UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICHROCHIP 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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APTIV TECHNOLOGIES AG,	)
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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

The consulting work that you mentioned, you 09:13:45
consider that separate from the your expert witness 09:13:48
practice? 09:13:50
A. It's physically and financially separate in the 09:13:51
sense that the clients are never the same. There's 09:13:55
often technology overlap, though. 09:13:57
Q. Okay. And how long have you had an active 09:13:58
expert witness practice? 09:14:04
A. My first deposition was in 1980. I didn't do 09:14:07
much after that until -- the recent work dates from 09:14:11
2015. 09:14:18
Q. Okay. So you've been deposed before, correct? 09:14:18
A. Four or five times, that's correct. 09:14:21
Q. And so the general flow is, I will ask 09:14:25
questions; if you know the answer, you do the best of 09:14:27
your ability to provide an answer. 09:14:29
Can you agree to do that? 09:14:31
A. I can agree to do that. 09:14:32
Q. And if anything I say is unclear or uncertain, 09:14:33
you will ask me to clarify? 09:14:36
A. Yes, I will. 09:14:38
Q. And I will do my best, and I would ask you do 09:14:39
your best too, to not talk over one another so the court 09:14:42
reporter can take down a clean transcript. 09:14:45
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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1 over the last three years, it's 20 to 25 percent expert 09:17:14
2 and 75 percent other kinds of consulting. 09:17:18
3 Q. Okay. And so in the course of being an expert 09:17:21
4 witness as early as 1980, but then since 2015, you have 09:17:26
5 at least been exposed to the legal standards for patent 09:17:34
6 invalidity and patent infringement, understanding that 09:17:37
7 you're not an attorney? 09:17:40
8 A. I am not an attorney, and yes, I -- I have been 09:17:41
9 exposed to the legal standards, that's correct. 09:17:44
10 Q. Okay. Prior to working at Bramson Welch & 09:17:46
11 Associates, what did you do? 09:17:56
12 A. I was vice president of engineering and chief 09:17:56
13 technology officer at the firm of InnoSys Incorporated 09:18:02
14 from 1976 until 2007. 09:18:07
15 Q. And Keyspan was a division of InnoSys? 09:18:10
16 A. Keyspan was a division of InnoSys, that's right. 09:18:14
17 Q. And during your time at Keyspan, you had 09:18:16
18 occasion to be named as an inventor on several patent 09:18:19
19 applications. Those are listed in your CV? 09:18:22
20 A. That's correct. 09:18:24
21 Q. And did any of those inventions have anything to 09:18:25
22 do with USB? 09:18:29
23 A. One of them did, yes. One of them was a host -- 09:18:29
24 I'm sorry, a network-attached host controller. 09:18:35
25 Q. Okay. And did you consider that to be a 09:18:37

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

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

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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THE DEPONENT: Well, okay. It isn't 09:24:25
automatically patentable. 09:24:31
MR. BRAUSA: Sure. 09:24:33
THE DEPONENT: But I would say in this example 09:24:34
and others I can think of, it's possible to create 09:24:35
something innovative enough, including a hardware design 09:24:39
using standard components, that it could be compatible, 09:24:42
yes. 09:24:45
MR. BRAUSA: Okay. Let me mark as an 09:24:46
Exhibit 2019. And I will just go in sequence in the 09:24:50
proceeding. 09:24:53
(Exhibit No. 2019 marked for identification.) 09:24:54
MR. BRAUSA: This is a copy of US patent 09:24:55
publication number 2009/0024746. 09:24:58
BY MR. BRAUSA: 09:24:58
Q. And Mr. Welch, you can take a moment to look 09:25:41
over this. But is this the patent application that we 09:25:43
were just talking about? 09:25:45
A. Well, I will start by saying it has my name on 09:25:51
it. I'm laughing because I haven't seen this in 09:25:54
decades. 09:25:57
Q. Sure. 09:25:57
A. Okay. On the face of it, it does -- it does 09:26:01
look like my original patent. Wow. Okay. And... 09:26:03
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? 09:29:30 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

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

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

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

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

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

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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

1 POSITA would have some circuit knowledge because it's 09:57:10
2 necessary to -- to assemble various components and 09:57:13
3 circuit elements to implement some of the art or prior 09:57:19
4 art or -- or whatever it is. And it is certainly the 09:57:22
5 case that some of the prior art has to do with custom 09:57:27
6 circuits, Chang 2, for example. It's true that some of 09:57:32
7 the claims talk about things being done inside an 09:57:37
8 integrated circuit. In the context of all of those 09:57:41
9 things, that's certainly the realm of the POSITA. 09:57:44
10 But -- but to your specific question, I wasn't 09:57:48
11 asked to consider or opine about, well, Mr. Welch, you 09:57:52
12 know, how would it have been different if this claim 09:58:02
13 were in -- were implemented in an integrated circuit 09:58:03
14 versus if this wasn't. But nevertheless, because I'm a 09:58:09
15 curious guy, I thought about both of those cases. It's 09:58:13
16 just that -- and this is the important part -- as I 09:58:16
17 considered those cases, they did not render the analysis 09:58:19
18 of obviousness any different. And so I stopped at that 09:58:22
19 point. Okay? I don't really care if this is done with 09:58:26
20 an integrated circuit or not, except for the claims that 09:58:29
21 talk about integrated circuits; and, therefore, I don't 09:58:32
22 have to consider the precise details of how much a 09:58:36
23 POSITA knows what goes on inside an integrated circuit, 09:58:40
24 because -- because, again, it doesn't -- it doesn't make 09:58:44
25 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

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

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

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

(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

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

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

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

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

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

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

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

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

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

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

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

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

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

"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

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

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Q. Okay. And so you would agree with me -- I understand that the specifics matter, but in general, one reason that there might not be a motivation to combine two references is if one of the reference's teachings are contrary to a primary goal of the invention, right? 11:39:49 11:39:51 11:39:54 11:39:58 11:40:03 11:40:06

A. I don't know that I would generalize this in that way. I can't -- I can't say that it's impossible, but I can't rule out that -- that this -- the statements in here are intentionally oversimplified, because of other matter here. In other words, for me to agree with you might be taking this sentence out of context. In general, there might be reasons that you -- one could argue that a POSITA would not have been motivated to combine something with something else, but -- but this sentence about the claimed goals, that's -- that's highly dependent upon the context that this -- of this matter, and I -- I'm not going to generalize on that. 11:40:07 11:40:16 11:40:20 11:40:24 11:40:30 11:40:35 11:40:38 11:40:44 11:40:46 11:40:50 11:40:55 11:40:58

Q. Okay. What are some reasons, as you mentioned, that a POSITA would not have been motivated to combine references, at a high level? 11:41:00 11:41:03 11:41:06

A. I'm not going to speculate about that. I mean, there's just -- I wasn't -- I wasn't asked to consider the universe of non-combination, so I -- I can't really answer that. 11:41:08 11:41:10 11:41:14 11:41:18

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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

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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

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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

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mind. Ask your next question. 11:51:03

Q. Okay. So you don't remember whether Chutorash, 11:51:05

Exhibit 1029, discloses any dual-role ports? 11:51:08

A. I don't remember, no. 11:51:11

Q. And do you know whether it describes any 11:51:12

host-to-host communication? 11:51:16

A. I don't remember that, either. 11:51:16

Q. If I say the phrase a "persistent downstream" or 11:51:17

a "persistent downstream device port," do you know what 11:51:22

that means? 11:51:25

MR. JENSEN: Object to form. 11:51:26

THE DEPONENT: I have several ideas about that. 11:51:27

If you want to talk about that phrase in detail, I would 11:51:34

ask you -- I would ask you to mention a patent and a 11:51:36

claim -- 11:51:38

MR. BRAUSA: Okay. 11:51:38

THE DEPONENT: -- where it shows up. 11:51:40

BY MR. BRAUSA: 11:51:40

Q. How about claim 2 of the '420 patent? 11:51:41

A. Fine. Let's look at that. 11:51:43

Q. And I can give you a copy of the patent if that 11:51:45

would be helpful. 11:51:47

A. Well, I'll start with my documents. 11:51:48

Okay. Claim 2. Okay. It's going to be in this 11:51:55

one. 11:51:58

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1 It's my hand. Okay. Claim 2. 11:51:58
2 THE REPORTER: What's the exhibit we're 11:52:02
3 referencing? 11:52:03
4 MR. BRAUSA: So the exhibit we're referencing is 11:52:04
5 1013 from the '228 proceeding. 11:52:06
6 BY MR. BRAUSA: 11:52:06
7 Q. And if you want, I can direct you. The text of 11:52:34
8 the claim appears at page 141, paragraph 249 of 11:52:36
9 Exhibit 1030 -- 1013, excuse me. 11:52:40
10 A. Mm-hmm. Okay. Yeah, I remember this one. My 11:52:43
11 analysis of this one is lengthy, and I think necessarily 11:53:08
12 so. 11:53:11
13 Okay. So I have the -- I have the general area. 11:53:13
14 Now, let me know what your question is, and then I'll 11:53:17
15 review the analysis on that point. 11:53:22
16 Q. Okay. My question was just, do you know what 11:53:24
17 I'm referring to elsewhere -- actually, you know what, 11:53:29
18 maybe I can provide a little better context and then 11:53:33
19 we'll come back to your analysis of claim 2. Let's go 11:53:35
20 to paragraph three -- let me give you the right cite -- 11:53:38
21 307 in the same document. 11:53:49
22 A. Okay. 11:53:52
23 Q. And it's in a subheading called "Commercial 11:53:53
24 Success." And my question is just about this phrase 11:53:57
25 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

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

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

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

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

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

1 MR. JENSEN: Object to form. 12:53:14
2 THE DEPONENT: Well, that -- not to belabor it, 12:53:15
3 but that's a little complicated too. More than most USB 12:53:17
4 specs, the OTG spec devolved into a -- into additional 12:53:22
5 items in the toolbox. It is not uncommon for people to 12:53:28
6 take different parts of the OTG spec and use them for 12:53:33
7 different purposes. They're not necessarily 12:53:36
8 incompatible, but, for example, the OTG spec says an OTG 12:53:39
9 device has exactly one port on it, it's a micro AB 12:53:43
10 connector. There are no other cases. That's the 1.2, I 12:53:48
11 believe. Anyway, the fact is the OTG mechanisms are 12:53:53
12 used in a lot of other places that aren't exactly that 12:53:57
13 and people feel free to pick and choose different OTG 12:54:01
14 things to put them together in different ways. It's 12:54:04
15 just -- it's the way the thing has ended up being used. 12:54:07
16 So saying what is exactly -- what exactly is OTG 12:54:11
17 compliant or not, that's in the -- in the art, that's a 12:54:15
18 little complicated. 12:54:17
19 BY MR. BRAUSA: 12:54:18
20 Q. Okay. So when we're talking about the dual-role 12:54:19
21 ports that you refer to in -- or I'm sorry, dual-role 12:54:23
22 ports that you refer to in your reports, are you 12:54:28
23 referring to OTG ports or a different type of dual-role 12:54:30
24 port or both? 12:54:35
25 A. In some ways, and I will be specific about this, 12:54:38

1 a dual-role port is something that will accept -- in the 12:54:45
2 general case, will accept the connection of a host, a 12:54:48
3 traditional host, a traditional device, and in some 12:54:52
4 cases another dual-role port. In the details of how all 12:54:54
5 of that works, what I suggested in the report is that 12:54:59
6 there are mechanisms for detecting what something is, 12:55:01
7 and some of those mechanisms are taken from or borrowed 12:55:03
8 from OTG, for example, the ID pin that you see in the 12:55:08
9 mini AB, micro AB, and certain other connectors. In 12:55:12
10 other words, you can use mechanisms from OTG to do 12:55:17
11 something which is not exactly anticipated in OTG, like 12:55:20
12 host to host. 12:55:23
13 Q. Okay. Let me hand you what's already been 12:55:24
14 marked Exhibit 1014 that we've been talking about for a 12:55:35
15 little bit now. This is the Chang reference. And this 12:55:38
16 particular copy of it comes from PDR2024-11, but as with 12:55:46
17 your declaration, I believe it's Exhibit 1014 across all 12:55:51
18 five proceedings. 12:55:55
19 A. Okay. So I see this. 12:56:06
20 Q. So this, on its face, refers to a filing date of 12:56:07
21 August 16th, 2005? 12:56:10
22 A. Yes. 12:56:12
23 Q. And do you know whether dual-role ports of the 12:56:17
24 type you were talking about that can allow for 12:56:20
25 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

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

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

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

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

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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

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

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

1 This could get tricky if you look at Figure 4. 13:20:55
2 There's a thing in Figure 4 in '420 which is also called 13:20:58
3 bridge, and it apparently has some decision logic in it 13:21:02
4 about detection, and there's a switch control circuit. 13:21:05
5 So bearing in mind that these different people have used 13:21:08
6 bridge in different ways, yes, this is the -- this is 13:21:13
7 the analog of the routing switch in Chang 2. 13:21:19
8 BY MR. BRAUSA: 13:21:22
9 Q. Okay. Chang 2 in Figures 1 and Figures 5, it 13:21:22
10 never characterizes any of this circuitry or any of 13:21:34
11 these components as a hub, right? 13:21:40
12 A. Not that I can remember, no. 13:21:41
13 Q. Okay. And then just to round it out, Figure 3 13:21:45
14 in Chang 2, that's a physical embodiment of the overall 13:21:51
15 bridge, right? 13:21:58
16 A. Yes, it looks like it. 13:21:59
17 Q. Okay. And we see the control chip located at 13:22:02
18 13. It's a little box inside the plug, right? 13:22:06
19 A. Box, yep, yep. 13:22:10
20 Q. And what's 121 in Figure 3 of Chang 2? 13:22:11
21 A. Okay. Hold on one second. Okay. Fortunately, 13:22:21
22 it's short. 13:22:53
23 Okay. The key language seems to be in paragraph 13:23:21
24 29, in the middle, where Chang 2 goes on to say: 13:23:23
25 "Additionally, if the second connection 13:23:28

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

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

1 for this. 13:38:21
2 Or conversely, an audio person might think, I 13:38:22
3 don't want to do it that way because of blah, blah, 13:38:24
4 blah, you have to worry about clock and this and that, 13:38:26
5 and my audio system is going to use buffered stuff 13:38:28
6 anyway and it's going to be the only device in the bus. 13:38:31
7 So I'm only going to use -- I'm only going to use bulk 13:38:34
8 endpoints. 13:38:38
9 My point here is that the USB IF promulgating 13:38:39
10 these standards, and going back to my -- my original 13:38:42
11 background thing about, you know, if it's not in the 13:38:46
12 standard, the standard doesn't say you may only use 13:38:47
13 isochronous for audio. It says, here is what 13:38:50
14 isochronous is, you might want to use it for audio. 13:38:53
15 And then they also published a specification for 13:38:54
16 standard audio over USB, and it does use isochronous. 13:38:57
17 Okay. That's fine. None of that means that a person 13:39:00
18 wanting to do streaming audio has to do it that way. 13:39:03
19 They could do it other ways if they wanted, and there 13:39:06
20 might be good reasons to do in other ways. 13:39:09
21 BY MR. BRAUSA: 13:39:11
22 Q. Okay. Sitting here today, are you aware of any 13:39:13
23 implementations of streaming audio in an infotainment 13:39:15
24 system in a vehicle that don't rely on isochronous 13:39:19
25 transfer? 13:39:24

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

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

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

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

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

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

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

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

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

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

MR. BRAUSA: Okay. 14:10:48

THE DEPONENT: -- those other things you get. 14:10:48

So I'd say he discloses them implicitly, not 14:10:49

explicitly. 14:10:53

BY MR. BRAUSA: 14:10:53

Q. Okay. Got it. I think that answers the 14:10:54

question. 14:10:57

Earlier you referenced to there being value with 14:11:07

having dual-role parts? 14:11:10

A. I -- yes, we did talk about that. 14:11:12

Q. Okay. Is there value with having dedicated host 14:11:15

or device ports? 14:11:18

A. You have to give me some context for that 14:11:19

question. 14:11:21

Q. Well, sure. We can go right back to Chang, 14:11:21

Figure 3. It has dedicated device ports 44 and 14:11:24

dedicated host port 50. Is there any value to keeping 14:11:28

those as dedicated ports rather than dual-role ports? 14:11:32

A. You can imagine that hypothetically. I wasn't 14:11:36

asked to opine about that specifically, but it's not 14:11:38

beyond the realm of possibility that you could have a 14:11:41

hub where one port was special. I mean, we have that 14:11:44

today. Everybody has USB-C on their laptops. If you 14:11:49

buy a hub, even though there are USB-C ports on there, 14:11:51

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

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

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

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

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

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

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

MR. JENSEN: Object to form. 14:55:12

THE DEPONENT: No. This is -- this is the 14:55:13

construct we get by taking Chang and adding the 14:55:13

teachings of Chang 2. 14:55:17

BY MR. BRAUSA: 14:55:19

Q. Okay. And -- and what are the -- walk me 14:55:19

through the steps that you think a POSITA would go 14:55:23

through, starting with Chang -- 14:55:26

A. Mm-hmm. 14:55:29

Q. -- in Figure 3 -- 14:55:29

A. Mm-hmm. 14:55:30

Q. -- to get to the cartoon shown on page 103. 14:55:30

A. Okay. 14:55:34

Q. In the top left-hand portion. 14:55:37

A. Okay. Okay. And then we'll separately talk 14:55:38

about the difference between the left and the right? 14:55:44

Q. We're going to go through each one of these. I 14:55:45

just want to make sure I have everything. 14:55:48

A. Okay. All right. Well, the essence of -- I'm 14:55:51

sorry. 14:55:51

The teaching of Chang 2 that we -- that we bring 14:55:57

over here has been simplified into this box called MUX. 14:55:59

Q. Mm-hmm. 14:56:04

A. What that includes, and we have some detail 14:56:06

about that elsewhere, is that there is a detection 14:56:09

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

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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

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

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

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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

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

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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

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

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

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

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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

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

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

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

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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port, right? 16:05:46
A. Mm-hmm. That's right. 16:05:47
Q. Okay. And so that takes us all the way to 16:05:48
blocks 7 -- blocks S613 and S625, right? 16:05:54
A. Correct. 16:05:58
Q. Okay. And as Chang discloses, there are checks 16:05:59
done to see whether the user has exchanged for another 16:06:03
external device, right? 16:06:07
A. That's right. 16:06:09
Q. Chang does not describe, in Figure 6 or anywhere 16:06:09
else, ever pulling a downstream device while it's 16:06:13
connected into the downstream port to see whether it's 16:06:17
changed from device mode to host mode or from host mode 16:06:20
to device mode, right? 16:06:24
MR. JENSEN: Object to form. 16:06:25
THE DEPONENT: That's not strictly true. I may 16:06:26
be skipping ahead a little bit here, but most USB 16:06:32
transactions where there's mode switching mimic what 16:06:38
happens when a user unplugs the device. Now, you 16:06:44
haven't said, but we have modified the language here to 16:06:49
make that more clear that we're not just talking about 16:06:53
the user making a change, but we're also talking about 16:06:55
whether the -- the device has on its own decided to 16:06:59
change roles. The underlying fact known to a POSITA, 16:07:04
and this is not the only way to do this, but the most 16:07:09

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

1 module configured to dynamically switch operation 16:09:34
2 between a device mode or host mode, right? 16:09:37
3 A. Mm-hmm. 16:09:39
4 MR. JENSEN: Object to form. 16:09:39
5 BY MR. BRAUSA: 16:09:40
6 Q. Okay. And the Castelbury reference is not one 16:09:40
7 of the references that you explicitly included in your 16:09:44
8 motivation to combine analysis, right? 16:09:47
9 MR. JENSEN: Object to form. 16:09:49
10 THE DEPONENT: Mm-hmm. 16:09:50
11 BY MR. BRAUSA: 16:09:53
12 Q. Sorry. Your answer was a yes? 16:09:53
13 A. That's right. We refer to Castelbury, but we 16:09:54
14 don't -- we don't name him in the motivation to combine 16:10:00
15 specifically. 16:10:03
16 Q. Okay. While we have it up in front of us, in 16:10:04
17 the '420 patent, Exhibit 1003, can I direct you to 16:10:17
18 claim 20? 16:10:20
19 MR. JENSEN: I'm sorry. Where did you say? 16:10:41
20 MR. BRAUSA: Claim 20 in the '420 patent. 16:10:42
21 THE DEPONENT: Okay. Yes. 16:11:54
22 BY MR. BRAUSA: 16:11:55
23 Q. And so in claim 20 of the '420 patent, we again 16:11:55
24 see reference to the USB routing switch being configured 16:11:58
25 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

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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

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

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

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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

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

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

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

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

1 MR. JENSEN: Object to form. 17:00:03
2 THE DEPONENT: Yes. As we have discussed 17:00:07
3 before, the claims that don't mention ICs specifically 17:00:10
4 could, in my view, have been done either way and -- and 17:00:16
5 whichever way is chosen doesn't affect my analysis of 17:00:21
6 those claims, yes. 17:00:24
7 BY MR. BRAUSA: 17:00:25
8 Q. Okay. And when you say either way, one 17:00:25
9 implementation would be -- 17:00:28
10 A. On a chip. 17:00:30
11 Q. A chip can be the hub module? 17:00:30
12 A. Yeah. And the other way could be discrete 17:00:32
13 parts. 17:00:33
14 MR. JENSEN: Object to form. Beyond the scope. 17:00:33
15 MR. BRAUSA: Thank you for your time. 17:00:36
16 THE DEPONENT: Thank you. 17:00:37
17 MR. JENSEN: I just want to ask a follow-up 17:00:38
18 question on that -- on that last line of questions, to 17:00:39
19 make sure I understand your testimony, Mr. Welch. 17:00:41
20 EXAMINATION 17:00:45
21 BY MR. JENSEN: 17:00:45
22 Q. So taking '420 patent claim 1 as an example. 17:00:46
23 MR. BRAUSA: So I'm going to object to this. I 17:00:49
24 don't think you have a right to do a further redirect 17:00:51
25 under patent -- PTAB procedures. 17:00:54

MR. JENSEN: Well, we disagree with that. But... 17:00:58 17:00:59

MR. BRAUSA: Okay. I'm going to have a standing objection. I think this is inappropriate. 17:00:59 17:01:01

BY MR. JENSEN: 17:01:04

Q. Well, so you were just asked some questions about -- Mr. Welch, about the scope of '420 patent claim 1, correct? 17:01:04 17:01:06 17:01:09

A. Mm-hmm. 17:01:10

Q. And you were asked some questions about whether that claim would read on an implementation where everything was integrated on one chip or whether it would read on an implementation that was implemented using discrete components, correct? 17:01:10 17:01:13 17:01:21 17:01:25 17:01:28

A. Right. 17:01:31

Q. When you performed your invalidity analysis, was it necessary for you to determine whether claim 1 either required or prohibited a fully integrated solution or a solution implementing discrete components? 17:01:31 17:01:35 17:01:40 17:01:47

MR. BRAUSA: Objection. Leading. 17:01:49

THE DEPONENT: I don't -- I don't think it's required. I think as a matter of habit, I think about these things in both ways and there -- therefore, quickly concluded there are alternatives here, but they don't make any difference to the analysis. 17:01:49 17:01:59 17:02:04 17:02:07 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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