens to be called hub control unit in Chang. It 14:48:16
might be called other things in other places. The 14:48:21
convention of drawing simple lines when you include 14:48:29
these functions sort of close together, whatever close 14:48:31
might mean, without boxes for ports and connectors and 14:48:33
so on is easily understood by a POSITA to be a 14:48:40
convenience that refers to implementation. In all these 14:48:44
cases, the bridge is interconnected to the hub by some 14:48:49
means or other. 14:48:52
I mean, the background here is the way USB works 14:48:55
electrically between a host and a device, the only -- 14:48:58
the only electrically visible thing that you might see 14:49:03
out there, that the host might see out there, is a hub. 14:49:06

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1 And what that means is that the only thing between a 14:49:09
2 downstream-facing port and the device itself that's 14:49:11
3 electrically visible is the device itself. Cables, 14:49:15
4 connectors, all these other sort of implementation 14:49:18
5 details are invisible. 14:49:21
6 So what we have is a hub, which I've opined 14:49:24
7 operates functionally, and we have to hang on to that 14:49:29
8 because we've got different implementations here. You 14:49:31
9 know, these things might be in a box where there are 14:49:34
10 wires connecting them. Might be in separate boxes where 14:49:36
11 you're using standard USB connectors and cables. All of 14:49:39
12 those things would be understood by a POSITA to 14:49:42
13 effectively mean the same thing, the implementation 14:49:44
14 details and differences, the reasons for that, which 14:49:48
15 we've talked about. 14:49:50
16 But going to your question, even though these 14:49:51
17 bridge -- even though these pictures, you know, move the 14:49:55
18 boxes around and supply colors and stuff, my original 14:49:58
19 idea was that would make it easier to read, it doesn't 14:50:01
20 change anything. The connection between the bridge and 14:50:03
21 the UBS hub is the same in all these cases. And I think 14:50:06
22 a POSITA would say it's interconnected to the bridge. 14:50:11
23 MR. BRAUSA: Okay. 14:50:15
24 THE DEPONENT: Now, this -- okay. But 14:50:16
25 specifically to your point of if it's inside the box 14:50:17

1 called 40, then it's not interconnected. No, I disagree 14:50:21
2 with that because what's happening in that case is that 14:50:24
3 box 40 on here is not a USB hub. It's a modified custom 14:50:27
4 hub, a local construct of this patent. But a POSITA has 14:50:33
5 no trouble understanding what these things are. Okay, 14:50:37
6 here's a hub, there's hub ports. Oh, here's a different 14:50:40
7 thing. Here's a bridge. Now the bridge looks like a 14:50:42
8 device to the hub because that's what bridges do, and 14:50:46
9 this bridge looks like a device to the other host 14:50:48
10 because that's how bridges work. So anyway, that's -- 14:50:50
11 BY MR. BRAUSA: 14:50:50
12 Q. Let me try and unpack some of that. 14:50:57
13 A. I'm sorry. 14:50:59
14 Q. I think you just testified that a POSITA would 14:50:59
15 understand that in Figure 3, 40 is not a USB hub? 14:51:02
16 A. That's correct. 14:51:07
17 Q. Okay. And that's because it's a custom hub, in 14:51:08
18 your view? 14:51:11
19 A. Okay. Let me say this differently. 14:51:11
20 It's not the USB hub that's described in the 14:51:16
21 USB-IF spec. My own view of this entire world of 14:51:19
22 patents and prior art and so on is that the word "hub" 14:51:25
23 gets used and reused in a lot of different places, not 14:51:28
24 always accurate ly. I'm not testifying that nobody 14:51:32
25 would ever not call 40 a hub. They might do that. What 14:51:38

I'm trying to unpack is that if you go back to the 14:51:43
UBS-IF view of what these things are, this thing called 14:51:47
hub unit appears and probably is a USB hub, and that 14:51:50
from that standpoint, the -- the thing called 40 might 14:51:53
be described as a hub or a custom hub or even a USB hub, 14:51:57
but it's not the same kind of -- it's not the USB-IF's 14:52:00
USB hub. That's what I'm saying. 14:52:04
Q. Okay. Do you think bridge 52 in unmodified 14:52:06
Chang Figure 3 is interconnected with hub 40 in 14:52:13
unmodified Chang Figure 3? 14:52:17
MR. JENSEN: Object to form. 14:52:18
THE DEPONENT: As drawn here, bridge 52 is part 14:52:21
of the -- the object called 40. 14:52:25
BY MR. BRAUSA: 14:52:30
Q. Okay. 14:52:30
A. Whatever it's called. 14:52:30
Q. Okay. And so it is not interconnected with it. 14:52:31
It's part of it. Right? 14:52:34
A. If the "it" in your sentence is this construct 14:52:36
called 40, yes. 14:52:38
Q. Okay. So let me -- let me make that clear so 14:52:39
there's no confusion. 14:52:40
Bridge 42 is part of what Chang calls hub 40, 14:52:42
correct? 14:52:47
A. In this drawing it is, yeah. 14:52:47

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Q. Okay. In Figure 3, bridge 52 is not 14:52:50
interconnected with what Chang calls hub 40, right? 14:52:53
A. Yes, that's right. 14:52:57
Q. Okay. And then that's because it's part of it, 14:53:00
not interconnected with it? 14:53:02
A. Yes. 14:53:03
Q. Okay. Now, turning back to the various 14:53:03
modifications you made to Figure 3 and then color coded 14:53:08
on page 198. 14:53:12
A. I thought -- 14:53:17
Q. I'm sorry, paragraph 198. 14:53:18
A. One -- yes. 14:53:19
Q. Page 103. Excuse me. 14:53:19
A. Yep. Good. Got it. 14:53:21
Q. We have on the left two implementations where 14:53:22
item 46 in Chang Figure 3 you characterize in shade blue 14:53:31
as hub 46, right? 14:53:37
A. Mm-hmm. That's right. 14:53:39
Q. Okay. And just to confirm, that language, 14:53:40
quote, hub 46, that's your own? We already talked about 14:53:43
this. Chang never calls that, quote, hub 46, right? 14:53:46
MR. JENSEN: Object to form. Asked and 14:53:50
answered. 14:53:51
THE DEPONENT: That could be true, yeah. 14:53:52
/// 14:53:55

BY MR. BRAUSA: 14:53:55

Q. Okay. And then on the right, we have two 14:53:55

implementations where all of box 40, which Chang does 14:54:01

call a hub, is shaded blue. Those are the two hub 40 14:54:04

implementations on the top and bottom of the right-hand 14:54:08

portion of page 103, right? 14:54:12

A. It is. But 40 over here is not the same as the 14:54:13

40 over here, obviously. You know, I've taken some 14:54:18

license here and I'm using the drawing conventions from 14:54:20

here, but in this case I've moved the bridge outside. 14:54:24

Q. Right. Right. And you anticipated my next 14:54:28

question, because I want to walk through all the 14:54:31

licenses that you've taken with Figure 3 from Chang -- 14:54:35

A. Mm-hmm. 14:54:38

Q. -- in the cartoons that are shown on page 103. 14:54:39

A. I don't mind you calling them cartoons. 14:54:42

Q. Oh. Is there another word you'd like to use? 14:54:45

A. It's fine. 14:54:48

Q. Is there another word you'd like to use? 14:54:49

A. No, no. I'm just joking. It's fine. 14:54:54

Q. Oh, okay. Sorry. So -- so if we start at the 14:54:56

top left-hand portion, this is Chang hub 46, right? 14:54:59

A. Right. Right. 14:55:05

Q. That diagram doesn't appear in Chang at all, 14:55:06

right? 14:55:11

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1 MR. JENSEN: Object to form. 14:55:12
2 THE DEPONENT: No. This is -- this is the 14:55:13
3 construct we get by taking Chang and adding the 14:55:13
4 teachings of Chang 2. 14:55:17
5 BY MR. BRAUSA: 14:55:19
6 Q. Okay. And -- and what are the -- walk me 14:55:19
7 through the steps that you think a POSITA would go 14:55:23
8 through, starting with Chang -- 14:55:26
9 A. Mm-hmm. 14:55:29
10 Q. -- in Figure 3 -- 14:55:29
11 A. Mm-hmm. 14:55:30
12 Q. -- to get to the cartoon shown on page 103. 14:55:30
13 A. Okay. 14:55:34
14 Q. In the top left-hand portion. 14:55:37
15 A. Okay. Okay. And then we'll separately talk 14:55:38
16 about the difference between the left and the right? 14:55:44
17 Q. We're going to go through each one of these. I 14:55:45
18 just want to make sure I have everything. 14:55:48
19 A. Okay. All right. Well, the essence of -- I'm 14:55:51
20 sorry. 14:55:51
21 The teaching of Chang 2 that we -- that we bring 14:55:57
22 over here has been simplified into this box called MUX. 14:55:59
23 Q. Mm-hmm. 14:56:04
24 A. What that includes, and we have some detail 14:56:06
25 about that elsewhere, is that there is a detection 14:56:09

1 circuit, there's a bypass circuit. I don't have Chang 2 14:56:11
2 here. But there's a couple of other things, and we're 14:56:18
3 bringing those together. And what we're doing with 14:56:21
4 those is we're connecting those to two different hub 14:56:24
5 ports in the -- the item 46. So those are the two -- 14:56:28
6 those are the two bits of teaching of Chang 2 that we're 14:56:37
7 adding to Chang. 14:56:41
8 Q. Okay. So we're adding the -- 14:56:42
9 A. We're adding the green box MUX. 14:56:45
10 Q. Mm-hmm. 14:56:47
11 A. And we are allowing the connection -- the 14:56:49
12 upstream connections from those two pieces, instead of 14:56:51
13 going to one place, which is what Chang 2 has, we're -- 14:56:54
14 we're now breaking those out so that they go to two 14:57:00
15 places. 14:57:03
16 Q. Okay. And in this diagram at the top left-hand 14:57:03
17 portion of page 103 in your report, the MUX is only 14:57:08
18 connected to one downstream port, right? 14:57:14
19 A. Yeah, that's right. 14:57:16
20 Q. Okay. So in this implementation shown here, 14:57:20
21 even given these modifications, Chang hub 46, as you 14:57:25
22 call it, would not support simultaneous communication 14:57:30
23 with the upstream port 42 and multiple downstream ports, 14:57:34
24 right? 14:57:34
25 A. No. I'm not saying that. What you get from 14:57:40

this drawing, Chang -- on page 103, Chang hub 46, is 14:57:42
that if you plug in a host on the Port No. 50, there is 14:57:49
a -- there's a path through the bridge -- 14:57:54
Q. Mm-hmm. 14:57:58
A. -- that obtains. 14:57:59
But if at the same time you plug something into 14:58:00
44, or the other 44, those connections behave as -- as 14:58:03
the user would expect them to. They just work. They 14:58:06
don't disrupt. You have simultaneity, all of those 14:58:09
kinds of things. At the same time, if you plug a device 14:58:14
into 50, it goes through MUX onto a different path into 14:58:17
the hub, and as we show it here, it's a different hub 14:58:20
port. At the same time, you could have things plugged 14:58:23
into the other two ports. 14:58:26
Q. Okay. And what would happen if you plugged in a 14:58:27
host to one of the port 44s in the upper left-hand 14:58:29
cartoon shown on 103? 14:58:36
A. You get -- it doesn't work, and what you get is 14:58:38
the -- is the behavior that's called out in the spec 14:58:40
where it doesn't work, it doesn't break anything, it 14:58:44
doesn't cause any safety problems. And they'd love it 14:58:48
if you had a way to tell the user what you've done 14:58:51
wrong, but it doesn't work, is the short answer. 14:58:54
Q. Okay. There's no mechanism shown in this -- 14:58:56
A. Yeah. 14:58:58

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Q. -- illustration you created where either of the 14:58:59
ports 44 can support a host, right? 14:59:03
A. That's right. 14:59:07
Q. Okay. And so in this implementation that you 14:59:08
have arrived at by modifying various aspects of Figure 3 14:59:13
of Chang -- again, this is the top left-hand -- 14:59:16
A. Yep. Yep. 14:59:19
Q. -- corner of page 103. 14:59:20
A. Yep. 14:59:21
Q. We added a MUX. It has a detection circuit and 14:59:23
a bypass circuit, right? 14:59:26
A. Mm-hmm. 14:59:28
Q. And is there a modification of what's shown as 14:59:29
port 50 at all, as compared to unmodified Chang Figure 14:59:33
3? 14:59:39
A. It doesn't have to be. I mean, I'm torn between 14:59:44
saying no and no, but it's an implementation detail, 14:59:48
which it is. So no, it's not different from what's 14:59:51
shown in Chang. 14:59:55
Q. Okay. 14:59:55
A. Chang 2, rather. 14:59:56
Q. So in the upper left-hand quadrant of page 103, 14:59:56
that Chang hub 46 implementation that you drew and color 15:00:01
coded does not have any dual-role ports on it, right? 15:00:09
THE DEPONENT: Port -- 15:00:12

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MR. JENSEN: Object to form. 15:00:13

THE DEPONENT: Port 50 is dual role because you 15:00:14

can plug in either a host or a device, and because of 15:00:17

that, it's -- it's dual role. 15:00:22

MR. BRAUSA: Okay. 15:00:25

THE DEPONENT: But only that one. 15:00:26

MR. BRAUSA: Okay. 15:00:27

THE DEPONENT: That's true, not the others. 15:00:28

BY MR. BRAUSA: 15:00:28

Q. But -- but that is a change from figure 3 of 15:00:29

Chang? 15:00:31

A. Correct. 15:00:31

Q. Because port 50 as described in Chang 15:00:32

Exhibit 1014 is a dedicated host port, right? 15:00:35

A. That's exactly right. 15:00:37

Q. Okay. So those are the modifications that you 15:00:38

think a POSITA would find to be obvious based on Chang 1 15:00:42

in combination with Chang 2, right? 15:00:47

A. And their own knowledge, yes. 15:00:49

Q. Okay. And their own knowledge. Got it. 15:00:51

And this diagram, just to confirm, this is 15:00:56

based, again, upper left-hand quadrant of page 103, this 15:01:02

is based on your view that hub control unit 46 on its 15:01:06

own satisfies the definition of a hub as set forth in 15:01:09

the challenged Aptiv claims? 15:01:15

A. No, that's not what I'm saying. That might be 15:01:17
partly true. What I'm saying is that 46 satisfies what 15:01:21
the USB-IF calls a hub. And, again, that's a functional 15:01:25
definition so, you know, the implementation of this 15:01:29
could vary. 15:01:33
Q. Okay. Well, understanding that, does item 46 in 15:01:33
Chang satisfy the definition of a hub as that term is 15:01:39
used in the challenged claims of the Aptiv patents? 15:01:44
A. Let's look at one and figure that out. 15:01:47
Q. Okay. Sure. We can go to claim 1 of the '420 15:01:51
patent. And let me give you a copy of that. It's 15:01:54
Exhibit 1003. 15:02:03
(Referencing Exhibit 1003.) 15:02:04
THE DEPONENT: The short answer is no. This 15:02:43
construct in claim 1 is something that's more than a 15:02:45
hub. It may contain a hub, but it also has other 15:02:51
things. Let's ignore the preamble for a moment, but 15:02:54
this hub thing has a way to accept the connection of 15:03:05
both devices and hubs, and so -- I'm sorry, devices and 15:03:11
hosts, and so it's not the USB-IF hub. What it is, is 15:03:16
it's a thing that is rendered obvious by the Chang and 15:03:20
Chang 2 drawings we were talking about. So 46 in Chang 15:03:25
is not the same as claim 1, in my opinion. 15:03:30
BY MR. BRAUSA: 15:03:33
Q. Okay. If we go to the next diagram over to the 15:03:33

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1 right, where we're now color coding all of box 40 blue. 15:03:45
2 A. Sorry. I mistakenly closed that. 15:03:54
3 Q. Oh. Sorry. It's on page 103. 15:03:57
4 A. Here we are. I got it back. Okay. 15:03:59
5 Q. Okay. So what about box 40 in Chang as you've 15:04:03
6 shown it on page 103, does that correspond to claim 1 of 15:04:09
7 the '420 patent? 15:04:13
8 MR. JENSEN: Object to form. 15:04:15
9 THE DEPONENT: In my analysis for claim 1, I 15:04:16
10 don't pick the top ones. I pick the bottom ones. I 15:04:31
11 pick the implementation that has the cross/bar switch 15:04:33
12 because that makes all of the ports dual role. And as I 15:04:37
13 understood claim 1, that's what it is supposed to do, 15:04:42
14 and so that's what -- that's -- that motivated the prior 15:04:46
15 art selection. 15:04:50
16 BY MR. BRAUSA: 15:04:53
17 Q. So you were -- you were motivated to choose and 15:04:54
18 rely on the bottom two implementations -- 15:04:56
19 A. Mm-hmm. 15:04:59
20 Q. -- that you created on paragraph 103 because -- 15:04:59
21 A. Mm-hmm. 15:05:02
22 Q. -- those were the ones that you thought are what 15:05:02
23 the claim was taking about? 15:05:05
24 A. Yes. 15:05:07
25 Q. Okay. So the top two implementations with the 15:05:07

1 MUX shown on page 103, why did you -- why did you 15:05:10
2 include those at all? 15:05:15
3 A. Well, it was anticipating future things. You 15:05:15
4 know, throughout all of these, I believe there were -- 15:05:18
5 there were places, other claims, other circumstances, 15:05:22
6 where it seemed that this implementation was a slightly 15:05:25
7 better choice to illustrate the point or whatever. The 15:05:29
8 motivation to combine argument says various things about 15:05:36
9 getting here, but the jump from a MUX to a cross/bar 15:05:38
10 switch is, in my opinion, a modest one. You know, 15:05:45
11 it's -- it's the kind of thing that would be understood 15:05:49
12 in the art and vastly predating USB. These are not UBS 15:05:51
13 specialized components. Indeed, companies that sell 15:05:56
14 these switches for, you know, decent margins may easily 15:05:59
15 have taken switches they had for decades and said, oh, 15:06:04
16 this is a USB switch and start selling it as that, you 15:06:08
17 know, make some more money. That's perhaps unfair to 15:06:12
18 people like Fairchild that make good products. 15:06:14
19 Anyway, that's the short answer. You know, we 15:06:16
20 constructed both of these things and made these drawings 15:06:18
21 in order to be able to use them where appropriate 15:06:21
22 throughout the documents. And for -- what are we 15:06:24
23 talking about, for '420 claim 1, it was the lower ones 15:06:28
24 that made sense. 15:06:31
25 Q. Okay. I want to come back to those lower 15:06:32

diagrams in just a minute. But earlier when we were 15:06:36
looking at claim 1 of the '420 patent, you said that 15:06:39
this is not a claim to a USB hub, it's a hub module, 15:06:43
which includes a hub but a lot of other stuff, right? 15:06:48
A. That's my understanding. 15:06:51
Q. Okay. And your understanding is that claim 1 15:06:51
has multiple downstream dual-role ports, correct? 15:06:53
MR. JENSEN: Object to form. 15:06:56
THE DEPONENT: Well, to be precise, it might -- 15:07:12
as written, it might only have two. I don't remember. 15:07:15
MR. BRAUSA: Okay. 15:07:20
THE DEPONENT: But, yeah. Given that two is a 15:07:20
version of multiple, yes. 15:07:26
BY MR. BRAUSA: 15:07:28
Q. Okay. And that's why you relied on the bottom 15:07:28
two implementations you drew from -- or modified from 15:07:30
Figure 3 of Chang set forth on page 103 of your report, 15:07:35
because the top two implementations with just the MUX 15:07:38
only have one dual-role port, right? 15:07:42
MR. JENSEN: Object to form. 15:07:44
THE DEPONENT: That's correct. Yeah. 15:07:45
BY MR. BRAUSA: 15:07:46
Q. And Chang 2, in fact, only has one dual-role 15:07:46
port, right? 15:07:49
A. That's correct, too. 15:07:49

Q. Okay. As a result, Chang 2 doesn't have a 15:07:50
cross/bar switch either, does it? 15:07:55
A. No. 15:07:57
Q. Okay. Why in -- so if we focus on the right two 15:07:59
cartoons that are shown on page 103 that have the entire 15:08:28
box 40 from Chang shaded blue, right? So in both of 15:08:31
those implementations, you moved the bridge outside of 15:08:38
box one -- of box 40, right? 15:08:44
A. Mm-hmm. Mm-hmm. 15:08:46
Q. That's different location from where Chang 15:08:46
describes box -- or bridge 52 being shown, correct? 15:08:50
A. That's correct. 15:08:56
Q. Why did you do that? 15:08:58
A. The primary reason was to do -- okay. I have 15:08:59
said before that the target patents here have different 15:09:13
definitions for things, and we wanted to make sure we 15:09:16
covered everything. The background reality here is what 15:09:21
I said earlier about these distinctions being invisible 15:09:25
to the host. They're electrically invisible. None of 15:09:27
this matters. Never -- nonetheless, if -- if we need to 15:09:30
meet a claim which is written in terms of something that 15:09:36
a POSITA would understand -- I'm just speaking 15:09:39
hypothetically now -- as an off-the-shelf USB hub, that 15:09:41
is to say its hub function in a box with an upstream 15:09:45
connector, downstream connectors, and that in order to 15:09:50

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1 describe our prior art, in terms of that, we sometimes 15:09:56
2 found that the drawing on the right was more convenient, 15:10:00
3 just because it -- it -- it brings the -- it brings the 15:10:04
4 physicality of the location of the ports out, and in 15:10:09
5 some cases that made it easier to discuss what was going 15:10:14
6 on. 15:10:18
7 Q. So your testimony is that you decided to modify 15:10:22
8 Figure 3 of Chang and move the bridge 52 outside of 15:10:27
9 box 40 as it's shown in Chang? 15:10:31
10 A. Mm-hmm. 15:10:33
11 Q. Because putting it outside and moving the bridge 15:10:33
12 to a different location in the two cartoons on the right 15:10:37
13 on page 103 makes it more convenient to talk about those 15:10:40
14 implementations? 15:10:46
15 MR. JENSEN: Object to form. 15:10:46
16 THE DEPONENT: Well, it's partly that. It's 15:10:47
17 partly that if in the final analysis the distinction 15:10:49
18 between these two things is thought to be important, 15:10:57
19 even if I wouldn't suggest that it was, I wanted to make 15:10:59
20 it clear that the prior art worked equally in both 15:11:03
21 cases. I think that's -- that's the best way to explain 15:11:09
22 it. In other words, it wasn't necessarily about whether 15:11:11
23 a specific claim had language which required one of 15:11:13
24 these things. It was about if a specific claim had 15:11:17
25 language which could be interpreted in order to have one 15:11:19

of these rather than the other. And because of the way 15:11:23
USB works and because of what the art is, it turns out 15:11:26
that it's equally good in both places, and so I thought 15:11:29
it was good to include both, just in the interest of 15:11:33
completeness. 15:11:36
BY MR. BRAUSA: 15:11:37
Q. Okay. I guess I'm still struggling when you say 15:11:43
"include both." You're referring to including proposed 15:11:45
modifications where the bridge is located inside box 40 15:11:51
and outside box 40? 15:11:53
A. That's correct. 15:11:54
Q. Okay. And there's nothing in Chang that 15:11:55
suggests moving bridge 52 outside of box 40, is there? 15:11:58
MR. JENSEN: Object to form. 15:12:03
THE DEPONENT: Well, it depends on how you read 15:12:04
Chang. If you -- if you read it where these pieces are 15:12:06
functional, as I think a POSITA would, it's irrelevant. 15:12:10
It could be either way. And the -- and the POSITA would 15:12:12
see the drawings that we have drawn just as a 15:12:15
convenience of the inventor and would understand that it 15:12:18
works equally if you've got this or you've got that. In 15:12:22
a way, that's another part of why we did it this way, in 15:12:25
order to sort of demonstrate the POSITA view. 15:12:29
The POSITA view of this stuff is that these 15:12:31
distinctions don't really matter, not from the 15:12:33

1 standpoint of the underlying functionality. You know, 15:12:37
2 if you put a bus analyzer upstream of this stuff, none 15:12:39
3 of these would be different. That's an important part 15:12:42
4 of the POSITA view, another reason why I included both 15:12:44
5 of these things. 15:12:47
6 BY MR. BRAUSA: 15:12:47
7 Q. Okay. So you think a POSITA would look at 15:12:48
8 Figure 3 of Chang and conclude that the bridge was 15:12:50
9 located inside of box 40 just for the convenience of the 15:12:54
10 inventor? 15:12:58
11 MR. JENSEN: Object to form. 15:13:00
12 THE DEPONENT: Basically, yeah. 15:13:01
13 BY MR. BRAUSA: 15:13:02
14 Q. Okay. And now, just to be clear, in the upper 15:13:02
15 right version of this cartoon, where you have 15:13:07
16 highlighted all of box 40 in blue and then moved the 15:13:12
17 bridge outside of the hub -- 15:13:19
18 A. Mm-hmm. 15:13:21
19 Q. -- but there's a MUX, right? 15:13:22
20 A. Right. 15:13:24
21 Q. You didn't rely on that implementation for your 15:13:24
22 obviousness analysis of claim 1? 15:13:27
23 A. No. 15:13:30
24 Q. Okay. 15:13:30
25 A. No. It seemed to me that the lower ones were a 15:13:31

1 better fit for that. 15:13:34
2 Q. Okay. And so the lower ones, you mean the one 15:13:35
3 on the left and the right? 15:13:40
4 A. The one on the left and the one on the right -- 15:13:41
5 Q. Okay. 15:13:41
6 A. -- with the cross/bar. 15:13:46
7 Q. And what's the difference between those two 15:13:47
8 implementations that you created on the bottom that have 15:13:49
9 the cross/bar switches? 15:13:53
10 A. You mean between one and the other or you mean 15:13:54
11 between the corresponding ones and the top and the 15:13:56
12 bottom. 15:13:59
13 Q. I'm sorry. Between -- let's focus on the bottom 15:13:59
14 two. 15:14:01
15 A. Mm-hmm. Right. 15:14:02
16 Q. That I think you testified these were the ones 15:14:02
17 that you relied on for your obvious analysis. 15:14:04
18 A. Right, right, right. 15:14:08
19 Q. What's the difference between the bottom left 15:14:08
20 quadrant labeled Chang Hub 46 and the bottom right 15:14:10
21 quadrant labeled Chang Hub 40, both of which have the 15:14:14
22 cross/bar switch? 15:14:18
23 A. Okay. Those two things are functionally 15:14:18
24 identical, but a POSITA could easily imagine that the 15:14:20
25 one on the left has to do with a custom hub that has 15:14:27

these interesting dual-role ports all in one box. On 15:14:29
the right side, again, it's functionally identical, but 15:14:33
this is the case where you have maybe an off-the-shelf 15:14:36
hub and then some external circuitry for whatever 15:14:39
reason. It could be about, you know, system integration 15:14:43
or, you know, it's a convenient way to connect things 15:14:48
together, lots of different things. 15:14:53
You know, to -- to somebody that doesn't 15:14:55
understand USB, these things look quite different. The 15:14:57
fact is that they -- the differences are only sort of 15:15:01
implementation details, but electrically it's the same, 15:15:06
functionally it's the same. As I said earlier, if you 15:15:10
put an upstream protocol analyzer on this, it wouldn't 15:15:12
see anything different. 15:15:15
Q. Okay. If we look at claim 1 of the '420 patent. 15:15:16
Do you have that in front of you? 15:15:21
A. Claim 1 of 420. I do. 15:15:23
Q. It's Exhibit 1003. 15:15:25
A. Oh, okay. I'm looking at this and you're 15:15:28
talking about, sorry, 420. Claim 1. Okay. Okay. 15:15:33
Claim 1. Got it. 15:15:50
Q. Does claim 1 set forth any specific structural 15:15:51
requirements for the USB hub module, or is it purely 15:15:54
functional in your view? 15:15:58
MR. JENSEN: Object to form. 15:16:00

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THE DEPONENT: In reading this, I'm reminded of 15:16:01
something that I saw the very first time I read about it 15:16:21
and hadn't thought -- thought about since, and that is, 15:16:24
in No. 1 it says universal serial bus, USB, hub module, 15:16:26
comprising various things, and one of the things it 15:16:34
comprises is a USB hub. That's, you know, potentially 15:16:39
confusing. But POSITAs, in my view, are used to that 15:16:47
kind of ambiguity. 15:16:50
I'm sorry. This isn't really answering your 15:16:56
question. Let me go back and -- and look here. 15:16:58
Okay. I -- I read this claim as functional. I 15:17:27
understand what's going on and what's intended by this 15:17:31
claim language as referring to well-known things put 15:17:34
together in a specific way where you have this 15:17:42
non-UBS-IF behavior where you plug in something which is 15:17:47
acting as a host and you have to route it through a 15:17:51
bridge, plug in something that's acting as a device and 15:17:54
you route it directly to the host. So as this claim is 15:17:57
written, it's -- it's purely functional. Of course, 15:18:01
there are other versions of this claim that say other 15:18:05
things, like it's all on an IC or, you know, I forget. 15:18:07
There may be other cases. 15:18:12
MR. BRAUSA: Okay. 15:18:13
THE DEPONENT: That's a long answer to your 15:18:14
question. 15:18:15

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BY MR. BRAUSA: 15:18:15

Q. So you don't think a -- for instance, a USB 15:18:15

routing switch, that doesn't have any specific structure 15:18:18

for you? 15:18:20

A. It has a functional structure. 15:18:23

Q. Okay. What do you mean by a functional 15:18:24

structure? 15:18:26

A. Well, it does something and you can define what 15:18:27

it does by the -- the operation of the switching 15:18:29

elements, the operation of the control elements, the net 15:18:33

effect of that switch operation on the end-to-end 15:18:37

connectively through a device. That's what I mean by 15:18:41

functional. You describe what it does, not necessarily 15:18:43

how it does it and not necessarily the physical form 15:18:47

that it takes. 15:18:51

You know, this thing leaves out discussion of 15:18:52

UBS connectors and cables because what a POSITA knows 15:18:54

about that is those don't change things. The stuff 15:19:02

described this way can operate whether they're directly 15:19:07

connected with wires or whether you use cables and 15:19:08

connectors and so on. 15:19:11

Q. Okay. So in your view, the two bottom cartoons 15:19:13

that are modified versions of Chang Figure 3, those 15:19:19

perform the same function, I think is your testimony, 15:19:27

right? 15:19:27

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A. Mm-hmm. That's right. 15:19:30

Q. And do you think these are different structures 15:19:31

or no? 15:19:32

MR. JENSEN: Object to form. 15:19:35

THE DEPONENT: Different structures. Do you 15:19:36

mean -- when you say "these," do you mean 46 and 40? 15:19:48

MR. BRAUSA: Correct. And again, I'm at the 15:19:56

bottom of -- well, page 103. It looks like you're on a 15:19:58

different page. 15:20:03

THE DEPONENT: Well, I'm on -- I'm on the 15:20:03

analysis in the -- 15:20:05

MR. BRAUSA: Okay. 15:20:06

THE DEPONENT: -- in the thing for claim 1. 15:20:07

MR. BRAUSA: Fair enough. Same figures. Yep. 15:20:08

THE DEPONENT: Yeah, it's the same drivers. 15:20:09

MR. BRAUSA: That's easier. 15:20:11

This is, just for the record, paragraph 220 -- 15:20:11

THE DEPONENT: Yeah. 15:20:14

MR. BRAUSA: -- page 114 of Exhibit 1013. 15:20:14

THE DEPONENT: 1013. 228. Yes. 15:20:16

Okay. What's written down for claim 1 is, as I 15:20:26

have testified, mostly or entirely functional. In that 15:20:29

sense, either of these drawings meets it. Why did we do 15:20:33

that? We did that because if the interpretation of 15:20:42

claim 1 in the -- in the final analysis or, you know, 15:20:46

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whoever has to look at and rule on these things is done 15:20:52
with an eye towards a specific implementation, I wanted 15:20:58
to make it clear that both of these implementations, 15:21:02
even though they're only different in physical forms, 15:21:05
not functional ones, that they both meet it. That's 15:21:09
what I've done here and what I've done in a lot of other 15:21:12
places? 15:21:14
Q. Okay. Do you have an opinion on which physical 15:21:14
form claim 1 of the '420 patent is actually referring to 15:21:16
with respect to the two implementations shown on 15:21:23
page 114? 15:21:27
A. No, I don't -- I don't have an opinion about 15:21:27
that. 15:21:30
Q. Okay. So you don't know whether the 15:21:30
requirements of claim 1 require or allow for the 15:21:32
structure of the top, Chang hub 46, or the bottom, Chang 15:21:38
hub 40? 15:21:41
MR. JENSEN: Object to form. 15:21:42
THE DEPONENT: That's correct. Yep. 15:21:43
BY MR. BRAUSA: 15:21:44
Q. So focusing in on these, again, neither of these 15:21:46
figures as color coded, as drawn, as labeled, appear in 15:21:51
Chang 1 or Chang 2 or any of the prior art, right? 15:21:56
A. No. No. These are -- these are an expression 15:21:59
of the combined art that was developed earlier. 15:22:01

Q. Okay. And I think you testified to this, but 15:22:07
you -- a graphics vendor from counsel helped you create 15:22:09
these -- 15:22:15
A. That's correct. 15:22:15
Q. -- color-coded versions? 15:22:16
A. That's correct. 15:22:17
Q. Okay. And one of the things we talked about was 15:22:18
adding a -- that's not in Chang Figure 3, is any sort of 15:22:26
switching mechanism, right? That comes from Chang 2? 15:22:32
A. That comes from Chang 2, that's right. 15:22:35
Q. Okay. But we also talked about Chang 2 doesn't 15:22:37
actually disclose a cross/bar switch, it just has a 15:22:39
simple two-way switch between one host, one device, 15:22:42
right? 15:22:42
A. That's correct. 15:22:46
Q. Okay. So where does the cross/bar switch come 15:22:46
from? 15:22:48
A. The knowledge of a POSITA looking at the Chang 15:22:49
system as modified by the Chang 2 teaching would readily 15:22:56
see that this addresses a system with multiple dual-role 15:23:01
ports via the simple modification of a one to two bucks 15:23:12
two-way N to M cross/bar. The reason that that's true 15:23:18
is that it is well within the wheelhouse of the POSITA 15:23:22
to be familiar with all of these kinds of switching 15:23:27
elements. As I said, these predate USB by decades. You 15:23:29

1 know, you see these in old analog control systems from 15:23:36
2 the 1940s. It's very well-known technology and it's 15:23:39
3 been used forever. So I regard that as an extremely 15:23:42
4 simple step. 15:23:45
5 Q. Okay. At the start of your answer, you said: 15:23:45
6 "The knowledge of a POSITA looking at the Chang 15:23:48
7 system as modified by the Chang 2 teaching would readily 15:23:51
8 see that this addresses a system with multiple dual-role 15:23:55
9 ports." 15:23:58
10 Right? I'm just reading back your testimony. 15:24:00
11 A. I'm sure I said that. I might change the word 15:24:05
12 "addresses" in the last one. Rather, I should have said 15:24:10
13 there's an incentive to move from the first step of the 15:24:14
14 modification, as we showed in one of those drawings, to 15:24:19
15 a later step, which I claim is a very small step, so MUX 15:24:22
16 to cross/bar. 15:24:25
17 Q. Right. 15:24:26
18 A. Yes. 15:24:27
19 Q. Because, again, not to belabor the point, but 15:24:28
20 Chang 2 doesn't disclose multiple dual-role ports, 15:24:30
21 right? 15:24:32
22 A. Correct. 15:24:33
23 Q. So a POSITA would have to look at Chang 2 and 15:24:33
24 say, I want to modify Chang 1 Figure 3 by first making 15:24:37
25 at least one port dual role? 15:24:42

A. Right. 15:24:44
Q. Adding a switching mechanism? 15:24:45
A. Well, the switching mechanism comes from 15:24:47
Chang 2. 15:24:50
Q. Right. 15:24:51
A. So you have that -- you have that already by 15:24:51
that -- by that combination. The second step, where you 15:24:53
go from MUX to cross/bar, I'm saying that that's a very 15:24:55
simple and obvious one based on the knowledge of the 15:24:58
POSITA. 15:25:00
Q. Right. But it's not just going from MUX to 15:25:01
cross/bar, is it? It's making all the other ports in 15:25:04
Chang Figure 3 dual role, as well as port 50, right? 15:25:07
A. Mostly, that's just going from MUX to cross/bar. 15:25:10
Q. Okay. 15:25:12
A. Yeah. 15:25:14
Q. And, again, back to a question I asked earlier 15:25:15
in the day. Why didn't you identify a specific 15:25:17
reference in your motivation to combine section for a 15:25:21
cross/bar teaching? 15:25:28
MR. JENSEN: Object to form. 15:25:28
THE DEPONENT: I'm just trying to remember what 15:25:31
we did do. Okay. What -- what we looked at were a 15:25:34
bunch of switches that are on -- that are off-the-shelf 15:25:41
switches. And then we looked at cross/bars that were in 15:25:45

some of the cited prior art, Hesse or Overtoom or 15:25:50
whatever. And the point I'm making is that a POSITA 15:25:57
would recognize that all of that stuff is very common. 15:26:00
And to answer your earlier question, we didn't see that 15:26:04
as a sort of -- another motivation to combine issue, but 15:26:11
rather, all that stuff is in the toolbox. 15:26:14
BY MR. BRAUSA: 15:26:18
Q. Okay. And -- and so if it's in the toolbox, you 15:26:18
don't need to identify a specific reference as part of 15:26:20
the motivation to combine. 15:26:23
Is that your understanding? 15:26:26
MR. JENSEN: Object to form. 15:26:26
THE DEPONENT: Because -- because that's the 15:26:27
knowledge of the POSITA, yes. 15:26:28
BY MR. BRAUSA: 15:26:29
Q. Okay. Now, with respect to how a cross/bar 15:26:29
switch operates, I think I understand it, which is it 15:26:43
connects to all the ports, all the downstream ports? 15:26:46
A. Mm-hmm. 15:26:48
Q. And it can route any particular downstream port 15:26:49
to any particular -- 15:26:53
A. Mm-hmm. 15:26:55
Q. -- upstream port, right? 15:26:56
MR. JENSEN: Object to form. 15:26:57
THE DEPONENT: Mm-hmm. 15:26:58

BY MR. BRAUSA: 15:27:00

Q. A cross/bar switch, as you have shown it in 15:27:01

these modified variants of Chang set aside on 15:27:03

paragraph -- or page 114 of your report, it can't merge 15:27:08

two signals onto a single output, can it? 15:27:10

A. No. 15:27:12

Q. Why not? 15:27:13

A. It's not a hub. You need a hub to do that. 15:27:17

Q. Okay. Got it. And so the cross/bar switch 15:27:19

can't, for instance, merge a signal from port 44 and 50 15:27:22

onto a single output, right? 15:27:26

A. No. 15:27:27

Q. Turning back to Chang 1, so this is 15:27:28

Exhibit 1014. Can I direct your attention to 15:27:43

paragraph 24? 15:27:51

A. This is really small type. 15:28:06

Yep, I see that. 15:28:28

Q. Okay. And in this portion of Chang, it says 15:28:29

that the present invention can be implemented merely by 15:28:31

integrating or adding a bridge to a USB hub, right? 15:28:35

A. That's what it says. 15:28:38

Q. And then it says: 15:28:39

"And thus, does not require too many 15:28:41

modifications on the current hub control unit." 15:28:42

Right? 15:28:44

A. Right. 15:28:44
Q. And then it says: 15:28:45
"Therefore, the derived cost is relatively low." 15:28:47
Do you see that? 15:28:47
A. Mm-hmm. Yes. 15:28:54
Q. What do you think a POSITA would understand this 15:28:54
paragraph to be describing? 15:28:57
A. Well, at the risk of belaboring an earlier 15:28:59
point, you know, there's a little bit of language 15:29:08
sloppiness at the beginning, which we see everywhere. A 15:29:16
USB hub, according to the current invention, is a USB 15:29:18
hub, except it isn't because it's different. You know, 15:29:21
I just -- that grates on me. But let's forget that. 15:29:24
No. I say that not to be silly, but just to remind 15:29:27
myself and remind all of us that a POSITA has to cope 15:29:31
with that sort of language challenge throughout all of 15:29:33
this stuff. Things are not always described accurately. 15:29:36
Nevertheless, a POSITA would understand what it is. 15:29:41
Okay. So what's -- what's going on here is that 15:29:42
the inventor is talking about, sort of conceptually, the 15:29:45
idea that, well, imagine you had a regular hub and 15:29:49
you -- and you -- let's say you took it apart, and then 15:29:52
you put some of these extra things together with a 15:29:54
soldering iron and put it back together. For some 15:29:59
reason, that's the mental image that's -- that's 15:30:01

1 conjured up here. It's not too hard. You know, you can 15:30:02
2 put it back, and you might even make it fit in the same 15:30:04
3 enclosure. That's fanciful, and I have no idea if 15:30:07
4 that's really what he meant. But without all the -- 15:30:09
5 the -- the color there, the basic idea in this paragraph 15:30:13
6 is the step from this -- the step in this invention is a 15:30:18
7 simple one from a hub to a custom hub, which has one of 15:30:22
8 it's ports modified to include a bridge. 15:30:27
9 Q. Okay. And in this paragraph, though, the Chang 15:30:30
10 inventor is saying that one advantage of this is that 15:30:33
11 you don't have to make too many modifications, right? 15:30:38
12 A. He does say that. 15:30:40
13 Q. And, therefore, the derived cost is relatively 15:30:41
14 low, right? 15:30:45
15 A. That's right. 15:30:46
16 Q. The modification is not adding much to the cost 15:30:46
17 of the hub? 15:30:48
18 A. That's correct. 15:30:49
19 Q. Okay. The modifications you're talking about 15:30:49
20 would add additional cost to the hub, right, switching 15:30:54
21 to dual-role ports, adding a cross/bar switch, moving 15:30:56
22 the location of the bridge, that sort of thing, right? 15:30:59
23 MR. JENSEN: Object to form. 15:31:02
24 THE DEPONENT: That's true, but to a purpose. 15:31:04
25 MR. BRAUSA: Okay. 15:31:07

THE DEPONENT: The cost -- the things we're 15:31:07
adding have costs and significant benefits, which we 15:31:09
think justify those costs. 15:31:12
BY MR. BRAUSA: 15:31:13
Q. Okay. Where in your report did you set forth an 15:31:13
opinion on the justification of the additional costs 15:31:16
being outweighed by the benefits? 15:31:20
A. I wasn't asked to look at cost at all. In my -- 15:31:23
in my comments now, I'm talking about the POSITA's view, 15:31:27
which, you know, might just be sort of background to our 15:31:30
present discussion. I understand from being a 15:31:33
professional engineer that the issues of costs are often 15:31:36
critical. You know, they only appear here in the 15:31:40
opinion of various prior art references where people say 15:31:44
things like, you know, there's some cost to make a port 15:31:49
dual role, but that cost is justified. They're just 15:31:52
saying this in general terms. They're not doing a 15:31:57
financial analysis because in the context in question, 15:31:59
like in a vehicle, there's benefit that everybody 15:32:02
understands to having fewer ports. Okay. That comment 15:32:04
is compelling. It's not a detailed analysis. And I 15:32:08
wasn't asked to make that kind of detailed analysis, so. 15:32:11
Q. Okay. Do you have any sense for how much 15:32:14
increase in cost would occur by making the three ports 15:32:18
shown in Figure 3 of Chang dual role? 15:32:22

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A. I -- I wasn't asked to look at that at all. 15:32:24
Q. Okay. But it would increase the cost, right? 15:32:27
MR. JENSEN: Object to form. 15:32:30
THE DEPONENT: Presumably. But, again, I wasn't 15:32:32
asked to look at that. 15:32:35
BY MR. BRAUSA: 15:32:35
Q. Okay. And do you have any idea how much 15:32:36
increase in cost it would cause to add a cross/bar 15:32:39
switch to Chang after making these ports dual role? 15:32:42
A. Again, I wasn't asked to look at that. 15:32:46
Q. Okay. But it would be an increase in cost, 15:32:48
right? This is not cost even. This is -- 15:32:51
A. Presumably, yes. But, again, I wasn't asked to 15:32:54
look at it, so -- 15:32:57
Q. Okay. 15:32:57
A. -- I would say. 15:32:58
Q. In addition to changing the -- the physical 15:32:59
components in Chang's Figure 3 to include all dual-role 15:33:00
ports, cross/bar switch, you would also need to include 15:33:07
some additional programming logic and things like that, 15:33:10
right? 15:33:13
MR. JENSEN: Object to form. 15:33:14
THE DEPONENT: Okay. You're asking me to do 15:33:15
circuit design on the fly, and I decline to do that. I 15:33:20
know how to do that. I know exactly the sort of 15:33:23

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technical details involved here. But I wasn't asked to 15:33:25
do a technical detailed design of one of these things 15:33:29
where I could answer questions about cost or tradeoff or 15:33:31
this or that. 15:33:34
BY MR. BRAUSA: 15:33:34
Q. Respectfully, you -- you put forth an 15:33:35
alternative circuit design in page 114 of your report, 15:33:37
right? 15:33:41
A. I wouldn't call this a circuit design. This is 15:33:41
a functional design at a fairly high level of detail, 15:33:53
which matches the level of detail in the patents and 15:33:55
appropriate for that reason. 15:33:57
Q. Okay. 15:33:59
A. All this stuff leaves out many lower-level 15:34:00
details about USB, which I could go on and on for hours, 15:34:03
but they aren't really relevant here. 15:34:08
Q. A POSITA would recognize that making the types 15:34:10
of modifications that you propose in these two modified 15:34:12
cartoons on page 114 would add to the cost of the hub 15:34:16
described in Figure 3 of Chang, right? 15:34:21
MR. JENSEN: Object to form. 15:34:23
THE DEPONENT: As a general concept, yes. But 15:34:23
this is getting off the subject and getting out of 15:34:33
context. 15:34:36
/// 15:34:36

BY MR. BRAUSA: 15:34:36

Q. Okay. And a POSITA would also recognize that in 15:34:36

addition to increased cost, making all these 15:34:38

modifications, to Chang's hub would add to the 15:34:41

complexity of the operation of the hub, right? 15:34:44

A. Okay. You are asking me to speculate and I'm 15:34:47

not. 15:34:49

MR. JENSEN: Object -- hold on, hold on. 15:34:49

Object to form. 15:34:51

THE DEPONENT: Sorry. 15:34:51

Yeah, no, I -- I'm going to decline to answer 15:34:52

more questions here because I've already said that I 15:34:57

wasn't asked to look at detailed designs or detailed 15:35:00

costs or the question of complexity. I was asked, as I 15:35:03

said before, about does this prior art render the things 15:35:08

obvious, and it's my opinion that it does. 15:35:13

BY MR. BRAUSA: 15:35:16

Q. So you don't know whether actually implementing 15:35:16

these cartoons in practice would increase the complexity 15:35:19

of the operation of the hub compared to unmodified 15:35:23

Figure 3 in Chang? 15:35:26

MR. JENSEN: Object. Object to form. 15:35:28

THE DEPONENT: Okay. Yeah, I'm not going to 15:35:30

answer that. 15:35:31

/// 15:35:32

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BY MR. BRAUSA: 15:35:32

Q. So respectfully, unless your attorney instructs 15:35:32

you not to answer, I'm entitled to an answer to the 15:35:35

question. It's fine if the answer is "I don't know." 15:35:37

But let me re-ask the question. 15:35:39

You don't know whether actually implementing 15:35:41

these cartoons in practice would increase the complexity 15:35:43

of the operations of the hub shown on page 114 of your 15:35:48

report as compared to unmodified hub in Figure 3 of 15:35:52

Chang? 15:35:55

MR. JENSEN: Object to form. Let me just state 15:35:55

what my objection is there, because you might be able 15:35:59

to -- to fix it. 15:36:01

I'm objecting to the phrase "complexity of 15:36:03

operation," whether that's from a technical 15:36:05

implementation perspective or whether it's a -- from the 15:36:08

perspective of a user. 15:36:12

BY MR. BRAUSA: 15:36:12

Q. Do you understand my question? 15:36:16

A. I understand some aspects of your question. 15:36:25

But, you know, you're going -- you're going to areas 15:36:27

that are outside what I was asked to look at, so I don't 15:36:33

have an opinion about those things. 15:36:36

Q. Okay. Let me try and be a little more specific. 15:36:37

Do you have an opinion on whether the technical 15:36:40

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1 implementation in practice of the modified hubs that you 15:36:42
2 created for the purposes of your obviousness analysis 15:36:48
3 shown on page 114 of your report are more complex from a 15:36:51
4 technical implementation standpoint than the unmodified 15:36:57
5 hub shown in Figure 3 of Chang, Exhibit 1014? 15:37:03
6 THE DEPONENT: Is it okay to answer? 15:37:13
7 MR. JENSEN: Yeah, you can answer. 15:37:14
8 THE DEPONENT: I will say it this way. 15:37:15
9 Superficially, yes. What makes this complicated to 15:37:20
10 answer is that you have to consider those cost questions 15:37:22
11 in context and as a cost of the system overall. So 15:37:26
12 drilling down to these things individually and focusing 15:37:32
13 on the difference in cost between one thing and another 15:37:35
14 is not really the way that I think about these things. 15:37:39
15 So I will just repeat. On the face of it and 15:37:43
16 superficially, and considered apart from everything 15:37:48
17 else, yes, the modifications I'm talking about would 15:37:51
18 probably increase the cost. 15:37:55
19 BY MR. BRAUSA: 15:37:56
20 Q. Okay. Understood. And I appreciate that. 15:37:57
21 In terms of complexity of implementing the 15:38:01
22 details of this configuration that you've come up with 15:38:06
23 on page 114, would adding the cross/bar switch, changing 15:38:10
24 the role of the ports, and modifying the associated 15:38:16
25 firmware somewhere, whatever, would that increase the 15:38:21

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technical complexity of the design of these modified 15:38:24
hubs as compared to the unmodified hub in Figure 3 of 15:38:29
Chang? 15:38:33
A. Well, okay. I have to take your question. You 15:38:34
have asked multiple questions there. It's not clear to 15:38:39
me that you have other sort of software or system costs. 15:38:42
There could be a whole other discussion about that. 15:38:46
For the most part, these changes are entirely 15:38:50
local. You know, in his remarks, Chang says, you don't 15:38:52
have to do much to modify the hub, may it well be the 15:38:56
case you don't have to do anything. In many ways, 15:39:01
you're relying on USB to just do what it does already, 15:39:04
out of the box. You don't have to do anything or pay 15:39:07
anything for that. 15:39:09
It is true that the local circuitry for a 15:39:10
cross/bar switch probably has more wires and components 15:39:12
in it, and so on, than a simple two-to-one MUX and, in 15:39:15
fact, I detail that in my report. I give examples of 15:39:20
how you could build one out of the other. And so, yes, 15:39:24
one has more than the other. 15:39:27
But -- but to -- but to go from there and say, 15:39:30
you know, you've made the system is a whole more 15:39:34
complicated. No, I'm not -- I'm not saying that. This 15:39:37
is a very local and well-controlled complexity and one 15:39:39
that has -- again, this goes back to the motivation to 15:39:41

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combine -- that has spectacularly straightforward 15:39:47
testability characteristics. That's very important to 15:39:51
real-world engineering. So, yeah, I'll -- I'll say it 15:39:53
that way. 15:39:57
Q. I think I understood you to testify that a 15:39:57
cross/bar switch has more wires and circuitry than a 15:40:00
MUX. Right? 15:40:03
A. Mm-hmm. 15:40:04
Q. And so it's more -- the implementation of it is, 15:40:04
grant me, at least a little bit more complex, and 15:40:08
that's -- 15:40:11
A. Of the -- of the one thing, yeah, that's right. 15:40:11
Q. And so by extension, adding a cross/bar switch 15:40:13
to Figure 3 of Chang, which doesn't have any switch, 15:40:16
increases the technical complexity of the -- of the hub 15:40:20
shown in Figure 3, right? 15:40:27
A. In the context where you're only looking at the 15:40:28
modification of one component. I mean, real world 15:40:34
engineering of these kinds of things, you can sometimes 15:40:37
find a way to subsume complexity of -- you know, you -- 15:40:42
you increase a bunch of circuit complexity. You might 15:40:49
sometimes find that you can -- you can consume all of 15:40:51
that stuff into a less expensive single processor with 15:40:53
no net addition in cost. You know, these things are 15:40:56
very subtle and very complicated. 15:41:00

So I'm -- I'm answering your question with 15:41:02
respect to the specific thing. If you had Chang 15:41:03
Figure 3 by itself, and you considered moving that to 15:41:08
the case where you add these things that we have here, 15:41:11
yeah, this stuff is a little more complicated locally. 15:41:15
I'm not saying that these things add to other 15:41:18
complexity. You require extra software, extra 15:41:21
configuration stuff or more trouble for the user. In 15:41:24
fact, these have, arguably, less trouble for the user. 15:41:26
So I just want to be clear that we can't 15:41:30
over-generalize this stuff. I understand your question, 15:41:33
and if you go to the specific components, yes, it's a 15:41:35
little more complicated. There's a few more circuits. 15:41:38
Q. Okay. And it's also going to be a little more 15:41:41
costly. I think you already testified to that. Right? 15:41:44
MR. JENSEN: Object to form. 15:41:45
THE DEPONENT: In the hypothetical sense where 15:41:46
you made no other changes but the one, yes, it might 15:41:48
cost a little more. 15:41:52
MR. BRAUSA: Okay. I'm going to switch gears a 15:41:53
little bit. Do we want to take another break or keep 15:42:00
plugging? 15:42:04
THE DEPONENT: I'm okay. What time is it? It 15:42:04
is quarter to 4:00? 15:42:08
MR. BRAUSA: You know what, maybe I'll suggest 15:42:21

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we take a five-minute break and I can consolidate. I 15:42:25
don't have a lot left, so I can try and finish today. 15:42:26
THE DEPONENT: Okay. That would be great. 15:42:29
THE VIDEOGRAPHER: This marks the end of Media 15:42:31
No. 4 in the deposition of Eric Welch. The time is 15:42:32
3:42 p.m. We are off the record. 15:42:35
(A recess transpires.) 15:42:37
THE VIDEOGRAPHER: This marks the beginning of 15:58:31
Media No. 5 in the deposition of Eric Welch. The time 15:58:41
is 3:58 p.m. We are on the record. 15:58:47
MR. BRAUSA: All right. Welcome back, 15:58:50
Mr. Welch. 15:58:52
THE DEPONENT: Thank you. 15:58:52
BY MR. BRAUSA: 15:58:52
Q. During the break did you talk with counsel? 15:58:52
A. No. 15:58:54
Q. Did you look at your notebook in your pocket? 15:58:54
A. I didn't. 15:58:56
Q. All right. It's been in your pocket all day? 15:58:57
A. It's been in my pocket all day. Yeah. 15:58:59
Q. All right. I wanted to ask you a couple of 15:59:01
questions. We've been talking a lot about Chang 1, 15:59:05
Exhibit 1014. I wanted to shift gears dramatically and 15:59:08
talk about Chang 2, Exhibit 1015. 15:59:12
Now, to reiterate, the routing switch 15:59:18

1 functionality required in the challenged claims, you're 15:59:24
2 relying on Chang 2 to provide that teaching, correct? 15:59:27
3 A. Chang -- Chang 2 gives a detection circuit and a 15:59:31
4 basic sort of AB switch where, to use Chang's language, 15:59:40
5 it's either the bypass path or the -- the other one is 15:59:46
6 called bridge path. I forget exactly what term it uses. 15:59:52
7 Yes, Chang gives us a simple MUX kind of switch. 15:59:55
8 Q. Okay. And Figure -- if we turn to Exhibit 1015, 16:00:01
9 Chang 2. 16:00:04
10 A. Okay. Do I have a copy of that? I thought I 16:00:05
11 did. 16:00:08
12 Q. I think you should somewhere. If not, let me 16:00:08
13 know. 16:00:12
14 A. Okay. You said it was 10? 16:00:14
15 Q. 1015. 16:00:15
16 A. Okay. 1014. Here is 2019, 2020, something -- 16:00:16
17 no. 16:00:26
18 MR. JENSEN: I might have taken his copy. 16:00:27
19 THE DEPONENT: Okay. That's possible, because I 16:00:29
20 think I had one before. All right. So. 16:00:31
21 MR. JENSEN: I put it in my stack. I apologize. 16:00:35
22 THE DEPONENT: Okay. Fine. All right. No. 16:00:37
23 So -- okay. So I'll make sure to give this to you when 16:00:38
24 we're done. 16:00:40
25 Okay. I'm sorry. Which picture now? 16:00:40

BY MR. BRAUSA: 16:00:44

Q. So I wanted to ask you some questions about 16:00:44

Figure 6 of Exhibit 1015. I think you're looking for 16:00:46

page 153 of your report. 16:01:34

A. Actually, I was looking at the Chang 2 summary. 16:01:37

Q. Okay. 16:01:40

A. In paragraph -- oh, yeah, paragraph 153. You 16:01:40

were right. But it wasn't page -- yes. 16:01:44

Q. Oh. 16:01:46

A. That's all right. We've all -- we've all done 16:01:48

it. 16:01:51

Okay. Yeah, all right. So I have the -- I have 16:01:51

the Chang Figure 6. I have my summary of Chang in the 16:01:53

prior art section. 16:01:57

Q. Great. So in the summary of the prior art, 16:02:00

there's not a reference to Figure 6, correct? 16:02:04

A. Not in this section. 16:02:05

Q. Okay. 16:02:09

A. But -- but there is -- there is later because 16:02:10

we -- as part of adapting Chang's teaching, we changed 16:02:12

the logic in his flow chart slightly. 16:02:17

Q. Right. And coincidently, that appears on 16:02:21

page 153 of your report. 16:02:24

A. Okay. Okay. That's actually what I was looking 16:02:26

for. Yes, there it is. Okay. All right. Got it. 16:02:30

Q. Okay. And so just to be clear, on page 153 of your report, which is Exhibit 1013, the figure on the left is Figure 6 as it actually appears in Chang 2. The figure on the right is, again, something that you -- you modified? 16:02:45 16:02:48 16:02:51 16:02:57 16:03:00

A. That's correct. 16:03:01

Q. Okay. And I want to focus first on Figure 6 as it actually appears in Chang 2. And I'm looking at Chang 2, Exhibit 1015. This is basically just a flow diagram describing how the bridge in Chang determines whether to switch the downstream port to device or host mode, right? 16:03:01 16:03:05 16:03:08 16:03:14 16:03:20 16:03:25

A. That's right. 16:03:26

Q. Okay. And so I'll call out the numbers of the functional blocks and I just want to make sure my understanding is correct. 16:03:27 16:03:30 16:03:32

A. Okay. 16:03:33

Q. The first thing you do is, on the upstream side you plug in a -- or connect a first host device and an external device on the downstream port? 16:03:34 16:03:37 16:03:40

A. Mm-hmm. 16:03:42

Q. That's block S601, right? 16:03:42

A. Mm-hmm. 16:03:45

Q. And then the bridge at S603 switches to a virtual slave state? 16:03:45 16:03:48

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A. Mm-hmm. 16:03:49
Q. In order to produce an inquire signal to that 16:03:50
downstream device, right? 16:03:53
A. Mm-hmm. 16:03:54
Q. And then that's at block S603, right? 16:03:55
A. Mm-hmm. 16:03:59
Q. Block S605, there's a determination made if 16:03:59
there's a response from the external devise -- device in 16:04:04
response to that inquire signal, right? 16:04:07
A. Mm-hmm. Yep. 16:04:09
Q. And so if the answer is yes in block S607, that 16:04:13
means the external device is a second host device, 16:04:16
right? 16:04:16
A. Mm-hmm. Right. 16:04:20
Q. And that makes sense because it's -- the 16:04:20
upstream of that, the bridge is acting as a virtual 16:04:23
device, right? 16:04:26
A. Right. 16:04:27
Q. And if it gets a virtual response, it's 16:04:27
communicating with the host, right? 16:04:32
A. That's right. 16:04:33
Q. If it doesn't get a response from the external 16:04:33
device at block S605, that effectively means that the 16:04:36
device is not a host, right? 16:04:41
A. Mm-hmm. 16:04:42

Q. And so the bridge in Chang 2 switches to a 16:04:42
virtual host state at S615 -- 16:04:47
A. Mm-hmm. 16:04:50
Q. -- right? 16:04:50
And that's the sort of second pathway that it 16:04:51
can go down? 16:04:53
A. Mm-hmm. Yep. 16:04:54
Q. And then a determination is made at S617 if 16:04:55
there's an inquire signal from the external device, 16:04:59
correct? 16:05:02
A. Mm-hmm. 16:05:02
Q. And if there is, the -- that signal is at 16:05:03
block S619, that the external device is a slave device 16:05:13
or operating in device mode -- 16:05:16
A. Mm-hmm. 16:05:16
Q. -- correct? 16:05:16
A. That's correct. 16:05:19
Q. And then, so the bridge knows to switch to the 16:05:20
bypass path? 16:05:22
A. Mm-hmm. 16:05:23
Q. And then in either scenario, after making the 16:05:23
determination that it's a host or a device, it either 16:05:29
goes through, as we talked about, the bypass path if the 16:05:35
downstream device is a device or it goes through the 16:05:38
bridge if it's a host device connected to the downstream 16:05:41

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1 port, right? 16:05:46
2 A. Mm-hmm. That's right. 16:05:47
3 Q. Okay. And so that takes us all the way to 16:05:48
4 blocks 7 -- blocks S613 and S625, right? 16:05:54
5 A. Correct. 16:05:58
6 Q. Okay. And as Chang discloses, there are checks 16:05:59
7 done to see whether the user has exchanged for another 16:06:03
8 external device, right? 16:06:07
9 A. That's right. 16:06:09
10 Q. Chang does not describe, in Figure 6 or anywhere 16:06:09
11 else, ever pulling a downstream device while it's 16:06:13
12 connected into the downstream port to see whether it's 16:06:17
13 changed from device mode to host mode or from host mode 16:06:20
14 to device mode, right? 16:06:24
15 MR. JENSEN: Object to form. 16:06:25
16 THE DEPONENT: That's not strictly true. I may 16:06:26
17 be skipping ahead a little bit here, but most USB 16:06:32
18 transactions where there's mode switching mimic what 16:06:38
19 happens when a user unplugs the device. Now, you 16:06:44
20 haven't said, but we have modified the language here to 16:06:49
21 make that more clear that we're not just talking about 16:06:53
22 the user making a change, but we're also talking about 16:06:55
23 whether the -- the device has on its own decided to 16:06:59
24 change roles. The underlying fact known to a POSITA, 16:07:04
25 and this is not the only way to do this, but the most 16:07:09

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1 common way of doing mode switching in the -- in the 16:07:11
2 sense that the device itself, the plugged-in device 16:07:16
3 itself, is affecting the change, the most common way to 16:07:19
4 do that is to disconnect electrically, because the way 16:07:22
5 USB works, and I won't go into the details, but the way 16:07:26
6 USB works, if you do certain things electrically, it's 16:07:29
7 indistinguishable from physically pulling out the 16:07:32
8 connector. So since that's often, I would even say most 16:07:34
9 often, done to affect a mode switch, the language as it 16:07:40
10 is here and the language as it is here is not actually 16:07:46
11 describing different operations. And in that sense, I 16:07:49
12 would say no to your question, because actually what is 16:07:53
13 done here is essentially the same thing. 16:07:56
14 MR. BRAUSA: Okay. 16:07:58
15 THE DEPONENT: As described here. 16:08:00
16 BY MR. BRAUSA: 16:08:00
17 Q. So understanding that that's your opinion, 16:08:01
18 you -- you did think it was important to present a 16:08:03
19 modified version of Figure 6 in your report, right? 16:08:06
20 A. Mm-hmm. That's right. 16:08:09
21 Q. Okay. 16:08:09
22 A. Just to clarify this. 16:08:10
23 Q. And that's because the unmodified version of 16:08:11
24 Figure 6 in Chang 2, Exhibit 1015, doesn't say anything 16:08:13
25 about checking to see if a connected device has switched 16:08:18

modes while remaining plugged in, right? 16:08:23
A. That's absolutely correct. 16:08:25
Q. Okay. And so there's no reference to that in 16:08:26
Chang 2. That's what the modification you propose is, 16:08:28
right? 16:08:32
MR. JENSEN: Object to form. 16:08:32
THE DEPONENT: Yeah. 16:08:34
BY MR. BRAUSA: 16:08:36
Q. Okay. In your report at paragraph 265 -- 16:08:36
A. Mm-hmm. 16:08:45
Q. -- you refer to Exhibit 1025, which is 16:08:52
Castelbury, right? 16:08:56
A. Mm-hmm. 16:08:57
Q. And I read paragraph 265 to be saying that 16:08:57
Castelbury describes dynamically switching without 16:09:02
unplugging a device. Right? 16:09:06
A. Mm-hmm. Mm-hmm. 16:09:07
Q. Fair? 16:09:11
A. Correct. 16:09:12
Q. And that's what we're talking about when we look 16:09:12
at claim 4 of the '420 patent, Exhibit 1003 in claim 4, 16:09:14
right? That's what this analysis pertains to? 16:09:21
A. I think that's right. Yes. Claim 4 on -- 16:09:23
starting at paragraph 260, right. 16:09:28
Q. Right. And -- and claim 4 refers to a hub 16:09:29

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module configured to dynamically switch operation 16:09:34
between a device mode or host mode, right? 16:09:37
A. Mm-hmm. 16:09:39
MR. JENSEN: Object to form. 16:09:39
BY MR. BRAUSA: 16:09:40
Q. Okay. And the Castelbury reference is not one 16:09:40
of the references that you explicitly included in your 16:09:44
motivation to combine analysis, right? 16:09:47
MR. JENSEN: Object to form. 16:09:49
THE DEPONENT: Mm-hmm. 16:09:50
BY MR. BRAUSA: 16:09:53
Q. Sorry. Your answer was a yes? 16:09:53
A. That's right. We refer to Castelbury, but we 16:09:54
don't -- we don't name him in the motivation to combine 16:10:00
specifically. 16:10:03
Q. Okay. While we have it up in front of us, in 16:10:04
the '420 patent, Exhibit 1003, can I direct you to 16:10:17
claim 20? 16:10:20
MR. JENSEN: I'm sorry. Where did you say? 16:10:41
MR. BRAUSA: Claim 20 in the '420 patent. 16:10:42
THE DEPONENT: Okay. Yes. 16:11:54
BY MR. BRAUSA: 16:11:55
Q. And so in claim 20 of the '420 patent, we again 16:11:55
see reference to the USB routing switch being configured 16:11:58
to simultaneously provide two communication paths 16:12:02

between two downstream ports and an upstream port, 16:12:07
right? 16:12:07
A. Mm-hmm. 16:12:10
Q. And here it says: 16:12:10
"Without interrupting the first communication 16:12:11
path between said first USB port and said second USB 16:12:13
port, right? 16:12:17
A. Yes, although I see in the -- in my report that 16:12:18
there's a correction from second communication path to 16:12:38
third communication path that we think is necessary to 16:12:44
make sense of this. But we will come to that. 16:12:49
Yes, I -- I see what this says. 16:12:53
Q. Okay. And in this instance, I'm going to need 16:12:55
to direct you to a different declaration. It's the 16:13:00
second '420 declaration. 16:13:03
A. Mm-hmm. 16:13:05
Q. Which is Exhibit 1013 -- 16:13:05
A. Mm-hmm. 16:13:07
Q. -- in IPR2024-495. 16:13:08
A. Yep, I have that open. 16:13:11
Q. And I want to direct your attention to 16:13:12
paragraph 307, where you provide your analysis of this 16:13:17
claim, or one of the paragraphs where you provide your 16:13:22
analysis of this claim element. 16:13:25
A. Yes. Okay. Paragraph 307. 16:13:54

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Q. Okay. And at the end of 307, you conclude: 16:13:56
"As a result, Chang supports upstream host 16:13:58
connections to both downstream USB devices and a USB 16:14:01
host without interruption." 16:14:03
Right? 16:14:04
A. That's right. 16:14:05
Q. Okay. But claim 20 of the '420 patent actually 16:14:05
requires a routing switch configured to simultaneously 16:14:10
provide these communication paths without interruption, 16:14:14
right? 16:14:14
A. That's correct. In 308, I go on to reiterate 16:14:52
the previous cross/bar configuration routed for claim 19 16:14:59
and say that the same principles apply here. 16:15:03
Q. And what I'm looking for is any description in 16:15:08
your analysis of claim 19 or claim 20 where you explain 16:15:10
why the cross/bar implementation would necessarily allow 16:15:15
for simultaneous communication between two downstream 16:15:20
ports and an upstream port without interruption, as 16:15:23
claim 20 requires? 16:15:26
A. Well, a POSITA would understand a cross/bar to 16:15:30
provide separate and simultaneous connections between 16:15:33
entities on -- on the opposite sides of it. That just 16:15:40
gives you electrical connectivity. The non-interruption 16:15:43
part is because the way hosts -- is because of the way 16:15:47
hubs work. And since the cross/bar connects these 16:15:51

things, whatever they are, to the appropriate next 16:15:55
device above, that is either directly to the hub or 16:16:01
indirectly to the hub through a bridge, what you get out 16:16:04
of that is the standard operation of a hub, which is all 16:16:09
of its ports operate independently and simultaneously 16:16:13
and in parallel. 16:16:16
Q. Is there any disclosure in Chang -- well, there 16:16:23
is no disclosure in Chang of a cross/bar switch, so 16:16:25
there is no disclosure in Chang of a cross/bar switch 16:16:28
that allows for simultaneous communication between two 16:16:31
downstream ports and an upstream port without 16:16:34
interruption, right? 16:16:37
A. Not in Chang. 16:16:38
Q. Okay. And Chang 2 doesn't have that disclosure 16:16:39
either, because it only has one downstream port and 16:16:42
doesn't have a cross/bar switch either, right? 16:16:46
A. That's correct. But you do get this effect by 16:16:48
taking Chang and adding the teachings of Chang 2. Chang 16:16:52
has a hub. Chang 2 has a multifunction dual-role port. 16:16:56
You put those together. At the initial case, you just 16:17:00
have a MUX for the two ports in Chang that you inherit 16:17:04
Chang 2 -- which you inherit directly from Chang 2, and 16:17:07
then we discussed the scaling up of that from a POSITA's 16:17:10
knowledge to have the cross/bar. Therefore, we have -- 16:17:13
we have a cross/bar, we have a hub, and we have a 16:17:17

bridge. 16:17:23

Q. So is it your testimony that the without 16:17:24

interruption portion of claim 20 is necessarily met by 16:17:27

the using a cross/bar switch? 16:17:33

MR. JENSEN: Object to form. 16:17:35

THE DEPONENT: Well, it's -- it's met by the 16:17:36

combination of the cross/bar switch and the hub and the 16:17:42

bridge for those connections which require it, yes. 16:17:46

BY MR. BRAUSA: 16:17:48

Q. Okay. And so in paragraph 307, where you say, 16:17:49

"As a result, Chang supports upstream host connections 16:17:53

to both downstream USB devices in a USB host without 16:17:56

interruption" -- 16:18:00

A. Right. 16:18:00

Q. -- that's not quite right, is it? 16:18:01

Chang doesn't support that? 16:18:03

A. It does. 16:18:04

MR. JENSEN: Object to form. 16:18:05

BY MR. BRAUSA: 16:18:05

Q. Chang on its own supports that? 16:18:05

A. Chang on its own supports that because Chang has 16:18:07

a hub. The hub gives you that. 16:18:10

Q. Okay. So all you need for claim 20 is a hub, in 16:18:12

your view? 16:18:14

A. No. 16:18:15

MR. JENSEN: Object to form. Asked and 16:18:16
answered. 16:18:19
THE DEPONENT: What you need for claim 20 is you 16:18:19
need Chang and Chang 2, and you need to scale up -- as 16:18:21
appropriate, you need to scale up the switch from 16:18:25
Chang 2 to a cross/bar. That's what meets claim 20. 16:18:29
BY MR. BRAUSA: 16:18:29
Q. Okay. So as long as you switch to a dual-role 16:18:33
port, based on Chang 2 -- 16:18:37
A. Mm-hmm. 16:18:38
Q. -- you add a cross/bar switch -- 16:18:39
A. Mm-hmm. 16:18:40
Q. Which I guess is based on the knowledge of 16:18:42
POSITA, because that's not in Chang 2, right? 16:18:45
A. It has a simple switch. The scaling up from the 16:18:48
one to the other, as I discuss, is straightforward, 16:18:50
yeah. 16:18:52
Q. The scaling up is changing from Chang 2's MUX to 16:18:52
a cross/bar switch? 16:18:55
A. Using the knowledge of a POSITA. 16:18:56
Q. Okay. And then as long as you do that, you will 16:18:57
necessarily have a routing switch configured to 16:19:00
simultaneously provide the required two communication 16:19:04
paths without interruption? 16:19:07
A. Exactly. 16:19:08

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Q. Okay. Where do you explain that in paragraphs 16:19:09
305 to 309 of your report? 16:19:14
MR. JENSEN: Object to form. Asked and 16:19:20
answered. 16:19:21
THE DEPONENT: Well, there are references here 16:19:27
to the discussion for claim 19, and also for background 16:19:29
material in 6B2. I think net of all of those things, 16:19:32
this concept of simultaneously with hubs and cross/bar 16:19:37
switches has been discussed many times. So, you know, 16:19:43
it's here and it's in the abbreviated form, but it's -- 16:19:46
it's appeared elsewhere many times. 16:19:50
BY MR. BRAUSA: 16:19:52
Q. Including the aspect of claim 20 that I'm 16:19:52
focused on, which is this without interruption 16:19:56
requirement? 16:19:57
A. That's right. 16:19:57
Q. Okay. So you think if I go to these -- I'm not 16:19:58
going to do it here today. But if I go back and look at 16:20:00
these various sections where you say C6A2, see also 8A, 16:20:03
it's going to talk about a cross/bar switch not 16:20:09
interrupting communication-wise? 16:20:11
A. Okay. 6B2 gives you routing switches. I won't 16:20:13
read it here, but 19 gives a sort of discussion of the 16:20:25
flow through the Chang 40 and 46, which includes hubs. 16:20:30
Yeah, here we have the hub from Chang 1 at Figure 4. I 16:20:35

1 think it's all here, yes. 16:20:43
2 Q. Okay. I just wanted to confirm. Earlier we 16:20:44
3 were talking about some consulting work you did on a 16:20:52
4 project for Ford and Microsoft relating to -- your work 16:20:56
5 was to create an adapter for iPod implementation in a 16:21:01
6 car, right? 16:21:04
7 A. Mm-hmm. 16:21:05
8 Q. Aside from that consulting work, have you done 16:21:05
9 any other consulting work in the automotive industry 16:21:08
10 relating to USB? 16:21:11
11 A. Boy, not that I can remember. I can't rule out 16:21:21
12 that things I have worked on have been used in cars 16:21:24
13 because, as I've said, USB in cars is not fundamentally 16:21:27
14 different. So, I mean, I have -- I've created just 16:21:31
15 dozens of different sorts of adapter products. Oh, 16:21:36
16 well, actually, here -- here's an example, and this 16:21:40
17 might even be relevant. 16:21:43
18 We created an adapter for a customer called 16:21:46
19 Red Park. Red Park is an adapter brand from the company 16:21:48
20 InnoSys, which I cofounded in 1976, still a co-owner. 16:21:54
21 We, Bramson Welch, are now InnoSys, essentially 16:21:56
22 100 percent of their engineering department, so we do a 16:22:01
23 lot of their product development. They have an adapter 16:22:03
24 device which allows you to connect an iPad to a bunch of 16:22:07
25 different kinds of drinks vending machines, and this is 16:22:13

1 used extensively by people driving trucks, okay, not 16:22:16
2 cars, but trucks. And we've -- and so this is -- this 16:22:21
3 is automotive USB in the sense that we -- we use the 16:22:26
4 power system in the truck as part of the charging 16:22:30
5 circuit to make sure the iPad doesn't run out of juice. 16:22:34
6 And what's interesting is the extent to which vending 16:22:37
7 machine service personnel can just spectacularly destroy 16:22:42
8 USB adapters. We have had some amazing things come 16:22:49
9 back. 16:22:53
10 Okay. So that's -- that's USB in a car, but not 16:22:54
11 this kind. It's not like we have a head-end unit that 16:22:57
12 we plug into. No. We provide sort of -- well, okay. 16:23:00
13 We and the iPad provide all of the USB that's used 16:23:03
14 there. And as I say, the -- what's interesting about 16:23:06
15 the car is its power system and the way in which that -- 16:23:10
16 anyway. 16:23:13
17 Q. Okay. 16:23:13
18 A. That -- that's -- 16:23:13
19 Q. So aside from that, there's nothing else you 16:23:15
20 can -- 16:23:18
21 A. Nothing -- nothing that I can relate -- 16:23:18
22 Q. -- think of that's related to USB -- 16:23:19
23 A. Right. 16:23:19
24 Q. -- implementations and automotive specifically? 16:23:20
25 A. Right. Right. 16:23:22

MR. BRAUSA: Okay. All right. Subject to any 16:23:23
redirect by Mr. Jensen, I don't have any questions for 16:23:26
you at the time. 16:23:29
THE DEPONENT: Okay. 16:23:30
MR. BRAUSA: Pass the witness. 16:23:30
THE DEPONENT: Thank you. 16:23:31
MR. JENSEN: Let's just go ahead. I don't think 16:23:34
we need to take a break, if that's -- 16:23:36
THE DEPONENT: Sure. 16:23:38
MR. JENSEN: -- if that's okay. 16:23:38
EXAMINATION 16:23:39
BY MR. JENSEN: 16:23:39
Q. Good afternoon, Mr. Welch. 16:23:39
A. Good afternoon. 16:23:42
Q. You and I know each other, right? 16:23:42
A. We do. We've worked together for a year and a 16:23:45
half. 16:23:48
Q. Since what was it? 16:23:48
A. May of 2023. 16:23:50
Q. May 2023. Okay. So I just want to ask some 16:23:51
follow-up questions on a handful of topics that patent 16:23:55
owner's counsel asked you about. Let me start with a 16:23:59
question or two about the Castelbury reference. 16:24:05
A. Mm-hmm. 16:24:08
Q. Do you recall being asked about -- 16:24:08

A. I do. 16:24:10
Q. -- the Castelbury reference? 16:24:10
A. Yes. 16:24:12
Q. And can I direct your attention in the '420 16:24:12
patent report, your declaration, excuse me, for the '420 16:24:21
patent? 16:24:29
A. 495 or 228? 16:24:29
Q. In 228. 16:24:31
A. 228. Okay. I got that. 16:24:32
Q. And let me ask you turn to paragraph 175. 16:24:35
A. Okay. This is motivation to modify Chang in 16:24:56
view of Chang 2 and the knowledge of the POSITA. 16:24:59
Q. Well, you anticipated my first question, which 16:25:01
is what -- what is this section? 16:25:04
A. Okay. 16:25:05
Q. And I believe you said it's the motivation to 16:25:09
modify? 16:25:10
A. That's right. 16:25:11
Q. Thank you. 16:25:12
A. It's the first paragraph in that section, which 16:25:12
is No. 9. 16:25:14
Q. Okay. Let me direct your attention to 16:25:15
paragraph 177, and I will just have you go ahead, and if 16:25:18
you wouldn't mind reading that out loud. 16:25:23
A. Paragraph 177? 16:25:25

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Q. Yes. 16:25:27

A. Okay. 16:25:27

"Second, dual-role ports that could attach to 16:25:28

dual-role products have several common-sense benefits. 16:25:31

It would be impractical and contrary to the goals of the 16:25:35

USB specifications to require consumers that use 16:25:38

dual-role products to understand when to switch 16:25:41

connections between a dedicated host port, e.g., Chang's 16:25:43

port 50, and a dedicated device port, the corresponding 16:25:46

port 44 in Chang. The consumer would not necessarily 16:25:51

know when to connect the product to the appropriate 16:25:55

port. At the very least, it would be inconvenient for 16:25:57

the consumer to have to disconnect and reconnect the 16:25:59

product to different ports. Further dual-role ports 16:26:02

save costs. Dedicated ports have a disadvantage in that 16:26:06

it requires multiple connectors, multiple ASIC pins and 16:26:08

so on, which add overhead and increases the costs. The 16:26:11

1025 Castelbury reference has some comment about this. 16:26:19

Also, the, what, 1022 1.1, an OTG product, is a portable 16:26:25

device that uses a single micro AB receptacle and no 16:26:32

other USB receptacles to operate at times as a 16:26:36

USB-targeted host and at times as a USB peripheral. 16:26:40

Dual-role ports reduce the cost and the number of 16:26:44

necessary ports relative to dedicated ports and host 16:26:46

ports." 16:26:50

Q. Okay. Thank you. And apologies that it was a 16:26:50
long -- a long paragraph. 16:26:53
A. That's okay. 16:26:54
Q. So is it correct that you discussed the 16:26:55
Castelbury reference in the motivation to modify section 16:26:58
of your report? 16:27:02
MR. BRAUSA: Objection. Leading. 16:27:03
THE DEPONENT: It's -- it's here. I've just 16:27:04
read it out. 16:27:07
BY MR. JENSEN: 16:27:07
Q. Yes. And I may have misheard you earlier to say 16:27:08
that Castelbury was not part of the -- I don't remember 16:27:11
the exact word, the combination that you used. Can you 16:27:15
explain what -- what you meant by that? 16:27:18
A. I was possibly answering a limited version. The 16:27:19
title of the section is Motivation to Modify Chang in 16:27:24
View of Chang 2 and the Knowledge of the POSITA. All I 16:27:27
really meant was that Castelbury did not appear in that 16:27:31
overview of the section. Obviously, as we've just seen, 16:27:34
Castelbury is here in paragraph 177. 16:27:38
Q. And Castelbury is not one of the references that 16:27:42
formed any of the grounds in your report, correct? 16:27:46
A. To the best of my memory, yes. 16:27:48
Q. Okay. But it is discussed in the motivation to 16:27:50
modify section? 16:27:52

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A. That's right. 16:27:52
Q. Okay. Let me follow up with something that you 16:27:53
read from paragraph 177. And why don't we -- I think 16:27:57
it's in the middle of the page there, and I will just go 16:28:03
ahead and read this sentence. It says: 16:28:06
"Further, dual-role ports save costs. Dedicated 16:28:08
ports have," quote, a disadvantage in that it requires 16:28:13
multiple connectors, multiple ASIC pins and the like, 16:28:16
which adds," quote, "overhead an," quote, "increases the 16:28:20
costs." 16:28:24
Do you see that? 16:28:24
A. I do. Yep. 16:28:25
Q. Do you agree with that statement from the 16:28:26
Castelbury reference as of 2013? 16:28:28
A. I do. 16:28:30
Q. And can you read the last sentence in paragraph 16:28:31
177? 16:28:34
A. "Dual-role ports reduce the cost and number of 16:28:36
necessary ports relative to dedicated device and house 16:28:39
ports." 16:28:44
Q. Can you further explain what you mean by that? 16:28:44
Because I -- I think I heard you say earlier that in 16:28:47
certain circumstances dual-role ports could increase the 16:28:50
cost of a product? 16:28:54
A. All right. Okay. I see what you're asking 16:28:56

about. Yes, in -- in earlier testimony, I was taking 16:28:57
questions as having to do with isolated circuit elements 16:29:05
and the rather trivial modification that if you take a 16:29:09
circuit element with a MUX in it and you modify 16:29:14
stand-alone that circuit element to include a more 16:29:17
complicated circuit like a cross/bar, the marginal cost 16:29:24
between those things is probably small, perhaps even 16:29:28
tiny, but it's not zero. So in that discussion, I was 16:29:33
talking about an isolated case. 16:29:37
What Castelbury is talking about here is the 16:29:40
overall cost of the -- of the system and the extremely 16:29:44
beneficial effect, both for user experience and cost of 16:29:51
having fewer ports. So the difference here is that this 16:29:55
is talking about sort of the overall cost, and in that 16:29:59
previous exchange, I was talking about marginal costs in 16:30:03
a very hypothetical stand-alone circuit engineering 16:30:08
example. 16:30:13
Q. Let me direct your attention to the Chang 2 16:30:14
reference. And let me know when you have that in front 16:30:21
of you. 16:30:27
A. I have it. 16:30:28
Q. And you were asked a number of questions about 16:30:28
this reference during your cross-examination, correct? 16:30:30
A. Mm-hmm. 16:30:37
Q. Okay. Please turn to Figure 2. And this is 16:30:37

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Exhibit 1015, Figure 2? 16:30:46
A. Mm-hmm. 16:30:47
Q. What is shown in Figure 2 of Exhibit 1015, 16:30:48
Chang 2? 16:30:52
A. This appears to be an electrical schematic with 16:30:52
a number of components and parts and -- and other 16:30:56
things, which I can readily identify and discuss based 16:31:04
on my knowledge of electrical engineering and my 16:31:08
extensive experience reading schematic diagrams. 16:31:12
Q. And I just want to ask you about one specific 16:31:14
aspect to this, which is the box labeled 13. 16:31:18
Do you see that? 16:31:18
A. Right. 16:31:24
Q. Can you describe for me what is illustrated by 16:31:24
the component 13, or the box 13? 16:31:28
A. Well, first of all, one presumably takes that in 16:31:29
the context of the other drawings here. So elsewhere, 16:31:35
we have a block diagram of 13, in Figure 5, for example. 16:31:39
So a POSITA looking at Figure 2 that would say, oh, 16:31:45
here's the wiring diagram for this thing, what does it 16:31:49
do, oh, here's what it does in Figure 5. But then as 16:31:53
you drill down and look at things here, it all sort of 16:31:55
adds up because, for example, you can see the USB data 16:31:58
lines coming and going. They're called DP and DM. 16:32:02
That's a -- that's a standard term that you see on 16:32:05

schematics everywhere. There's an A port and a B port, 16:32:08
and then there's -- I don't see it offhand, but then 16:32:14
there's -- then there's the upstream port someplace. 16:32:20
Q. So -- well, I'll let you finish. Were you done? 16:32:29
A. Hang on a sec. 16:32:34
All right. Well, I won't -- I won't finish this 16:32:46
exercise. But go ahead. 16:32:48
Q. So, yeah, in directing your attention to what's 16:32:50
identified as -- as 13 in this figure. 16:32:54
A. Mm-hmm. 16:32:56
Q. Would a POSITA understand what's shown in box 13 16:32:57
to be a single chip or multiple chips? 16:33:02
MR. BRAUSA: Objection. Leading. 16:33:06
THE DEPONENT: Based on normal schematic label 16:33:08
and practices, the appearance of the reference 16:33:11
designator U1 almost universally means this is one chip, 16:33:14
because if it was multiple chips, there would be 1, U2, 16:33:21
U3. 16:33:25
BY MR. JENSEN: 16:33:26
Q. Would the cost of that chip be any different if 16:33:27
a POSITA were to program that chip to perform the 16:33:29
functions of a multiplex or a cross/bar? 16:33:34
MR. BRAUSA: Objection. Compound. 16:33:38
THE DEPONENT: If you're talking about something 16:33:39
that can be changed only by reprogramming it, no. 16:33:49

BY MR. JENSEN: 16:33:52
Q. You can set that aside. 16:33:52
A. Okay. 16:33:55
Q. Do you recall being asked some questions related 16:34:02
to costs during your cross-examination? 16:34:05
A. Yes. 16:34:07
Q. And I believe you testified that you were not 16:34:08
asked to look at certain cost information. Is that 16:34:11
correct? 16:34:11
A. That's right. 16:34:15
Q. Can you further explain what you mean -- what 16:34:16
you meant by that in view of, for example, paragraph 177 16:34:19
of your report that does discuss certain costs? 16:34:23
MR. BRAUSA: Objection. Leading. 16:34:29
THE DEPONENT: The Castelbury reference is 16:34:30
certainly part of my report, and Castelbury certainly 16:34:35
says, and I agree with, the notion that looking at 16:34:38
overall system costs, having fewer ports is a -- is a 16:34:43
better cost prospect. The conversation you were 16:34:46
referring to before, and I apologize if I misunderstood 16:34:49
the question there, but what I was actually talking 16:34:51
about was an isolated hypothetical example of -- of just 16:34:54
circuit engineering in -- in a vacuum. If you take a 16:34:58
circuit that does certain things and then you add 16:35:01
components to it, considering nothing else, yes, it's 16:35:04

1 going to cost a little more. Now you have to take the 16:35:08
2 overall context of what it is that you're doing, and you 16:35:13
3 gave an example, if you could change the function a 16:35:15
4 little bit by reprogramming one of those parts, well, 16:35:17
5 then there's an example where it doesn't change 16:35:20
6 anything. 16:35:22
7 The thing I had in mind was changing a 1 to 2 16:35:22
8 MUX into 3 to 4 cross/bar. And while it's not the only 16:35:28
9 way to do it, if you're doing it with transistors, yes, 16:35:34
10 you need a few more transistors in the one case than the 16:35:37
11 other, the marginal case being, you know, vanishingly 16:35:39
12 small. 16:35:43
13 BY MR. JENSEN: 16:35:43
14 Q. Do you remember being asked some questions about 16:35:46
15 the complexity of implementing the conceptual diagrams 16:35:47
16 in your reports on page -- 16:35:53
17 A. Are you still in 228? 16:36:08
18 Q. -- page 103? 16:36:09
19 A. In 228? 16:36:11
20 Q. In 228, I believe. Yes. 16:36:12
21 A. Okay. 103? Page 103? 16:36:15
22 Q. Yes, page 103? 16:36:17
23 A. Okay. Yeah. 16:36:19
24 Q. -- of 22 -- 16:36:20
25 A. Yes. 16:36:21

Q. Do you recall being asked some questions about 16:36:22
the complexity of implementing the conceptual diagrams 16:36:24
illustrated on page 103 of your report? 16:36:29
A. I do. 16:36:31
Q. Okay. And do you recall being asked some 16:36:31
questions about the complexity of a cross/bar switch 16:36:34
relative to a MUX? 16:36:39
A. I do, yes. 16:36:40
Q. How difficult would it be, in your opinion, for 16:36:41
a POSITA to program a 2-to-1 MUX? 16:36:44
A. Not difficult at all. 16:36:48
Q. How difficult would it be for a POSITA to 16:36:49
program, for example, a 2-by-3 cross/bar? 16:36:54
A. It would be essentially the same. I mean, the 16:36:59
additional complexity, any way you look at it, is 16:37:04
trivial. 16:37:10
Q. Would your answer be any different for a 3-by-4 16:37:11
cross/bar? 16:37:14
A. No. 16:37:14
Q. And that's something that would have been within 16:37:14
the knowledge and skill of a POSITA in 2013? 16:37:17
A. Certainly, yes. 16:37:19
Q. So sticking with page 103 of your report and 16:37:38
looking at the diagram in the upper left-hand corner 16:37:42
labeled Chang Hub 46. 16:37:47

Do you see that? 16:37:50
A. I do. 16:37:50
Q. Do you recall being asked some questions about 16:37:51
the hub control unit 46 in that diagram? 16:37:54
A. Yes. 16:37:57
Q. And you were asked some questions about the hub 16:37:58
control unit 46 in connection with claim 1 of the '420 16:38:01
patent? 16:38:07
A. Right. 16:38:07
Q. Let me direct your attention in your report to 16:38:07
claim 1 of the '420 patent. 16:38:15
A. Mm-hmm. Page 115, I think. 16:38:23
Q. Yes. And you're looking on page 115? 16:38:26
A. Mm-hmm. 16:38:33
Q. Is the preamble of '420 patent claim 1? 16:38:33
A. Mm-hmm. Right. 16:38:36
Q. Okay. And can you just read what the preamble 16:38:37
recites? 16:38:40
A. "A universal serial bus USB hub module 16:38:40
comprising." 16:38:45
Q. And let me direct your attention to claim 16:38:49
element 1C that's at paragraph 227. 16:38:55
A. "A USB hub interconnected to the first port and 16:39:07
the second" -- sorry, "first USB port and the second USB 16:39:09
port." 16:39:12

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Q. So claim 1 recites in the preamble a USB hub 16:39:12
module and claim element 1C recites a USB hub, correct? 16:39:22
A. That's right. 16:39:26
Q. Okay. And I want to make sure I -- I understand 16:39:29
your previous testimony about how the Chang hub on 16:39:31
page 103, and in particular the hub control unit 46 -- 16:39:39
A. Mm-hmm. 16:39:42
Q. -- maps to claim 1 of the '420 patent, and in 16:39:43
particular with respect to the recited USB hub module 16:39:47
and USB hub. 16:39:53
A. Yes. Is that a question? 16:39:54
Q. Yes. 16:40:01
A. Okay. If I remember, I previously said that the 16:40:01
Chang 46 reference did not map to the USB hub in 16:40:07
claim 1. What I meant by that was the hub module in 16:40:14
the -- in the drawing of page 103, I take that to be a 16:40:18
USB hub, whereas the claim 1 of 420 describes a USB hub 16:40:23
module, which is -- which is quite different. And in 16:40:32
particular, the Chang hub -- hub control unit No. 46 16:40:35
does map to the USB hub in -- in the claim 1C, where it 16:40:42
says a USB hub interconnected to the first port and the 16:40:49
second port. 16:40:54
Q. All right. Thank you. 16:40:54
Let me direct your attention to the Chang 16:40:57
reference, Exhibit 1014. 16:41:01

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A. Okay. Got that. 16:41:16
Q. And do you recall being asked some questions 16:41:17
about the various figures in the Chang reference? 16:41:20
A. Correct. I do. 16:41:26
Q. And you were asked some questions having to do 16:41:28
with whether the Chang reference would disclose to a 16:41:31
POSITA that two downstream USB devices could 16:41:34
simultaneously communicate with an upstream host 42? 16:41:39
A. Yes, I remember that. 16:41:43
Q. Okay. Let me direct your attention to 16:41:46
Figure 4 -- 16:41:49
A. Okay. 16:41:51
Q. -- of Chang. 16:41:52
What is illustrated in Chang Figure 4? 16:41:55
A. On the face of it, Figure 4 is Figure 3 with 16:41:57
the -- the inside pieces left out, for whatever reason. 16:42:08
And what's added is PC 20 connected to the upstream port 16:42:12
42 and downstream devices connected a host 70 to port 50 16:42:17
and devices numbered, variously, 60 connected to the 16:42:24
port 44. 16:42:28
Q. Would a POSITA understand, in view of Chang 16:42:29
Figure 4, that three downstream devices and one 16:42:33
downstream host could simultaneously communicate with 16:42:38
the upstream host, PC 20? 16:42:40
MR. BRAUSA: Objection. Leading. And form. 16:42:44

THE DEPONENT: Assuming that what I said before 16:42:46
is correct, which I think it is, that this is really 16:42:51
Figure 3 with stuff added, yes. And -- and in addition 16:42:55
to that, I'm aware there's language in the patent that 16:42:58
talks about this. 16:43:00
So the answer is yes, because what you have in 16:43:01
between hub control unit is a USB hub, and a POSITA 16:43:04
would know how that works. And one of the things that 16:43:07
does is these downstream ports, 44 and -- and all the 16:43:10
different 44s, they're all separate and simultaneous. 16:43:16
And downstream port 50 is also simultaneous because it 16:43:19
goes through a dedicated bridge, and then the bridge 16:43:23
occupies yet another dedicated hub port. 16:43:28
MR. JENSEN: You can set that aside. 16:43:33
BY MR. JENSEN: 16:43:57
Q. So I want to ask you a question about both Chang 16:43:57
and Chang 2 references. 16:44:02
If I recall correctly, you testified earlier 16:44:04
that neither of the Chang or Chang 2 references were in 16:44:08
your personal toolbox? 16:44:12
A. Mm-hmm. 16:44:13
Q. Do you recall that? 16:44:14
A. Prior to this, yes, that's right. 16:44:14
Q. What is your understanding as to whether a 16:44:16
POSITA would have had Chang and Chang 2 in its toolbox? 16:44:20

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A. I understand that the way this works is that a 16:44:24
POSITA has access to everything that's published, 16:44:32
including, you know, all the references we have here, 16:44:37
specifications, textbooks, patents, and so on. 16:44:40
Q. Do you recall being asked some questions about 16:44:46
the meaning or definition of an integrated circuit? 16:44:56
A. I think we've touched on that a couple times, 16:44:59
yes. 16:45:04
Q. And one of the things that you said was an 16:45:04
integrated circuit would include transistors? 16:45:07
A. Mm-hmm. Right. 16:45:10
Q. And you were asked whether it would be possible 16:45:12
or whether -- strike that. 16:45:14
You were asked whether a POSITA would be able to 16:45:16
implement either a pull-up or pull-down resistor in an 16:45:21
integrated circuit? 16:45:25
A. I remember this discussion, yes. 16:45:26
Q. Okay. What is your understanding as to whether 16:45:28
a POSITA would be able to implement a resistor, either 16:45:30
using transistors or otherwise, in an integrated 16:45:36
circuit? 16:45:40
A. It's my understanding that there are or there 16:45:40
might be several different ways of doing this, and that 16:45:46
it's -- it's not necessarily the case that you can add a 16:45:50
physical resistor to the inside of an integrated circuit 16:45:54

1 package or that it's desirable to do so. But that 16:45:59
2 instead, it's -- it's possible to use a transistor 16:46:02
3 configured in a particular way. The marginal cost of 16:46:06
4 transistors inside an integrated circuit is incredibly 16:46:08
5 small, and so any circuit elements which can be done 16:46:12
6 with transistors are, you know, fair game for a chip 16:46:17
7 designer. Other sorts of circuit elements that don't 16:46:24
8 map on to transistors as well, for example, special 16:46:29
9 power banks or whatever, those tend to be more to 16:46:33
10 implement inside -- inside an integrated circuit. 16:46:39
11 Q. Let me direct your attention to Exhibit 2019. 16:46:42
12 A. I think that's one of the new ones. Yes. The 16:46:50
13 Welch patent publication from 2000 something, filed 16:46:53
14 2003. Right. 16:46:58
15 Q. And this is a publication of a patent 16:46:59
16 application on which you were the -- a named applicant? 16:47:08
17 A. Mm-hmm. 16:47:12
18 Q. To the best of your knowledge, did this 16:47:12
19 application ever issue as a patent? 16:47:14
20 A. To the best of my knowledge, it did not. 16:47:16
21 Q. When, approximately, was this application filed? 16:47:18
22 A. Filing date was September 25, 2003. 16:47:23
23 Q. Prior to filing this application, had you filed 16:47:27
24 any other patent applications? 16:47:30
25 A. No. This was the first one I ever did. 16:47:31

Q. And at the end of the application, there were a 16:47:33
number of numbered claims? 16:47:38
A. Mm-hmm. 16:47:40
Q. I think you said there was a big number? 16:47:40
A. Eighty -- 80 claims, yeah. 16:47:42
Q. Eighty claims. If you recall, who drafted those 16:47:45
claims? 16:47:47
A. Most of this patent, especially including the 16:47:49
claims, were -- were drafted by a patent attorney that 16:47:53
we hired to help with this process. And, you know, 16:47:59
being busy with other things and being less experienced 16:48:03
with patents, I agreed to go along with that, and at the 16:48:05
end of it, or sometime after that, I concluded that 16:48:11
wasn't the -- I wouldn't do it that way again. 16:48:14
Q. I seem to have misplaced my copy of 16:48:18
Exhibit 2019. Could I just look at yours for a moment? 16:48:30
I see in here, at least starting with Figure 10, 16:48:48
there are a number of figures that appear to be hand 16:48:52
drawn? 16:48:55
A. Mm-hmm. 16:48:55
Q. Is that correct? 16:48:55
A. Yeah, that's right. 16:48:57
Q. Who prepared those hand-drawn figures, if you 16:48:57
recall? 16:49:03
A. I don't recall. But looking at them, I can 16:49:03

guess. For one thing, the writing on these is much -- 16:49:06
the lettering, anyway, is much too neat to be me. So if 16:49:10
I had to guess, I would say I drew these freehand and 16:49:15
then the -- and then the attorney got someone else with 16:49:17
better penmanship to actually write them. But, frankly, 16:49:20
that's a guess. 16:49:23
Q. And when you filed -- no. Strike that. 16:49:24
Was part of what you considered the invention in 16:49:48
Exhibit No. 2019 software related? 16:50:00
A. Definitely. 16:50:07
Q. You can set that aside. 16:50:07
A. Okay. 16:50:11
Q. Let me ask you to turn back to the Chang 2 16:50:11
reference. And please turn to Figure 5. 16:50:33
A. Okay. I have that. 16:51:02
Q. And do you recall being asked some questions 16:51:03
about Figure 5? 16:51:07
A. I do. 16:51:09
Q. And one of those questions had to do with a 16:51:09
routing switch. 16:51:14
Do you recall that? 16:51:14
A. I do. Yes. 16:51:16
Q. Okay. And I believe you had identified that the 16:51:16
box labeled 133 -- I forget exactly what you said, but 16:51:24
it was part or all of the routing switch? 16:51:30

A. Well, I think that what I said is that 133 is 16:51:32
sort of the physical switch. The CPU 135, as this is 16:51:36
drawn, would appear to be the place where a decision is 16:51:39
made about what the -- what the switch ought to be set 16:51:44
to. 16:51:47
Q. And you're not saying that Chang 2 Figure 5 16:51:50
expressly discloses a multiplexor, correct? 16:51:57
MR. BRAUSA: Objection. Leading. 16:52:00
THE DEPONENT: I'm not saying that, no. 16:52:01
BY MR. JENSEN: 16:52:02
Q. Or a cross/bar? 16:52:02
A. No. 16:52:03
MR. BRAUSA: Same objection. 16:52:04
BY MR. JENSEN: 16:52:05
Q. And if you look at the CPU 135, it has a 16:52:21
vertical line coming out of it with an arrow at the end. 16:52:24
Presumably, it's going from the CPU downward. 16:52:28
Do you see that? 16:52:28
A. Mm-hmm. 16:52:33
Q. And it looks like that arrow is going to two 16:52:33
different locations. Is that correct? 16:52:36
A. Mm-hmm. Mm-hmm. 16:52:37
Q. What are those two locations that that signal is 16:52:37
going to? 16:52:40
A. Well, the lower one is the bypass circuit, and, 16:52:41

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as I said, I guessed that the bypass circuit No. 133. 16:52:44
The other place the arrow goes is the second USB 16:52:50
controller, 132. 16:52:53
Q. Okay. And what is your understanding as to why 16:52:56
the CPU would also send a signal from the detection unit 16:52:59
to the block labeled 132? 16:53:07
MR. BRAUSA: Objection. Form. Mischaracterizes 16:53:09
the figure. And leading. 16:53:11
THE DEPONENT: Okay. Rather than guessing, 16:53:23
paragraph 39, I think answers that question. Detection 16:53:40
unit 134 -- sorry. That's the wrong part of it. 16:53:44
Okay. "Detection unit 134 will produce a 16:53:56
bridging detection signal which causes the CPU 135 to 16:53:59
activate the second USB in controller 132 for operation 16:54:03
according to the bridging detection signal, thus making 16:54:07
it possible for the second USB controller and first USB 16:54:14
controller to be achieved." 16:54:19
I read that as meaning when the CPU has figured 16:54:23
out the downstream device is a host, that the CPU causes 16:54:26
the appropriate things to be done, including turning on 16:54:33
the unit 134 and causing it to sort of insert itself 16:54:39
into the -- into the switch. I don't know that. That's 16:54:46
just plausible. It's not certain. 16:54:52
Q. I think you referenced 134. Did you mean 132? 16:54:55
A. Sorry. I'm sorry. I meant 132. Yeah. 134 is 16:54:58

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the detection unit -- 16:55:01

Q. Okay. 16:55:01

A. -- and I had those numbers wrong. 16:55:02

So, right. 16:55:03

MR. JENSEN: I'll pass the witness. 16:55:05

EXAMINATION 16:55:05

BY MR. BRAUSA: 16:55:05

Q. Just to confirm, CPU 135 and detection unit 134 16:55:13

in Figure 5 of Chang 2, those are all part of the 16:55:15

control chip, right? 16:55:20

A. Yes. That's my understanding. 16:55:21

Q. Earlier you testified, I think with respect to 16:55:22

claim 1 of the '420 patent, that a hub module was very 16:55:25

different than a hub in your view, correct? 16:55:28

A. The language of claim 1, the hub module, as I 16:55:31

remember the wording, is about everything in claim 1. 16:55:35

Q. Okay. 16:55:38

A. And the USB hub that's part of that is just a 16:55:38

USB hub. 16:55:41

Q. Okay. And so is there any disclosure in Chang 16:55:42

of the difference between the claimed hub module and 16:55:47

just a hub? 16:55:50

MR. JENSEN: Object to form. 16:55:51

THE DEPONENT: Well, it's at least implicit 16:55:55

by -- by the way things are drawn and described. It may 16:55:57

rely somewhat on the knowledge of the POSITA to fully 16:56:00
appreciate. We talked about this a little bit earlier. 16:56:04
Chang may not have said that you get simultaneous 16:56:08
connectivity. And so what I said in answer to one of 16:56:11
your questions is that Chang implicitly discloses that 16:56:14
because it has a hub, a POSITA would know what a hub 16:56:18
does, and that's one of the things that the hub does. 16:56:22
BY MR. BRAUSA: 16:56:24
Q. Okay. So there's no explicit disclosure in 16:56:24
Chang of the difference between a hub module as claimed 16:56:27
in the '420 patent and just a hub standing on its own? 16:56:30
MR. JENSEN: Object to form. 16:56:39
THE DEPONENT: Let me just look at this again. 16:56:40
Excuse me while I'm looking for some specific wording in 16:57:13
here that I think bears on this. 16:57:16
Okay. I'm sorry for the delay here. There -- 16:58:13
there's a somewhat folksy discussion in paragraphs 19 16:58:15
and 20 that describes the process of, okay, you start 16:58:18
with a conventional hub, and that has various different 16:58:21
kinds of things. And then in paragraph 20, he talks 16:58:27
about adding things and ends up saying it's -- this may 16:58:30
still not be in paragraph 20. He's talking about adding 16:58:44
the bridge. 16:58:47
My reason for referencing this thing is that 16:58:47
implicitly he's talking about the difference between 16:58:49

1 those things, because he says, let's start with a 16:58:53
2 conventional hub -- that's what he tends to call it -- 16:58:56
3 and then we'll talk about what it does by itself. And 16:58:57
4 we note what that is. And then -- and then we can get 16:59:01
5 these additional capabilities by making these changes, 16:59:03
6 and, you know, done in the right way, it's not going to 16:59:07
7 cost very much, it's not going to be too difficult. So 16:59:11
8 implicitly from that sort of language, he's saying these 16:59:15
9 things are different. You know, you start with a 16:59:18
10 conventional hub, and it does what it does, and then my 16:59:21
11 invention is this other thing, which is different from 16:59:23
12 that. 16:59:26
13 BY MR. BRAUSA: 16:59:26
14 Q. Okay. And I think you testified earlier that 16:59:27
15 the requirements of claim 1 of the '420, in your view, 16:59:29
16 and the description in Chang are largely functional, 16:59:34
17 right? They can take various physical forms that's not 16:59:37
18 specified in the claim or in Chang? 16:59:40
19 A. That's certainly true in the claim. Again, 16:59:42
20 Chang's folksy discussion, if I can characterize it that 16:59:46
21 way, it sounds awful physical, you know, take the thing 16:59:49
22 apart and these other things. 16:59:54
23 Q. Got it. So in the context of the claim, the 16:59:56
24 elements of a -- the hub module could all be located on 16:59:59
25 a single chip, right? 17:00:02

MR. JENSEN: Object to form. 17:00:03
THE DEPONENT: Yes. As we have discussed 17:00:07
before, the claims that don't mention ICs specifically 17:00:10
could, in my view, have been done either way and -- and 17:00:16
whichever way is chosen doesn't affect my analysis of 17:00:21
those claims, yes. 17:00:24
BY MR. BRAUSA: 17:00:25
Q. Okay. And when you say either way, one 17:00:25
implementation would be -- 17:00:28
A. On a chip. 17:00:30
Q. A chip can be the hub module? 17:00:30
A. Yeah. And the other way could be discrete 17:00:32
parts. 17:00:33
MR. JENSEN: Object to form. Beyond the scope. 17:00:33
MR. BRAUSA: Thank you for your time. 17:00:36
THE DEPONENT: Thank you. 17:00:37
MR. JENSEN: I just want to ask a follow-up 17:00:38
question on that -- on that last line of questions, to 17:00:39
make sure I understand your testimony, Mr. Welch. 17:00:41
EXAMINATION 17:00:45
BY MR. JENSEN: 17:00:45
Q. So taking '420 patent claim 1 as an example. 17:00:46
MR. BRAUSA: So I'm going to object to this. I 17:00:49
don't think you have a right to do a further redirect 17:00:51
under patent -- PTAB procedures. 17:00:54

1 MR. JENSEN: Well, we disagree with that. 17:00:58
2 But... 17:00:59
3 MR. BRAUSA: Okay. I'm going to have a standing 17:00:59
4 objection. I think this is inappropriate. 17:01:01
5 BY MR. JENSEN: 17:01:04
6 Q. Well, so you were just asked some questions 17:01:04
7 about -- Mr. Welch, about the scope of '420 patent 17:01:06
8 claim 1, correct? 17:01:09
9 A. Mm-hmm. 17:01:10
10 Q. And you were asked some questions about whether 17:01:10
11 that claim would read on an implementation where 17:01:13
12 everything was integrated on one chip or whether it 17:01:21
13 would read on an implementation that was implemented 17:01:25
14 using discrete components, correct? 17:01:28
15 A. Right. 17:01:31
16 Q. When you performed your invalidity analysis, was 17:01:31
17 it necessary for you to determine whether claim 1 either 17:01:35
18 required or prohibited a fully integrated solution or a 17:01:40
19 solution implementing discrete components? 17:01:47
20 MR. BRAUSA: Objection. Leading. 17:01:49
21 THE DEPONENT: I don't -- I don't think it's 17:01:49
22 required. I think as a matter of habit, I think about 17:01:59
23 these things in both ways and there -- therefore, 17:02:04
24 quickly concluded there are alternatives here, but they 17:02:07
25 don't make any difference to the analysis. 17:02:11

MR. JENSEN: Okay. No further questions. 17:02:13

MR. BRAUSA: I think we're all set. 17:02:17

THE VIDEOGRAPHER: I will conclude -- this 17:02:19 concludes today's deposition of Eric Welch. The number 17:02:23 of media used was five. The time is 5:02 p.m. We are 17:02:27 off the record. 17:02:30

(Proceeding Concludes at 5:02 p.m.)

I declare under penalty of perjury under the laws that the foregoing is true and correct.

Executed on _____ , 20___, at _____, _____.

_____

SIGNATURE OF THE WITNESS

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REPORTER'S CERTIFICATE

STATE OF CALIFORNIA) ss.

I, DEREK L. HOAGLAND, CSR #13445, State of California, do hereby certify:

That prior to being examined, the witness named in the foregoing proceeding was by me sworn to testify to the truth, the whole truth and nothing but the truth;

That said proceeding was taken down by me by stenotype at the time and place therein stated and thereafter transcribed under my direction into computerized transcription.

I further certify that I am not of counsel nor attorney for nor related to the parties hereto, nor am I in any way interested in the outcome of this action.

In compliance with section 8016 of the Business and Professions Code, I certify under penalty of perjury that I am a certified shorthand reporter with license number 13445 in full force and effect.

Witness my hand this October 14, 2024.

DEREK L. HOAGLAND, CSR #13445

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