In the Matter Of:

MICROCHIP TECHNOLOGY INC. v

APTIV TECHNOLOGIES AG

HENRY HOUH

December 19, 2024

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1 IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

2 _____

3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4 _____

5 MICROCHIP TECHNOLOGY INC.,
Petitioner,

6

7 V.

8 APTIV TECHNOLOGIES AG AND APTIV TECHNOLOGIES LIMITED,
Patent Owner.

9 _____

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Case No. IPR2024-00228
11 U.S. Patent No. 9,619,420

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Microchip Ex. 1085, p. 2
Microchip v. Aptiv
IPR2024-00495

Page 224

ORAL VIDEOTAPED DEPOSITION
HENRY H. HOUH
DECEMBER 19, 2024
VOLUME 2

ORAL VIDEOTAPED DEPOSITION OF HENRY H. HOUH, via Zoom, produced as a witness at the instance of the Petitioner and duly sworn, was taken in the above-styled and numbered cause on the 19th day of December, 2024, from 9:00 a.m. to 2:59 p.m., before Melinda Barre, Certified Shorthand Reporter in and for the State of Texas, reported by computerized stenotype machine, all parties appearing remotely via web videoconference, pursuant to the rules of procedure and the provisions stated on the record or attached hereto.

Page 225

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Page 226

INDEX

PAGE
Examination by Mr. Jensen 228
Examination by Mr. Bumenkopf 324
Re-Examination by Mr. Jensen 333
Signature Page 357
Court Reporter's Certificate 359

Page 227

THE VIDEOGRAPHER: The time is 9:00 a.m. Eastern Time on December 19th, 2024. We are going on the record for the remote video deposition of Dr. Henry H. Houh in the matter of Microchip Technology Inc. versus Aptiv Technologies AG and Aptiv Technologies Limited. My name is Robert Suarez, and I'm the legal videographer on behalf of Lexitas. Will counsel please introduce themselves and state their firm and who they represent beginning with the party noticing this proceeding.

MR. JENSEN: Yeah. This is Travis Jensen from Orrick, Herrington & Sutcliffe on behalf of petitioner, Microchip Technology Inc.

MR. BLUMENKOPF: This is Bryan Blumenkopf from Morrison & Foerster on behalf of the patent owner, Aptiv Technologies.

THE VIDEOGRAPHER: Will the court reporter please swear or affirm in the witness.

THE REPORTER: He's still under oath from yesterday, Robert.

THE VIDEOGRAPHER: Go ahead. Proceed.

Microchip Ex. 1085, p. 3
Microchip v. Aptiv
IPR2024-00495

Page 228

1 CONTINUED EXAMINATION
2 QUESTIONS BY MR. JENSEN:
3 Q. Welcome back, Dr. Houh. You understand that
4 we're continuing the deposition today from yesterday?
5 A. Thank you. Yes, I do.
6 Q. After we recessed yesterday did you discuss
7 your deposition with counsel?
8 A. No.
9 Q. Let me ask you to turn to your '643
10 declaration. I can give you the paragraph number in
11 just a moment.
12 This is paragraph 156 towards the end of
13 the declaration.
14 A. Okay. I'm there.
15 Q. And in this section you provide a claim chart
16 showing how Aptiv's dual-role hub embodies each
17 limitation of claim 1 in the '643 patent, correct?
18 A. That's what I say here, yes.
19 Q. So I'd like to turn your attention to the claim
20 limitation on page 84 that recites "providing a signal
21 detection circuit."
22 A. Okay.
23 Q. Do you see that claim element?
24 A. Yes.
25 Q. Is it your opinion that the Boston 2 chip in

Page 229

1 Aptiv's dual-role hub contains a signal detection
2 circuit?
3 MR. BLUMENKOPF: Objection, form.
4 A. I do say that in this chart.
5 BY MR. JENSEN:
6 Q. And then the only thing that you cite in
7 support of that is Exhibit 2023, pages 90 to 93,
8 correct?
9 A. In that box, sure.
10 Q. So let's take a look at Exhibit 2023 at
11 pages 90 to 93, and I've got on the screen share
12 Exhibit 2023 at page 90. Are you able to see that?
13 A. Yes.
14 Q. And just to maybe give you some context, let me
15 go to the first page of the document for you. What is
16 the document Exhibit 2023?
17 A. This is a product specification related to the
18 Boston USB hub with SD card port ASIC.
19 Q. And is this the document that you rely on in
20 your report for providing a signal detection circuit
21 limitation claim mapping?
22 A. Yes.
23 Q. So let's turn to pages 90 to 93 of
24 Exhibit 2023. And on page 90 there's a diagram on the
25 top half of the page.

Page 230

1 A. Yes, I see it.
2 Q. Is there a signal detection circuit shown in
3 that diagram?
4 MR. BLUMENKOPF: Objection, form.
5 A. If you read the descriptions in conjunction
6 with these figures on pages 90 to 93 of Exhibit 2023 of
7 the '643 matter, it's describing the port switch
8 sequence whereby the dual-role hub is able to detect
9 whether a consumer USB device is operating in host or
10 device mode.
11 BY MR. JENSEN:
12 Q. Yeah. So where is the signal detection
13 circuit? That's my question.
14 A. If you review what's described, it's clear that
15 there is a -- it is detecting that the dual-role hub is
16 able to detect whether a consumer USB device is
17 operating in host or device mode if you read it.
18 Q. I'll accept that. My question is where is the
19 circuit?
20 A. Well, it's within the dual-role hub.
21 Q. Where?
22 A. I mean, it's clear that it's describing that
23 it's there so that -- because the dual-role hub is able
24 to detect whether a consumer USB device is operating in
25 host or device mode.

Page 231

1 Q. Where does it say that?
2 A. So if you look at the text at the bottom of
3 page 90, it's describing part of this process. And it
4 says that -- I'm looking in the middle there -- "The end
5 user will later plug in a device to one of the three
6 remaining external ports (PRT2 in this example), which
7 will connect to the upstream host through the hub in the
8 usual manner, placing the system in the (a)
9 configuration. The upstream host will examine the user
10 device's descriptors and determine that this device is
11 compatible with the H2H function."
12 And then it goes on to say that "The
13 upstream host and the user's device may negotiate
14 between themselves over the USB network to arrange for
15 the H2H function to activate. The H2H" --
16 Q. In your opinion, does that disclose a signal
17 detection circuit?
18 MR. BLUMENKOPF: Objection, form.
19 A. This is describing the process whereby the --
20 it's describing this port switch sequence in which the
21 dual-role hub is able to detect whether the consumer USB
22 device is operating in host or device mode.
23 And that's what this is saying, which
24 is -- it continues to say that "The H2H device driver is
25 running on the upstream host will then communicate with

Page 232

1 the Boston firmware using UDCUS control inputs out 0 and
2 N0 to arrange for the port to change and inform the
3 Boston firmware which hub port number is involved."
4 Then, "Having previously negotiated the
5 H2H function with upstream host, the user's device will
6 perform a USB disconnect and this places the system in
7 the (b) configuration."
8 Then it goes on to talk about the (c)
9 configuration, and that's part of the port switch—
10 sequence.
11 BY MR. JENSEN:
12 Q. Yeah. So where is the signal detection
13 circuit?
14 MR. BLUMENKOPF: Objection, form.
15 A. I mean, this is describing this as part of the
16 process of the port switch sequence within the dual-role
17 hub.
18 BY MR. JENSEN:
19 Q. Does any system that can perform a host device
20 port switch sequence necessarily have a signal detection
21 circuit?
22 MR. BLUMENKOPF: Objection, form.
23 A. I mean, in this chart I'm only considering the
24 Boston 2 chip really, this dual-role hub. I mean,
25 that's a hypothetical for any other system except the

Page 233

1 one I proposed -- or analyzed as what the petitioner
2 proposed. And while there is a detection unit inside
3 the bridge of Chang II, it doesn't work to --
4 BY MR. JENSEN:
5 Q. Respectfully, Dr. Houh, I didn't ask anything
6 about Chang II. We're looking at the Aptiv product.
7 A. You asked about any other thing, and I'm
8 talking about any other thing. While it has a
9 detection unit --
10 Q. It's nonresponsive. It's nonresponsive.
11 MR. BLUMENKOPF: Counsel, if you could
12 please let Dr. Houh finish his response before
13 interrupting.
14 MR. JENSEN: This is obstructionist.
15 We're moving on.
16 BY MR. JENSEN:
17 Q. Dr. Houh, can you identify --
18 A. I just want to state for the record you didn't
19 allow me to finish my answer.
20 Q. You can say whatever you want.
21 Dr. Houh, can you identify anything in the
22 diagram on page 90 of the document you cite that is a
23 signal detection circuit?
24 MR. BLUMENKOPF: Objection, form.
25 A. It's described in the -- it's described in the

Page 234

1 descriptions of what's going on in pages 90 to 93 of
2 this document.
3 BY MR. JENSEN:
4 Q. Is it your testimony, Dr. Houh, that firmware
5 in a head end that negotiates a host device role
6 reversal is a signal detection circuit?
7 MR. BLUMENKOPF: Objection, form.
8 A. You used the word "firmware in the host
9 device," but this is also talking about the Boston
10 firmware. So it's the Boston firmware which is -- if
11 you look, for example, on page 92, it's talking about
12 the Boston firmware setting appropriate value to the H2H
13 port switch to route the user to the device.
14 BY MR. JENSEN:
15 Q. Is it the Boston firmware on page 92 that you
16 are identifying as the signal detection circuit?
17 MR. BLUMENKOPF: Objection, form.
18 A. Well, typically firmware can be used to control
19 circuit elements; and that's what firmware -- you know,
20 working in conjunction provides the control for elements
21 that perform functions that are specified by the
22 firmware. So firmware certainly works in conjunction
23 with underlying circuitry to perform certain functions.
24 BY MR. JENSEN:
25 Q. Is firmware a circuit, Dr. Houh?

Page 235

1 MR. BLUMENKOPF: Objection, form.
2 A. Well, firmware is typically loaded onto some
3 sort of memory device that is part of a circuit that
4 also would be used to control other circuitry on a chip
5 to control the functions of the way the circuit works.
6 That includes pathways and sequential instructions that
7 control various elements of circuitry.
8 BY MR. JENSEN:
9 Q. Is it your testimony that the Boston firmware
10 can meet the signal detection circuit requirement of
11 claim 1 of the '643 patent?
12 MR. BLUMENKOPF: Objection, form.
13 A. What I'm saying is that this description of the
14 port switch sequence whereby the dual-role hub is able
15 to detect whether a consumer USB device is operating in
16 host or device mode is evidence that shows that there is
17 a circuit, signal detection circuit for receiving USB
18 signals from the consumer USB device via the second USB
19 port in the Boston 2 chip.
20 Q. Where does it say that the Boston 2 chip
21 performs signal detection?
22 MR. BLUMENKOPF: Objection, form.
23 A. The port switch sequence is describing whereby
24 the dual-role hub is able to detect whether a consumer
25 USB device is operating in host or device mode. It

Page 236

1 doesn't have to use the words that you seem to insist it
2 has to use.
3 BY MR. JENSEN:
4 Q. Where are you reading from? Is there something
5 you're reading from?
6 A. A person of ordinary skill looking at this
7 would recognize that there is such a signal detection
8 unit because the dual-role hub is able to detect whether
9 a consumer USB device is operating in host or device
10 mode.
11 Q. Let's turn to the '643 patent.
12 Where does the '643 patent disclose a
13 signal detection circuit?
14 MR. BLUMENKOPF: Objection, form.
15 A. So one place the specification is describing
16 the process of detecting whether the device is -- what
17 mode the device is in is around column 6 around line 23.
18 And it talks here about how "In use, the
19 head unit controls the switching device via the USB
20 bridge hardware or any other convenient means of
21 control. The HU software application may choose to
22 enable, for example, a phone on any one of the consumer
23 USB ports by requesting, commanding or otherwise knowing
24 the phone is required to be in USB host mode and
25 commanding the routing of the specific USB port phone is

Page 237

1 attached to the USB bridge. Once routed to the USB
2 bridge, the phone will detect a USB device is connected
3 and the phone will begin the standard USB enumeration
4 sequence."
5 Actually, let me skip down. So if you
6 skip down to line 36, it talks about -- it says that
7 "The enumeration process follows a strict sequence of
8 USB descriptor requests from the USB host and USB
9 descriptor responses from the USB device that allow the
10 host to determine the capabilities and functions of the
11 device and configure the USB device for operation. Once
12 the complete set of device descriptors are known to the
13 USB host" -- sorry. "Once the complete set of device
14 descriptors are known, the USB host will load the
15 appropriate USB drivers and applications to support in
16 the functionality that the USB device provides.
17 "In the scope of this invention, it is
18 envisioned that the responses to the descriptor requests
19 made by the phone (USB host) are either answered locally
20 by the bridge or preferably the requests are forwarded
21 through the bridge to the head unit where its device
22 drivers process the request and return the response.
23 The descriptor responses from the device driver are
24 conveyed to the USB bridge which then, in turn, passes
25 them to the phone. By passing this descriptor request

Page 238

1 the head unit drivers and -- to the head unit drivers
2 and returning the responses from the head unit drivers
3 back to the consumer device, the bridge appears as a
4 transparent component in the USB system architecture.
5 "The system capabilities are controlled by
6 the head unit and the system remains flexible without
7 need for changes to the bridge firmware or hardware when
8 the system designer requires changes to the descriptor
9 responses.
10 "Once the consumer device completes the
11 enumeration process, the USB head unit's USB functional
12 capabilities are known to the consumer device and the
13 consumer device may enable use of those functions over
14 USB communication. At this point, the consumer device
15 or head unit may begin activating any number of
16 supported services such as data connections, streaming
17 audio and streaming video to and from the vehicle via
18 the USB bridge."
19 So this is discussing -- while it's
20 discussing this enumeration process from the host's
21 point of view, partly, it is describing that there's the
22 detection going on in conjunction with the bridge
23 hardware and that the -- I mean, it says that the -- the
24 control of the switching can be done via the bridge
25 hardware or any other means of control.

Page 239

1 And that's part of what in the
2 specification is talking about the process of being able
3 to detect what mode devices might be in. That's part of
4 what describes what happens in a signal detection unit.
5 BY MR. JENSEN:
6 Q. In your opinion, does the passage that you just
7 read disclose a signal detection circuit?
8 MR. BLUMENKOPF: Objection, form.
9 A. Well, the process it's describing involves the
10 use of hardware and circuitry in the process of what's
11 going on here.
12 BY MR. JENSEN:
13 Q. Is that a "yes" or a "no" to my question?
14 A. I mean, I don't -- give me one second, please.
15 I mean, there are embodiments within the
16 specification that talk about -- and figures that talk
17 about how the USB routing and switching logic in a USB
18 bridge are integrated with a USB hub in combination --
19 in a combination integrated circuit.
20 So one of the embodiments is certainly a
21 circuit that is -- that embodies the invention. And so
22 if you look at the specification as a whole, it
23 certainly discloses there's a circuit. And the
24 functions described here support that there is the
25 capability of the system on the circuit to provide the

Page 240

1 detection and enumeration process described for
2 detecting the mode of USB devices or things that are
3 connected to the USB ports.
4 Q. The passage you read is describing figure 4 of
5 the patent, correct?
6 A. It's in the section describing figure 4, but
7 the description is more broad than what's shown in
8 figure 4 because it talks about how there can be any
9 other convenient means and that things are done via the
10 USB bridge hardware and things like that.
11 So it is talking about figure 4, but the
12 description isn't limited only to what's shown in
13 figure 4.
14 Q. Does figure 4 of the Aptiv patent show a signal
15 detection circuit?
16 MR. BLUMENKOPF: Objection, form.
17 A. I mean, if you read the description of what's
18 happening in figure 4, it's apparent to a person of
19 ordinary skill that it has the capability to detect what
20 mode the connected devices are.
21 BY MR. JENSEN:
22 Q. That's not my question. My question is does
23 figure 4 illustrate a signal detection circuit?
24 MR. BLUMENKOPF: Objection, form.
25 A. Well, while there's no explicit box that I see

Page 241

1 labeled "signal detection circuit" in figure 4, the
2 description of figure 4 makes it clear to a person of
3 ordinary skill that the system has the capability to
4 detect which mode the connected devices are in.
5 BY MR. JENSEN:
6 Q. What component or components in figure 4 could
7 contain a signal detection circuit?
8 MR. BLUMENKOPF: Objection, form.
9 A. I'm not sure that in response to the petition's
10 claims that there was any claim about where the circuit
11 was or wasn't in figure 4 that I would have had a need
12 to include that in my analysis for the purposes of my
13 supplemental declaration.
14 BY MR. JENSEN:
15 Q. Are you able to answer my question?
16 MR. BLUMENKOPF: Objection, form.
17 A. I don't think I address this directly in my
18 supplemental declaration because it wasn't raised in the
19 petition in a way that I would have -- I could have done
20 some analysis around this.
21 So I think I need some time to think about
22 it. I wouldn't be -- I wouldn't -- I would want to
23 consider the whole of the specification and give it some
24 time.
25 BY MR. JENSEN:

Page 242

1 Q. Sitting here right now today, you don't have an
2 opinion as to what components in figure 4 could contain
3 a signal detection circuit?
4 MR. BLUMENKOPF: Objection, form.
5 A. Well, the opinions in my supplemental
6 declaration are about, for example, the Boston 2 chip
7 and in the section we were looking at and also the
8 proposed combination of the -- set forth by the
9 petitioner in which the signal detection unit was
10 claimed by the petitioner to be -- or was laid out in
11 Chang to be part of the bridge chip of Chang.
12 So that's where -- for the purposes of my
13 declaration, that's what I was analyzing. This is a
14 different question than was raised that I couldn't spend
15 time to analyze. So it wasn't part of the analysis for
16 my supplemental declaration for the '643.
17 BY MR. JENSEN:
18 Q. So you haven't analyzed and have no opinion
19 about where a signal detection circuit could be located
20 in figure 4 of the Aptiv patent?
21 MR. BLUMENKOPF: Objection, form.
22 A. Well, I described to you where it says that
23 part in figure 4. So that part in figure 4, a person of
24 ordinary skill would understand that that's talking
25 about the capability to do signal detection; and the

Page 243

1 embodiments listed include that the implementation can
2 be done in an integrated circuit.
3 So I think it's pretty clear that there
4 is -- it's describing a signal detection circuit in the
5 description of figure 4.
6 BY MR. JENSEN:
7 Q. Let me just ask the question this way. Could
8 the signal detection circuit be located in the box in
9 figure 4 labeled "USB Routing Multiplexing Switches"?
10 MR. BLUMENKOPF: Objection, form.
11 A. I'd want to spend more time looking at the
12 other parts of the specification here; but it's clear
13 that the process of what's happening, described in
14 conjunction with figure 4 and I think other parts, it
15 would be clear to a POSITA that there is such a signal
16 detection circuit because the system is able to detect
17 which mode the consumer-facing ports, the devices
18 connected to those ports are in. That's certainly
19 described partly in the description of figure 4 here.
20 BY MR. JENSEN:
21 Q. And my question is could that signal detection
22 circuit that you reference be located in the box in
23 figure 4 labeled "USB Routing Multiplexing Switches"?
24 MR. BLUMENKOPF: Objection, form.
25 A. So, you know, as part of the analysis for my

Page 244

declaration responding to petitioner's arguments and setting forth the section we're looking at with the table, I mean, that wasn't directed to this part of figure 4. So I don't think I specifically included that. It wasn't part of the analysis that I did with respect to my supplemental declaration.

I mean, I would want to take time to think about it; but I would need to spend time looking at the specification.

BY MR. JENSEN:

Q. Are you familiar with the micro AB connector described in the USB specification?

MR. BLUMENKOPF: Objection, form.

A. Can you point me where you're looking at in the specification, please.

BY MR. JENSEN:

Q. I'm not looking at any particular location. I'm just asking you are you familiar with the micro AB connector terminology?

MR. BLUMENKOPF: Same objection.

A. Yeah. I've heard that with respect to USB before, but I don't know where that is in the specification.

BY MR. JENSEN:

Q. What is a micro AB connector?

Page 245

MR. BLUMENKOPF: Objection, form.

A. Well, if I remember correctly, it's a connector for a specific arrangement that I think is somewhat trapezoidal maybe with round nubs at the corners of the trapezoid, although I think this is something that could be looked up in the specification. I don't know it by heart.

So to the best of my recollection, I think that's what it is; but I think we could just look at the specification.

BY MR. JENSEN:

Q. Do you have an opinion whether the claimed USB ports read on a micro AB connector?

MR. BLUMENKOPF: Objection, form.

A. I mean, I don't recall saying any such thing in my supplemental declarations; but I don't know them by heart.

BY MR. JENSEN:

Q. Let's go to Mr. Welch's declaration in paragraphs 192 and 193.

A. Of which matter?

Q. Any of them. You can pick whatever one you would like. I'm sharing the one from the '643 declaration, but they're all the same in the parts I'm going to ask you about.

Page 246

A. I have it open here, and I can see it on the screen.

MR. BLUMENKOPF: Doctor, are you looking at the '643 declaration from Mr. Welch?

THE WITNESS: Yes. I'm looking at the '643 declaration in the PGR11 case.

BY MR. JENSEN:

Q. And paragraph 192 of Mr. Welch's declaration includes a modified embodiment of Chang figure 3, correct?

MR. BLUMENKOPF: Objection, form.

A. There is a modified figure which isn't in Chang but has been altered in Mr. Welch's declaration.

BY MR. JENSEN:

Q. Is this figure one that you responded to in your report?

MR. BLUMENKOPF: Objection, form.

A. I mean, I believe I did at points. I don't remember exactly where or what, but we can look at that.

BY MR. JENSEN:

Q. Are you familiar with the embodiment shown in paragraph 192 of Mr. Welch's report?

MR. BLUMENKOPF: Objection, form.

A. This is not an embodiment that's in any single prior art. This is a hypothetical combination that was

Page 247

created for the purpose of a position.

BY MR. JENSEN:

Q. Yeah. Are you familiar with the proposed modification described in paragraph 192 of Mr. Welch's report?

MR. BLUMENKOPF: Objection, form.

A. Yes.

BY MR. JENSEN:

Q. Okay. Let's look at paragraph 193 of Mr. Welch's report. Can you read the first sentence. Aloud, please.

A. It says, "This detection circuitry could be deployed in several obvious ways. In the example above it is associated with the mux."

Q. Why don't you go ahead and read aloud, if you will, the entirety of paragraph 193.

A. I want to point out that this is the Motivation to Combine section and not the actual analysis section of his, you know, claim element by claim element or claim by claim analysis. But the rest of it's -- the next sentence says, "In another obvious example it could be separate and between the dual-role port 50 and mux."

It goes on to say, "This location is obvious because it is the first place a signal from a downstream USB product arrives. In a third obvious

Page 248

1 location, it could be located in the bridge to take
2 advantage of existing logic and circuitry to, for
3 example, process the output of the detection circuit in
4 a manner similar to Chang II's CPU 135."
5 It goes on to give a citation. "It would
6 have been routine and obvious for the bridge and/or the
7 detection unit to control the switching functionality.
8 For example, as I describe above, Chang II's bridge
9 includes a detection unit (in the control chip) that
10 detects the mode of the downstream product for selection
11 of the appropriate transmission path." There's another
12 citation.
13 "The above illustrates the detection unit
14 connected to the mux to show that the host-device
15 detection ultimately controls the mux's select line.
16 Additionally, the detection unit must connect to the
17 downstream port to detect the mode, as shown in
18 Chang II," and another citation. So that's the whole
19 paragraph.
20 Q. In the figure shown in paragraph 192 what box
21 number is identified as the bridge?
22 MR. BLUMENKOPF: Objection, form.
23 A. In the modified figure -- I don't think the
24 label is modified here from the original, but the bridge
25 is labeled 52.

Page 249

1 BY MR. JENSEN:
2 Q. And there's another box shown in the figure
3 that says "detection unit," correct?
4 A. There is a box that is added. This was not in
5 the original. But it's described by Mr. Welch as, "The
6 above illustrates the detection unit connected to the
7 mux to show that host-device detection. Ultimately it
8 controls the mux's select line."
9 So it's simply describing here that there
10 is a connection to explicitly show the detection unit,
11 which he also says in the previous sentence that it's in
12 the control chip. But he's simply illustrating here
13 that the detection unit is connected to the mux so that
14 it can control it. But he still says that it's -- in
15 the previous sentence "Chang II's bridge includes a
16 detection unit in the control chip."
17 Q. And that's one place that Mr. Welch says the
18 detection unit could be located, correct, is in the
19 bridge?
20 MR. BLUMENKOPF: Objection, form.
21 A. Well, I think in this later analysis element by
22 element he set -- he relies on it being in the bridge,
23 the bridge chip of Chang II. So, remember, this is a
24 combination. This is a hypothetical. So it's not
25 any -- this is not from the prior art directly.

Page 250

1 But the detection -- I forget what
2 Chang II uses. Let me just confirm. Chang II uses the
3 word "detection unit," the phrase; and that's inside the
4 chip, the bridge chip of Chang II.
5 BY MR. JENSEN:
6 Q. Is the detection unit illustrated in the figure
7 in paragraph 192 located inside the bridge 52?
8 MR. BLUMENKOPF: Objection, form.
9 A. So Mr. Welch says why he shows the detection
10 unit in 192. He shows that it's connected to the mux to
11 show that host device -- "The above illustrates the
12 detection unit connected to the mux to show that
13 host-device detection ultimately controls the mux's
14 select line."
15 So it's being illustrated here simply to
16 show that there is a control from -- that the detection
17 unit is connected to the mux to ultimately control the
18 mux's select line.
19 If you look in his analysis, he even says
20 in the previous sentence that "The bridge includes a
21 detection unit (in the control chip) that detects the
22 mode of the downstream product for selection of the
23 appropriate transmission path."
24 And so there's no detection unit in the
25 Chang reference from which figure 3 comes from. So this

Page 251

1 was added but to show the control relationship to the
2 mux, which was also added by -- in Mr. Welch's
3 declaration. So this is simply showing a control
4 relationship, and I think there's even a footnote
5 somewhere to indicate that the detection unit is not to
6 be seen as outside the box or something like that.
7 So it's clear that this is illustrating a
8 logical -- a connectivity between detection unit and the
9 mux. He even says that the detection unit is in the
10 control chip. So this is simply illustrating that the
11 detection unit connected to the mux shows that the host
12 device detection ultimately controls the mux's select
13 line.
14 BY MR. JENSEN:
15 Q. Is it your understanding that the image in
16 paragraph 192 is intended to depict the detection unit
17 as being integrated as part of the bridge 52?
18 MR. BLUMENKOPF: Objection, form.
19 A. Mr. Welch himself says in the immediately prior
20 sentence or the second-to-last sentence of paragraph 193
21 of his '643 declaration, he says, "For example, as I
22 describe above, Chang II's bridge includes a detection
23 unit (in the control chip) that detects the mode of the
24 downstream product for selection of the appropriate
25 transmission path."

Page 252

1 Then he goes on to say in the next
2 sentence, "The above illustrates the detection unit
3 connected to the mux to show that host-device detection
4 ultimately controls the mux's select line."
5 Sorry. That would have been the
6 third-to-last sentence rather than the second-to-last,
7 the first one I read there.
8 "Additionally, the detection unit must
9 connect to the downstream port to detect the mode as
10 shown in Chang II."
11 So he's simply showing the control
12 relationship of the detection unit to the mux, which is
13 what is being illustrated in figure 3. And that's what
14 Mr. Welch says.
15 BY MR. JENSEN:
16 Q. You keep talking about this idea of a control
17 relationship. If we look at paragraph 193, the fourth
18 line down, the sentence begins, "In a third obvious
19 location." Do you see that?
20 A. Yes.
21 Q. And it goes on to say what the third obvious
22 location could be for where the detection circuit could
23 be located, correct?
24 MR. BLUMENKOPF: Objection, form.
25 A. I mean, he says it could be located in the

Page 253

1 bridge; but Chang II actually shows it is located in the
2 bridge of Chang II. And, furthermore, in the actual
3 analysis that Mr. Welch performs element by element he
4 says it's in the bridge. We can look at that, but
5 that's what his analysis was.
6 BY MR. JENSEN:
7 Q. We certainly have a disagreement about that,
8 but let me ask you about paragraph 193. Let's look at
9 the third sentence. It says, "In another obvious
10 example, it could be separate and between the dual-role
11 port 50 and mux."
12 Do you see that?
13 A. The second sentence, yes, I see that.
14 Q. I think it's the third sentence. "In another
15 obvious example, it," meaning the detection circuitry,
16 "could be separate and between the dual-role port 50 and
17 mux."
18 A. Yes. I do see the third sentence. That's what
19 it says.
20 Q. If the detection unit is located between the
21 dual-role port 50 and the mux, would that be inside or
22 outside of the bridge 52 in the figure of paragraph 192?
23 MR. BLUMENKOPF: Objection, form.
24 A. Well, in this section Mr. Welch discusses many
25 different things. For example, he discusses in 191 two

Page 254

1 obvious implementations for modifying Chang, for
2 example, using either a mux or a crossbar switch. But
3 later in his analysis for the actual claim element by
4 element portions, he doesn't even talk about some of the
5 alternatives in his analysis.
6 So while there is a sentence there in 193,
7 the third sentence, that's not the actual combination
8 that Mr. Welch himself analyzes later on in this -- in
9 his claim element by claim element analysis section,
10 which is down around paragraph 200 or so, 220-ish.
11 So he may have talked about many obvious
12 implementations, but he chose only to analyze a subset
13 of what he's discussing here in terms of his element by
14 element analysis.
15 MR. JENSEN: Could the court reporter read
16 my question back.
17 (The record was read as requested.)
18 MR. BLUMENKOPF: Same objection.
19 A. So it's clear that the figure does not -- is
20 not showing this -- he's not actually provided --
21 Mr. Welch is not providing an actual figure that shows
22 the arrangement of the components according to the third
23 sentence in paragraph 193 of the '643 declaration. So
24 he's not specific about it enough.
25 BY MR. JENSEN:

Page 255

1 Q. If the detection unit were placed between the
2 dual-role port 50 and the mux in the modified figure of
3 Chang, would the detection unit be located inside or
4 outside of the bridge 52?
5 MR. BLUMENKOPF: Objection, form.
6 A. Well, if you look at paragraph 152 of
7 Mr. Welch's '643 declaration, in the middle he talks
8 about how, "Additionally, Chang teaches that the bridge
9 may be a discrete component (as shown in figure 3) or
10 integrated with other circuitry comprising the hub."
11 And so he's saying that that's what --
12 he's saying that's what Chang itself teaches. So he
13 hasn't provided a specific figure illustrating what he
14 means by this. But to the extent that these newly added
15 functions are included in the bridge, integrated with
16 the bridge, as he himself describes Chang describing,
17 then it would be all still inside the bridge.
18 BY MR. JENSEN:
19 Q. Is it your testimony, Dr. Houh, that locating
20 the detection unit "between the dual-role port 50 and
21 mux" would be inside of Chang's bridge 52?
22 MR. BLUMENKOPF: Objection, form.
23 A. What I'm saying here is Mr. Welch has not
24 provided a specific figure illustrating what he means,
25 but he has cited to portions of Chang that talk about

Page 256

1 how the bridge may be a discrete component or integrated
2 with other circuitry comprising the hub.
3 So this is a made-up combination
4 illustrated, and he has not provided what he means as to
5 where the detection unit would be on his third sentence.
6 But he has pointed to things that other circuitry could
7 be integrated with the bridge.
8 So to the extent that -- so Mr. Welch is
9 not specific about your question. He's specific about
10 what he says in the third sentence, that it can be
11 between the dual-role port and mux.
12 But because Chang is teaching that the
13 bridge can be integrated with other circuitry comprising
14 a hub, this is just one thing he says, which he actually
15 does not analyze in the element by -- he does not set
16 forth as a specific combination he's analyzing in the
17 element by element analysis later on in the '643
18 declaration.
19 BY MR. JENSEN:
20 Q. Let me ask this question, Dr. Houh. Did you
21 analyze a scenario where the detection unit is located
22 outside of the bridge 52 in your declarations?
23 MR. BLUMENKOPF: Objection, form.
24 A. Well, I mean, the main focus of my declaration
25 was to respond to -- of the analysis was responding to

Page 257

1 the actual combination that petitioner set forth in the
2 challenges in which that specific combination relied on
3 the bridge and the detection unit inside the bridge.
4 I think that was made very clear, I think,
5 either in the petition or Mr. Welch's declaration or
6 both. So there may be some parts that I address the
7 particular issue that you asked about. I don't know my
8 whole -- I don't know -- I don't have a photographic
9 memory. But I know that the main arguments were
10 directed to what the petitioner and Mr. Welch actually
11 set forth as the combination, which is simply using the
12 bridge of Chang II in the combination as the bridge in
13 which the detection unit is inside the bridge.
14 BY MR. JENSEN:
15 Q. Can you point me to anywhere in any of your
16 declarations where you analyze a scenario where the
17 detection unit is located outside of the bridge 52?
18 MR. BLUMENKOPF: Objection, form.
19 BY MR. JENSEN:
20 Q. In the interest of time and since you haven't
21 been able to find anything just yet, let me ask a
22 different question. I think you mentioned this a couple
23 of times yesterday and possibly today as well.
24 Let's talk about the scenario that you did
25 analyze where the detection unit is located inside of

Page 258

1 the bridge. Are you with me?
2 A. Sure.
3 Q. Can you summarize what your argument is as to
4 why that particular embodiment would be inoperable, or I
5 think you used the term "dead end state." However you
6 want to describe it, can you just summarize for me why
7 you think the proposed modification with the detection
8 unit inside the bridge would not work.
9 MR. BLUMENKOPF: Objection, form.
10 A. So to start with -- I think you acknowledged
11 this -- that the petition relies on Chang II's bridge
12 device and detection unit, which is within the bridge of
13 Chang II, to provide the control signals that cause the
14 multiplexer to route the downstream ports to the
15 appropriate transmission path.
16 So the proposed combination has a
17 structural flaw. And as we were looking at just now in
18 Mr. Welch's '643 declaration in paragraph 193, he says
19 that the detection unit must connect to the downstream
20 port to detect this mode as shown in Chang II.
21 And so the detection unit of Chang II is
22 part of the bridge; but the claims of the '643 patent
23 require "routing the USB signals from the consumer USB
24 device to the first USB port via the routing logic,
25 connected directly to the USB hub and thereby bypassing

Page 259

1 the USB bridge in accordance with the determination that
2 the consumer device is in the USB device mode."
3 So in the combinations set forth by
4 petitioner, in order to satisfy -- and, thus, in order
5 to satisfy the bypassing the USB bridge limitation of
6 the claims, the detection circuit in the proposed
7 combination must be bypassed when the USB signals are
8 routed to the USB hub when the consumer device is in the
9 USB device mode.
10 And so if you look then at paragraph 87 of
11 my '643 declaration -- and I believe I have a very
12 similar discussion in the rest of my declarations -- now
13 we're bypassing the bridge, as I show in 87. There's
14 some very technical arguments, for example, in 88 about
15 tri-state high impedance so that there's actually no
16 signal -- that the signal is not also being received at
17 the bridge. That's kind of summarized in 88. And that
18 when the bridge is bypassed by the multiplexer in the
19 combination, it's electrically disconnected from the
20 ports coupled to the multiplexer, the input port.
21 And so now the bridge device can't send or
22 receive signals from a downstream USB port in this
23 state; and, therefore, the bridge device of Chang II,
24 which has the detection unit in it, is rendered
25 incapable of detecting whether a device is in host or

Page 260

1 device mode as laid out in figure 6 of Chang II. And
2 that, accordingly, prevents the bridge device from
3 generating or providing control signals to the
4 multiplexer.
5 And it's that -- if you actually look at
6 figure 6 of Chang II, "In the disconnected state the
7 bridge device is unable to exchange signals with an
8 external device and, thus, the bridge device will never
9 reach stages S607 or S619 in figure 6."
10 And so that is -- you know, because the
11 bridge device then is unable to detect -- the bridge
12 device of the combination set forth by petitioner is
13 unable to detect a newly inserted external device, the
14 petition's USB hub module will remain in device mode
15 even if a new device is connected. And that's what I'm
16 calling this dead end state, and the petition fails to
17 address that. And that is what renders the combination
18 set forth by petitioner incapable of meeting the claimed
19 dynamic switching as described above.
20 BY MR. JENSEN:
21 Q. Is what you're saying -- let me just see if I
22 can summarize this, and you can tell me if I get it
23 right or wrong. Assuming that the bridge is located --
24 strike that.
25 Assuming that the detection unit is

Page 261

1 located inside of the bridge, if you had a host device
2 connection that was going through the bridge, you would
3 be able to detect a mode change from host to device and
4 reroute the signal directly to the upstream port; but
5 you wouldn't be able to switch back. Is that right?
6 MR. BLUMENKOPF: Objection, form.
7 A. Yeah. I mean, that's the dead end state. It's
8 the main feature of Chang II, which describes its
9 ability to, you know, be able to swap back and forth.
10 So this combination is inoperable and,
11 furthermore, it's basically killing or -- I don't know
12 what the right word there is. It's taking the main
13 feature that Chang II says is its main feature and
14 basically throwing it away. So it's not really directed
15 to the principle of operation of Chang II because it's
16 taking that main feature away, for example.
17 BY MR. JENSEN:
18 Q. You would agree with me, however, that the
19 modified embodiment would be able to detect a change
20 from host to device and reroute the signals to create a
21 host-device detection, correct?
22 MR. BLUMENKOPF: Objection, form.
23 A. So I do talk about how in the proposed
24 combination -- well, if you look at paragraph 86, I talk
25 about the behavior of the multiplexer. And it's the --

Page 262

1 the behavior of the multiplexer thus demonstrates the
2 need for Mr. Welch's admonition about -- that the port
3 has to be -- the detection unit must be connected to the
4 downstream port to detect this mode.
5 And so in either the hub 46 or hub 40
6 implementations when the multiplexer connects the
7 downstream port to the hub via the bridge 52, the bridge
8 52 is connected to the downstream port 50 through the
9 multiplexer. But when the multiplexer connects to the
10 downstream port by the direct-to-hub path, when the
11 device on the port is in device mode, it bypasses the
12 bridge.
13 So now because the bridge is now
14 electrically isolated from the port 50 as labeled in the
15 figure from Mr. Welch's declaration that I have added
16 purple arrows to, that detection unit is now isolated
17 from the signal and is not connected. Mr. Welch himself
18 acknowledges that the detection unit must be connected
19 in order to make a detection.
20 BY MR. JENSEN:
21 Q. Yeah. Sorry. My question is a little bit
22 different, right?
23 Would you agree with me that the modified
24 version of Chang could switch from a host-to-host path
25 to a host-to-device path, but it could not switch back?

Page 263

1 MR. BLUMENKOPF: Objection, form.
2 A. It could switch from the communication path
3 internally in the proposed combination at first going
4 through the bridge, as I've illustrated in the figure in
5 86 of the '643 declaration. I think there's similar
6 figures and description in the other supplemental
7 declarations as well.
8 It is going through the bridge. And if it
9 detects the -- if the detection unit in that case
10 detects the downstream device, or the device connected
11 at port 50 rather, is now in device mode, then it
12 switches; and that's what the bridge control logic is at
13 least able to start the switching over. You know, in
14 Chang it does describe bypassing; but it describes it
15 with respect to the internal switch that's in the bridge
16 chip while leaving the input port of the Chang II bridge
17 connected to the detection unit.
18 But what's happening in the combination
19 set forth by petitioner is that the external mux
20 embodiment that the petitioner or Mr. Welch analyzed
21 then switches over externally the path to bypass the
22 bridge chip entirely. And that's when it connects that
23 the device is in -- the device connected to port 50 is
24 in device mode. And that's illustrated using a figure
25 from the petition that I -- actually, I'm not sure if

Page 264

that purple -- I don't remember if that purple is -- we can look. But it shows that there is a path that actually bypasses the entire bridge chip of Chang II in both hub 46 and hub 40 implementations.

The bridge is now actually electrically isolated from the signals on port 50. So the detection unit can never then function to detect any change in the status of the device or the device plugged into port 50 has been unplugged and a different device plugged in that could be in host mode.

So I think I give reasons, you know, in my '643 declaration why that -- why a person of ordinary skill would not have made the combination. And there are multiple reasons that I've laid out because -- for the reasons I lay out. We can go there if you want but --

BY MR. JENSEN:

Q. Let me see if I can summarize just so we've got a clean answer because that went on for a really long time.

You would agree with me that the problem that you identify is not switching from a host-to-host connection to a host-to-device connection, but the problem is switching from a host-to-device connection to a host-to-host connection?

Page 265

MR. BLUMENKOPF: Objection, form.

A. I don't think it's as simple as what you said. So no matter what you plug in, after the bridge has been bypassed, whether it's a host or -- there can be no switching. It is literally locked in one state for port 50 in the same state, and there can't be any change after if a host is plugged in -- if the device is unplugged from port 50 and a host device is plugged -- I started to use the word "device" in that context -- a USB host is plugged into port 50.

So, I mean, that's the situation. There can never be a switch -- any USB host plugged into port 50 thereafter will not work. And that kind of -- that's eliminating really one of the basic features provided by USB of being able to hot swap and change devices.

BY MR. JENSEN:

Q. So you're saying anytime there's a host-device connection, regardless of how you got there, you would not be able to switch to a host-to-host connection in the proposed modification?

MR. BLUMENKOPF: Objection, form.

A. Yeah. Once the combination set forth by petitioner has switched over to a situation where the device plugged into port 50 is in USB device mode, then

Page 266

it can never switch back and detect a USB host being plugged into port 50 to properly connect up the host.

So it's a situation like this. You might have to turn off your car and reboot the system to work again, and no one -- that just wouldn't be a workable proposal.

BY MR. JENSEN:

Q. So what you're saying it's basically stuck in the host-device connection mode, right?

A. Well, it would be stuck in this mode and never be able to go back to host-to-host mode when a USB host is plugged into port 50. And that's just not what USB is about. And it's also taking away the main feature of Chang II, putting Chang II into a system where it breaks the main feature of Chang II. It doesn't make any sense, and a POSITA wouldn't want to do that.

It basically isn't according to -- one of the main features of USB also is the fact that you can plug in and detach devices and change them. I mean, that's the whole problem. Before USB came along if you wanted to plug in a new card into your computer or a new disk drive to a serial A2A port, you really had to shut down your computer and then plug it in and turn it back on.

In this case it's almost what the new --

Page 267

the proposed combination would do is go backwards in time to those days to be able to plug in a host device once the port has been switched over to -- or once a USB device has been plugged into port 50.

Q. You make the same dead end argument that we've been discussing for both the hub 46 and hub 40 implementations of the proposed modification?

MR. BLUMENKOPF: Objection, form.

A. I think that's right. I do make that.

And by the way, we've been going about an hour and 40 minutes. If we could just take a break when you finish this line of questioning, that would be great.

BY MR. JENSEN:

Q. Yeah. And you make the same dead end argument that we've been discussing for both the multiplexer implementation and the crossbar implementation of the proposed Chang modification?

MR. BLUMENKOPF: Objection, form.

A. I do here. And in the relevant different supplemental declarations I respond to the actual combination that was analyzed in the respective petition, which somehow doesn't -- which sometimes, if I remember correctly, sometimes it's the mux implementation that's actually analyzed and the crossbar

Page 268

1 isn't. And sometimes it's the crossbar implementation
2 that's analyzed, and the mux one isn't.
3 So I respond appropriately in the -- to
4 the implementations actually set forth, but I think in
5 paragraph 86 I'm discussing that this is with respect to
6 both limitations.
7 MR. JENSEN: Let's go ahead and take a
8 break.
9 THE VIDEOGRAPHER: The time is 10:42 a.m.
10 We are now going off the record.
11 (Recess taken)
12 THE VIDEOGRAPHER: The time is 10:58 a.m.
13 We are now back on the record.
14 BY MR. JENSEN:
15 Q. Before the break, Dr. Houh, we were discussing
16 your opinions about the so-called dead end state of the
17 proposed combination. Do you recall that discussion?
18 A. Yes.
19 Q. And as a part of that discussion you mentioned
20 potentially having to do like a reboot. I can't
21 remember if you gave the example of a car, but you used
22 the word "reboot." What does it mean to reboot a
23 system?
24 MR. BLUMENKOPF: Objection, form.
25 A. Well, I think that would be to bring it up in

Page 269

1 its original state from no power. That's one example.
2 Or to cause it to go -- to completely restart from its
3 original -- as if from its original powered-down state.
4 That's one example.
5 BY MR. JENSEN:
6 Q. What do you mean when you say "to return to its
7 original state"?
8 MR. BLUMENKOPF: Objection, form.
9 A. Well, so it would be a state -- it would be --
10 if it were off, powered down, and then turned on. Often
11 devices have such a state.
12 BY MR. JENSEN:
13 Q. Is that sometimes referred to as a default
14 state?
15 MR. BLUMENKOPF: Objection, form.
16 A. I wouldn't say that. I think that is a
17 slightly different concept.
18 BY MR. JENSEN:
19 Q. What is a default state?
20 MR. BLUMENKOPF: Objection, form.
21 A. Generally speaking? Is that what you're asking
22 about? A default state option might be the option
23 that's selected initially.
24 So, for example, if you're taking a survey
25 and the answer is yes or no, maybe yes is default, so it

Page 270

1 highlights the yes answer. So in that case the answer
2 would default to yes, and then the user can change it or
3 just say okay and accept the yes. That's an example of
4 a default option.
5 BY MR. JENSEN:
6 Q. Are you familiar with the term "reset" in the
7 context of electronics?
8 MR. BLUMENKOPF: Objection, form.
9 A. That's very broad. I mean, I've heard the term
10 "reset" in conjunction with some things electronic.
11 BY MR. JENSEN:
12 Q. Are you familiar with the concept of reset in
13 the context of a USB system?
14 MR. BLUMENKOPF: Objection, form.
15 A. I mean, there may be something in the spec
16 about that. I don't recall from memory offhand.
17 BY MR. JENSEN:
18 Q. Are you familiar with the concept of a reset
19 handshake in the context of a USB host device
20 connection?
21 MR. BLUMENKOPF: Objection, form.
22 A. I mean, there might be something in the spec
23 about that. I don't remember all parts of the spec.
24 BY MR. JENSEN:
25 Q. Assuming you had a live host-device connection

Page 271

1 in a USB hub, how could the host close the connection?
2 MR. BLUMENKOPF: Objection, form.
3 A. I don't know that I address these issues in my
4 supplemental declaration. I mean, you know, I don't
5 think there was any proposal set forth by petitioner
6 about any specificities with respect to this issue in
7 their combination. So it wouldn't have been part of my
8 response in my supplemental declaration.
9 BY MR. JENSEN:
10 Q. Let's turn back to your '643 declaration at
11 paragraph 86. Are you able to see that on the screen?
12 A. Yes, I do.
13 Q. Okay. I just wanted to make sure I was sharing
14 the right window. You can reference a hard copy if you
15 like. Let me know when you're there and have the figure
16 in front of you.
17 A. I'm there.
18 Q. Okay. Do you know which route the mux would
19 connect to when the hub in the proposed modification is
20 first powered on?
21 MR. BLUMENKOPF: Objection, form.
22 A. I don't believe petitioner set forth that
23 combination in that much detail.
24 BY MR. JENSEN:
25 Q. Look at figure 4 of the Aptiv patent. When a

Page 272

1 USB device is first plugged in on a downstream port, is
2 it routed through the bridge or around the bridge?
3 MR. BLUMENKOPF: Objection, form.
4 A. Well, this is -- to be clear, this is the '643
5 patent figure 4 that's on the screen. But in the Aptiv
6 invention the device is able to switch back and forth
7 between different modes, and that's what it's teaching.
8 That's what the invention successfully does.
9 The problem is with the proposed
10 combination set forth by petitioner in which I don't
11 believe they laid out what state it starts in. But,
12 furthermore, regardless of that, whenever it switches
13 into the bypass path around the bridge, as we showed
14 in -- as I showed in that figure earlier, the USB
15 port 50, the port 50, is isolated from the detection
16 unit in the bridge of Chang II. That's part of the
17 combination. And the device in the proposed combination
18 can never support them going back -- it can never detect
19 a USB host being plugged into port 50 thereafter.
20 So the Aptiv invention embodiment
21 illustrated in figure 4 doesn't have that issue at all.
22 So no matter where it -- yeah. So it doesn't have that
23 issue. It is always able to detect changes in state or
24 detect a change in type of USB host or device plugged
25 in.

Page 273

1 MR. JENSEN: Move to strike that as
2 nonresponsive.
3 BY MR. JENSEN:
4 Q. Do you have figure 4 of the Aptiv patent in
5 front of you?
6 A. You're showing figure 4 of the '643 patent, and
7 I have that in front of me as well in printed form.
8 Q. If someone plugged in a USB device on what's
9 labeled "USB device type A connection 1" -- do you see
10 that in figure 4?
11 A. I mean, I see the type A connector 1 box. It's
12 just c-o-n-n.
13 Q. Suppose that a user plugged in a USB device on
14 that port.
15 A. Okay.
16 Q. Where would the USB routing multiplexing switch
17 initially route the signals coming from that USB device?
18 MR. BLUMENKOPF: Objection, form.
19 A. Well, I'm just trying to look for the level of
20 detail you're asking about in the specification; and
21 just in my short review here I haven't found specifics
22 related to the question you asked. But, I mean, what
23 the invention is directed to is that you can switch back
24 and forth any port to be in either USB device or USB
25 host.

Page 274

1 It even talks about in places with
2 multiple bridge units that you can actually support host
3 mode on multiple simultaneous consumer-facing ports.
4 And so the specification does talk about,
5 for example, when you plug in a phone, which would be a
6 USB host. But at least in my review here I didn't see a
7 detail on the USB device, although it supports -- the
8 patent's about supporting the swapping and hot swapping
9 and mode changing of devices plugged into the
10 consumer-facing ports.
11 BY MR. JENSEN:
12 Q. Could the switch control line in figure 4 of
13 the Aptiv patent provide a default setting for the USB
14 routing multiplexing switch to establish a connection
15 before there had been a host-device determination?
16 MR. BLUMENKOPF: Objection, form.
17 A. I mean, what I analyzed with respect -- what I
18 considered with respect to responding to the petitioner,
19 petitioner's positions, was really the -- what was set
20 forth in the petition. I don't believe that analysis of
21 figure 4 was something set forth as prior art or
22 discussing any defaults that I would have been able to
23 properly respond to in my supplemental declaration.
24 BY MR. JENSEN:
25 Q. You didn't analyze that question in your

Page 275

1 declaration?
2 MR. BLUMENKOPF: Objection, form.
3 A. Well, I mean, the direction is only so long. I
4 can only address so many issues. I didn't address
5 hypothetical issues that were not raised.
6 BY MR. JENSEN:
7 Q. Do you have an understanding as a POSITA and an
8 expert in the field whether the switch control signal in
9 figure 4 of the Aptiv patent could provide a default
10 setting for the USB routing multiplexing switch?
11 MR. BLUMENKOPF: Objection, form.
12 A. I mean, I'm not sure the -- even in the
13 combination set forth by petitioner they talked anything
14 about any defaults of any sort.
15 BY MR. JENSEN:
16 Q. Yeah. My question is about figure 4, right?
17 I'm not talking about the combination. I'm talking
18 about figure 4 in the patent. So can you answer my
19 question with respect to figure 4 of the Aptiv patent.
20 MR. BLUMENKOPF: Same objection.
21 A. I mean, I don't recall the word "default" being
22 used in the '643 specification.
23 BY MR. JENSEN:
24 Q. And that's why I'm asking for your
25 understanding as a POSITA and an expert.

Page 276

MR. BLUMENKOPF: Same objection.
A. That's not an issue that came up in my analysis.
BY MR. JENSEN:
Q. Do you have an opinion, regardless of whether it came up in your analysis?
MR. BLUMENKOPF: Objection, form.
A. I don't have any written opinions in my supplemental declaration directed to what you're asking about specifically.
BY MR. JENSEN:
Q. Okay. Let's go back to your declaration, paragraph 86, and look at -- there's a figure of the proposed modification, correct?
MR. BLUMENKOPF: Objection, form.
A. I'm sorry. Could you repeat that, please.
BY MR. JENSEN:
Q. Yeah. In paragraph 86 of your declaration you pasted in a copy of one of the proposed modifications from the petition, correct?
MR. BLUMENKOPF: Objection, form.
A. So this figure that you're showing in paragraph 86 -- there's two; that's the first one -- that comes directly from page 61 of the '643 petition. And I may have said that I annotated it, but this is the

Page 277

original figure with no changes. So it's showing the redline going through the bridge, but that is from the petition.
BY MR. JENSEN:
Q. Yeah. You didn't create this figure, right?
A. No. And I didn't change it for the purposes of showing it here either. I didn't add any annotations.
Q. So let's look at the figure, the Chang hub 46, and this shows a multiplexer embodiment, correct?
MR. BLUMENKOPF: Objection, form.
A. Yeah. This shows a combination using -- illustrating the addition of the mux, which comes from, I think, a -- the petitioner claims that it comes from the knowledge of a person with ordinary skill to do so.
BY MR. JENSEN:
Q. And it's showing a host-to-host connection, right?
MR. BLUMENKOPF: Objection, form.
A. So the petition on page 61 does talk about this, which is that it's -- that in this obvious modification consistent with steering the USB product signals to the bridge or bypassing the bridge to provide Chang's host-to-host or host-to-device connection. I think this is saying that there is a host-to-host connection in Chang.

Page 278

BY MR. JENSEN:
Q. As indicated by the red arrows going through the bridge instead of around the bridge, right?
A. This would show going through the bridge, which would indicate in an operational state like this that it's a USB host connected to 42 and port 50.
Q. If the multiplexer in the modified embodiment reverted to the bridge route whenever the host-device connection was terminated, would the modified hub have the dead end problem you describe in your report?
MR. BLUMENKOPF: Objection, form.
A. I mean, that was not what was laid out in the petition. So I didn't respond to this hypothetical in my supplemental -- that was not part of the analysis.
BY MR. JENSEN:
Q. And you can't say sitting here today one way or the other whether that would solve the dead end problem that you did describe in your report?
MR. BLUMENKOPF: Objection, form.
A. That was not laid out in the petition or in Mr. Welch's declaration that I saw.
BY MR. JENSEN:
Q. So you haven't analyzed that question?
MR. BLUMENKOPF: Objection, form.
A. Well, this is not what was proposed as the way

Page 279

the combination worked.
BY MR. JENSEN:
Q. Yes. I just want to confirm whether you analyzed that issue or not. Yes or no?
A. I analyzed the actual combinations set forth and not a hundred different hypotheticals that could be raised outside of the petition and Mr. Welch's declaration.
So the analysis that was part of my supplemental declaration was actually responding to the actual combination set forth in the petition, which I suppose includes Mr. Welch's declaration.
Q. Can you point me in your declaration to anywhere where you analyzed the scenario where the multiplexer in the modified Chang embodiment reverts to a default state in which it is connected to the bridge?
MR. BLUMENKOPF: Objection, form.
A. There's no such discussion of default state in the proposed combination that I recall seeing. So I actually respond to the actual combination that was laid out, not some set of other hypotheticals that petitioner did not actually lay out in its petition.
BY MR. JENSEN:
Q. So there's nothing in your report on this topic?

Page 280

1 MR. BLUMENKOPF: Objection, form.
2 A. I mean, my report is my report. I'm just
3 saying that what I really analyzed was the actual
4 combination and the way it works as set forth by the
5 combination in the petition and not additional things
6 that the petitioner didn't raise in the petition that
7 could be --
8 BY MR. JENSEN:
9 Q. In what paragraph --
10 A. -- a number of hypotheticals that the
11 petitioner could have raised these issues, but I don't
12 believe they did.
13 Q. In what paragraph of your report do you analyze
14 how the modified combination -- strike that.
15 In what paragraph of your declaration do
16 you analyze how the modified Chang embodiment would
17 operate if the multiplexer had a default state in which
18 it was connected to the bridge?
19 MR. BLUMENKOPF: Objection, form.
20 A. I mean, this is a hypothetical that the
21 petitioner did not raise in his petition, or Mr. Welch I
22 don't believe addressed in his declaration.
23 So, as I just said, I analyzed the actual
24 combination and the way it operated; and I didn't
25 analyze other things that petitioner could have raised

Page 281

1 in his petition but didn't. And so I actually
2 analyzed -- and what was part of my analysis was the way
3 the proposed combination as set forth in the petition
4 operates.
5 BY MR. JENSEN:
6 Q. Is there any analysis in your declaration
7 that's responsive to my question?
8 MR. BLUMENKOPF: Objection, form.
9 A. It stands for itself. I could tell you that I
10 didn't look at hypotheticals that -- situations that you
11 may be asking about now. The main thrust of my analysis
12 was with respect to the way the actual combination set
13 forth in the petition operated and not to these other
14 hypotheticals you're raising now.
15 So my report is what it says. To the
16 extent I talked generally about things, you know, they
17 are what they say. But I specifically analyzed the
18 combination set forth by petitioner, and that was the
19 main thrust of my analysis.
20 BY MR. JENSEN:
21 Q. Yeah. And I'm just trying to find out if you
22 did an analysis or not. I'd appreciate it if you could
23 just provide a "yes" or "no" answer to this question.
24 Did you, Dr. Houh, in your declaration
25 analyze how the proposed combination would work if the

Page 282

1 multiplexer had a default state in which it was
2 connected to the bridge?
3 MR. BLUMENKOPF: Objection, form.
4 A. I don't think the petitioner raised that there
5 was any default state. Had petitioner raised that in
6 the petition, I think I -- if I had an issue with that,
7 I would have taken the time to analyze it. But because
8 they didn't, it wasn't part -- that specific
9 hypothetical default state I didn't consider
10 specifically because it wasn't raised to start with.
11 Well, and it simply wasn't part of my analysis because
12 it wasn't raised in the first part, in the first
13 instance.
14 BY MR. JENSEN:
15 Q. And because you think the petition and
16 Mr. Welch did not address this issue, you did not
17 respond to it, correct?
18 MR. BLUMENKOPF: Objection, form.
19 A. I wouldn't quite put it that way. I analyzed
20 the actual combination the way it operates, the
21 combination as set forth in the petition, as described;
22 and that was the main thrust of my analysis.
23 I addressed the issues that were raised in
24 the petition, not hypothetical issues necessarily that
25 the petitioner could have raised but didn't.

Page 283

1 BY MR. JENSEN:
2 Q. I think we have a disagreement on what you keep
3 characterizing as hypothetical situations, and that's
4 why I keep asking the question.
5 Putting aside whether petitioner raised
6 this argument and putting aside whether Mr. Welch raised
7 this argument, do you sitting here today, Dr. Houh, have
8 an opinion as to how the modified Chang embodiment would
9 operate if the multiplexer had a default state in which
10 it was connected to the bridge?
11 MR. BLUMENKOPF: Objection, form.
12 A. I mean, it's hard to put aside all these things
13 because what I respond to were the actual things, not --
14 I didn't respond to a hypothetical report. I actually
15 responded to actual positions as raised.
16 So if you could point me somewhere in the
17 original petition or Mr. Welch's declaration that would
18 help me to see where it was raised, then I could locate
19 a more appropriate -- like I could look at the
20 appropriate section where I responded to a specific
21 portion in the petition or Mr. Welch's analysis. But I
22 don't think there was any discussion about any such
23 default state raised about with respect to the proposed
24 combination set forth in the challenges.
25 BY MR. JENSEN:

Page 284

1 Q. Would a POSITA understand that a multiplexer
2 would have a default value set on its select line?
3 MR. BLUMENKOPF: Objection, form.
4 A. I mean, if you have a specific implementation
5 and data sheet you could show me, I could take a look;
6 but I don't see why that's necessarily the case.
7 MR. JENSEN: For the court reporter, would
8 you repeat my question, please.
9 (The record was read as requested.)
10 MR. BLUMENKOPF: Same objection.
11 A. Are you simply asking the same question again?
12 BY MR. JENSEN:
13 Q. Yeah, because I don't think you answered it.
14 A. Well, if there was a specific implementation of
15 a mux, we could look at the data sheet; but I don't see
16 why that would necessarily be the case.
17 Q. And I'm not talking about a multiplexer in the
18 abstract, right? So I don't -- you know. Let me ask
19 the question, Dr. Houh.
20 Would a POSITA understand that a
21 multiplexer implemented in a system would have a default
22 value set to control its select line?
23 MR. BLUMENKOPF: Objection, form.
24 A. I think we could look at a specific schematic
25 and the specific data sheet for a specific mux and

Page 285

1 limitation used and look at that, but I don't see why
2 that would necessarily be the case.
3 BY MR. JENSEN:
4 Q. Well, let's look at the one that you have in
5 paragraph 86 of your report. So this is the modified
6 Chang implementation, the multiplexer implementation.
7 In such an implementation would a POSITA
8 understand that the multiplexer would have a default
9 value set on its select line?
10 MR. BLUMENKOPF: Objection, form.
11 A. I mean, this figure comes from the petition.
12 The petition I don't think says anything about what you
13 asked, and I don't see why that would necessarily be the
14 case.
15 BY MR. JENSEN:
16 Q. The figure also doesn't show that there's a
17 power connection to the hub; but a POSITA would
18 understand that it's there, right?
19 MR. BLUMENKOPF: Objection, form.
20 A. Well, in that case a POSITA might understand
21 that power is necessary for integrated circuits to work;
22 but some integrated circuits work without the need for
23 constant powering as well.
24 So, you know, you have to consider what
25 the circuit is. You have to consider what the

Page 286

1 details -- no details were raised about that with
2 respect to power or default. But certainly there's no
3 discussion about any default state of any devices raised
4 in the petition that I can recall.
5 BY MR. JENSEN:
6 Q. Would a POSITA understand that in the modified
7 Chang embodiment it would be beneficial to have a
8 default value for the select line on the multiplexer?
9 MR. BLUMENKOPF: Objection, form.
10 A. I mean, this issue wasn't raised one way or the
11 other in the petition that I saw. So, you know, I
12 responded to actual positions that were raised and the
13 actual implementation as set forth by petitioner; and I
14 don't think this particular issue would have been part
15 of my analysis in that case because it wasn't raised.
16 BY MR. JENSEN:
17 Q. Do you have an understanding whether a POSITA
18 would recognize the benefit of providing a default value
19 for the multiplexer in the Chang modified embodiment?
20 MR. BLUMENKOPF: Objection, form.
21 A. There's certainly nothing -- I don't believe I
22 address this specific issue -- this hypothetical issue
23 because it wasn't raised, and I don't think I have a
24 written opinion directed to your exact question in my
25 supplemental declarations as a result.

Page 287

1 BY MR. JENSEN:
2 Q. And you're not prepared to answer that question
3 today?
4 MR. BLUMENKOPF: Objection, form.
5 A. I mean, there's -- it's pretty vague. I
6 wouldn't want to do anything on the fly. If I'm asked
7 to provide written opinion about that later, I could
8 spend the time to do that.
9 BY MR. JENSEN:
10 Q. Would you agree with me that providing a
11 default value to the multiplexer that routed the host
12 port 50 to the bridge whenever a new connection was
13 being established would solve the dead end problem that
14 you discuss in your report?
15 MR. BLUMENKOPF: Objection, form.
16 A. This is a hypothetical that was not raised, and
17 I don't have -- I certainly don't have any written
18 opinions about this in my supplemental declaration right
19 now.
20 BY MR. JENSEN:
21 Q. Respectfully, Dr. Houh, you're here to answer
22 hypothetical questions. That's one of the things that
23 experts are uniquely qualified to do.
24 So I'm asking you, as an expert, can you
25 answer the question that I asked? And if you can't,

Page 288

that's okay. I'll accept that. If you say, "I can't answer it," or, "I don't know," or, "I would need further time to consider that," that's fine. But I haven't heard you actually respond to the question.
MR. BLUMENKOPF: Objection, form.
A. Well, that's an issue I'd need further details and time to consider things.
BY MR. JENSEN:
Q. What additional details would you need?
MR. BLUMENKOPF: Objection, form.
A. I mean, that's part of what would take time to think about.
BY MR. JENSEN:
Q. Can you identify any details that you would need?
MR. BLUMENKOPF: Objection, form.
A. I mean, none of this was raised in the petition. I actually analyzed what was in the petition. I think petitioner had the opportunity to think through some of this beforehand, Mr. Welch as well.
But I stand by what I've written in my declaration because the way the petition set forth the combination is inoperable as I've described. It doesn't -- a person of ordinary skill would still not be motivated to do these things for the reasons I've laid

Page 289

out -- to make the combination for the reasons I've laid out in my supplemental declaration.
And so I would want further details around some of the context and situations, and then I'd still need to take time to consider. But this was not an issue that was raised that I had the appropriate amount of time to respond to through the normal process of a -- through submitting a declaration as part of a -- a supplemental declaration as part of the -- I don't know if this is the patent owner's response or what part of the process.
But there was a time for that to have enough time to do analysis; and that's, I think, why there's time given for that as opposed to demanding a response within one week or something like that.
BY MR. JENSEN:
Q. How does a USB device close an existing data connection that it has with a host?
MR. BLUMENKOPF: Objection, form.
A. I'm sorry. Could you repeat the question, please?
BY MR. JENSEN:
Q. Yeah. How does a USB device close an existing data connection that it has with a host?
MR. BLUMENKOPF: Same objection.

Page 290

A. So you're saying -- I'm sorry. I just want to -- you have host and device, and I want to make sure I understand. Could you repeat that, please.
BY MR. JENSEN:
Q. How does a USB device close an existing data connection with a host?
MR. BLUMENKOPF: Same objection.
A. If there's such a thing, I think it would be in the spec; but I don't have all that memorized. It's mainly the case that the host is the one issuing commands, but we'd have to look through the spec.
BY MR. JENSEN:
Q. Can a USB device terminate a data connection it has with a host?
MR. BLUMENKOPF: Objection, form.
A. So there's lots of scenarios in the protocols. I don't have them all memorized. I think we could just simply look at the spec if we wanted to look at the spec.
BY MR. JENSEN:
Q. When a dual-mode USB product switches from host mode to device mode, does it have to terminate the existing host-to-host connection before doing so?
MR. BLUMENKOPF: Objection, form.
A. I mean, these kind of specific situations we

Page 291

could look in the spec to see what they say. So if the spec says you must do it, you must do it according to the protocol, if you want to follow the protocol.
BY MR. JENSEN:
Q. Supposed you had a dual-mode USB product connected to port 50 of the modified Chang embodiment that was in device mode -- are you with me so far? We've got a dual-mode product plugged into port 50 and the product is in device mode.
A. Yes. And the modified either implementation?
Q. Yes.
A. Got it.
Q. And suppose you had a host-to-device connection because the dual-mode product is in device mode, for example, as is shown in the figures in paragraph 87 of your '643 declaration --
A. Okay. I see those.
Q. -- would a user have to physically unplug the dual mode device -- strike that.
Would a user have to physically unplug the dual-mode USB product for that product to switch from device mode to host mode?
MR. BLUMENKOPF: Objection, form.
A. I mean, the spec may address this issue as well; but we could take a look through there if you

Page 292

want.
BY MR. JENSEN:
Q. Without looking at the USB spec, can you answer the question?
MR. BLUMENKOPF: Objection, form.
A. I mean, I certainly don't have the spec memorized. It may address this issue partly, but it may also depend on the features of the item that's plugged in.
BY MR. JENSEN:
Q. Are you familiar with the concepts of attachment and removal in the USB standard?
MR. BLUMENKOPF: Objection, form.
A. I mean, this is a -- generally speaking, many protocols have concepts that might be recognized as being similar to that; but I don't remember exactly what words are used in the spec to describe that offhand.
BY MR. JENSEN:
Q. In the context of the USB standard, do the concepts of attachment and removal require physically unplugging and plugging in a USB product to a port?
MR. BLUMENKOPF: Objection, form.
A. If you're asking about the USB standard, we can take a look at the standard to see what it says. But I don't have every possible situation of which there are

Page 293

probably many, many, many memorized.
BY MR. JENSEN:
Q. You'd have to look at the standard to answer the question?
MR. BLUMENKOPF: Objection, form.
A. I mean, I think that's what standards are for is that they're there; they're published. You can kind of look at it whenever you want, and it should lay out the things that the protocol designers wanted to specify. So if it's there, it's there. We can look.
BY MR. JENSEN:
Q. And without looking at it, you don't know, correct?
A. Well, I haven't memorized the spec.
Q. So you don't know?
MR. BLUMENKOPF: Objection, form.
A. We can find out just by looking to see whether it's addressed, but I don't memorize every specification. There's no need to because the specifications are published.
BY MR. JENSEN:
Q. But you're an expert in USB, correct?
MR. BLUMENKOPF: Objection, form.
A. I think I'm an expert that meets the qualifications as I've laid out, and we even discussed

Page 294

Mr. Welch's POSITA as well. But I'm certainly capable of reading the spec and understanding what's in there and relating those to -- again, as I said, specifications for networking protocols are similar in the sense that they address many of the same issues. So you simply have to look at the details.
So if you don't remember the protocol for how you're dealing with the Queen of England, you can look it up. If you don't remember if you have to walk behind her or the left or right, it might be in the protocol. So you simply go look.
BY MR. JENSEN:
Q. And you don't know what the fundamental concept of removal means in the concept of USB, do you?
MR. BLUMENKOPF: Objection, form.
A. We can look in the spec. It's a general concept of being -- you know, in communications in networking there's lots of shared concepts.
Different protocols may use different terms to describe similar concepts. They may use the same terms sometimes. But all we have to do is look in the spec. I don't have it memorized. I have reviewed portions of the spec before, but I don't memorize everything I read.
BY MR. JENSEN:

Page 295

Q. Let's go ahead and look at the USB spec, section 4.6.2. Are you able to see that on the screen, Dr. Houh?
A. Yeah.
MR. BLUMENKOPF: Counsel, which exhibit are you referring to?
MR. JENSEN: This is Exhibit 1018.
MR. BLUMENKOPF: For which proceeding?
MR. JENSEN: For all of them.
A. So I do see that. I do see that. You're pointing to 4.6.2. Is that right?
BY MR. JENSEN:
Q. Yeah. And what is the title of that section?
A. It's 4.6.2, Removal of USB Devices. And it's one paragraph on page 48 of a 650-page document.
Q. And the 650-page document is the USB 2.0 standard, correct?
MR. BLUMENKOPF: Objection, form.
A. That's what it says.
BY MR. JENSEN:
Q. And do you have any reason to disagree?
A. No.
Q. Okay. Very good. Can you read section 4.6.2 to yourself, and let me know when you're done.
A. I'm done.

Page 296

1 Q. Having read section 4.6.2 of the USB 2.0
2 specification, do you have an understanding as to
3 whether the removal of a USB device requires physically
4 unplugging it from a port?
5 MR. BLUMENKOPF: Objection, form.
6 A. So this one paragraph I don't see any statement
7 about physical detachment, and I will point out that I
8 did search for "removal" to see if anywhere else it did.
9 The word "removal" appears only three times in this
10 document if the search index is correct, the three times
11 that I found in my search. I didn't see those other
12 places addressed a physical issue.
13 BY MR. JENSEN:
14 Q. Let's go back to Exhibit 2019, which is your
15 declaration; and let's look at the one in the -- we can
16 look at the one in the '643 proceeding. And you've got
17 an image of the modified Chang hub in that paragraph,
18 right?
19 MR. BLUMENKOPF: Objection, form.
20 A. This is a -- I'm showing petitioner's figure
21 here, which does show one of the proposed -- one
22 proposed combination.
23 BY MR. JENSEN:
24 Q. And the bridge 52 is highlighted in orange,
25 correct?

Page 297

1 A. Yeah. I see that the rectangle pointed to is
2 highlighted in orange.
3 Q. Is it your understanding that in the
4 petitioner's proposed modification of Chang figure 3
5 that the bridge 52 was replaced with the bridge from the
6 Chang II reference?
7 MR. BLUMENKOPF: Objection, form.
8 BY MR. JENSEN:
9 Q. It's been several minutes, Dr. Houh. Are you
10 able to answer my question?
11 MR. BLUMENKOPF: Objection, form.
12 A. Yes. I'm just looking for support for my
13 answer. I'm still looking.
14 BY MR. JENSEN:
15 Q. I think we're going on something over ten
16 minutes now. Are you able to answer my question,
17 Dr. Houh?
18 MR. BLUMENKOPF: Objection, form.
19 A. Yes. I think I'm almost done pulling together
20 everything I want to refer to.
21 So --
22 BY MR. JENSEN:
23 Q. Let me just ask the question clean so we have
24 it clear on the record.
25 Is it your understanding that petitioner's

Page 298

1 proposed modification of Chang figure 3 replaces Chang's
2 bridge 52 with the bridge device from Chang II?
3 MR. BLUMENKOPF: Objection, form.
4 A. So in my '643 declaration I lay out in
5 section 9A, which starts on page 30 of exhibit -- my
6 '643 declaration, the petition's proposed combination
7 and that it's proposing combining Chang, Chang II and
8 the POSITA's knowledge.
9 If you look at the hub 46 implementation
10 as a subportion there, right there on page 31, The
11 petition discloses a proposed implementation that
12 inserts a multiplexer within Chang's USB hub 40 -- it's
13 a multiplexer -- and that the multiplexer can connect
14 host port 50 to either Chang's bridge 52, which is
15 Chang II's bridging device 1, or Chang's hub control
16 port depending on its select lines.
17 And I cite to the petition in pages 47 to
18 52. And if you look at pages 47 to 52, at the top of
19 page 47 in the petition -- this is the '643 petition --
20 the top of that page says, "Detection unit 134 is part
21 of the bridge's control chip." That's a cite to
22 Chang II.
23 "The detection unit detects a host-device
24 connection by" -- and it goes on. But it's saying here
25 that it is part of the bridge's control chip and the

Page 299

1 bridge in Chang I -- sorry, just regular Chang, is that
2 orange bridge box. So part of the support for that
3 is -- that's what it's saying here. It's talking about
4 in the combination in the petition that there's a bridge
5 and the bridge's control chip. The detection unit is
6 part of that.
7 And if you look at Chang II, if you look
8 at figure 5 of Chang II, for example, it has the control
9 chip. That's the Chang II device, the bridge, and it
10 has within that the detection unit within it.
11 So, I mean, putting that all together,
12 that is showing in the petition where that's part of the
13 support for -- now we have this bridge's control chip
14 that the petition is setting forth that has the
15 detection unit inside of it and that the bridge is
16 simply labeled from the figure 3 of Chang as "bridge" in
17 orange. And that's what the petition is saying.
18 BY MR. JENSEN:
19 Q. So your understanding of the petition is that
20 it replaced the bridge 52 in Chang with the control chip
21 shown in Chang II figure 5?
22 MR. BLUMENKOPF: Objection, form.
23 A. I mean, I don't know that it uses those exact
24 same words; but if you'd look at this proposed
25 combination, you know, it's talking about the bridge and

Page 300

1 the control chip of Chang II and where the detection
2 unit is. That's what it's setting forth.
3 MR. JENSEN: Let's go off the record.
4 THE VIDEOGRAPHER: The time is 12:18 p.m.
5 We are now going off the record.
6 (Luncheon recess)
7 THE VIDEOGRAPHER: The time is 1:06 p.m.
8 We are now back on the record.
9 BY MR. JENSEN:
10 Q. Welcome back, Dr. Houh.
11 A. Thank you.
12 Q. Let me direct your attention to your '643
13 report starting at paragraph 139.
14 A. Okay.
15 Q. And this is the section of your report where
16 you begin to analyze the secondary considerations,
17 correct?
18 MR. BLUMENKOPF: Objection, form.
19 A. This section is titled -- the title starts
20 "Secondary Considerations."
21 BY MR. JENSEN:
22 Q. And that's where you have your analysis of
23 various secondary considerations of nonobviousness?
24 MR. BLUMENKOPF: Objection, form.
25 A. Well, we're looking at the '643 declaration, so

Page 301

1 this page is where it is in the '643 declaration.
2 BY MR. JENSEN:
3 Q. And the paragraph numbers might be different in
4 your other declarations; but they also include a
5 Secondary Considerations section as well, correct?
6 A. That sounds right.
7 Q. Okay. And in paragraph 139 you provide a list
8 of a number of the secondary considerations of
9 nonobviousness, correct?
10 A. Sure.
11 Q. And the list includes "copying, long-felt but
12 unsolved need, failure of others, commercial success,
13 unexpected results created by the claimed invention,
14 unexpected properties of the claimed invention, licenses
15 showing industry respect for the invention, and
16 skepticism of skilled artisans before the invention,"
17 correct?
18 A. Yes. That's what it says.
19 Q. Did you analyze all of those secondary
20 considerations of nonobviousness?
21 MR. BLUMENKOPF: Objection, form.
22 A. I don't think I have a section directed to -- I
23 don't think I have sections directed to all those at
24 issue, only some of them.
25 BY MR. JENSEN:

Page 302

1 Q. How did you pick which ones to include in your
2 analysis?
3 MR. BLUMENKOPF: Objection, form.
4 A. It's the ones that I had technical support for.
5 BY MR. JENSEN:
6 Q. So let's take as an example the secondary
7 consideration you identify of licenses showing industry
8 respect for the invention. Did you analyze that
9 secondary consideration in your report?
10 MR. BLUMENKOPF: Objection, form.
11 A. I don't see a subsection heading in this '643
12 declaration directed to licenses.
13 BY MR. JENSEN:
14 Q. Are you aware of anyone taking a license to the
15 Aptiv patents?
16 MR. BLUMENKOPF: Objection, form.
17 A. I'm not aware one way or the other.
18 BY MR. JENSEN:
19 Q. Did you investigate that question?
20 MR. BLUMENKOPF: Objection, form.
21 A. I don't believe I did for the purposes of this
22 declaration.
23 BY MR. JENSEN:
24 Q. Why not?
25 MR. BLUMENKOPF: Objection, form.

Page 303

1 A. It just wasn't an issue that ended up in the
2 supplemental declaration.
3 BY MR. JENSEN:
4 Q. Another one of the secondary considerations you
5 list is commercial success, correct?
6 A. Yes.
7 Q. Do you provide any opinions in your report on
8 the commercial success of the Aptiv dual-role hub?
9 MR. BLUMENKOPF: Objection, form.
10 A. In the '643 declaration I'm looking at right
11 now I don't see a subheading directed to commercial
12 success.
13 BY MR. JENSEN:
14 Q. Did you provide an analysis in your declaration
15 concerning unexpected results created by the claimed
16 invention?
17 MR. BLUMENKOPF: Objection, form.
18 A. I don't think so, no, in the '643 declaration.
19 BY MR. JENSEN:
20 Q. Do you provide an opinion in your declaration
21 regarding unexpected properties of the claimed
22 invention?
23 MR. BLUMENKOPF: Objection, form.
24 A. In the '643 declaration I don't think I have a
25 section directed to that.

Page 304

BY MR. JENSEN:
Q. Do you render any opinions in any of your declarations on the secondary considerations of licenses showing industry respect for the invention, commercial success, unexpected results created by the claimed invention, or unexpected properties of the claimed invention?
MR. BLUMENKOPF: Objection, form.
A. Just flipping through my other four declarations, I don't see any subheadings in this section, the same section in the other ones, that are directed to those issues you asked about in your question.
BY MR. JENSEN:
Q. Do you discuss in your declarations any awards that Aptiv received?
MR. BLUMENKOPF: Objection, form.
A. Did you ask in any of my declarations?
BY MR. JENSEN:
Q. Yes.
A. I mean, while I have in my materials considered a few references directed to a PACE Award, I don't believe that I actually discuss that in the body of any of my supplemental declarations.
Q. Do you know what the PACE Award is?

Page 305

MR. BLUMENKOPF: Objection, form.
A. Well, I mean, I reviewed the documents about the PACE Award. It's an automotive industry award, I think.
BY MR. JENSEN:
Q. Do you know who gives the PACE Award?
MR. BLUMENKOPF: Objection, form.
A. I mean, not offhand; but I think it may be in one of the exhibits.
BY MR. JENSEN:
Q. Do you know what criteria are used to determine who receives a PACE Award?
MR. BLUMENKOPF: Objection, form.
A. I may have seen this maybe in a deposition transcript I reviewed or in some of the documents. I think there is -- yeah. There are other documents that also talk about the PACE Award aside from the three listed that use the word "PACE Award" in the title.
BY MR. JENSEN:
Q. But you don't discuss any of that in the body of your declaration, correct?
MR. BLUMENKOPF: Objection, form.
A. I mean, I did a quick search through all of them. I didn't find the use of the word "award" in that context in the body of any of my declarations.

Page 306

BY MR. JENSEN:
Q. Had you heard of the PACE Award before working on this case?
MR. BLUMENKOPF: Objection, form.
A. It's possible that I have heard of it before.
BY MR. JENSEN:
Q. But you can't say one way or the other with any certainty?
MR. BLUMENKOPF: Objection, form.
A. I don't know how to be certain. I mean, I grew up in Detroit reading The Detroit News every day, including the business section. So it's quite possible I had read about it at some point previously. I just don't remember.
But I don't have a firm memory in my mind of actually a time I did. It's just that it seems kind of likely that I may have read about it at some point or read about some winners or something in a newspaper article.
BY MR. JENSEN:
Q. You don't have any specific recollections that you can remember today?
MR. BLUMENKOPF: Objection, form.
A. No, no specific recollections.
Let me just clarify. I spent some years

Page 307

in Detroit, but I grew up more in the suburbs of Detroit.
BY MR. JENSEN:
Q. Let's look at paragraph 141 of your '643 declaration. Do you have that?
A. What paragraph again, please?
Q. 141.
A. Okay.
Q. And that's underneath the heading "Long-felt but Unsolved Needs," correct?
A. Yes.
Q. What is the long-felt but unsolved need that you believe the Aptiv patents solved?
MR. BLUMENKOPF: Objection, form.
A. I think the need was embodied in, as I discussed in paragraph 142, these three features that automakers demanded.
BY MR. JENSEN:
Q. At what point in time did the automakers you refer to start demanding the three features you identify in paragraph 142?
MR. BLUMENKOPF: Objection, form.
A. In paragraph 142 I don't see a specific date given; but in paragraph 141 I do talk about the timeline starting in 2010, "when Apple partnered with BMW to

Page 308

1 develop a product referred to as iPod Out which would
2 allow an iPod or iPhone to connect with an in-car
3 display and provide a standardized Apple provided user
4 interface."
5 So I think certainly at that time there
6 were kind of the foundations for the kind of features
7 that automakers were looking for as evidenced by this
8 partnership.
9 BY MR. JENSEN:
10 Q. In paragraph 142 you say in the first sentence,
11 "From my review of the trial record, I understand that
12 automakers demanded three features for any viable
13 CarPlay solution."
14 Do you see that?
15 A. Yes.
16 Q. When did Apple announce CarPlay?
17 MR. BLUMENKOPF: Objection, form.
18 A. I don't see it listed here in paragraph 142.
19 My recollection is it's sometime in the early-ish 2010s,
20 but it may be in one of these documents. I just don't
21 see it in paragraph 142.
22 BY MR. JENSEN:
23 Q. All right. Let me direct your attention to
24 paragraph 41 of your declaration.
25 A. Yes. I see that now. That's the kind of

Page 309

1 number -- 2013 is what it says -- I had in mind. I just
2 couldn't remember the exact year, but that's what I
3 consider early-ish 2010s.
4 Q. And is 2013 the same year that the Aptiv patent
5 application was originally filed?
6 MR. BLUMENKOPF: Objection, form.
7 A. Which specific application are you referring
8 to?
9 BY MR. JENSEN:
10 Q. The priority application.
11 A. Of the earliest-issued patent with the lowest
12 number? Are you asking about that one?
13 Q. Of any of them. It should be the same. They
14 all claim priority to the same original patent
15 application.
16 A. I'm looking at the '037 in that; and it talks
17 about a provisional application filed on September 26,
18 2013 on its face.
19 Q. Do you think that the demand for CarPlay
20 starting in 2013 constitutes a long-felt need when the
21 patent application was filed in September of 2013?
22 MR. BLUMENKOPF: Objection, form.
23 A. Well, I mean, I wouldn't equate to this
24 announcement of Apple informing automakers as the
25 earliest date of the need. But, I mean, clearly Apple

Page 310

1 would have had formulated its requirements before then
2 and had it laid down before then. And a lot of those
3 would be based on Apple's experience prior to the date
4 it issued its requirements to automakers.
5 BY MR. JENSEN:
6 Q. Do you know when Apple published -- strike
7 that.
8 Do you know when Apple made available its
9 CarPlay specification to carmakers?
10 MR. BLUMENKOPF: Objection, form.
11 A. I don't know that offhand.
12 BY MR. JENSEN:
13 Q. Have you ever seen the CarPlay specification?
14 MR. BLUMENKOPF: Objection, form.
15 A. I don't see that on the list of materials I
16 considered, but certainly any need would have been
17 formulated prior to the date of any issuance of that
18 CarPlay -- I forgot what you called the requirements.
19 BY MR. JENSEN:
20 Q. Do you know if the CarPlay specification is a
21 confidential document?
22 MR. BLUMENKOPF: Objection, form.
23 A. I mean, I don't think I know that one way or
24 the other. But regardless of when a specification was
25 issued, a need for what's in the specification arose

Page 311

1 before that time.
2 BY MR. JENSEN:
3 Q. How could a need for CarPlay arise before Apple
4 announced CarPlay?
5 MR. BLUMENKOPF: Objection, form.
6 A. Because they decided in advance they were going
7 to announce CarPlay.
8 BY MR. JENSEN:
9 Q. Well, what do you mean by that?
10 A. They didn't just decide one day they wanted
11 CarPlay and issue the specification. Clearly they would
12 have had to be working on the specification and develop
13 the specification before they issued the specification.
14 Q. I see. You're talking about Apple. So let me
15 clarify my question. I'm asking you about the
16 automakers.
17 How would the automakers have an unsolved
18 need and demand for CarPlay if they didn't know it
19 existed?
20 MR. BLUMENKOPF: Objection, form.
21 A. Well, the automakers -- for example, BMW in its
22 partnership with Apple, that it -- the partnership which
23 started -- well, I say in 132 in 2010. They were
24 working to develop a product, and certainly Apple had a
25 need. That's what they wanted.

Page 312

BY MR. JENSEN:
Q. Did Apple partner with anybody besides BMW to develop a product referred to as iPod Out?
MR. BLUMENKOPF: Objection, form.
THE VIDEOGRAPHER: Sorry for disturbing you. Three hours and 30 minutes on the record.
A. I don't see that I discuss any other partnerships Apple had before -- sorry, in the section paragraph 132 to 134 of my '643 supplemental declaration.
BY MR. JENSEN:
Q. I think you may have got the paragraph numbers off, but that's okay.
A. Oh, I'm sorry. I'm looking at the wrong -- sorry. Let me close this one so I don't refer to it by mistake.
Paragraphs 141 through 143 of my '643 declaration.
Q. Did Apple and BMW, in fact, develop a product referred to as iPod Out?
MR. BLUMENKOPF: Objection, form.
A. So what I'm setting here in paragraph 141 is articles in Tech Crunch, which appear to be from mid-ish 2010 discussing iPod Out, and also another article in Edmunds. I'm not sure what date that article was. It

Page 313

doesn't say here.
BY MR. JENSEN:
Q. Did Apple and BMW release an iPod Out product?
MR. BLUMENKOPF: Objection, form.
A. I think that the partnership clearly indicated a need to connect, for example, an iPod -- to have an iPod Out GUI. And what I say is it laid the groundwork for what would eventually be known as CarPlay.
BY MR. JENSEN:
Q. Yeah. Did they release a product called iPod Out?
MR. BLUMENKOPF: Objection, form.
BY MR. JENSEN:
Q. I get you say they were working on developing one. My question is a little bit different.
Did they actually create an iPod Out product?
MR. BLUMENKOPF: Same objection.
A. I mean, I don't think it would be called a product. I think it might be referred to as a feature.
BY MR. JENSEN:
Q. Okay. I'm using the words from your report. You called it a product; but if you want to change that and call it a feature, I'm happy to accept that terminology.

Page 314

Did Apple and BMW release a feature called iPod Out?
MR. BLUMENKOPF: Objection, form.
A. I don't see that I address a release date in paragraph 141, but I do see the article in Tech Crunch from what appears to be July 2010. It has a title or search term words for search engine optimization saying that "iOS's hidden iPod Out feature brings iPhone support to your car without the messy third-party UI."
BY MR. JENSEN:
Q. And you said they call that a hidden feature?
A. Well, the web link uses the phrase "hidden iPod Out feature."
Q. And that's the link you cite in your report?
A. I do cite that link in my report.
Q. Did you provide an analysis anywhere in your report as to whether CarPlay practices any of the challenged claims?
MR. BLUMENKOPF: Objection, form.
A. I mean, where I do a mapping of the claims to a product is with respect to Aptiv's product in the nexus session.
BY MR. JENSEN:
Q. And that's not mapping CarPlay to the claims; that's mapping the Aptiv product to the claims, correct?

Page 315

MR. BLUMENKOPF: Objection, form.
A. Yeah. The nexus session is mapping Aptiv's product to the claims but this section is with respect to long-felt need and it's about the long-felt need and not about how other products or features relate to the claims.
BY MR. JENSEN:
Q. And you include in your reports a section on copying starting at paragraph 147, correct?
A. Yes.
Q. Did you enter an opinion that Microchip copied Aptiv's dual-role hub to create their own products? Is that right?
MR. BLUMENKOPF: Objection. Form.
A. I mean, my opinion is that I concluded that Microchip developed its own products by copying the core components in operation of Aptiv's Boston 2 chip, including its host mode bridge and USB routing switches.
BY MR. JENSEN:
Q. Do you know how much engineering effort, time and money Microchip invested in developing its product?
MR. BLUMENKOPF: Objection, form.
A. Well, I don't see that I address that in its section; but my conclusion is support -- I cite the evidence in this section that supports my conclusion,

Page 316

including the evidence of Microchip's engineers -- or Microchip actually like analyzing an Aptiv product by etching away portions of the chip to analyze it layer by layer or to study the inner workings of the chips.

BY MR. JENSEN:

Q. Do you know how much time, effort and money Aptiv spent to develop its dual-role hub product?

MR. BLUMENKOPF: Objection, form.

A. I don't address that in this section, I don't think; but it doesn't negate the evidence that Microchip actually copied Aptiv's products.

BY MR. JENSEN:

Q. Do you know if Aptiv reverse-engineered any USB products when developing its dual-role hub?

MR. BLUMENKOPF: Objection, form.

A. I mean, this section is directed to Microchip's evidence of copying Aptiv chips, not towards what Aptiv did.

BY MR. JENSEN:

Q. Have you ever spoken with any Microchip engineers?

MR. BLUMENKOPF: Objection, form.

A. I don't know the job of every person I've ever talked to. So I couldn't say one way or the other.

BY MR. JENSEN:

Page 317

Q. In connection with this case, did you speak with any Microchip engineers?

A. No.

Q. In connection with this case, did you speak with any Aptiv employees?

MR. BLUMENKOPF: Objection, form.

A. I'm sorry. Could you repeat the question, please.

BY MR. JENSEN:

Q. Yeah. In connection with this case, did you speak with any Aptiv employees?

A. No. I mean, I have reviewed trial testimony and deposition testimony. I don't remember the roles but I did not speak to the people but I reviewed sworn testimony.

Q. Which individuals at Microchip do you accuse of copying Aptiv's products?

MR. BLUMENKOPF: Objection, form.

A. Well, the only names I use, I think, in this section that I see right now is in paragraph 153, which states that "I have also reviewed an e-mail from one of Microchip's engineers" -- this is the '643 declaration -- "Mark Bohm to Mr. Obolsky in which he states that he received the new GM b.o.b." or b-o-b "that contains the Unwired device and that Microchip can decap the chip.

Page 318

Decapping is the process of etching away at the cover from an integrated circuit so that the internal workings of the chip can be studied. I, therefore, understand Mr. Bohm's e-mail to be an offer to study the actual connections within Aptiv's Boston 2 chip. From his trial testimony, I also understand that this decapping was actually performed, which would have granted Microchip a detailed understanding of the inner workings of Aptiv's solution."

BY MR. JENSEN:

Q. Are you accusing Mark Bohm of copying Aptiv's product?

MR. BLUMENKOPF: Objection, form.

A. That's not quite what I'm saying here, but Mr. Bohm said that Microchip can actually analyze the internal workings of an Aptiv Boston 2 chip. And I understand that that was actually performed, and that would have granted Microchip a detailed understanding of the inner workings of the Aptiv solution.

BY MR. JENSEN:

Q. Anytime someone analyzes the inner workings of a product on the market, does that mean they're copying the product?

MR. BLUMENKOPF: Objection, form.

A. This is some of the evidence that I have

Page 319

reviewed to support my conclusion that Microchip did copy Aptiv's product. But it's all the evidence in here that I considered together.

BY MR. JENSEN:

Q. Yeah. My question is more specific. Is it necessarily the case that anytime someone analyzes the inner workings of a product on the market, that they are doing so to copy the product?

MR. BLUMENKOPF: Objection to form.

A. Well, this is not anybody. This is not a hypothetical. This is Microchip's employees, right? I believe they're -- and Microchip's engineers doing this. So this is a company. This is not a hypothetical anyone might do it for whatever reason they may have -- may or may not have.

This is Microchip. This is an e-mail that Mr. Bohm sent saying that Microchip could analyze the internal workings of the chip, which I understand they actually did do. And in the context of all the other evidence, this is part of what supports my conclusion that Microchip did copy Aptiv's products.

BY MR. JENSEN:

Q. Is it necessarily the case that anytime a Microchip engineer analyzes a product on the market, that they are doing so to copy it?

Page 320

MR. BLUMENKOPF: Objection, form.
A. I'm not discussing any other time Microchip may have done this. I'm discussing the time when Microchip, as indicated by the evidence, Microchip actually did that with Aptiv's Boston 2 chip, along with other evidence that I've cited to in this section that supports my conclusion that Microchip actually did copy Aptiv's product.
BY MR. JENSEN:
Q. Is it necessarily the case that because an engineer at Microchip hypothetically analyzed a product on the market, the Boston 2 chip, that that necessarily means they copied it?
MR. BLUMENKOPF: Objection, form.
A. This was not a hypothetical analysis of the Boston 2 chip. I understand from the trial testimony that Microchip actually did --
BY MR. JENSEN:
Q. Let's suppose they did. Let's suppose they analyzed the chip. Does that mean they copied it?
MR. BLUMENKOPF: Objection, form.
A. In the context of the evidence -- I've said it here -- this is part of what supports my conclusion that Aptiv's products were copied by Microchip.
BY MR. JENSEN:

Page 321

Q. Yeah. And I'm not asking about the other. I'm asking about this specific piece of evidence.
MR. BLUMENKOPF: Mr. Suarez, what's our time on the record?
MR. JENSEN: Let me finish. We'll be done in two minutes, right? I mean, you're just interrupting.
BY MR. JENSEN:
Q. So my question for you, Dr. Houh, is, if you can answer it, does it necessarily -- strike that.
Is it necessarily the case that because an engineer at Microchip looked at Aptiv's Boston 2 chip, that that fact standing alone means that they copied the chip?
MR. BLUMENKOPF: Objection, form.
A. I don't rely on that fact alone to come to my conclusion that Microchip copied Aptiv's products. There's a bunch of things here that I cite, and the decapping process of Boston 2's chip -- Aptiv's Boston 2 chip, which I understand from trial testimony Microchip actually did perform as Mr. Bohm suggested they could do, Microchip -- the evidence shows that Microchip did do that.
And with the other evidence I cited, that's -- what I cite here in this section is the

Page 322

evidence that together support my conclusion that Microchip copied Aptiv's Boston 2 chip product.
BY MR. JENSEN:
Q. Have you ever reverse-engineered a --
MR. BLUMENKOPF: Counsel, Mr. Suarez, what's the time on the record?
THE VIDEOGRAPHER: Approximately 3 hours and 47 minutes.
MR. BLUMENKOPF: All right. Appears your time's up, Counsel.
MR. JENSEN: Let me ask this one last question.
BY MR. JENSEN:
Q. Have you ever reverse-engineered --
MR. BLUMENKOPF: Counsel --
MR. JENSEN: Look, you kept interrupting. You kept interrupting. Let me ask one question.
MR. BLUMENKOPF: I didn't interrupt anything. Your time is up, Counsel. We negotiated ten and a half hours on the record.
MR. JENSEN: You can tell the witness not to answer. I'm going to ask the question because you interrupted.
BY MR. JENSEN:
Q. Dr. Houh, have you ever reverse-engineered a

Page 323

product?
MR. BLUMENKOPF: Dr. Houh, this cross-examination is concluded. Don't answer that.
BY MR. JENSEN:
Q. Are you going to follow the instruction of your counsel, Dr. Houh?
A. The time's up, I understand. So I'm going to listen to my counsel.
MR. JENSEN: I pass the witness; but we will leave this deposition open and reserve the right to continue it in view of the interruptions, obstructionist behavior, and numerous nonresponsive answers.
MR. BLUMENKOPF: Well, are you passing the witness; or are you suspending the deposition?
MR. JENSEN: I'm passing the witness to you while leaving it open to continue at a future date. If there's any redirect you would like to do, you've got your two hours.
MR. BLUMENKOPF: Can I take 15 minutes off the record to prepare my notes, and we'll continue with the redirect of Dr. Houh?
MR. JENSEN: Sure.
THE VIDEOGRAPHER: The time is 1:51 p.m. We are now going off the record.
(Recess taken)

Page 324

1 THE VIDEOGRAPHER: The time is 2:07 p.m.
2 We are now back on the record.
3 EXAMINATION
4 QUESTIONS BY MR. BLUMENKOPF:
5 Q. This is Bryan Blumenkopf from Morrison &
6 Foerster for the patent owner, Aptiv Technologies.
7 Dr. Houh, I have some follow-up questions for you today.
8 MR. BLUMENKOPF: Before we begin, though,
9 Counsel, at the end of your cross-examination you—
10 indicated you were passing the witness but reserving
11 rights to hold the deposition open.
12 Patent owner is not aware of any such
13 procedure in the IPR rules to hold a deposition open or
14 to considering any rules or authority you can cite for
15 support. Do you have any such rules or authority?
16 MR. JENSEN: I'd refer you to the Federal
17 Rules of Evidence which apply for depositions in IPR
18 proceedings.
19 MR. BLUMENKOPF: Are you going to cite me
20 to a specific rule that you believe applies to allow you
21 to hold the IPR deposition open?
22 MR. JENSEN: I believe that's standard
23 practice in cases such as this. So I'm surprised that
24 you're unaware of anything.
25 MR. BLUMENKOPF: All right. Well, just to

Page 325

1 be clear on the record, our position is that we don't
2 believe you have the right to keep this deposition open.
3 Once this deposition ends today, it's done. Dr. Houh is
4 not returning.
5 MR. JENSEN: You stated your position, and
6 we disagree. Go ahead.
7 MR. BLUMENKOPF: That's fine. Just want
8 to make sure it's clear on the record.
9 BY MR. BLUMENKOPF:
10 Q. All right, Dr. Houh. Are you ready?
11 A. Yes.
12 Q. Did you and I speak about your deposition
13 during the break just now?
14 A. No.
15 Q. Did you speak with anyone about your deposition
16 during the break just now?
17 A. No.
18 Q. Dr. Houh, do you recall testifying yesterday
19 about the priority date for the '420 patent in the '228
20 proceeding?
21 A. Yes, I think so.
22 Q. Do you recall testifying that the '420 patent
23 is a continuation of a patent application filed
24 September 16th, 2014?
25 A. I think I do recall that, yes.

Page 326

1 Q. And do you recall testifying that the '420
2 patent further claims priority to a provisional patent
3 application dated September 26, 2013?
4 A. I think so.
5 Q. So do you understand September 26, 2013 to be
6 the priority date for the '420 patent?
7 A. I understand it could be generally.
8 Q. Can you please turn to your supplemental
9 declaration in the '495 matter for the '420 patent. So
10 just to be clear, this is the '420 patent with the
11 matter ending in '495.
12 A. Yes. I have it open.
13 Q. Can you turn to paragraph 28 of that
14 declaration.
15 A. I see that. I'm there.
16 Q. Can you read paragraph 28 out loud.
17 A. "I understand that for the claims of the '420
18 patent the priority date of September 26, 2013 should
19 apply."
20 Q. Does that correctly state the priority date for
21 the '420 patent?
22 A. Yes.
23 Q. And do you recall testifying yesterday that
24 your '420 supplemental declaration for the '228 matter
25 in paragraph 27 identified a priority date of

Page 327

1 September 6, 2016 for the '420 patent?
2 A. Yes. I believe we were looking at my
3 declaration for the '420 matter ending in '228 at
4 paragraph 27 of my supplemental declaration.
5 Q. Do you understand that priority date of
6 September 6, 2016 in your '420 supplemental declaration
7 for the '228 matter to be a typographical error?
8 A. Yes. If you look at the previous paragraph, it
9 states the date of invention is September 26, 2013.
10 Q. If you had applied a priority date of
11 September 26, 2013 to your analysis of the '420 patent
12 in the '228 matter, would it have changed your opinions
13 set forth in your supplemental declaration in any way?
14 MR. JENSEN: Object to form and scope.
15 A. No.
16 BY MR. BLUMENKOPF:
17 Q. If you had applied a priority date of
18 September 16, 2014 to your analysis of the '420 patent
19 in the '228 matter, would it have changed your opinions
20 set forth in your supplemental declaration in any way?
21 MR. JENSEN: Object to form and scope.
22 A. No.
23 BY MR. BLUMENKOPF:
24 Q. Dr. Houh, do you recall testifying about the
25 detection of a host mode or a device mode in Chang II?

Page 328

1 MR. JENSEN: Object to form.
2 A. Yes.
3 BY MR. BLUMENKOPF:
4 Q. Can you please take a look at Chang II.
5 A. Okay. I have it open.
6 Q. And please turn to paragraph 43 of Chang II.
7 A. Okay. I'm there.
8 Q. Do you recall testifying about this paragraph
9 in Chang II yesterday?
10 MR. JENSEN: Object to form.
11 A. Yes, I do.
12 BY MR. BLUMENKOPF:
13 Q. Do you see the sentence that begins with "At
14 the same time" in paragraph 43?
15 A. It's a little below halfway down, but I do see
16 that.
17 Q. Could you please read that sentence out loud.
18 A. "At the same time that bridge transmission is
19 occurring, the further step of checking whether the user
20 has exchanged for other internal device would occur
21 instantly (S613). If it is determined that there are no
22 exchange for other external device, the bridge
23 transmission of data between the first host device 2 and
24 the second host device 3 will continue. However, if the
25 user has exchanged for other external device, then

Page 329

1 return to step S603."
2 Q. Would a person of ordinary skill in the art
3 understand that phrase, "other external device," in the
4 sentence?
5 MR. JENSEN: Object to form and scope.
6 A. They would understand that as -- it's in the
7 context of -- it's changed. It's been exchanged.
8 BY MR. BLUMENKOPF:
9 Q. How would a POSITA understand the word "other"
10 in that sentence?
11 MR. JENSEN: Object to form and scope.
12 A. That it's a different external device.
13 BY MR. BLUMENKOPF:
14 Q. Would a person of ordinary skill in the art
15 understand exchanging an external device for a different
16 external device to include physically removing the
17 external device?
18 MR. JENSEN: Object to form and scope.
19 A. Yes.
20 BY MR. BLUMENKOPF:
21 Q. Let's take a look at figure 1 from Chang II.
22 A. Okay.
23 Q. And you see a box labeled 3?
24 A. Yes.
25 Q. What would a person of ordinary skill in the

Page 330

1 art understand the box labeled 3 to represent?
2 MR. JENSEN: Object to form and scope.
3 A. It says -- a POSITA would understand that it's
4 an external device that's a host but different than a
5 slave device.
6 BY MR. BLUMENKOPF:
7 Q. And by "slave device," are you referring to the
8 box labeled 4 in figure 1?
9 MR. JENSEN: Object to form and scope.
10 A. Yes. And there's also a first host device
11 labeled 2, but this is -- yes.
12 BY MR. BLUMENKOPF:
13 Q. Would a person of ordinary skill in the art
14 understand the box labeled 3 and the box labeled 4 in
15 figure 1 to represent different external devices?
16 MR. JENSEN: Object to form and scope. I
17 include in that form objection, leading.
18 A. Yes.
19 BY MR. BLUMENKOPF:
20 Q. Would a person of ordinary skill in the art
21 understand Chang II to disclose exchanging a USB device
22 for another device without physically removing the USB
23 device?
24 MR. JENSEN: Object to form and scope,
25 leading.

Page 331

1 A. No.
2 BY MR. BLUMENKOPF:
3 Q. Would a person of ordinary skill in the art
4 understand Chang II to disclose a USB device switching
5 between a USB host mode and a USB device mode?
6 MR. JENSEN: Object to form and scope,
7 leading.
8 A. No, not based on what we've looked at.
9 BY MR. BLUMENKOPF:
10 Q. Would a person of ordinary skill in the art
11 understand Chang II to disclose detecting that a USB
12 device has switched from a USB host mode to a USB device
13 mode?
14 MR. JENSEN: Object to form and scope,
15 leading.
16 A. No.
17 BY MR. BLUMENKOPF:
18 Q. Would a person of ordinary skill in the art
19 understand Chang II to disclose detecting that a USB
20 device has switched from a USB host mode to a USB device
21 mode?
22 MR. JENSEN: Object to form and scope,
23 leading.
24 A. No.
25 BY MR. BLUMENKOPF:

Page 332

1 Q. Would a person of ordinary skill in the art
2 understand Chang to disclose detecting that a USB device
3 has switched from a USB host mode to a USB device mode?
4 MR. JENSEN: Object to form and scope,
5 leading.
6 A. Are you referring to Chang or Chang II?
7 BY MR. BLUMENKOPF:
8 Q. My question refers to Chang. Feel free to
9 consult the Chang reference if you need to to answer my
10 question.
11 A. No, no, in the case of Chang.
12 Q. Do you recall testifying about the '643
13 proceeding?
14 A. Yes.
15 Q. And do you recall testifying about Mr. Welch's
16 declaration in the '643 proceeding?
17 A. I think so.
18 Q. When you testified about the '643 proceeding
19 and Mr. Welch's declaration in that proceeding, was that
20 testimony directed to all five proceedings?
21 MR. JENSEN: Object to form and scope,
22 leading.
23 A. I think it was directed towards just the '643
24 because that's what we were looking at.
25 BY MR. BLUMENKOPF:

Page 333

1 Q. Would it be accurate to apply that testimony to
2 proceedings other than the '643 proceeding?
3 MR. JENSEN: Object to form and scope,
4 leading.
5 A. No. I think -- because there are some issues
6 specific to the '643.
7 BY MR. BLUMENKOPF:
8 Q. All right. Thank you, Dr. Houh.
9 MR. BLUMENKOPF: With that, I pass the
10 witness.
11 RE-EXAMINATION
12 QUESTIONS BY MR. JENSEN:
13 Q. Dr. Houh, you were just asked some questions
14 about the Chang II reference, correct?
15 A. Yes.
16 Q. Is there any reason that a dual-mode USB
17 product would not work with the bridge device disclosed
18 in Chang II?
19 A. Chang II, if you look at the flow chart and the
20 description of the flow chart, it talks about exchanging
21 for other device. It doesn't talk about what you asked
22 about. And so a person of ordinary skill would
23 understand that Chang II is teaching what it's teaching
24 in its description of figure 6, which is talking about
25 exchanging for other external device, which would -- and

Page 334

1 they'd understand that would be physically detached in
2 order to exchange for another device, a different
3 device.
4 Q. Yeah. Let me clarify my question.
5 You agree that there were dual-mode USB
6 products available in 2013, correct?
7 MR. BLUMENKOPF: Objection, form.
8 A. I don't know what you're referring to.
9 BY MR. JENSEN:
10 Q. Do you know what a dual-mode USB product is,
11 Dr. Houh?
12 MR. BLUMENKOPF: Objection, form.
13 A. Yeah. I mean, I don't know the universe of
14 products available in 2013 and all their features.
15 That's not part of what's in my supplemental
16 declarations, I don't think.
17 BY MR. JENSEN:
18 Q. Let's look at the Aptiv patent, and I'll do a
19 screen share for -- this is the '643 patent. And let me
20 direct your attention to column 2, the paragraph toward
21 the bottom beginning at around line 43. Do you see
22 that?
23 A. Yes.
24 Q. And that paragraph discusses smartphones,
25 correct?

Page 335

1 MR. BLUMENKOPF: Objection, form.
2 A. I see the phrase "smartphones" used right where
3 you're highlighting.
4 BY MR. JENSEN:
5 Q. And let me highlight a sentence for you and ask
6 you to read it. This is at line 60 to 63. Can you read
7 that sentence aloud, please.
8 A. "Therefore, leading mobile device manufacturers
9 and system designers have begun designing their mobile
10 device products (i.e., smartphones, tablets, et cetera)
11 to support both USB and USB device roles."
12 Q. Do you disagree with that statement in the
13 Aptiv patent?
14 MR. BLUMENKOPF: Objection, form.
15 A. I mean, it says what it says. I don't think I
16 have an opinion specifically in my declaration about
17 whether I believe that's true or not. But it simply
18 says they've begun designing them, designing mobile
19 device products to support both USB host and USB device
20 roles.
21 BY MR. JENSEN:
22 Q. Do you know what a dual-role product is in the
23 context of USB?
24 MR. BLUMENKOPF: Objection, form.
25 A. Well, the specification goes on to say, "In

Page 336

other words, the phone may configure itself such that it can function as a USB device when it needs to be, or as a USB host when it needs to be."
BY MR. JENSEN:
Q. Do you understand that to be describing a dual-role USB product?
MR. BLUMENKOPF: Objection, form.
A. Well, I think that sentence is consistent with the previous sentence.
BY MR. JENSEN:
Q. Yeah. And do you understand that to refer to a dual-role USB product?
MR. BLUMENKOPF: Objection, form.
A. Could you repeat your question, please.
MR. JENSEN: Could the court reporter read it back.
(The record was read as requested.)
MR. BLUMENKOPF: Objection, form.
A. Well, I would say that there are two roles that the earlier sentence discusses. That's two roles. I mean, I think I use -- I discuss a different phrase in my '643 supplemental declaration. It's not referring to the product itself but to the ports. But I don't think I addressed this specific question about the product side that I recall in the '643 declaration.

Page 337

BY MR. JENSEN:
Q. I think in the '643 declaration you refer to it as a dual-role device instead of a dual-role product. And because the "device" term is a little bit of a loaded term, I'm using the word "product."
Let me just ask you, Dr. Houh. Do you know what a dual-role USB product is?
MR. BLUMENKOPF: Objection, form.
A. I mean, I'm searching my '643 declaration. I don't think I refer to anything as a dual -- I don't see the phrase "dual-role device" used in it. I mean, I've talked about the ports being dual role.
BY MR. JENSEN:
Q. I'm referring to your '643 POPR declaration that's Exhibit 2001. So let me just take you there in the interest of getting all of us moving along. And I can direct you to, for example, paragraph 75. And in paragraph 75 you have -- the second sentence says, "Chutorash does not contemplate, much less disclose dual-role devices, dual-role ports, or host-to-host communication."
What do you mean in your declaration when you refer to a dual-role device, Dr. Houh?
MR. BLUMENKOPF: Objection, form.
A. So as I said, there are two roles laid out in

Page 338

the specification of the '643 patent that we just looked at. There are two roles.
So, you know, as an ordinary English term, dual role might be understood as referring to two roles. But that's using the '643 patent specification to teach that. My point is that neither Chutorash discusses or contemplates dual-role devices or dual-role ports. And as I say in paragraph 54, Chang II also does not contemplate dual-role devices.
BY MR. JENSEN:
Q. Yeah. My question is what do you mean by the term "dual-role device"? Are you referring to a product that can act as either a host or a device?
MR. BLUMENKOPF: Objection, form.
A. They can play at least -- it has two roles to play.
BY MR. JENSEN:
Q. And those roles are host and device, correct?
MR. BLUMENKOPF: Objection, form.
A. Well, the example in the '643 patent that's given of two roles are USB host and USB device roles.
BY MR. JENSEN:
Q. Okay.
A. That's the example given in the '643 patent. My point is Chutorash doesn't discuss dual-role devices

Page 339

and neither does Chang II.
Q. Yeah. And so with the understanding that a dual-role product is a product that can act as either a device or as a host, what would happen if you plugged such a product into the second connection interface in the Chang II reference?
MR. BLUMENKOPF: Objection, form.
A. Chang II doesn't contemplate dual-role devices. So Chang II doesn't say anything about what would happen, I don't think.
BY MR. JENSEN:
Q. Does the dual-role product -- I'm sorry. Go ahead.
A. We can look at Chang II if you want, but I don't recall it talking about --
Q. Yeah. We're looking at Chang II. We're looking at -- let's go to figure 5 in Chang II. On the right-hand side of figure 5 there is a second connection interface 12, correct?
MR. BLUMENKOPF: Object to form.
A. I see a box 12 that says "second connection interface" in figure 5 of Chang II.
BY MR. JENSEN:
Q. And a user could plug in a USB device into that interface, correct?

Page 340

MR. BLUMENKOPF: Objection, form.
A. With appropriate cable.
BY MR. JENSEN:
Q. And a user could plug in a USB product that was a host as well, correct?
MR. BLUMENKOPF: Objection, form.
A. A host device could be plugged in; but, as described in figure 6, the process involves exchanging the device for another device which a person of ordinary skill would understand requires physical detachment of the device as described in the flow chart.
BY MR. JENSEN:
Q. Yeah. And that's not what I'm asking. I'm just asking you would agree with me that a user could plug in either a USB host or a USB device into the second connection interface 12 in Chang II figure 5?
MR. BLUMENKOPF: Objection, form.
A. They're two different devices, sure. But if you -- you couldn't plug them both in at the same time.
BY MR. JENSEN:
Q. Exactly, right. You could only have one of them plugged in at a time, correct?
MR. BLUMENKOPF: Objection, form.
A. That's what Chang II is talking about.
BY MR. JENSEN:

Page 341

Q. And either of those scenarios would be handled just fine by Chang II, would they not?
MR. BLUMENKOPF: Objection, form.
A. Following the flow chart in figure 6 described in -- at least partly in paragraph 43 of Chang II, that describes how to physically exchange and plug in a device and then exchange it for another device.
BY MR. JENSEN:
Q. If a user plugged in a dual-role USB product that was in device mode, would the system in Chang figure 5 be able to detect that that product was a USB device?
MR. BLUMENKOPF: Objection to form.
A. If you look at figure 6 with respect to step 617, it says "determine if there is an inquire signal from the external device," and then if it says "yes," then the external device is a slave device. And that's the process that it uses to determine whether the external device is a slave device.
BY MR. JENSEN:
Q. And if the dual-mode product that was plugged into the second interface 12 produced the appropriate signal, would the system in Chang II recognize it as a slave device?
MR. BLUMENKOPF: Objection, form.

Page 342

A. If it was that inquire signal from the external device as determined in step 617.
BY MR. JENSEN:
Q. And on the host side if a user plugged in a dual-role USB product in host mode to the second connection interface 12 in Chang II figure 5, would the Chang II figure 5 embodiment be able to detect that the connected USB product was in host mode if it produced the appropriate signals?
MR. BLUMENKOPF: Objection, form.
A. Well, step 603 is part of what addresses this which it says, "Switch to a virtual slave state in order to produce an inquire signal to the external device," and then determine if -- step 605 is "determine if there is a response to the external device." And if "yes," that's the determination that the external device is a second host device.
But either way, when it's operating in host mode, there's a loop that's indicated by both steps 613 and steps S625 that is checking whether the user has exchanged for other external device. And that's talking about physically disconnecting the current device and plugging in a different device.
BY MR. JENSEN:
Q. My question is just when you plug it in in the

Page 343

first instance. So nothing's plugged in. A user plugs in a USB product which is in host mode into the second connection interface. Would the Chang II figure 5 embodiment be able to recognize that connected USB product as a host if it received the appropriate response?
MR. BLUMENKOPF: Objection, form.
A. Well, we just walked through those states in this flow chart in S603, S605 and S607 where if -- well, first they're switching to a virtual slave state in order to produce an inquire signal to the external device. That's S603. Then S605 is "determine if there is a response from the external device." And then if "yes," that goes on to S607, and that's that the external device is a second host device.
BY MR. JENSEN:
Q. Yeah. And that process could work just fine if a user plugged in a dual-role USB product that was in host mode that provided the appropriate response?
MR. BLUMENKOPF: Objection, form.
A. I mean, this doesn't address -- Chang II doesn't talk about dual-role devices. It talks about determining if there's a response from the external device after producing an inquire signal to the external device.

Page 344

1 BY MR. JENSEN:
2 Q. If the external dual-role USB product provided
3 a response, the embodiment in Chang II figure 5 would
4 recognize that product as a USB host, correct?
5 MR. BLUMENKOPF: Objection, form.
6 A. So step 605, if there's a response from the
7 external device, that's what tells it -- that's what in
8 this flow chart causes the state to change down to S607
9 because that's a "yes." It got a response from the
10 external device in response to the inquire signal
11 produced to the external device in step S603.
12 So if it's "yes" there, it then goes to
13 the external device as a second host device, step S607.
14 BY MR. JENSEN:
15 Q. If the external dual-role USB product provided
16 a "yes" response to the Chang II figure 5 embodiment,
17 that embodiment would recognize the connected product as
18 a second host device in step S607 of figure 6, correct?
19 MR. BLUMENKOPF: Objection, form.
20 A. I mean, what it's describing here is simply
21 that you're receiving a response from the external
22 device in response to the production of an inquire
23 signal to the external device from step S603.
24 I mean, the chart doesn't say anything
25 about what the device is as long as it responds

Page 345

1 appropriately. But steps S613 and S625 talk about
2 actually exchanging the device for other external
3 device.
4 BY MR. JENSEN:
5 Q. Yeah. And I'm not talking about that. I'm
6 just talking somebody just plugged it in. They haven't
7 done anything else. All they've done is plug it in. So
8 that was the scenario that I was positing. There had
9 been no exchange of a device. Somebody plugged one
10 in -- I shouldn't use the word "product."
11 Somebody plugged in a dual-role product,
12 and it provided a response as set forth in step S605
13 that would lead to step S607. That's all I was talking
14 about.
15 Did you understand my question
16 differently? I'm happy to ask it again. I want to make
17 sure we've got this straight on the record.
18 A. It doesn't matter what other capabilities of
19 what's plugged in as long as the device that's plugged
20 in is acting as a USB host and provides the appropriate
21 response as a USB host. This flow chart says that it
22 would then go from S605 to S607.
23 Q. Okay. Do you recall being asked by your
24 counsel some questions regarding the testimony you gave
25 while looking at the '643 declaration?

Page 346

1 A. Yes.
2 Q. And in the interest of time, let me ask you.
3 What, if any, of your testimony that you have given over
4 the last day and a half does not apply to the other four
5 declarations that you provided?
6 MR. BLUMENKOPF: Objection, form.
7 A. Well, there were some portions of the '643 that
8 we were reviewing; and I was trying to be as specific as
9 I could that that's what I was responding to in the
10 context of the '643 supplemental declaration.
11 And so I think whenever I was referring to
12 the '643, I think it would fairly be just for the '643
13 matter.
14 BY MR. JENSEN:
15 Q. Okay. Well, let's walk through all of your
16 other declarations then. We'll do it one by one, and
17 this will be a tremendous waste of time. But if you
18 guys want to play that game, we'll go ahead and play it.
19 So let's take a look at your declaration
20 for the '072 patent. That's Exhibit 2019 in the '230
21 proceeding.
22 MR. JENSEN: And I'll note on the record
23 the whole purpose of having a consolidated deposition
24 was to avoid the need of having five separate
25 depositions, one in each proceeding; and that was the

Page 347

1 basis on which we agreed to having a consolidated
2 deposition.
3 Counsel, are you reneging on that
4 understanding?
5 MR. BLUMENKOPF: Counsel, this is your
6 time to use as you see fit. You're the one choosing the
7 questions.
8 MR. JENSEN: Yeah. And I'm asking you.
9 I'm trying to get us all out of here, right?
10 MR. BLUMENKOPF: We stand by the
11 agreement, Counsel, if that's what you're asking.
12 MR. JENSEN: Okay. Very good.
13 Put it this way. You guys had deposed
14 Mr. Welch on his declaration. We did not raise this
15 silly objection that because they only asked a question
16 in the context of one of his declarations, that it would
17 not apply to the other proceedings. We did not raise
18 that. Are you raising such an objection here?
19 MR. BLUMENKOPF: I'm not objecting to
20 anything in particular right now. You've asked Dr. Houh
21 the questions, and he's provided his testimony.
22 MR. JENSEN: Yeah. And I'm just trying to
23 get this on the record because, you know, we had an
24 understanding. And if you have a changed understanding
25 or a different understanding, then, you know, we will

Page 348

1 move to compel four more depositions of Dr. Houh, one on
2 each of his declarations.
3 I'm just trying to figure out if that's
4 going to be necessary or not or if we can stipulate that
5 his testimony that he gave today, you know, is
6 admissible and applies in all five proceedings.
7 MR. BLUMENKOPF: Like I said, Counsel, we
8 stand by the agreement. I'm not stipulating to anything
9 right now.
10 MR. JENSEN: Okay. And what is your
11 understanding of the agreement?
12 MR. BLUMENKOPF: Well, as set forth in the
13 correspondence between the parties, there was a two-day
14 deposition of Dr. Houh with the time parameters we set
15 forth earlier, 10 1/2 hours on cross followed by 2 hours
16 of redirect followed by 1.5 hours on recross to cover
17 the five proceedings and the four patents.
18 MR. JENSEN: And the basis on which that
19 agreement was reached was because of the massive
20 overlapping commonality between the patents and issues
21 in the five IPRs, right?
22 MR. BLUMENKOPF: I can't speak to the
23 basis of why that was agreed to, but that is the
24 agreement.
25 MR. JENSEN: Do you have a different

Page 349

1 understanding?
2 MR. BLUMENKOPF: The agreement speaks for
3 itself, Counsel.
4 MR. JENSEN: Well, you seem to be raising
5 a question in your redirect that changes the basis of
6 that understanding. So I would very much appreciate
7 having a clear statement of what your position is
8 regarding the admissibility of Dr. Houh's testimony in
9 the five IPR proceedings.
10 MR. BLUMENKOPF: My questions were for
11 Dr. Houh, Counsel. I'm not saying anything further on
12 that matter at this time.
13 BY MR. JENSEN:
14 Q. Okay. Let's continue, Dr. Houh.
15 Can you identify anything in your '072
16 declaration regarding the testimony that you gave in
17 this deposition that would not be -- strike that. Let
18 me ask a better question.
19 What, if anything, in the deposition
20 testimony that you have given over the course of this
21 deposition would not apply to the declaration in the
22 '230 proceeding for the '072 patent?
23 A. I certainly don't remember everything I
24 testified to, and it would be difficult to answer that
25 without going through specific questions you asked me

Page 350

1 about the '643 with respect to the '720 individually
2 because I certainly am not going to remember everything.
3 And I wouldn't make a blanket statement about -- and if
4 there were differences, I wouldn't remember exactly what
5 I testified to with respect to the '643.
6 But there are differences in the various
7 declarations as indicated by -- the '072 declaration is
8 84 pages, and the '643 declaration is 90 pages. So it's
9 clear that there's some differences.
10 Q. Yeah, there are. And I'm not asking whether
11 there's differences in the declarations. I'm asking
12 whether there's any substantive difference in the
13 testimony that you gave that would not apply to the
14 declarations in the '072, '420 and '962 patents.
15 MR. BLUMENKOPF: Objection, form.
16 A. I don't remember everything I testified to.
17 BY MR. JENSEN:
18 Q. Can you identify anything that would be
19 different?
20 A. Well, in order to identify things, I need to go
21 look at testimony and what you asked and examine the
22 differences. So I'm not prepared to give you a
23 statement about what might be different in my testimony
24 because I don't remember all my testimony.
25 Q. But you can't tell me any specific thing

Page 351

1 sitting here right now that would be different, correct?
2 MR. BLUMENKOPF: Objection, form.
3 A. There certainly are differences in the various
4 claims of the '643 from -- if the claims were the same,
5 I don't think there -- my understanding, I'm not a
6 lawyer, but I understand that would be double patenting.
7 So the claims can't be the same, as I
8 understand it. And they are different. There are
9 differences, subtle differences, in the analysis or
10 different in some portions. And I'm not going to be
11 able to remember offhand all my testimony what I
12 testified about yesterday with respect to --
13 BY MR. JENSEN:
14 Q. I'm just asking if you can identify anything.
15 I'm not asking even for everything. I'm asking can you
16 identify anything?
17 MR. BLUMENKOPF: Objection, form.
18 A. Well, in order to do that, I'm going to need to
19 look at what I -- the questions I was asked and look at
20 how that applies in the other matters such as the '720.
21 BY MR. JENSEN:
22 Q. And you would agree with me, Dr. Houh, would
23 you not, that your testimony would apply the same in
24 each of the five IPR proceedings to the extent that your
25 declaration is the same in those proceedings, correct?

Page 352

1 MR. BLUMENKOPF: Objection, form.
2 A. I mean, there were times I did say things like,
3 "And there are similar sections in my other
4 declarations." And those sections, when I said that, I
5 was intending to convey that there are similarities in
6 which similar answers would apply; but there's some
7 times I didn't say that.
8 So you can look back at the transcript to
9 see where I might have said that or not. At least—we
10 could start with those where I didn't indicate that
11 there were similar sections --
12 BY MR. JENSEN:
13 Q. Yeah. And my question is a little bit
14 different, which is can we agree that your testimony
15 would apply equally to the declaration -- all five
16 declarations to the extent those declarations have
17 identical statements and language in them?
18 MR. BLUMENKOPF: Objection, form.
19 A. I mean, I think it depends on the context. I
20 still would want to look through to some extent. I'm
21 not denying that there are similar or even identical
22 passages between the declarations.
23 BY MR. JENSEN:
24 Q. Yeah. My question is assuming that it is
25 identical --

Page 353

1 A. If I could just finish and explain. There are
2 definitely variations in the analyses and slight
3 differences in the claim language. So there are subtle
4 differences.
5 And where I remembered I thought that
6 there were similar passages in other ones, I said that.
7 And where I wasn't -- where I didn't say that I was at
8 least not -- I was trying to -- well, I was at least not
9 signaling that I felt there were some analyses in other
10 supplemental declarations.
11 So there were times that I did say that,
12 and there were times that I did not. So we could start
13 with the questions that we did not -- I did not say
14 that, and then we could look at the question and the
15 answers with respect --
16 Q. Yeah. My question is a little bit different,
17 right?
18 Assuming that there were 50 pages of
19 identical declaration testimony, would you agree with me
20 that your answers to the questions about those pages of
21 your declarations would be the same and apply equally to
22 all five declarations?
23 MR. BLUMENKOPF: Objection, form.
24 A. I mean, to the extent those issues may have --
25 I'm not like -- touched other things that were somehow

Page 354

1 related but different and they were somehow all confined
2 to those identical passages between the different
3 declarations. But I can't recall that right now because
4 I don't remember the whole of my testimony. If you're
5 asking me to say what I think is different, well --
6 BY MR. JENSEN:
7 Q. No. I'm not asking that. I'm just asking if
8 we can agree that your answers would be the same where
9 your declaration contains the identical paragraphs.
10 MR. BLUMENKOPF: Objection, form.
11 A. And it depends what the point was and the
12 questions being asked when you were asking because
13 sometimes you were asking about some passages where you
14 weren't actually asking about the context or section
15 those passages were within, but it was about some other
16 unrelated issue.
17 So I would have to consider whether -- the
18 context again. But I'm not going to deny that there are
19 passages you asked me about that were identical. And
20 the times where I felt I remembered that there were
21 similar arguments made throughout the various
22 declarations, I tried to say that.
23 BY MR. JENSEN:
24 Q. Yeah. And oftentimes you didn't say anything
25 one way or the other, either that it was the same or

Page 355

1 that it was different. So I'm just trying to see if we
2 have an understanding that where your declarations
3 contain identical paragraphs, that your testimony would
4 apply equally to the same paragraphs that say the same
5 thing in the other declaration.
6 MR. BLUMENKOPF: Objection, form.
7 A. I mean, I still would like to look at the
8 context of the question because there are times when --
9 I know there were some very specific issues you asked me
10 about that were specifically related to the '643 and
11 really not to other ones that I answered really just for
12 the '643. And I tried to indicate that. So I would
13 still like to look at that.
14 MR. JENSEN: All right. Counsel, do you
15 oppose four more days of deposition for Dr. Houh?
16 MR. BLUMENKOPF: Yes, Counsel, we oppose.
17 This deposition concludes today, and Dr. Houh will not
18 be returning.
19 MR. JENSEN: Okay. Well, we consider this
20 our meet-and-confer and reserve our right to file a
21 motion to compel additional deposition testimony of
22 Dr. Houh given Aptiv's change in position.
23 MR. BLUMENKOPF: Are you finished,
24 Counsel?
25 MR. JENSEN: Yeah. I think we're done.

Page 356

We'll reserve our right to come back and do this if we need to four more times.

MR. BLUMENKOPF: Are we off the record?

MR. JENSEN: We can go off the record.

THE VIDEOGRAPHER: The time is 2:59 p.m. We are now going off the record.

(Proceedings concluded at 2:59 p.m.)

Page 357

CHANGES AND SIGNATURE

WITNESS NAME: HENRY H. HOUH

DATE OF DEPOSITION: December 20, 2024

PAGE	LINE	CHANGE	REASON

Page 358

I, HENRY H. HOUH, have read the foregoing deposition and hereby affix my signature that same is true and correct, except as noted above.

_____
HENRY H. HOUH

THE STATE OF _____)
COUNTY OF _____)

Before me, _____, on this day personally appeared HENRY H. HOUH, known to me or proved to me on the oath of _____ or through _____ (description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office on this _____ day of _____, _____.

_____
NOTARY PUBLIC IN AND FOR
THE STATE OF _____

My Commission Expires: _____

_____No Changes Made _____ Amendment Sheet(s) Attached

Page 359

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

_____

BEFORE THE PATENT TRIAL AND APPEAL BOARD

_____

MICROCHIP TECHNOLOGY INC.,
Petitioner,

V.

APTIV TECHNOLOGIES AG AND APTIV TECHNOLOGIES LIMITED,
Patent Owner.

_____

Case No. IPR2024-00228
U.S. Patent No. 9,619,420

_____

REPORTER'S CERTIFICATE
ORAL DEPOSITION OF HENRY H. HOUH
December 20, 2024

I, Melinda Barre, Certified Shorthand Reporter in and for the State of Texas, hereby certify to the following:

That the witness, HENRY H. HOUH, was duly sworn by the officer and that the transcript of the oral deposition is a true record of the testimony given by the witness;

That the original deposition was delivered to

Page 360

Travis Jensen.

That a copy of this certificate was served on all parties and/or the witness shown herein on _____.

I further certify that pursuant to FRCP Rule 30(f)(1), that the signature of the deponent:

____ was requested by the deponent or a party before the completion of the deposition and that the signature is to be before any notary public and returned within 30 days from date of receipt of the transcript. If returned, the attached Changes and Signature Page contains any changes and the reasons therefor:

____was not requested by the deponent or a party before the completion of the deposition.

I further certify that I am neither counsel for, related to, nor employed by any of the parties or attorneys in the action in which this proceeding was taken, and further that I am not financially or otherwise interested in the outcome of the action.

Certified to by me on this, the _____ day of _____, 2025.

Melinda Barre
Texas CSR 2192
Expiration: 12/31/25

Page 361

COUNTY OF HARRIS)
STATE OF TEXAS)

I hereby certify that the witness was notified on _____ that the witness has 30 days or (____ days per agreement of counsel) after being notified by the officer that the transcript is available for review by the witness and if there are changes in the form or substance to be made, then the witness shall sign a statement reciting such changes and the reasons given by the witness for making them;

That the witness' signature was/was not returned as of _____.

Subscribed and sworn to on this, the _____ day of _____, 2025.

Melinda Barre
Texas CSR 2192
Expiration: 12/31/25
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(a) 231:8

(b) 232:7

(c) 232:8

0

0 232:1

037 309:16

072 346:20 349:15,22 350:7,14

1

1 228:17 235:11 273:9,11 298:15 329:21 330:8,15

1.5 348:16

1/2 348:15

10 348:15

100 225:11

1000 225:5

1018 295:7

10:42 268:9

10:58 268:12

12 339:19,21 340:16 341:22 342:6

12:18 300:4

132 311:23 312:9

134 298:20 312:9

135 248:4

13521 225:11

139 300:13 301:7

141 307:4,7,24 312:17,22 314:5

142 307:16,21,23 308:10,18,21

143 312:17

147 315:9

15 323:19

152 255:6

153 317:20

156 228:12

16 327:18

16th 325:24

19 224:4

191 253:25

192 245:20 246:8,22 247:4 248:20 250:7,10 251:16 253:22

193 245:20 247:9,16 251:20 252:17 253:8 254:6,23 258:18

19th 224:10 227:2

1:06 300:7

1:51 323:23

2

2 224:5 228:25 232:24 235:19,20 242:6 315:17 318:5,16 320:5,12,16 321:12,19 322:2 328:23 330:11 334:20 348:15

2's 321:19

2.0 295:16 296:1

200 254:10

2001 337:15

2010 307:25 311:23 312:24 314:6

2010s 308:19 309:3

2013 309:1,4,18,20,21 326:3,5,18 327:9,11 334:6,14

2014 325:24 327:18

2016 327:1,6

2019 296:14 346:20

2023 229:7,10,12,16,24 230:6

2024 224:4,10 227:2

220-ish 254:10

228 226:4 325:19 326:24 327:3,7,12,19

23 236:17

230 346:20 349:22

26 309:17 326:3,5,18 327:9,11

27 326:25 327:4

28 326:13,16

2:07 324:1

2:59 224:11 356:5,7

3

3 246:9 250:25 252:13 255:9 297:4 298:1 299:16 322:7 328:24 329:23 330:1,14

30 298:5 312:6

31 298:10

324 226:4

333 226:5

357 226:5

359 226:6

36 237:6

4

4 240:4,6,8,11,13,14,18,23 241:1,2,6,11 242:2,20,23 243:5,9,14,19,23 244:4 271:25 272:5,21 273:4,6,10 274:12,21 275:9,16,18,19 330:8,14

4.6.2 295:2,11,14,23 296:1

40 262:5 264:4 267:6,11 298:12

41 308:24

42 278:6

420 325:19,22 326:1,6,9,10,17,21,24 327:1,3,6,11,18 350:14

43 328:6,14 334:21 341:5

46 262:5 264:4 267:6 277:8 298:9

47 298:17,18,19 322:8

48 295:15

495 326:9,11

5

5 299:8,21 339:17,18,22 340:16 341:11 342:6,7 343:3 344:3,16

50 247:22 253:11,16,21 255:2,20 262:8,14 263:11,23 264:6,8 265:6,8,10,13,25 266:2,12 267:4 272:15,19 278:6 287:12 291:6,8 298:14 353:18

52 248:25 250:7 251:17 253:22 255:4,21 256:22 257:17 262:7,8 296:24 297:5 298:2,14,18 299:20

54 338:8

Microchip Ex. 1085, p. 38
Microchip v. Aptiv
IPR2024-00495

6

6 236:17 260:1,6,9 327:1,6 333:24 340:8 341:4,14 344:18

60 335:6

603 342:11

605 342:14 344:6

61 276:24 277:19

613 342:20

617 341:15 342:2

63 335:6

643 228:9,17 230:7 235:11 236:11,12 242:16 245:23 246:4,6 251:21 254:23 255:7 256:17 258:18,22 259:11 263:5 264:12 271:10 272:4 273:6 275:22 276:24 291:16 296:16 298:4,6,19 300:12,25 301:1 302:11 303:10,18,24 307:4 312:9,17 317:22 332:12,16,18, 23 333:2,6 334:19 336:22,25 337:2,9, 14 338:1,5,20,24 345:25 346:7,10,12 350:1,5,8 351:4 355:10,12

650-page 295:15,16

650.614.7400 225:6

7

720 350:1 351:20

75 337:17,18

8

84 228:20 350:8

858.720.5100 225:12

86 261:24 263:5 268:5 271:11 276:13, 18,23 285:5

87 259:10,13 291:15

88 259:14,17

9

90 229:7,11,12,23,24 230:6 231:3 233:22 234:1 350:8

92 234:11,15

92130 225:11

93 229:7,11,23 230:6 234:1

94025 225:5

962 350:14

9:00 224:11 227:1

9A 298:5

A

MICROCHIP TECHNOLOGY INC. v APTIV TECHNOLOGIES AG Henry Houh

a.m. 224:11 227:1 268:9,12

A2a 266:22

AB 244:11,18,25 245:13

ability 261:9

above-styled 224:9

abstract 284:18

accept 230:18 270:3 288:1 313:24

accordance 259:1

accurate 333:1

accuse 317:16

accusing 318:11

acknowledged 258:10

acknowledges 262:18

act 338:13 339:3

acting 345:20

activate 231:15

activating 238:15

actual 247:18 253:2 254:3,7,21 257:1 267:21 279:5,11,20 280:3,23 281:12 282:20 283:13,15 286:12,13 318:4

add 277:7

added 249:4 251:1,2 255:14 262:15

addition 277:12

additional 280:5 288:9 355:21

Additionally 248:16 252:8 255:8

address 241:17 257:6 260:17 271:3 275:4 282:16 286:22 291:24 292:7 294:5 314:4 315:23 316:9 343:21

addressed 280:22 282:23 293:18 296:12 336:24

addresses 342:11

admissibility 349:8

admissible 348:6

admonition 262:2

advance 311:6

advantage 248:2

affirm 227:18

AG 227:5

agree 261:18 262:23 264:21 287:10 334:5 340:14 351:22 352:14 353:19 354:8

agreed 347:1 348:23

agreement 347:11 348:8,11,19,24 349:2

ahead 227:21 247:15 268:7 295:1 325:6 339:13 346:18

aloud 247:11,15 335:7

altered 246:13

alternatives 254:5

amount 289:6

analyses 353:2,9

analysis 241:12,20 242:15 243:25 244:5 247:18,20 249:21 250:19 253:3,5 254:3,5,9,14 256:17,25 274:20 276:3,6 278:14 279:9 281:2,6, 11,19,22 282:11,22 283:21 286:15 289:13 300:22 302:2 303:14 314:16 320:15 327:11,18 351:9

analyze 242:15 254:12 256:15,21 257:16,25 274:25 280:13,16,25 281:25 282:7 300:16 301:19 302:8 316:3 318:15 319:17

analyzed 233:1 242:18 263:20 267:22,25 268:2 274:17 278:23 279:4,5,14 280:3,23 281:2,17 282:19 288:18 320:11,20

analyzes 254:8 318:21 319:6,24

analyzing 242:13 256:16 316:2

and/or 248:6

annotated 276:25

annotations 277:7

announce 308:16 311:7

announced 311:4

announcement 309:24

answers 323:12 352:6 353:15,20 354:8

anytime 265:18 318:21 319:6,23

Microchip Ex. 1085, p. 39
Microchip v. Aptiv
IPR2024-00495

apparent 240:18

APPEARANCES 225:1

APPEARED 225:1

appearing 224:14

appears 238:3 296:9 314:6 322:9

Apple 307:25 308:3,16 309:24,25 310:6,8 311:3,14,22,24 312:2,8,19 313:3 314:1

Apple's 310:3

application 236:21 309:5,7,10,15, 17,21 325:23 326:3

applications 237:15

applied 327:10,17

applies 324:20 348:6 351:20

apply 324:17 326:19 333:1 346:4 347:17 349:21 350:13 351:23 352:6, 15 353:21 355:4

appropriately 268:3 345:1

Approximately 322:7

Aptiv 227:5,16 233:6 240:14 242:20 271:25 272:5,20 273:4 274:13 275:9, 19 302:15 303:8 304:16 307:13 309:4 314:25 316:2,7,13,17 317:5,11 318:16,19 324:6 334:18 335:13

Aptiv's 228:16 229:1 314:21 315:2, 12,17 316:11 317:17 318:5,9,11 319:2,21 320:5,8,24 321:12,17,19 322:2 355:22

architecture 238:4

argument 258:3 267:5,15 283:6,7

arguments 244:1 257:9 259:14 354:21

arise 311:3

arose 310:25

arrange 231:14 232:2

arrangement 245:3 254:22

arrives 247:25

arrows 262:16 278:2

art 246:25 249:25 274:21 329:2,14 330:1,13,20 331:3,10,18 332:1

article 306:19 312:24,25 314:5

articles 312:23

artisans 301:16

ASIC 229:18

assuming 260:23,25 270:25 352:24 353:18

attached 224:16 237:1

attachment 292:12,20

attention 228:19 300:12 308:23 334:20

audio 238:17

authority 324:14,15

automakers 307:17,19 308:7,12 309:24 310:4 311:16,17,21

automotive 305:3

avoid 346:24

award 304:22,25 305:3,6,12,17,18, 24 306:2

awards 304:15

aware 302:14,17 324:12

B

b-o-b 317:24

b.o.b. 317:24

back 228:3 238:3 254:16 261:5,9 262:25 266:1,11,23 268:13 271:10 272:6,18 273:23 276:12 296:14 300:8,10 324:2 336:16 352:8 356:1

backwards 267:1

Barre 224:11

based 310:3 331:8

basic 265:14

basically 261:11,14 266:8,17

basis 347:1 348:18,23 349:5

bblumen@mofo.com 225:13

begin 237:3 238:15 300:16 324:8

beginning 227:9 334:21

begins 252:18 328:13

begun 335:9,18

behalf 227:7,12,15

behavior 261:25 262:1 323:12

beneficial 286:7

benefit 286:18

bit 262:21 313:15 337:4 352:13 353:16

blanket 350:3

Bluff 225:11

Blumenkopf 225:10 227:14 229:3 230:4 231:18 232:14,22 233:11,24 234:7,17 235:1,12,22 236:14 239:8 240:16,24 241:8,16 242:4,21 243:10, 24 244:13,20 245:1,14 246:3,11,17, 23 247:6 248:22 249:20 250:8 251:18 252:24 253:23 254:18 255:5,22 256:23 257:18 258:9 261:6,22 263:1 265:1,22 267:8,19 268:24 269:8,15, 20 270:8,14,21 271:2,21 272:3 273:18 274:16 275:2,11,20 276:1,7, 15,21 277:10,18 278:11,19,24 279:17 280:1,19 281:8 282:3,18 283:11 284:3,10,23 285:10,19 286:9,20 287:4,15 288:5,10,16 289:19,25 290:7,15,24 291:23 292:5,13,22 293:5,16,23 294:15 295:5,8,18 296:5, 19 297:7,11,18 298:3 299:22 300:18, 24 301:21 302:3,10,16,20,25 303:9, 17,23 304:8,17 305:1,7,13,22 306:4, 9,23 307:14,22 308:17 309:6,22 310:10,14,22 311:5,20 312:4,21 313:4,12,18 314:3,19 315:1,14,22 316:8,15,22 317:6,18 318:13,24 319:9 320:1,14,21 321:3,15 322:5,9, 15,18 323:2,13,19 324:4,5,8,19,25 325:7,9 327:16,23 328:3,12 329:8,13, 20 330:6,12,19 331:2,9,17,25 332:7, 25 333:7,9 334:7,12 335:1,14,24 336:7,13,18 337:8,24 338:14,19 339:7,20 340:1,6,17,23 341:3,13,25 342:10 343:7,20 344:5,19 346:6 347:5,10,19 348:7,12,22 349:2,10 350:15 351:2,17 352:1,18 353:23 354:10 355:6,16,23 356:3

BMW 307:25 311:21 312:2,19 313:3 314:1

body 304:23 305:20,25

Bohm 317:23 318:11,15 319:17 321:21

Bohm's 318:4

Boston 228:25 229:18 232:1,3,24 234:9,10,12,15 235:9,19,20 242:6 315:17 318:5,16 320:5,12,16 321:12, 19 322:2

bottom 231:2 334:21

box 229:9 240:25 243:8,22 248:20 249:2,4 251:6 273:11 299:2 329:23 330:1,8,14 339:21

break 267:11 268:8,15 325:13,16

Microchip Ex. 1085, p. 40
Microchip v. Aptiv
IPR2024-00495

breaks 266:14

bridge 233:3 236:20 237:1,2,20,21, 24 238:3,7,18,22,24 239:18 240:10 242:11 248:1,6,8,21,24 249:15,19,22, 23 250:4,7,20 251:17,22 253:1,2,4,22 255:4,8,15,16,17,21 256:1,7,13,22 257:3,12,13,17 258:1,8,11,12,22 259:1,5,13,17,18,21,23 260:2,7,8,11, 23 261:1,2 262:7,12,13 263:4,8,12, 15,16,22 264:3,5 265:3 272:2,13,16 274:2 277:2,22 278:3,4,8 279:16 280:18 282:2 283:10 287:12 296:24 297:5 298:2,14 299:1,2,4,9,15,16,20, 25 315:18 328:18,22 333:17

bridge's 298:21,25 299:5,13

bridging 298:15

bring 268:25

brings 314:8

broad 240:7 270:9

Bryan 225:10 227:14 324:5

Bumenkopf 226:4

bunch 321:18

business 306:12

bypass 263:21 272:13

bypassed 259:7,18 265:4

bypasses 262:11 264:3

bypassing 258:25 259:5,13 263:14 277:22

C

c-o-n-n 273:12

cable 340:2

California 225:5,11

call 313:24 314:11

called 310:18 313:10,19,23 314:1

calling 260:16

capabilities 237:10 238:5,12 345:18

capability 239:25 240:19 241:3 242:25

capable 294:1

car 266:4 268:21 314:9

card 229:18 266:21

carmakers 310:9

Carplay 308:13,16 309:19 310:9,13, 18,20 311:3,4,7,11,18 313:8 314:17, 24

case 246:6 263:9 266:25 270:1 284:6,16 285:2,14,20 286:15 290:10 306:3 317:1,4,10 319:6,23 320:10 321:11 332:11

MICROCHIP TECHNOLOGY INC. v
APTIV TECHNOLOGIES AG
Henry Houh

cases 324:23

certainty 306:8

Certificate 226:6

Certified 224:12

cetera 335:10

challenged 314:18

challenges 257:2 283:24

Chang 233:3,6 242:11 246:9,12 248:4,8,18 249:15,23 250:2,4,25 251:22 252:10 253:1,2 254:1 255:3,8, 12,16,25 256:12 257:12 258:11,13, 20,21 259:23 260:1,6 261:8,13,15 262:24 263:14,16 264:3 266:14,15 267:18 272:16 277:8,25 279:15 280:16 283:8 285:6 286:7,19 291:6 296:17 297:4,6 298:1,2,7,15,22 299:1,7,8,9,16,20,21 300:1 327:25 328:4,6,9 329:21 330:21 331:4,11,19 332:2,6,8,9,11 333:14,18,19,23 338:8 339:1,6,8,9,14,16,17,22 340:16,24 341:2,5,10,23 342:6,7 343:3,21 344:3,16

Chang's 255:21 277:23 298:1,12,14, 15

change 232:2 261:3,19 264:7 265:6, 15 266:19 270:2 272:24 277:6 313:23 344:8 355:22

changed 327:12,19 329:7 347:24

changing 274:9

characterizing 283:3

chart 228:15 229:4 232:23 333:19,20 340:11 341:4 343:9 344:8,24 345:21

checking 328:19 342:20

chip 228:25 232:24 235:4,19,20 242:6,11 248:9 249:12,16,23 250:4, 21 251:10,23 263:16,22 264:3 298:21,25 299:5,9,13,20 300:1 315:17 316:3 317:25 318:3,5,16 319:18 320:5,12,16,20 321:12,14,19, 20 322:2

chips 316:4,17

choose 236:21

choosing 347:6

chose 254:12

Chutorash 337:19 338:6,25

circuit 228:21 229:2,20 230:2,13,19 231:17 232:13,21 233:23 234:6,16, 19,25 235:3,5,10,17 236:13 239:7,19, 21,23,25 240:15,23 241:1,7,10 242:3, 19 243:2,4,8,16,22 248:3 252:22 259:6 285:25 318:2

circuitry 234:23 235:4,7 239:10 247:12 248:2 253:15 255:10 256:2,6, 13

circuits 285:21,22

citation 248:5,12,18

cite 229:6 233:22 298:17,21 314:14, 15 315:24 321:18,25 324:14,19

cited 255:25 320:6 321:24

claim 228:15,17,19,23 229:21 235:11 241:10 247:19,20 254:3,9 309:14 353:3

claimed 242:10 245:12 260:18 301:13,14 303:15,21 304:5,6

claims 241:10 258:22 259:6 277:13 314:18,20,24,25 315:3,6 326:2,17 351:4,7

clarify 306:25 311:15 334:4

clean 264:19 297:23

clear 230:14,22 241:2 243:3,12,15 251:7 254:19 257:4 272:4 297:24 325:1,8 326:10 349:7 350:9

close 271:1 289:17,23 290:5 312:15

column 236:17 334:20

combination 239:18,19 242:8 246:25 249:24 254:7 256:3,16 257:1, 2,11,12 258:16 259:7,19 260:12,17 261:10,24 263:3,18 264:13 265:23 267:1,22 268:17 271:7,23 272:10,17 275:13,17 277:11 279:1,11,19,20 280:4,5,14,24 281:3,12,18,25 282:20, 21 283:24 288:23 289:1 296:22 298:6 299:4,25

combinations 259:3 279:5

Combine 247:18

combining 298:7

commanding 236:23,25

commands 290:11

commercial 301:12 303:5,8,11 304:4

commonality 348:20

communicate 231:25

communication 238:14 263:2 337:21

communications 294:17

company 319:13

compatible 231:11

compel 348:1 355:21

complete 237:12,13

completely 269:2

completes 238:10

component 238:4 241:6 255:9 256:1

components 241:6 242:2 254:22 315:17

comprising 255:10 256:2,13

computer 266:21,23

computerized 224:13

concept 269:17 270:12,18 294:13, 14,17

concepts 292:11,15,20 294:18,20

concluded 315:15 323:3 356:7

concludes 355:17

conclusion 315:24,25 319:1,20 320:7,23 321:17 322:1

CONFERENCE 225:1

confidential 310:21

configuration 231:9 232:7,9

configure 237:11 336:1

confined 354:1

confirm 250:2 279:3

conjunction 230:5 234:20,22 238:22 243:14 270:10

connect 231:7 248:16 252:9 258:19 266:2 271:19 298:13 308:2 313:6

connected 237:2 240:3,20 241:4 243:18 248:14 249:6,13 250:10,12,17 251:11 252:3 258:25 260:15 262:3,8, 17,18 263:10,17,23 278:6 279:16 280:18 282:2 283:10 291:6 342:8 343:4 344:17

connection 249:10 261:2 264:23,24, 25 265:19,20 266:9 270:20,25 271:1 273:9 274:14 277:16,23,25 278:9 285:17 287:12 289:18,24 290:6,13,23 291:13 298:24 317:1,4,10 339:5,18, 21 340:16 342:6 343:3

connections 238:16 318:5

connectivity 251:8

connector 244:11,19,25 245:2,13 273:11

connects 262:6,9 263:22

consideration 302:7,9

considerations 300:16,20,23 301:5, 8,20 303:4 304:3

considered 274:18 304:21 310:16 319:3

consistent 277:21 336:8

consolidated 346:23 347:1

constant 285:23

constitutes 309:20

consult 332:9

consumer 230:9,16,24 231:21 235:15,18,24 236:9,22 238:3,10,12, 13,14 258:23 259:2,8

consumer-facing 243:17 274:3,10

contemplate 337:19 338:9 339:8

contemplates 338:7

context 229:14 265:9 270:7,13,19 289:4 292:19 305:25 319:19 320:22 329:7 335:23 346:10 347:16 352:19 354:14,18 355:8

continuation 325:23

continue 323:11,16,20 328:24 349:14

CONTINUED 228:1

continues 231:24

continuing 228:4

control 232:1 234:18,20 235:4,5,7 236:21 238:24,25 248:7,9 249:12,14, 16 250:16,17,21 251:1,3,10,23 252:11,16 258:13 260:3 263:12 274:12 275:8 284:22 298:15,21,25 299:5,8,13,20 300:1

controlled 238:5

controls 236:19 248:15 249:8 250:13 251:12 252:4

convenient 236:20 240:9

convey 352:5

conveyed 237:24

copied 315:11 316:11 320:13,20,24 321:13,17 322:2

copy 271:14 276:19 319:2,8,21,25 320:7

copying 301:11 315:9,16 316:17 317:17 318:11,22

core 315:16

corners 245:4

correct 228:17 229:8 240:5 246:10 249:3,18 252:23 261:21 276:14,20 277:9 282:17 293:13,22 295:17 296:10,25 300:17 301:5,9,17 303:5 305:21 307:10 314:25 315:9 333:14 334:6,25 338:18 339:19,25 340:5,22 344:4,18 351:1,25

correctly 245:2 267:24 326:20

correspondence 348:13

counsel 227:7 228:7 233:11 295:5 322:5,10,15,19 323:6,8 324:9 345:24 347:3,5,11 348:7 349:3,11 355:14,16, 24

couple 257:22

coupled 259:20

court 226:6 227:17 254:15 284:7 336:15

cover 318:1 348:16

CPU 248:4

create 261:20 277:5 313:16 315:12

created 247:1 301:13 303:15 304:5

criteria 305:11

cross 348:15

cross-examination 323:3 324:9

crossbar 254:2 267:17,25 268:1

Crunch 312:23 314:5

current 342:23

D

data 238:16 284:5,15,25 289:17,24 290:5,13 328:23

Microchip Ex. 1085, p. 42
Microchip v. Aptiv
IPR2024-00495

date 307:23 309:25 310:3,17 312:25 314:4 323:16 325:19 326:6,18,20,25 327:5,9,10,17

dated 326:3

day 224:10 306:11 311:10 346:4

days 267:2 355:15

dead 258:5 260:16 261:7 267:5,15 268:16 278:10,17 287:13

dealing 294:8

decap 317:25

decapping 318:1,6 321:19

December 224:4,10 227:2

decide 311:10

decided 311:6

declaration 228:10,13 241:13,18 242:6,13,16 244:1,6 245:19,24 246:4, 6,8,13 251:3,21 254:23 255:7 256:18, 24 257:5 258:18 259:11 262:15 263:5 264:12 271:4,8,10 274:23 275:1 276:9,12,18 278:21 279:8,10,12,13 280:15,22 281:6,24 283:17 287:18 288:22 289:2,8,9 291:16 296:15 298:4,6 300:25 301:1 302:12,22 303:2,10,14,18,20,24 305:21 307:5 308:24 312:10,18 317:22 326:9,14,24 327:3,4,6,13,20 332:16,19 335:16 336:22,25 337:2,9,14,22 345:25 346:10,19 347:14 349:16,21 350:7,8 351:25 352:15 353:19 354:9 355:5

declarations 245:16 256:22 257:16 259:12 263:7 267:21 286:25 301:4 304:3,10,15,18,24 305:25 334:16 346:5,16 347:16 348:2 350:7,11,14 352:4,16,22 353:10,21,22 354:3,22 355:2

default 269:13,19,22,25 270:2,4 274:13 275:9,21 279:16,18 280:17 282:1,5,9 283:9,23 284:2,21 285:8 286:2,3,8,18 287:11

defaults 274:22 275:14

demand 309:19 311:18

demanded 307:17 308:12

demanding 289:14 307:20

demonstrates 262:1

deny 354:18

denying 352:21

depend 292:8

depending 298:16

depends 352:19 354:11

depict 251:16

deployed 247:13

deposed 347:13

deposition 224:2,7 227:3 228:4,7 305:14 317:13 323:10,14 324:11,13, 21 325:2,3,12,15 346:23 347:2 348:14 349:17,19,21 355:15,17,21

depositions 324:17 346:25 348:1

describe 248:8 251:22 258:6 263:14 278:10,18 292:17 294:20

describes 239:4 255:16 261:8 263:14 341:6

describing 230:7,22 231:3,19,20 232:15 235:23 236:15 238:21 239:9 240:4,6 243:4 249:9 255:16 336:5 344:20

description 235:13 240:7,12,17 241:2 243:5,19 263:6 333:20,24

descriptions 230:5 234:1

descriptor 237:8,9,18,23,25 238:8

descriptors 231:10 237:12,14

designer 238:8

designers 293:9 335:9

designing 335:9,18

detach 266:19

detached 334:1

detachment 296:7 340:10

detail 271:23 273:20 274:7

detailed 318:8,18

details 286:1 288:6,9,14 289:3 294:6

detect 230:8,16,24 231:21 235:15,24 236:8 237:2 239:3 240:19 241:4 243:16 248:17 252:9 258:20 260:11, 13 261:3,19 262:4 264:7 266:1 272:18,23,24 341:11 342:7

detecting 230:15 236:16 240:2 259:25 331:11,19 332:2

detection 228:21 229:1,20 230:2,12 231:17 232:12,20 233:2,9,23 234:6, 16 235:10,17,21 236:7,13 238:22 239:4,7 240:1,15,23 241:1,7 242:3,9, 19,25 243:4,8,16,21 247:12 248:3,7, 9,13,15,16 249:3,6,7,10,13,16,18 250:1,3,6,9,12,13,16,21,24 251:5,8,9, 11,12,16,22 252:2,3,8,12,22 253:15, 20 255:1,3,20 256:5,21 257:3,13,17, 25 258:7,12,19,21 259:6,24 260:25 261:21 262:3,16,18,19 263:9,17 264:6 272:15 298:20,23 299:5,10,15 300:1 327:25

detects 248:10 250:21 251:23 263:9, 10 298:23

determination 259:1 274:15 342:16

determine 231:10 237:10 305:11 341:15,18 342:14 343:12

determined 328:21 342:2

determining 343:23

Detroit 306:11 307:1,2

develop 308:1 311:12,24 312:3,19 316:7

developed 315:16

developing 313:14 315:21 316:14

device 230:9,10,16,17,24,25 231:5, 10,13,22,24 232:5,19 234:5,9,13 235:3,15,16,18,25 236:9,16,17,19 237:2,9,11,12,13,16,21,23 238:3,10, 12,13,14 250:11 251:12 258:12,24 259:2,8,9,21,23,25 260:1,2,7,8,11,12, 13,14,15 261:1,3,20 262:11 263:10, 11,23,24 264:8,9 265:7,8,9,25 267:2, 4 270:19 272:1,6,17,24 273:8,9,13, 17,24 274:7 289:17,23 290:2,5,13,22 291:7,9,14,19,22 296:3 298:2,15 299:9 317:25 327:25 328:20,22,23, 24,25 329:3,12,15,16,17 330:4,5,7, 10,21,22,23 331:4,5,12,20 332:2,3 333:17,21,25 334:2,3 335:8,10,11,19 336:2 337:3,4,11,23 338:12,13,18,21 339:4,24 340:7,9,11,15 341:7,10,12, 16,17,19,24 342:2,13,15,16,17,21,23 343:12,13,15,24,25 344:7,10,11,13, 18,22,23,25 345:2,3,9,19

device's 231:10

devices 239:3 240:2,20 241:4 243:17 265:16 266:19 269:11 274:9 286:3 295:14 330:15 337:20 338:7,9, 25 339:8 340:18 343:22

diagram 229:24 230:3 233:22

Diego 225:11

difference 350:12

differences 350:4,6,9,11,22 351:3,9 353:3,4

differently 345:16

difficult 349:24

direct 300:12 308:23 334:20 337:17

direct-to-hub 262:10

directed 244:3 257:10 261:14 273:23 276:9 286:24 301:22,23 302:12 303:11,25 304:12,22 316:16 332:20,23

direction 275:3

directly 241:17 249:25 258:25 261:4 276:24

disagree 295:21 325:6 335:12

disagreement 253:7 283:2

disclose 231:16 236:12 239:7 330:21 331:4,11,19 332:2 337:19

disclosed 333:17

discloses 239:23 298:11

disconnect 232:6

disconnected 259:19 260:6

disconnecting 342:22

discrete 255:9 256:1

discuss 228:6 287:14 304:15,23 305:20 312:7 336:21 338:25

discussed 293:25 307:16

discusses 253:24,25 334:24 336:20 338:6

discussing 238:19,20 254:13 267:6, 16 268:5,15 274:22 312:24 320:2,3

discussion 259:12 268:17,19 279:18 283:22 286:3

disk 266:22

display 308:3

disturbing 312:5

Doctor 246:3

document 229:15,16,19 233:22 234:2 295:15,16 296:10 310:21

documents 305:2,15,16 308:20

double 351:6

downstream 247:25 248:10,17 250:22 251:24 252:9 258:14,19 259:22 262:4,7,8,10 263:10 272:1

drive 225:11 266:22

driver 231:24 237:23

drivers 237:15,22 238:1,2

dual 291:19 337:10,12 338:4

dual-mode 290:21 291:5,8,14,21 333:16 334:5,10 341:21

dual-role 228:16 229:1 230:8,15,20, 23 231:21 232:16,24 235:14,24 236:8 247:22 253:10,16,21 255:2,20 256:11 303:8 315:12 316:7,14 335:22 336:6, 12 337:3,7,11,20,23 338:7,9,12,25 339:3,8,12 341:9 342:5 343:18,22 344:2,15 345:11

duly 224:9

dynamic 260:19

E

e-mail 225:7,13 317:21 318:4 319:16

earlier 272:14 336:20 348:15

earliest 309:25

earliest-issued 309:11

early-ish 308:19 309:3

Eastern 227:2

Edmunds 312:25

effort 315:20 316:6

electrically 259:19 262:14 264:5

electronic 270:10

electronics 270:7

element 228:23 247:19 249:21,22 253:3 254:3,4,9,13,14 256:15,17

elements 234:19,20 235:7

eliminating 265:14

embodied 307:15

embodies 228:16 239:21

embodiment 246:9,21,24 258:4 261:19 263:20 272:20 277:9 278:7 279:15 280:16 283:8 286:7,19 291:6 342:7 343:4 344:3,16,17

embodiments 239:15,20 243:1

employees 317:5,11 319:11

enable 236:22 238:13

end 228:12 231:4 234:5 258:5 260:16 261:7 267:5,15 268:16 278:10,17 287:13 324:9

ended 303:1

ending 326:11 327:3

ends 325:3

engine 314:7

engineer 319:24 320:11 321:12

engineering 315:20

engineers 316:1,21 317:2,22 319:12

England 294:8

English 338:3

enter 315:11

entire 264:3

entirety 247:16

enumeration 237:3,7 238:11,20 240:1

envisioned 237:18

equally 352:15 353:21 355:4

equate 309:23

error 327:7

establish 274:14

established 287:13

etching 316:3 318:1

eventually 313:8

evidence 235:16 315:25 316:1,10,17 318:25 319:2,20 320:4,6,22 321:2,22, 24 322:1 324:17

evidenced 308:7

exact 286:24 299:23 309:2

Examination 226:4 228:1 324:3

examine 231:9 350:21

exchange 260:7 328:22 334:2 341:6, 7 345:9

exchanged 328:20,25 329:7 342:21

exchanging 329:15 330:21 333:20, 25 340:8 345:2

exhibit 229:7,10,12,16,24 230:6 295:5,7 296:14 298:5 337:15 346:20

exhibits 305:9

existed 311:19

existing 248:2 289:17,23 290:5,23

experience 310:3

expert 275:8,25 287:24 293:22,24

experts 287:23

explain 353:1

Microchip Ex. 1085, p. 44
Microchip v. Aptiv
IPR2024-00495

explicit 240:25

explicitly 249:10

extent 255:14 256:8 281:16 351:24 352:16,20 353:24

external 231:6 260:8,13 263:19 328:22,25 329:3,12,15,16,17 330:4, 15 333:25 341:16,17,19 342:1,13,15, 16,21 343:11,13,15,23,24 344:2,7,10, 11,13,15,21,23 345:2

externally 263:21

F

face 309:18

fact 266:18 312:19 321:13,16

fails 260:16

failure 301:12

fairly 346:12

familiar 244:11,18 246:21 247:3 270:6,12,18 292:11

feature 261:8,13,16 266:13,15 313:20,24 314:1,8,11,13

features 265:14 266:18 292:8 307:16,20 308:6,12 315:5 334:14

Federal 324:16

Feel 332:8

felt 353:9 354:20

field 275:8

figure 240:4,6,8,11,13,14,18,23 241:1,2,6,11 242:2,20,23 243:5,9,14, 19,23 244:4 246:9,12,15 248:20,23 249:2 250:6,25 252:13 253:22 254:19,21 255:2,9,13,24 260:1,6,9 262:15 263:4,24 271:15,25 272:5,14, 21 273:4,6,10 274:12,21 275:9,16,18, 19 276:13,22 277:1,5,8 285:11,16 296:20 297:4 298:1 299:8,16,21 329:21 330:8,15 333:24 339:17,18,22 340:8,16 341:4,11,14 342:6,7 343:3 344:3,16,18 348:3

figures 230:6 239:16 263:6 291:15

file 355:20

filed 309:5,17,21 325:23

find 257:21 281:21 293:17 305:24

fine 288:3 325:7 341:2 343:17

finish 233:12,19 267:12 321:5 353:1

finished 355:23

firm 227:8 306:15

firmware 232:1,3 234:4,8,10,12,15, 18,19,22,25 235:2,9 238:7

fit 347:6

flaw 258:17

flexible 238:6

flipping 304:9

flow 333:19,20 340:11 341:4 343:9 344:8 345:21

fly 287:6

focus 256:24

Foerster 225:10 227:15 324:6

follow 291:3 323:5

follow-up 324:7

footnote 251:4

forget 250:1

forgot 310:18

form 229:3 230:4 231:18 232:14,22 233:24 234:7,17 235:1,12,22 236:14 239:8 240:16,24 241:8,16 242:4,21 243:10,24 244:13 245:1,14 246:11, 17,23 247:6 248:22 249:20 250:8 251:18 252:24 253:23 255:5,22 256:23 257:18 258:9 261:6,22 263:1 265:1,22 267:8,19 268:24 269:8,15, 20 270:8,14,21 271:2,21 272:3 273:7, 18 274:16 275:2,11 276:7,15,21 277:10,18 278:11,19,24 279:17 280:1,19 281:8 282:3,18 283:11 284:3,23 285:10,19 286:9,20 287:4, 15 288:5,10,16 289:19 290:15,24 291:23 292:5,13,22 293:5,16,23 294:15 295:18 296:5,19 297:7,11,18 298:3 299:22 300:18,24 301:21 302:3,10,16,20,25 303:9,17,23 304:8, 17 305:1,7,13,22 306:4,9,23 307:14, 22 308:17 309:6,22 310:10,14,22 311:5,20 312:4,21 313:4,12 314:3,19 315:1,14,22 316:8,15,22 317:6,18 318:13,24 319:9 320:1,14,21 321:15 327:14,21 328:1,10 329:5,11,18 330:2,9,16,17,24 331:6,14,22 332:4, 21 333:3 334:7,12 335:1,14,24 336:7, 13,18 337:8,24 338:14,19 339:7,20 340:1,6,17,23 341:3,13,25 342:10 343:7,20 344:5,19 346:6 350:15 351:2,17 352:1,18 353:23 354:10 355:6

formulated 310:1,17

forwarded 237:20

found 273:21 296:11

foundations 308:6

fourth 252:17

free 332:8

front 271:16 273:5,7

function 231:11,15 232:5 264:7 336:2

functional 238:11

functionality 237:16 248:7

functions 234:21,23 235:5 237:10 238:13 239:24 255:15

fundamental 294:13

future 323:16

G

game 346:18

gave 268:21 345:24 348:5 349:16 350:13

general 294:16

generally 269:21 281:16 292:14 326:7

generating 260:3

give 228:10 229:14 239:14 241:23 248:5 264:11 350:22

GM 317:24

good 295:23 347:12

granted 318:7,18

great 267:13

grew 306:10 307:1

groundwork 313:7

GUI 313:7

guys 346:18 347:13

H

H2h 231:11,15,24 232:5 234:12

half 229:25 322:20 346:4

halfway 328:15

handled 341:1

Microchip Ex. 1085, p. 45
Microchip v. Aptiv
IPR2024-00495

handshake 270:19

happen 339:4,10

happening 240:18 243:13 263:18

happy 313:24 345:16

hard 271:14 283:12

hardware 236:20 238:7,23,25 239:10 240:10

head 234:5 236:19 237:21 238:1,2,6, 11,15

heading 302:11 307:9

heard 244:21 270:9 288:4 306:2,5

heart 245:7,17

Henry 224:3,7 227:3

hereto 224:16

Herrington 225:4 227:12

hidden 314:8,11,12

high 225:11 259:15

highlight 335:5

highlighted 296:24 297:2

highlighting 335:3

highlights 270:1

hold 324:11,13,21

host 230:9,17,25 231:7,9,13,22,25 232:5,19 234:5,8 235:16,25 236:9,24 237:8,10,13,14,19 250:11 251:11 259:25 261:1,3,20 264:10 265:4,7,8, 10,12 266:1,2,11 267:2 270:19 271:1 272:19,24 273:25 274:2,6 278:6 287:11 289:18,24 290:2,6,10,14,21 291:22 298:14 315:18 327:25 328:23, 24 330:4,10 331:5,12,20 332:3 335:19 336:3 338:13,18,21 339:4 340:5,7,15 342:4,5,8,17,19 343:2,5, 15,19 344:4,13,18 345:20,21

host's 238:20

host-device 248:14 249:7 250:13 252:3 261:21 265:18 266:9 270:25 274:15 278:8 298:23

host-to-device 262:25 264:23,24 277:23 291:13

host-to-host 262:24 264:22,25 265:20 266:11 277:16,23,24 290:23 337:20

hot 265:15 274:8

Houh 224:3,7 227:4 228:3 233:5,12, 17,21 234:4,25 255:19 256:20 268:15 281:24 283:7 284:19 287:21 295:3 297:9,17 300:10 321:9 322:25 323:2, 6,21 324:7 325:3,10,18 327:24 333:8, 13 334:11 337:6,23 347:20 348:1,14 349:11,14 351:22 355:15,17,22

Houh's 349:8

MICROCHIP TECHNOLOGY INC. v APTIV TECHNOLOGIES AG Henry Houh

hour 267:11

hours 312:6 322:7,20 323:18 348:15, 16

HU 236:21

hub 228:16 229:1,18 230:8,15,20,23 231:7,21 232:3,17,24 235:14,24 236:8 239:18 255:10 256:2,14 258:25 259:8 260:14 262:5,7 264:4 267:6 271:1,19 277:8 278:9 285:17 296:17 298:9,12,15 303:8 315:12 316:7,14

hundred 279:6

www.LexitasLegal.com/Premier Lexitas

hypothetical 232:25 246:25 249:24 275:5 278:13 280:20 282:9,24 283:3, 14 286:22 287:16,22 319:11,13 320:15

hypothetically 320:11

hypotheticals 279:6,21 280:10 281:10,14

I

i.e 335:10

idea 252:16

identical 352:17,21,25 353:19 354:2, 9,19 355:3

identified 248:21 326:25

identify 233:17,21 264:22 288:14 302:7 307:20 349:15 350:18,20 351:14,16

identifying 234:16

II 233:3,6 248:18 249:23 250:2,4 252:10 253:1,2 257:12 258:13,20,21 259:23 260:1,6 261:8,13,15 263:16 264:3 266:14,15 272:16 297:6 298:2, 7,22 299:7,8,9,21 300:1 327:25 328:4,6,9 329:21 330:21 331:4,11,19 332:6 333:14,18,19,23 338:8 339:1,6, 8,9,14,16,17,22 340:16,24 341:2,5,23 342:6,7 343:3,21 344:3,16

II's 248:4,8 249:15 251:22 258:11 298:15

illustrate 240:23

illustrated 250:6,15 252:13 256:4 263:4,24 272:21

illustrates 248:13 249:6 250:11 252:2

illustrating 249:12 251:7,10 255:13, 24 277:12

image 251:15 296:17

immediately 251:19

impedance 259:15

implementation 243:1 267:17,25 268:1 284:4,14 285:6,7 286:13 291:10 298:9,11

implementations 254:1,12 262:6 264:4 267:7 268:4

implemented 284:21

in-car 308:2

incapable 259:25 260:18

include 241:12 243:1 301:4 302:1 315:8 329:16 330:17

included 244:4 255:15

includes 235:6 246:9 248:9 249:15 250:20 251:22 279:12 301:11

including 306:12 315:18 316:1

index 226:2 296:10

individually 350:1

individuals 317:16

industry 301:15 302:7 304:4 305:3

inform 232:2

informing 309:24

initially 269:23 273:17

inoperable 258:4 261:10 288:23

input 259:20 263:16

inputs 232:1

inquire 341:15 342:1,13 343:11,24 344:10,22

inserted 260:13

inserts 298:12

inside 233:2 250:3,7 253:21 255:3, 17,21 257:3,13,25 258:8 261:1 299:15

insist 236:1

instance 224:8 282:13 343:1

Microchip Ex. 1085, p. 46
Microchip v. Aptiv
IPR2024-00495

instantly 328:21

instruction 323:5

instructions 235:6

integrated 239:18,19 243:2 251:17 255:10,15 256:1,7,13 285:21,22 318:2

intended 251:16

intending 352:5

interest 257:20 337:16 346:2

interface 308:4 339:5,19,22,25 340:16 341:22 342:6 343:3

internal 263:15 318:2,16 319:18 328:20

internally 263:3

interrupt 322:18

interrupted 322:23

interrupting 233:13 321:7 322:16,17

interruptions 323:11

introduce 227:8

invention 237:17 239:21 272:6,8,20 273:23 301:13,14,15,16 302:8 303:16,22 304:4,6,7 327:9

invested 315:21

investigate 302:19

involved 232:3

involves 239:9 340:8

ios's 314:8

iphone 308:2 314:8

ipod 308:1,2 312:3,20,24 313:3,6,7, 10,16 314:2,8,12

IPR 324:13,17,21 349:9 351:24

IPRS 348:21

isolated 262:14,16 264:6 272:15

issuance 310:17

issue 257:7 271:6 272:21,23 276:2 279:4 282:6,16 286:10,14,22 288:6 289:6 291:24 292:7 296:12 301:24 303:1 311:11 354:16

issued 310:4,25 311:13

issues 271:3 275:4,5 280:11 282:23, 24 294:5 304:12 333:5 348:20 353:24 355:9

issuing 290:10

item 292:8

J

Jensen 225:4 226:4,5 227:11 228:2 229:5 230:11 232:11,18 233:4,14,16 234:3,14,24 235:8 236:3 239:5,12 240:21 241:5,14,25 242:17 243:6,20 244:10,16,24 245:11,18 246:7,14,20 247:2,8 249:1 250:5 251:14 252:15 253:6 254:15,25 255:18 256:19 257:14,19 260:20 261:17 262:20 264:17 265:17 266:7 267:14 268:7,14 269:5,12,18 270:5,11,17,24 271:9,24 273:1,3 274:11,24 275:6,15,23 276:4, 11,17 277:4,15 278:1,15,22 279:2,23 280:8 281:5,20 282:14 283:1,25 284:7,12 285:3,15 286:5,16 287:1,9, 20 288:8,13 289:16,22 290:4,12,20 291:4 292:2,10,18 293:2,11,21 294:12,25 295:7,9,12,20 296:13,23 297:8,14,22 299:18 300:3,9,21 301:2, 25 302:5,13,18,23 303:3,13,19 304:1, 14,19 305:5,10,19 306:1,6,20 307:3, 18 308:9,22 309:9 310:5,12,19 311:2, 8 312:1,11 313:2,9,13,21 314:10,23 315:7,19 316:5,12,19,25 317:9 318:10,20 319:4,22 320:9,18,25 321:5,8 322:3,11,13,16,21,24 323:4, 9,15,22 324:16,22 325:5 327:14,21 328:1,10 329:5,11,18 330:2,9,16,24 331:6,14,22 332:4,21 333:3,12 334:9, 17 335:4,21 336:4,10,15 337:1,13 338:10,17,22 339:11,23 340:3,12,20, 25 341:8,20 342:3,24 343:16 344:1, 14 345:4 346:14,22 347:8,12,22 348:10,18,25 349:4,13 350:17 351:13,21 352:12,23 354:6,23 355:14,19,25 356:4

job 316:23

July 314:6

K

killing 261:11

kind 259:17 265:13 290:25 293:7 306:16 308:6,25

knowing 236:23

knowledge 277:14 298:8

L

label 248:24

labeled 241:1 243:9,23 248:25 262:14 273:9 299:16 329:23 330:1,8, 11,14

laid 242:10 260:1 264:14 272:11 278:12,20 279:20 288:25 289:1 293:25 310:2 313:7 337:25

language 352:17 353:3

lawyer 351:6

lay 264:15 279:22 293:8 298:4

layer 316:3,4

lead 345:13

leading 330:17,25 331:7,15,23 332:5,22 333:4 335:8

leave 323:10

leaving 263:16 323:16

left 294:10

legal 227:6

level 273:19

Lexitas 227:7

license 302:14

licenses 301:14 302:7,12 304:3

limitation 228:17,20 229:21 259:5 285:1

limitations 268:6

limited 227:6 240:12

lines 298:16

link 314:12,14,15

list 301:7,11 303:5 310:15

listed 243:1 305:18 308:18

listen 323:8

literally 265:5

live 270:25

LLP 225:4,10

load 237:14

loaded 235:2 337:5

locally 237:19

locate 283:18

located 242:19 243:8,22 248:1 249:18 250:7 252:23,25 253:1,20 255:3 256:21 257:17,25 260:23 261:1

locating 255:19

Microchip Ex. 1085, p. 47
Microchip v. Aptiv
IPR2024-00495

location 244:17 247:23 248:1 252:19,22

locked 265:5

logic 239:17 248:2 258:24 263:12

logical 251:8

long 264:19 275:3 344:25 345:19

long-felt 301:11 307:9,12 309:20 315:4

looked 245:6 321:12 331:8 338:1

loop 342:19

lot 310:2

lots 290:16 294:18

loud 326:16 328:17

lowest 309:11

luncheon 300:6

M

machine 224:13

made 237:19 257:4 264:13 310:8 354:21

made-up 256:3

main 256:24 257:9 261:8,12,13,16 266:13,15,18 281:11,19 282:22

make 262:19 266:15 267:5,9,15 271:13 289:1 290:2 325:8 345:16 350:3

makes 241:2

manner 231:8 248:4

manufacturers 335:8

mapping 229:21 314:20,24,25 315:2

Mark 317:23 318:11

market 318:22 319:7,24 320:12

Marsh 225:5

massive 348:19

materials 304:21 310:15

matter 227:4 230:7 245:21 265:3 272:22 326:9,11,24 327:3,7,12,19 345:18 346:13 349:12

matters 351:20

meaning 253:15

means 236:20 238:25 240:9 255:14, 24 256:4 294:14 320:13 321:13

meet 235:10

meet-and-confer 355:20

meeting 260:18

meets 293:24

Melinda 224:11

memorize 293:18 294:23

memorized 290:9,17 292:7 293:1,14 294:22

memory 235:3 257:9 270:16 306:15

Menlo 225:5

mentioned 257:22 268:19

messy 314:9

micro 244:11,18,25 245:13

Microchip 227:4,13 315:11,16,21 316:2,10,20 317:2,16,25 318:8,15,18 319:1,16,17,21,24 320:2,3,4,7,11,17, 24 321:12,17,20,22 322:2

Microchip's 316:1,16 317:22 319:11,12

mid-ish 312:23

middle 231:4 255:7

mind 306:15 309:1

minutes 267:11 297:9,16 312:6 321:6 322:8 323:19

mistake 312:16

mobile 335:8,9,18

mode 230:10,17,25 231:22 235:16, 25 236:10,17,24 239:3 240:2,20 241:4 243:17 248:10,17 250:22 251:23 252:9 258:20 259:2,9 260:1, 14 261:3 262:4,11 263:11,24 264:10 265:25 266:9,10,11 274:3,9 290:22 291:7,9,14,19,22 315:18 327:25 331:5,12,13,20,21 332:3 341:10 342:5,8,19 343:2,19

modes 272:7

modification 247:4 258:7 265:21 267:7,18 271:19 276:14 277:21 297:4 298:1

modifications 276:19

modified 246:9,12 248:23,24 255:2 261:19 262:23 278:7,9 279:15 280:14,16 283:8 285:5 286:6,19 291:6,10 296:17

modifying 254:1

module 260:14

moment 228:11

money 315:21 316:6

Morrison 225:10 227:15 324:5

motion 355:21

motivated 288:25

Motivation 247:17

move 273:1 348:1

moving 233:15 337:16

multiple 264:14 274:2,3

multiplexer 258:14 259:18,20 260:4 261:25 262:1,6,9 267:16 277:9 278:7 279:15 280:17 282:1 283:9 284:1,17, 21 285:6,8 286:8,19 287:11 298:12, 13

multiplexing 243:9,23 273:16 274:14 275:10

mux 247:14,22 248:14 249:7,13 250:10,12,17 251:2,9,11 252:3,12 253:11,17,21 254:2 255:2,21 256:11 263:19 267:24 268:2 271:18 277:12 284:15,25

mux's 248:15 249:8 250:13,18 251:12 252:4

N

N0 232:2

names 317:19

necessarily 232:20 282:24 284:6,16 285:2,13 319:6,23 320:10,12 321:10, 11

negate 316:10

negotiate 231:13

negotiated 232:4 322:19

negotiates 234:5

network 231:14

networking 294:4,18

newly 255:14 260:13

News 306:11

newspaper 306:18

nexus 314:21 315:2

nonobviousness 300:23 301:9,20

Microchip Ex. 1085, p. 48
Microchip v. Aptiv
IPR2024-00495

nonresponsive 233:10 273:2 323:12

normal 289:7

note 346:22

notes 323:20

nothing's 343:1

noticing 227:9

nubs 245:4

number 228:10 232:3 238:15 248:21 280:10 301:8 309:1,12

numbered 224:10

numbers 301:3 312:12

numerous 323:12

O

oath 227:19

Object 327:14,21 328:1,10 329:5,11, 18 330:2,9,16,24 331:6,14,22 332:4, 21 333:3 339:20

objecting 347:19

objection 229:3 230:4 231:18 232:14,22 233:24 234:7,17 235:1,12, 22 236:14 239:8 240:16,24 241:8,16 242:4,21 243:10,24 244:13,20 245:1, 14 246:11,17,23 247:6 248:22 249:20 250:8 251:18 252:24 253:23 254:18 255:5,22 256:23 257:18 258:9 261:6, 22 263:1 265:1,22 267:8,19 268:24 269:8,15,20 270:8,14,21 271:2,21 272:3 273:18 274:16 275:2,11,20 276:1,7,15,21 277:10,18 278:11,19, 24 279:17 280:1,19 281:8 282:3,18 283:11 284:3,10,23 285:10,19 286:9, 20 287:4,15 288:5,10,16 289:19,25 290:7,15,24 291:23 292:5,13,22 293:5,16,23 294:15 295:18 296:5,19 297:7,11,18 298:3 299:22 300:18,24 301:21 302:3,10,16,20,25 303:9,17, 23 304:8,17 305:1,7,13,22 306:4,9,23 307:14,22 308:17 309:6,22 310:10, 14,22 311:5,20 312:4,21 313:4,12,18 314:3,19 315:1,14,22 316:8,15,22 317:6,18 318:13,24 319:9 320:1,14, 21 321:15 330:17 334:7,12 335:1,14, 24 336:7,13,18 337:8,24 338:14,19 339:7 340:1,6,17,23 341:3,13,25 342:10 343:7,20 344:5,19 346:6 347:15,18 350:15 351:2,17 352:1,18 353:23 354:10 355:6

Obolsky 317:23

obstructionist 233:14 323:11

obvious 247:13,21,24,25 248:6 252:18,21 253:9,15 254:1,11 277:20

occur 328:20

occurring 328:19

offer 318:4

offhand 270:16 292:17 305:8 310:11 351:11

oftentimes 354:24

open 246:1 323:10,16 324:11,13,21 325:2 326:12 328:5

operate 280:17 283:9

operated 280:24 281:13

operates 281:4 282:20

operating 230:9,17,24 231:22 235:15,25 236:9 342:18

operation 237:11 261:15 315:17

operational 278:5

opinion 228:25 231:16 239:6 242:2, 18 245:12 276:5 283:8 286:24 287:7 303:20 315:11,15 335:16

opinions 242:5 268:16 276:8 287:18 303:7 304:2 327:12,19

opportunity 288:19

oppose 355:15,16

opposed 289:14

optimization 314:7

option 269:22 270:4

ORAL 224:2,7

orange 296:24 297:2 299:2,17

order 259:4 262:19 334:2 342:12 343:11 350:20 351:18

ordinary 236:6 240:19 241:3 242:24 264:12 277:14 288:24 329:2,14,25 330:13,20 331:3,10,18 332:1 333:22 338:3 340:9

original 248:24 249:5 269:1,3,7 277:1 283:17 309:14

originally 309:5

Orrick 225:4 227:12

output 248:3

overlapping 348:20

owner 225:9 227:15 324:6,12

owner's 289:10

P

p.m. 224:11 300:4,7 323:23 324:1 356:5,7

PACE 304:22,25 305:3,6,12,17,18 306:2

pages 229:7,11,23 230:6 234:1 298:17,18 350:8 353:18,20

paragraph 228:10,12 246:8,22 247:4,9,16 248:19,20 250:7 251:16, 20 252:17 253:8,22 254:10,23 255:6 258:18 259:10 261:24 268:5 271:11 276:13,18,23 280:9,13,15 285:5 291:15 295:15 296:6,17 300:13 301:3,7 307:4,6,16,21,23,24 308:10, 18,21,24 312:9,12,22 314:5 315:9 317:20 326:13,16,25 327:4,8 328:6,8, 14 334:20,24 337:17,18 338:8 341:5

paragraphs 245:20 312:17 354:9 355:3,4

parameters 348:14

Park 225:5

part 231:3 232:9,15 235:3 239:1,3 242:11,15,23 243:25 244:3,5 251:17 258:22 268:19 271:7 272:16 278:14 279:9 281:2 282:8,11,12 286:14 288:11 289:8,9,10 298:20,25 299:2,6, 12 319:20 320:23 334:15 342:11

parties 224:14 348:13

partly 238:21 243:19 292:7 341:5

partner 312:2

partnered 307:25

partnership 308:8 311:22 313:5

partnerships 312:8

parts 243:12,14 245:24 257:6 270:23

party 227:9

pass 323:9 333:9

passage 239:6 240:4

passages 352:22 353:6 354:2,13,15, 19

passes 237:24

passing 237:25 323:13,15 324:10

pasted 276:19

Microchip Ex. 1085, p. 49
Microchip v. Aptiv
IPR2024-00495

patent 225:9 227:15 228:17 235:11 236:11,12 240:5,14 242:20 258:22 271:25 272:5 273:4,6 274:13 275:9, 18,19 289:10 309:4,11,14,21 324:6, 12 325:19,22,23 326:2,6,9,10,18,21 327:1,11,18 334:18,19 335:13 338:1, 5,20,24 346:20 349:22

patent's 274:8

patenting 351:6

patents 302:15 307:13 348:17,20 350:14

path 248:11 250:23 251:25 258:15 262:10,24,25 263:2,21 264:2 272:13

pathways 235:6

people 317:14

perform 232:6,19 234:21,23 321:21

performed 318:7,17

performs 235:21 253:3

person 236:6 240:18 241:2 242:23 264:12 277:14 288:24 316:23 329:2, 14,25 330:13,20 331:3,10,18 332:1 333:22 340:9

petition 241:19 257:5 258:11 260:16 263:25 267:23 274:20 276:20,24 277:3,19 278:13,20 279:7,11,22 280:5,6,21 281:1,3,13 282:6,15,21,24 283:17,21 285:11,12 286:4,11 288:18,22 298:11,17,19 299:4,12,14, 17,19

petition's 241:9 260:14 298:6

petitioner 224:9 225:3 227:13 233:1 242:9,10 257:1,10 259:4 260:12,18 263:19,20 265:24 271:5,22 272:10 274:18 275:13 277:13 279:21 280:6, 11,21,25 281:18 282:4,5,25 283:5 286:13 288:19

petitioner's 244:1 274:19 296:20 297:4,25

PGR11 246:6

phone 236:22,24,25 237:2,3,19,25 274:5 336:1

photographic 257:8

phrase 250:3 314:12 329:3 335:2 336:21 337:11

physical 296:7,12 340:10

physically 291:18,20 292:20 296:3 329:16 330:22 334:1 341:6 342:22

pick 245:22 302:1

piece 321:2

place 236:15 247:24 249:17

places 232:6 274:1 296:12

placing 231:8

play 338:15,16 346:18

plug 231:5 265:3 266:19,21,23 267:2 274:5 339:24 340:4,15,19 341:6 342:25 345:7

plugged 264:8,9 265:7,8,10,12,25 266:2,12 267:4 272:1,19,24 273:8,13 274:9 291:8 292:8 339:4 340:7,22 341:9,21 342:4 343:1,18 345:6,9,11, 19

plugging 292:21 342:23

plugs 343:1

point 238:14,21 244:14 247:17 257:15 279:13 283:16 296:7 306:13, 17 307:19 338:6,25 354:11

pointed 256:6 297:1

pointing 295:11

points 246:18

POPR 337:14

port 229:18 230:7 231:20 232:2,3,9, 16,20 234:13 235:14,19,23 236:25 247:22 248:17 252:9 253:11,16,21 255:2,20 256:11 258:20,24 259:20,22 261:4 262:2,4,7,8,10,11,14 263:11, 16,23 264:6,8 265:6,8,10,13,25 266:2,12,22 267:3,4 272:1,15,19 273:14,24 278:6 287:12 291:6,8 292:21 296:4 298:14,16

portion 283:21

portions 254:4 255:25 294:23 316:3 346:7 351:10

ports 231:6 236:23 240:3 243:17,18 245:13 258:14 259:20 274:3,10 336:23 337:12,20 338:7

POSITA 243:15 266:16 275:7,25 284:1,20 285:7,17,20 286:6,17 294:1 329:9 330:3

POSITA's 298:8

positing 345:8

position 247:1 325:1,5 349:7 355:22

positions 274:19 283:15 286:12

possibly 257:23

potentially 268:20

power 269:1 285:17,21 286:2

powered 269:10 271:20

powered-down 269:3

powering 285:23

practice 324:23

practices 314:17

preferably 237:20

prepare 323:20

prepared 287:2 350:22

PRESENT 225:15

pretty 243:3 287:5

prevents 260:2

previous 249:11,15 250:20 327:8 336:9

previously 232:4 306:13

principle 261:15

printed 273:7

prior 246:25 249:25 251:19 274:21 310:3,17

priority 309:10,14 325:19 326:2,6, 18,20,25 327:5,10,17

problem 264:21,24 266:20 272:9 278:10,17 287:13

procedure 224:15 324:13

Proceed 227:21

proceeding 227:10 295:8 296:16 325:20 332:13,16,18,19 333:2 346:21,25 349:22

proceedings 324:18 332:20 333:2 347:17 348:6,17 349:9 351:24,25 356:7

process 231:3,19 232:16 236:16 237:7,22 238:11,20 239:2,9,10 240:1 243:13 248:3 289:7,11 318:1 321:19 340:8 341:18 343:17

produce 342:13 343:11

produced 224:8 341:22 342:8 344:11

producing 343:24

product 229:17 233:6 247:25 248:10 250:22 251:24 277:21 290:21 291:5, 8,9,14,21 292:21 308:1 311:24 312:3, 19 313:3,10,17,20,23 314:21,25

Microchip Ex. 1085, p. 50
Microchip v. Aptiv
IPR2024-00495

315:3,21 316:2,7 318:12,22,23 319:2, 7,8,24 320:8,11 322:2 323:1 333:17 334:10 335:22 336:6,12,23,24 337:3, 5,7 338:12 339:3,5,12 340:4 341:9, 11,21 342:5,8 343:2,5,18 344:2,4,15, 17 345:10,11

production 344:22

products 315:5,12,16 316:11,14 317:17 319:21 320:24 321:17 334:6, 14 335:10,19

properly 266:2 274:23

properties 301:14 303:21 304:6

proposal 266:6 271:5

proposed 233:1,2 242:8 247:3 258:7,16 259:6 261:23 263:3 265:21 267:1,7,18 268:17 271:19 272:9,17 276:14,19 278:25 279:19 281:3,25 283:23 296:21,22 297:4 298:1,6,11 299:24

proposing 298:7

protocol 291:3 293:9 294:7,11

protocols 290:16 292:15 294:4,19

provide 228:15 239:25 258:13 274:13 275:9 277:22 281:23 287:7 301:7 303:7,14,20 308:3 314:16

provided 254:20 255:13,24 256:4 265:15 308:3 343:19 344:2,15 345:12 346:5 347:21

providing 228:20 229:20 254:21 260:3 286:18 287:10

provisional 309:17 326:2

provisions 224:15

PRT2 231:6

published 293:7,20 310:6

pulling 297:19

purple 262:16 264:1

purpose 247:1 346:23

purposes 241:12 242:12 277:6 302:21

pursuant 224:15

put 282:19 283:12 347:13

putting 266:14 283:5,6 299:11

Q

qualifications 293:25

qualified 287:23

Queen 294:8

question 230:13,18 239:13 240:22 241:15 242:14 243:7,21 254:16 256:9,20 257:22 262:21 273:22 274:25 275:16,19 278:23 281:7,23 283:4 284:8,11,19 286:24 287:2,25 288:4 289:20 292:4 293:4 297:10,16, 23 302:19 304:13 311:15 313:15 317:7 319:5 321:9 322:12,17,22 332:8,10 334:4 336:14,24 338:11 342:25 345:15 347:15 349:5,18 352:13,24 353:14,16 355:8

questioning 267:12

questions 228:2 287:22 324:4,7 333:12,13 345:24 347:7,21 349:10,25 351:19 353:13,20 354:12

quick 305:23

R

raise 280:6,21 347:14,17

raised 241:18 242:14 275:5 279:7 280:11,25 282:4,5,10,12,23,25 283:5, 6,15,18,23 286:1,3,10,12,15,23 287:16 288:17 289:6

raising 281:14 347:18 349:4

Re-examination 226:5 333:11

reach 260:9

reached 348:19

read 230:5,17 239:7 240:4,17 245:13 247:10,15 252:7 254:15,17 284:9 294:24 295:23 296:1 306:13,17,18 326:16 328:17 335:6 336:15,17

reading 236:4,5 294:2 306:11

ready 325:10

reason 295:21 319:14 333:16

reasons 264:11,14,15 288:25 289:1

reboot 266:4 268:20,22

recall 245:15 268:17 270:16 275:21 279:19 286:4 325:18,22,25 326:1,23 327:24 328:8 332:12,15 336:25 339:15 345:23 354:3

receive 259:22

received 259:16 304:16 317:24 343:5

receives 305:12

receiving 235:17 344:21

recess 268:11 300:6 323:25

recessed 228:6

recites 228:20

recognize 236:7 286:18 341:23 343:4 344:4,17

recognized 292:15

recollection 245:8 308:19

recollections 306:21,24

record 224:16 227:3 233:18 254:17 268:10,13 284:9 297:24 300:3,5,8 308:11 312:6 321:4 322:6,20 323:20, 24 324:2 325:1,8 336:17 345:17 346:22 347:23 356:3,4,6

recross 348:16

rectangle 297:1

red 278:2

redirect 323:17,21 348:16 349:5

redline 277:2

refer 297:20 307:20 312:15 324:16 336:11 337:2,10,23

reference 243:22 250:25 271:14 297:6 332:9 333:14 339:6

references 304:22

referred 269:13 308:1 312:3,20 313:20

referring 295:6 309:7 330:7 332:6 334:8 336:22 337:14 338:4,12 346:11

refers 332:8

regular 299:1

relate 315:5

related 229:17 273:22 354:1 355:10

relating 294:3

relationship 251:1,4 252:12,17

release 313:3,10 314:1,4

relevant 267:20

relied 257:2

relies 249:22 258:11

rely 229:19 321:16

remain 260:14

remaining 231:6

remains 238:6

Microchip Ex. 1085, p. 51
Microchip v. Aptiv
IPR2024-00495

remember 245:2 246:19 249:23 264:1 267:24 268:21 270:23 292:16 294:7,9 306:14,22 309:2 317:13 349:23 350:2,4,16,24 351:11 354:4

remembered 353:5 354:20

remote 227:3

remotely 224:14

removal 292:12,20 294:14 295:14 296:3,8,9

removing 329:16 330:22

render 304:2

rendered 259:24

renders 260:17

reneging 347:3

repeat 276:16 284:8 289:20 290:3 317:7 336:14

replaced 297:5 299:20

replaces 298:1

report 229:20 246:16,22 247:5,10 278:10,18 279:24 280:2,13 281:15 283:14 285:5 287:14 300:13,15 302:9 303:7 313:22 314:14,15,17

reported 224:13

reporter 224:12 227:17,19 254:15 284:7 336:15

Reporter's 226:6

reports 315:8

represent 227:9 330:1,15

request 237:22,25

requested 254:17 284:9 336:17

requesting 236:23

requests 237:8,18,20

require 258:23 292:20

required 236:24

requirement 235:10

requirements 310:1,4,18

requires 238:8 296:3 340:10

reroute 261:4,20

reserve 323:10 355:20 356:1

reserving 324:10

reset 270:6,10,12,18

respect 244:6,21 263:15 268:5 271:6 274:17,18 275:19 281:12 283:23 286:2 301:15 302:8 304:4 314:21 315:3 341:14 350:1,5 351:12 353:15

Respectfully 233:5 287:21

respective 267:22

respond 256:25 267:21 268:3 274:23 278:13 279:20 282:17 283:13, 14 288:4 289:7

responded 246:15 283:15,20 286:12

responding 244:1 256:25 274:18 279:10 346:9

responds 344:25

response 233:12 237:22 241:9 271:8 289:10,15 342:15 343:6,13,19, 23 344:3,6,9,10,16,21,22 345:12,21

responses 237:9,18,23 238:2,9

responsive 281:7

rest 247:20 259:12

restart 269:2

result 286:25

results 301:13 303:15 304:5

return 237:22 269:6 329:1

returning 238:2 325:4 355:18

reversal 234:6

reverse-engineered 316:13 322:4, 14,25

reverted 278:8

reverts 279:15

review 230:14 273:21 274:6 308:11

reviewed 294:22 305:2,15 317:12, 14,21 319:1

reviewing 346:8

right-hand 339:18

rights 324:11

Road 225:5

Robert 225:15 227:6,20

role 234:5 337:12 338:4

roles 317:13 335:11,20 336:19,20 337:25 338:2,4,15,18,21

round 245:4

route 234:13 258:14 271:18 273:17 278:8

routed 237:1 259:8 272:2 287:11

routine 248:6

routing 236:25 239:17 243:9,23 258:23,24 273:16 274:14 275:10 315:18

rule 324:20

rules 224:15 324:13,14,15,17

running 231:25

S

S603 329:1 343:9,12 344:11,23

S605 343:9,12 345:12,22

S607 260:9 343:9,14 344:8,13,18 345:13,22

S613 328:21 345:1

S619 260:9

S625 342:20 345:1

San 225:11

satisfy 259:4,5

scenario 256:21 257:16,24 279:14 345:8

scenarios 290:16 341:1

schematic 284:24

scope 237:17 327:14,21 329:5,11,18 330:2,9,16,24 331:6,14,22 332:4,21 333:3

screen 229:11 246:2 271:11 272:5 295:2 334:19

SD 229:18

search 296:8,10,11 305:23 314:7

searching 337:9

second-to-last 251:20 252:6

secondary 300:16,20,23 301:5,8,19 302:6,9 303:4 304:3

section 228:15 240:6 242:7 244:2 247:18 253:24 254:9 283:20 295:2, 13,23 296:1 298:5 300:15,19 301:5, 22 303:25 304:11 306:12 312:8 315:3,8,24,25 316:9,16 317:20 320:6 321:25 354:14

sections 301:23 352:3,4,11

select 248:15 249:8 250:14,18 251:12 252:4 284:2,22 285:9 286:8 298:16

Microchip Ex. 1085, p. 52
Microchip v. Aptiv
IPR2024-00495

selected 269:23

selection 248:10 250:22 251:24

send 259:21

sense 266:16 294:5

sentence 247:10,21 249:11,15 250:20 251:20 252:2,6,18 253:9,13, 14,18 254:6,7,23 256:5,10 308:10 328:13,17 329:4,10 335:5,7 336:8,9, 20 337:18

separate 247:22 253:10,16 346:24

September 309:17,21 325:24 326:3, 5,18 327:1,6,9,11,18

sequence 230:8 231:20 232:10,16, 20 235:14,23 237:4,7

sequential 235:6

serial 266:22

services 238:16

session 314:22 315:2

set 237:12,13 242:8 249:22 256:15 257:1,11 259:3 260:12,18 263:19 265:23 268:4 271:5,22 272:10 274:19,21 275:13 279:5,11,21 280:4 281:3,12,18 282:21 283:24 284:2,22 285:9 286:13 288:22 327:13,20 345:12 348:12,14

setting 234:12 244:2 274:13 275:10 299:14 300:2 312:22

share 229:11 334:19

shared 294:18

sharing 245:23 271:13

sheet 284:5,15,25

short 273:21

Shorthand 224:12

show 240:14 248:14 249:7,10 250:11,12,16 251:1 252:3 259:13 278:4 284:5 285:16 296:21

showed 272:13,14

showing 228:16 251:3 252:11 254:20 273:6 276:22 277:1,7,16 296:20 299:12 301:15 302:7 304:4

shown 230:2 240:7,12 246:21 248:17,20 249:2 252:10 255:9 258:20 291:15 299:21

shows 235:16 250:9,10 251:11 253:1 254:21 264:2 277:9,11 321:22

shut 266:22

side 336:25 339:18 342:4

signal 228:20 229:1,20 230:2,12 231:16 232:12,20 233:23 234:6,16 235:10,17,21 236:7,13 239:4,7 240:14,23 241:1,7 242:3,9,19,25 243:4,8,15,21 247:24 259:16 261:4 262:17 275:8 341:16,23 342:1,13 343:11,24 344:10,23

signaling 353:9

signals 235:18 258:13,23 259:7,22 260:3,7 261:20 264:6 273:17 277:22 342:9

Signature 226:5

silly 347:15

similar 248:4 259:12 263:5 292:16 294:4,20 352:3,6,11,21 353:6 354:21

similarities 352:5

simple 265:2

simply 249:9,12 250:15 251:3,10 252:11 257:11 282:11 284:11 290:18 294:6,11 299:16 335:17 344:20

simultaneous 274:3

single 246:24

sitting 242:1 278:16 283:7 351:1

situation 265:11,24 266:3 292:25

situations 281:10 283:3 289:4 290:25

skepticism 301:16

skill 236:6 240:19 241:3 242:24 264:13 277:14 288:24 329:2,14,25 330:13,20 331:3,10,18 332:1 333:22 340:10

skilled 301:16

skip 237:5,6

slave 330:5,7 341:17,19,24 342:12 343:10

slight 353:2

slightly 269:17

smartphones 334:24 335:2,10

so-called 268:16

software 236:21

solution 308:13 318:9,19

solve 278:17 287:13

solved 307:13

sort 235:3 275:14

sounds 301:6

speak 317:1,4,11,14 325:12,15 348:22

speaking 269:21 292:14

speaks 349:2

spec 270:15,22,23 290:9,11,18,19 291:1,2,24 292:3,6,17 293:14 294:2, 16,22,23 295:1

specific 236:25 245:3 254:24 255:13,24 256:9,16 257:2 282:8 283:20 284:4,14,24,25 286:22 290:25 306:21,24 307:23 309:7 319:5 321:2 324:20 333:6 336:24 346:8 349:25 350:25 355:9

specifically 244:4 276:10 281:17 282:10 335:16 355:10

specification 229:17 236:15 239:2, 16,22 241:23 243:12 244:9,12,15,23 245:6,10 273:20 274:4 275:22 293:19 296:2 310:9,13,20,24,25 311:11,12, 13 335:25 338:1,5

specifications 293:20 294:4

specificities 271:6

specifics 273:21

spend 242:14 243:11 244:8 287:8

spent 306:25 316:7

spoken 316:20

stages 260:9

stand 288:21 347:10 348:8

standard 237:3 292:12,19,23,24 293:3 295:17 324:22

standardized 308:3

standards 293:6

standing 321:13

stands 281:9

start 258:10 263:13 282:10 307:20 352:10 353:12

started 265:9 311:23

starting 300:13 307:25 309:20 315:9

starts 272:11 298:5 300:19

state 224:12 227:8 233:18 258:5 259:23 260:6,16 261:7 265:5,6 268:16 269:1,3,7,9,11,14,19,22

Microchip Ex. 1085, p. 53
Microchip v. Aptiv
IPR2024-00495

272:11,23 278:5 279:16,18 280:17 282:1,5,9 283:9,23 286:3 326:20 342:12 343:10 344:8

stated 224:16 325:5

statement 296:6 335:12 349:7 350:3,23

statements 352:17

states 317:21,23 327:9 343:8

status 264:8

steering 277:21

stenotype 224:13

step 328:19 329:1 341:15 342:2,11, 14 344:6,11,13,18,23 345:12,13

steps 342:20 345:1

stipulate 348:4

stipulating 348:8

straight 345:17

streaming 238:16,17

strict 237:7

strike 260:24 273:1 280:14 291:19 310:6 321:10 349:17

structural 258:17

stuck 266:8,10

studied 318:3

study 316:4 318:4

Suarez 225:15 227:6 321:3 322:5

subheading 303:11

subheadings 304:10

submitting 289:8

subportion 298:10

subsection 302:11

subset 254:12

substantive 350:12

subtle 351:9 353:3

suburbs 307:1

success 301:12 303:5,8,12 304:5

successfully 272:8

suggested 321:21

Suite 225:11

summarize 258:3,6 260:22 264:18

summarized 259:17

supplemental 241:13,18 242:5,16 244:6 245:16 263:6 267:21 271:4,8 274:23 276:9 278:14 279:10 286:25 287:18 289:2,9 303:2 304:24 312:9 326:8,24 327:4,6,13,20 334:15 336:22 346:10 353:10

MICROCHIP TECHNOLOGY INC. v APTIV TECHNOLOGIES AG Henry Houh

support 229:7 237:15 239:24 272:18 274:2 297:12 299:2,13 302:4 314:9 315:24 319:1 322:1 324:15 335:11,19

supported 238:16

supporting 274:8

supports 274:7 315:25 319:20 320:7,23

suppose 273:13 279:12 291:13 320:19

Supposed 291:5

~~surprised~~ ~~324~~:23

survey 269:24

suspending 323:14

Sutcliffe 225:4 227:12

swap 261:9 265:15

swapping 274:8

swear 227:18

switch 230:7 231:20 232:9,16,20 234:13 235:14,23 254:2 261:5 262:24,25 263:2,15 265:12,20 266:1 272:6 273:16,23 274:12,14 275:8,10 291:21 342:12

switched 265:24 267:3 331:12,20 332:3

switches 243:9,23 263:12,21 272:12 290:21 315:18

switching 236:19 238:24 239:17 248:7 260:19 263:13 264:22,24 265:5 331:4 343:10

sworn 224:9 317:14

system 231:8 232:6,19,25 238:4,5,6, 8 239:25 241:3 243:16 266:4,14 268:23 270:13 284:21 335:9 341:10, 23

T

table 244:3

tablets 335:10

taking 261:12,16 266:13 269:24 302:14

talk 232:8 239:16 254:4 255:25 257:24 261:23,24 274:4 277:19 305:17 307:24 333:21 343:22 345:1

talked 254:11 275:13 281:16 316:24 337:12

talking 233:8 234:9,11 239:2 240:11 242:24 252:16 275:17 284:17 299:3, 25 311:14 333:24 339:15 340:24 342:22 345:5,6,13

talks 236:18 237:6 240:8 255:7 274:1 309:16 333:20 343:22

teach 338:5

teaches 255:8,12

teaching 256:12 272:7 333:23

Tech 312:23 314:5

technical 259:14 302:4

Technologies 227:5,16 324:6

Technology 227:4,13

Telephone 225:6,12

tells 344:7

ten 297:15 322:19

term 258:5 270:6,9 314:7 337:4,5 338:3,12

terminate 290:13,22

terminated 278:9

terminology 244:19 313:25

terms 254:13 294:20,21

testified 332:18 349:24 350:5,16 351:12

testifying 325:18,22 326:1,23 327:24 328:8 332:12,15

testimony 234:4 235:9 255:19 317:12,13,15 318:6 320:16 321:20 332:20 333:1 345:24 346:3 347:21 348:5 349:8,16,20 350:13,21,23,24 351:11,23 352:14 353:19 354:4 355:3,21

Texas 224:13

text 231:2

thing 229:6 233:7,8 245:15 256:14 290:8 350:25 355:5

things 240:2,9,10 253:25 256:6 270:10 280:5,25 281:16 283:12,13

Microchip Ex. 1085, p. 54
Microchip v. Aptiv
IPR2024-00495

287:22 288:7,25 293:9 321:18 350:20 352:2 353:25

third-party 314:9

third-to-last 252:6

thought 353:5

throwing 261:14

thrust 281:11,19 282:22

time 227:1,2 241:21,24 242:15 243:11 244:7,8 257:20 264:20 267:2 268:9,12 282:7 287:8 288:3,7,11 289:5,7,12,13,14 300:4,7 306:16 307:19 308:5 311:1 315:20 316:6 320:2,3 321:4 322:6,19 323:23 324:1 328:14,18 340:19,22 346:2,17 347:6 348:14 349:12 356:5

time's 322:10 323:7

timeline 307:24

times 257:23 296:9,10 352:2,7 353:11,12 354:20 355:8 356:2

title 295:13 300:19 305:18 314:6

titled 300:19

tjensen@orrick.com 225:7

today 228:4 242:1 257:23 278:16 283:7 287:3 306:22 324:7 325:3 348:5 355:17

top 229:25 298:18,20

topic 279:25

touched 353:25

transcript 305:15 352:8

transmission 248:11 250:23 251:25 258:15 328:18,23

transparent 238:4

trapezoid 245:5

trapezoidal 245:4

Travis 225:4 227:11

tremendous 346:17

tri-state 259:15

trial 308:11 317:12 318:6 320:16 321:20

true 335:17

turn 228:9,19 229:23 236:11 237:24 266:4,23 271:10 326:8,13 328:6

turned 269:10

two-day 348:13

type 272:24 273:9,11

typically 234:18 235:2

typographical 327:7

MICROCHIP TECHNOLOGY INC. v APTIV TECHNOLOGIES AG

U

Henry Houh

UDCUS 232:1

UI 314:9

ultimately 248:15 249:7 250:13,17 251:12 252:4

unable 260:7,11,13

unaware 324:24

underlying 234:23

underneath 307:9

understand 228:3 242:24 284:1,20 285:8,18,20 286:6 290:3 308:11 318:3,6,17 319:18 320:16 321:20 323:7 326:5,7,17 327:5 329:3,6,9,15 330:1,3,14,21 331:4,11,19 332:2 333:23 334:1 336:5,11 340:10 345:15 351:6,8

understanding 251:15 275:7,25 286:17 294:2 296:2 297:3,25 299:19 318:8,18 339:2 347:4,24,25 348:11 349:1,6 351:5 355:2

understood 338:4

unexpected 301:13,14 303:15,21 304:5,6

uniquely 287:23

unit 233:2,9 236:8,19 237:21 238:1,2,6,15 239:4 242:9 248:7,9,13,16 249:3,6,10,13,16,18 250:3,6,10,12,17,21,24 251:5,8,9,11,16,23 252:2,8,12 253:20 255:1,3,20 256:5,21 257:3,13,17,25 258:8,12,19,21 259:24 260:25 262:3,16,18 263:9,17 264:7 272:16 298:20,23 299:5,10,15 300:2

unit's 238:11

units 274:2

universe 334:13

unplug 291:18,20

unplugged 264:9 265:8

unplugging 292:21 296:4

unrelated 354:16

unsolved 301:12 307:10,12 311:17

Unwired 317:25

upstream 231:7,9,13,25 232:5 261:4

USB 229:18 230:9,16,24 231:14,21 232:6 235:15,17,18,25 236:9,19,23,24,25 237:1,2,3,8,9,11,13,14,15,16,19,24 238:4,11,14,18 239:17,18 240:2,3,10 243:9,23 244:12,21 245:12 247:25 258:23,24,25 259:1,2,5,7,8,9,22 260:14 265:10,12,15,25 266:1,11,12,18,20 267:3 270:13,19 271:1 272:1,14,19,24 273:8,9,13,16,17,24 274:6,7,13 275:10 277:21 278:6 289:17,23 290:5,13,21 291:5,21 292:3,12,19,21,23 293:22 294:14 295:1,14,16 296:1,3 298:12 315:18 316:13 330:21,22 331:4,5,11,12,19,20 332:2,3 333:16 334:5,10 335:11,19,23 336:2,3,6,12 337:7 338:21 339:24 340:4,15 341:9,11 342:5,8 343:2,4,18 344:2,4,15 345:20,21

user 231:5,9 234:13 270:2 273:13 291:18,20 308:3 328:19,25 339:24 340:4,14 341:9 342:4,21 343:1,18

user's 231:13 232:5

usual 231:8

V

vague 287:5

variations 353:2

vehicle 238:17

version 262:24

versus 227:5

viable 308:12

video 225:1 227:3 238:17

videoconference 224:14

view 238:21 323:11

virtual 342:12 343:10

VOLUME 224:5

W

walk 294:9 346:15

walked 343:8

wanted 266:21 271:13 290:18 293:9 311:10,25

waste 346:17

Microchip Ex. 1085, p. 55
Microchip v. Aptiv
IPR2024-00495

ways 247:13

web 224:14 314:12

week 289:15

Welch 246:4 249:5,17 250:9 251:19 252:14 253:3,24 254:8,21 255:23 256:8 257:10 262:17 263:20 280:21 282:16 283:6 288:20 347:14

Welch's 245:19 246:8,13,22 247:4, 10 251:2 255:7 257:5 258:18 262:2, 15 278:21 279:7,12 283:17,21 294:1 332:15,19

window 271:14

winners 306:18

word 234:8 250:3 261:12 265:9 268:22 275:21 296:9 305:18,24 329:9 337:5 345:10

words 236:1 292:17 299:24 313:22 314:7 336:1

work 233:3 258:8 265:13 266:4 281:25 285:21,22 333:17 343:17

workable 266:5

worked 279:1

working 234:20 306:2 311:12,24 313:14

workings 316:4 318:2,8,16,19,21 319:7,18

works 234:22 235:5 280:4

written 276:8 286:24 287:7,17 288:21

wrong 260:23 312:14

Y

year 309:2,4

years 306:25

yesterday 227:20 228:4,6 257:23 325:18 326:23 328:9 351:12

Z

Zoom 224:8 225:1

MICROCHIP TECHNOLOGY INC. v
APTIV TECHNOLOGIES AG

Henry Houh

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