Trials@uspto.gov
571-272-7822

Paper 53
Date: May 28, 2025

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.

IPR2024-00228 (Patent 9,619,420 B2)
IPR2024-00229 (Patent 9,645,962 B2)
IPR2024-00230(Patent 11,176,072 B2)
IPR2024-00495 (Patent 9,619,420 B2)

Record of Oral Hearing
Held: April 16, 2025

Before JEAN R. HOMERE, TERRENCE W. McMILLIN, and
JOHN D. HAMANN, Administrative Patent Judges.

APPEARANCES:

ON BEHALF OF THE PETITIONER:

TRAVIS JENSEN, ESQ.
of: Orrick, Herrington & Sutcliffe LLP
1000 Marsh Road
Menlo Park, CA 94025-1015
(650) 614-7458
tjensen@orrick.com

ON BEHALF OF THE PATENT OWNER:

ADAM BRAUSA, ESQ.
Morrison & Foerster LLP
425 Market St.
San Francisco, CA 94105-2482
(415) 268-6053 (Brausa)
abrausa@mofo.com

The above-entitled matter came on for hearing Wednesday, April 16, 2025, commencing at 1:00 p.m. EDT, at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.

P-R-O-C-E-E-D-I-N-G-S

(1:00 p.m.)

JUDGE HOMERE: Good afternoon. We are convened for consolidated oral arguments in IPR2024-00228, challenging Claims 1 through 12 and 15 through 17 of U.S. Patent No. 9,619,420 B2; IPR2024-00229, challenging Claims 1 through 19 of U.S. Patent No. 9,645,962 B2; IPR2024-00230, challenging Claims 1 of U.S. Patent No. 11,176,072 B2; and IPR2024-00495, challenging Claims 13, 14, and 18 through 20 of U.S. Patent No. 9,619,420 B2. Petitioner is Microchip Technology Inc., and Patent Owner is Aptiv Technologies AG.

I am Judge Homere, and also appearing are Judge McMillin and Judge Hamann.

Let us get started with appearances of the representatives who will be arguing today for both parties. If anyone else is attending remotely with you today but will not be speaking, please identify them as well. For example, please state if your client is attending.

We will start with appearances for Petitioner.

MR. JENSEN: Thank you, Your Honor. This is Travis Jensen, lead counsel for Microchip, the Petitioner, and with me is a client representative, Jared Crop. And we also have, attending remotely, backup counsel Jason Lang and another client representative, Jay Stewart, as well as Barbara Barath from the Debevoise Law Firm.

JUDGE HOMERE: Thank you. Now Patent Owner.

MR. BRAUSA: Good afternoon, Your Honors. Adam Brausa, lead counsel for the Patent Owner, Aptiv Technologies. I'm joined by our client

representative, Paul Margolis, and my colleagues at the Morrison & Foerster firm, Andrew Jones and Eric Weiner. Remotely joining are colleagues Bryan Blumenkopf and Mehran Arjomand.

JUDGE HOMERE: Thank you. Before we begin, we remind the parties that guidance for this hearing was provided in our oral hearing order of March 18th, 2025. Additional guidance was also provided in the order of April 11th, 2025.

As we informed the parties in the orders of March 18 and April 11, each party is given up to 90 minutes of total time for all argument.

The hearing will proceed in two portions, with the first portion being open to the public and the second portion being limited to those who may have access to the designated confidential information under the default protective order.

To that end, the parties should allocate a portion of the argument time to the second portion of the hearing, which will proceed separately with argument, response, rebuttal, and surrebuttal.

Each portion of the hearing -- for each portion of the hearing, Petitioner will proceed first to present its case as to the challenge grants of the challenge patent.

Petitioner may reserve time for rebuttal. Thereafter, Patent Owner will argue his opposition to Petitioner's case.

Patent Owner may also reserve time for surrebuttal. Absent special circumstances, Petitioner may reserve no more than half its time for rebuttal. And Patent Owner may reserve no more than half its time for surrebuttal.

We remind the parties that Petitioner has the ultimate burden of establishing unpatentability by a preponderance of the evidence. Additionally, we provide the following reminders.

First, recordings of any kind during PTAB hearings are strictly prohibited. The court reporter will provide, in due course, a full transcript of the hearing that will become part of the record in the proceedings.

To ensure that the transcript of the hearing is clear, we ask that you identify yourselves before speaking, to speak directly into the microphone, and to identify specific slide numbers, numbering figures, and any other pertinent identifying information when referring to demonstratives. Please pause a few seconds after identifying it to provide us time to find it.

Please mute yourselves when not speaking. If at any time during the proceeding you encounter any technical difficulties that you feel fundamentally undermines your ability to adequately represent your client, please let us know immediately.

Second, we have reviewed the entire record, including demonstratives, and we are prepared to deal with questions. These questions and their answers will help us to decide the issues in the case.

In the interest of fairness and due process, we must limit all consideration to the arguments and evidence already present in the record.

Please note that we are paying close attention to your arguments and carefully considering the case. If we interrupt you, I apologize in advance. But we do so to be able to ask the questions that may be essential to our resolution of the case. Or to keep the hearing on track with time.

Third, please make it clear which challenges and claims you are addressing at all times. We ask that the parties hold any objections regarding the parties' argument until it is their time to speak.

I will maintain the clock and endeavor to give each party warning as you near -- as you get near the -- your allotted time, and near the end of your reserved rebuttal time. But it will be helpful to the party to also track their time.

Finally, please be aware that during the first portion, members of the public may be listening to oral hearing. Following each portion of the hearing, please confer with the court reporter to ensure that no question regarding spelling of names are needed.

Are there any questions?

MR. JENSEN: Your Honor, I had just one point of clarification. As you mentioned when you were reading the case captions, there's a consolidated hearing. And I may have missed it. Did you also mention that this consolidated hearing will apply to the PGR 2024-00011 proceeding as well?

JUDGE HOMERE: Yes, that was part of the order of April 11th. We specified that. From what I understand, on the -- the prior art objection, the overlapping subject matter regarding all the cases that are going to be -- we're going to be hearing, it's going to be a part of this hearing, right?

MR. JENSEN: That's correct.

JUDGE HOMERE: Okay.

MR. JENSEN: Thank you.

JUDGE HOMERE: Yeah, because we're meeting tomorrow again to do, to -- yeah, for the PGR exclusively. And so any further questions?

MR. BRAUSA: No, Your Honor.

JUDGE HOMERE: Okay. All right, so now we're ready for the public portion of the hearing.

Petitioner, do you wish to reserve any time, any rebuttal time?

MR. JENSEN: Yes, Your Honor, I'd like to reserve 35 minutes for rebuttal. And I may eat into that a little bit. We'll see how --

JUDGE HOMERE: So, you have a total of 90 minutes time. So remember we have -- the 90 minutes time is for the whole -- the whole session.

So how much time for the first portion, how much time for the second portion and so on and so forth?

MR. JENSEN: Yeah, 55 minutes for the opening portion and 35 minutes for the rebuttal portion. And then --

JUDGE HOMERE: So you're not going to have any time for the non-public hearing?

MR. JENSEN: Let's make that two minutes for -- well, there's only one very limited issue for the non-public portion. I think two minutes would be sufficient for that.

JUDGE HOMERE: So 55 minutes. And rebuttal 35 minutes?

MR. JENSEN: We can do 30 -- or make it 33, and then two minutes for the confidential portion.

JUDGE HOMERE: Okay.

MR. JENSEN: Maybe just one other, I guess, housekeeping item. Are the remote judges able to see the slides? Because we did have some technical difficulties getting set up.

JUDGE HOMERE: Are the remote judges, Judge Hamann and Judge McMillin, are you able to see the slides?

JUDGE MCMILLIN: No -- yes.

JUDGE HAMANN: Just then. So whatever just occurred made that happen.

JUDGE HOMERE: Yes.

MR. JENSEN: As long as you can see them now, I think we're in good shape then. Thank you for confirming.

JUDGE HAMANN: And Counsel, we also have a copy of the slides locally, so if for some reason something goes awry, we may be following off there or you can refer us there.

MR. JENSEN: Understood. And that never happens, I'm sure, in these matters, so.

May it please the Board, we're here today in the consolidated hearing for all five -- the four IPR and one of the PGR proceedings related to common patents. And the issues I think to be discussed at a high level can be broken up into two buckets, if you will.

The first one on slide 2 is what we've labeled the cut-across issues. So these are issues that apply equally to all five proceedings. And then a second category of issues that are listed on slide 3 that apply to some, but not all, of the patents.

And given the amount of time, I'd like to focus my comments today on the cut-across issues. And I don't know if we'll even get to all of these or not, depending on the questions that the Board may have. But I'd like to start with what we've labeled here as the POSITA issues. And there are a number of different --

JUDGE MCMILLIN: Mr. Jensen, I'm sorry, this is Judge McMillin, and I'm really sorry to interrupt you before you even get started. But are Claims 18 through 20 of the '420 patent that were challenged in the 495 proceeding still at issue?

And I'll ask -- I'll tell you the reason I ask the question, is it seemed to be that your challenge was based upon a certain construction being adopted by the District Court. And the District Court didn't adopt that construction, because I think those claims were no in dispute in the District Court.

MR. JENSEN: So, Your Honor is correct that Claims 18 through 20 are not -- are no longer in dispute in the District Court. Those have been dismissed. However, in the Board's Institution Decision on the 495 proceeding, the Board instituted as to all of the claims challenged in that proceeding. And I think that's, I would say standard procedure, after the SAS decision some years ago from the Supreme Court.

So Claims 18 through 20 are still at issue in the proceeding. And I'm happy to address that in further detail if the Court would like. We call that the scrivener's error.

The short of it is that the Board instituted on the basis of some other claims, I could pull up the numbers -- it might be Claims 12 or 13 -- where

the district court and the Board independently found that there was a scrivener's error in the claim, and you know, adopted the correction. The Board never reached the Claim 18 issue as to whether there was, you know, any type of scrivener's error in that.

And Petitioner's position is that, you know, while we didn't think there was a scrivener's error in, you know, Claims 12 and 13, to the extent there was a scrivener's error in those claims, the same reasoning and logic would apply to Claims 18 and 20.

And the Board certainly has the authority to correct those claims. And under the Fitbit Federal Circuit decision, the Board should conduct that analysis. And the Board has the arguments of the parties on the merits in terms of whether there is a scrivener's error or not.

JUDGE MCMILLIN: I don't mean to question what you just said, but is that a long way of saying 18 to 20 are still at issue?

MR. JENSEN: Yes, it is.

JUDGE MCMILLIN: Okay, thank you.

MR. JENSEN: So, returning to the POSITA issues, and this starts on slide 6, the primary dispute is whether a POSITA would have USB experience and familiarity with the USB specifications.

Petitioner's definition expressly calls out those requirements or qualifications. The Patent Owner's definition does not. Although I think over the course of the proceeding, that may have evolved a little bit. Which brings up the second bullet point, which is that Petitioner should win, prevail under either party's definition of a POSITA, especially as Patent Owner's

definition sort of progressed and developed through the testimony of their expert, Dr. Houh, at his deposition.

There's a related issue. This is a motion to exclude Dr. Houh's testimony on a similar basis for not qualifying as a POSITA and not applying the correct definition of a POSITA.

All of those issues aside, right, the last bullet point here addresses a separate consideration, which is, even if that testimony is not excluded, that it should be given little or no weight for a variety of reasons that we'll get into.

To begin --

JUDGE MCMILLIN: Mr. Jensen?

MR. JENSEN: Yes.

JUDGE MCMILLIN: Mr. Jensen, I'm sorry for interrupting you again. Judge McMillin again. Your definition of POSITA, of a person of ordinary skill in the art, includes a reference --well, let me -- let me not try to do anything but read it.

A POSITA, at the time of the alleged invention, would have been well-versed in USB standards, including USB 2.0 and 3.0 specifications and the OTG supplement, and the design deployment of USB hosts, USB devices, and USB hubs including suitable environments for USB systems.

And it goes on -- thank you very much for putting that up.

That is the section in the petition, and your argument to the extent it exists in the petition as to level of skill in the art consists of two paragraphs, the paragraph you've got on the screen and another paragraph that talks

about how much education and experience they might have. There you go, second paragraph.

And the only other one cited is the Welch, the declaration of Mr. Welch. Is it necessary for us, first of all, to decide this POSITA issue to the extent such an issue exists?

MR. JENSEN: So I think it does make a difference. For example, if the Board were to adopt Petitioner's definition, then they should exclude the testimony of Dr. Houh. We filed a motion to exclude because he is not qualified as a POSITA under this definition.

So I think it is appropriate to evaluate what is the level of skill in the art. And I would say taking into consideration, you know, the Welch testimony as well that's cited. But also the discussion in the technology background section of the petition that elaborates more on, you know, what is the USB standard, what are the, you know, fundamental concepts, a hub, a host, a device, et cetera.

Where those principles are elaborated on in more detail, I don't think it should, per se, cabin the definition to look only at what is under the exact heading titled POSITA.

While I think that's sufficient, I think the POSITA question should be addressed more holistically as a whole, in view of – as the Board's institution decisions decided, I think it was the Okajima case that says, you know, the prior art itself can reflect the level of skill in the art.

And if we look at the primary, you know, prior art references that are at issue here, Chang and Chang II, you know, both of those discuss the USB

standards. Chang II in particular has extensive discussion that expressly adopts and adheres to the USB standards.

Not to mention the patents and the claims themselves. If we look at, for example, and I just happen to have Claim 1 of the '420 patent on slide 8, the claimed subject matter is all about USB.

The preamble begins, a universal serial bus USB hub module. And it goes on from there. It talks about ports and hubs and bridges. But not just ports and hubs and bridges and switches, USB ports, USB hubs, USB switches, et cetera.

JUDGE HAMANN: Counsel, this is Judge Hamann. And I'm glad this slide, which I believe is slide 8, Claim 1 here is opposite. I'm trying to get an understanding of what Petitioner means by designing USB systems. And let me try to maybe take this in pieces.

I think Petitioner would agree that a port and switch and a bridge, for example, are general networking concepts in and of themselves. Would that be fair?

MR. JENSEN: I think that's fair.

JUDGE HAMANN: And so I'm trying to understand, you know, yes, USB is listed here in front of all them and repetitively, but to a certain extent, how much knowledge, other than that it is a USB, is really required of someone of ordinary skill?

And what I mean by that, for example, is, you buy a laptop, for example. It'll tell you how many USB ports it comes with, how many display ports. And you can buy a hub, for example, an external USB hub. And it's not, you know, people might buy those because they need more

USB ports in their laptop, yeah. But they don't necessarily know how many, you know, the USB standards.

It seems to me that USB just as a continued identifier for these, you know, hosts or ports or bridges. You know, these actual other devices, it's more just a -- for consistency. So that they all -- they're using the same standard.

I'm not so certain, you know, what level of knowledge is actually required in of USB itself, other than just that it is a USB device or port or hub or whatnot.

MR. JENSEN: Yeah, and I --

JUDGE HAMANN: What would -- and again, what would Petitioner's comments be on those thoughts?

MR. JENSEN: I think the distinction lies in what you've described is I'll say sort of, you know, consumer-facing familiarity with USB. They know, I'll say, the form factor of a USB port. If you know, you pull out a plug, you can see how I'd recognize that shape, that's a USB plug.

That's all fine and good, but the person of ordinary skill in the art goes a step beyond that and is someone, you know, as we have outlined, who has experience designing USB systems.

And let me give you a specific example of that. If we look at the USB standard itself, this is on slide 16. This is from the USB 3.0 standard, and at page 29, which is part of the introductory remarks.

And you can see, I'll focus on the bottom part of that. It says, product developers, which I would submit is sort of proxy for a POSITA, product

developers understand the infrastructure and interfaces necessary to build a successful product.

Not just plug one in, you know, a USB thumb drive, and use it. But to actually develop and design these products themselves.

JUDGE HAMANN: Counsel, if you can go back to slide 8, Claim 1. I'm trying to get that understanding from the claim itself, for example. What, if anything, about this claim required -- you know, to me. this is largely the same claim that USB has struck everywhere and maybe just -- maybe just the stuff for the premium holders, the USB module.

I don't know how knowledge, underlying knowledge, of USB standards or design therefore sort of differentiates. Obviously, there's the host and device concepts, but I'm just trying to understand what level of USB knowledge is really required when you say for the design.

MR. JENSEN: So let me give you maybe two or three specific examples that will help inform that.

One is, for example, a USB hub that supports what's called persistence. In other words, you can have two USB devices plugged into a hub at a given time and they both work.

So if you have like, an old desktop computer and you would plug in your keyboard into the USB port and you'd plug in your mouse, both of those -- both of those devices would work simultaneously and be able to communicate. And a POSITA would understand that because of the USB hub definition and the standard that explains what a USB hub is.

And, in particular, that if you unplug one of those devices or plug something else in, it does not disconnect any other port. That wouldn't be a very, I submit, a very useful construct to begin with.

But that level of knowledge is an example of, you know, how does a hub operate. What is the concept of persistence in the context of USB. That that is a sort of a baseline platform on which you would develop further, you know, modifications to a hub.

JUDGE HAMANN: But Mr. Jensen, wouldn't anybody who's ever used a laptop or a USB hub have that same knowledge? It's just like, do it.

That seems, like I said, the knowledge required seems, of USB, at least for this Claim 1 here, to assert at a high level, so to speak, I don't think someone would certainly know the individual voltages, or any of the -- well, needs, of the USB standard.

So, that's what I'm trying to understand, where, at what level does one of ordinary skill need to have knowledge of USB standard or USB in general.

MR. JENSEN: So let me calibrate that, because I think that's a fair point. Even from a consumer-facing experience you would know you can plug in multiple things and they, you know, they still work, right?

Another example is in the context of dynamic switching, right? So the concepts of what the USB spec calls attachment and removal, right?

And those concepts refer to essentially establishing a connection, that's attachment, and removal, which is disconnecting a data path. Those do not require a physical removal of a USB product, like unplugging it and replugging it in.

Somebody who is just a user may not understand that. They may not realize that you can switch between a host and device or between a device and a host without unplugging the USB product. That the USB standard doesn't care about physically removing or unplugging something to perform that switch.

And that becomes important later on with respect to some of the claim elements.

JUDGE HAMANN: Thank you.

MR. JENSEN: And let me just connect one other point that you had brought up, which is well, if somebody had experience with, you know, another networking protocol, for example, wireless, right? Wireless doesn't have anything to do with plugging or unplugging anything.

And so the fact that an engineer may have worked on wireless does not necessarily, you know, translate or transfer over to somebody who is familiar, or as we say, well-versed with the USB standards.

And we're not suggesting, Your Honor, that a POSITA would need to know, you know, specific voltage levels or precise timing requirements. Those are details that could be referenced as needed But at a higher level, sort of, you know, these I'll say, you know, fundamental USB concepts.

JUDGE HAMANN: And you say when this, if I'm understanding, you said wireless means something like Wi-Fi, is the standard?

MR. JENSEN: Like a Wi-Fi or Bluetooth, yeah, that wouldn't provide a POSITA with any information about, you know, the attachment and removal processes that are applicable specifically to USB. And there's, you know, the components we talk about later on, like the USB, you know,

routing switch. We point to USB muxes and you know, crossbars, et cetera. And, you know, a multiplex or a crossbar is a general, you know, I'll say, engineering concept or networking concept.

But the fact that those devices are sort of tailor-made for USB, and comply with the USB standard and you know, implement the appropriate data rate transfers and voltage levels, et cetera, go to the expectation of success that a POSITA would have in, you know, assembling these components that they would actually work as you would expect.

So it is, I think, you know, the standards, the compliance with the standards, the existence of the standard does play a role in the analysis.

JUDGE HAMANN: Thank you.

JUDGE HOMERE: So, Counselor, is it your position that someone who has a PhD, for instance, in electrical engineering, was able to understand, you know, fully understand what's disclosed in the invention and was able to ascertain all the end frequencies of these inventions here, would not qualify the procedure because that person has no experience in USB specifically? Is that your position?

MR. JENSEN: Under our definition, that's correct, Your Honor, that someone with a PhD in, I say, engineering or electrical engineering, does not necessarily imply any knowledge of USB.

JUDGE HOMERE: But what about someone who -- a professor who teaches about, you know, courses in networking and you know, protocols and everything, including USB, although that person may not have actually worked with USB.

MR. JENSEN: I think the key word you said there is including USB. Certainly if they have some USB knowledge and experience, they've taught USB --

JUDGE HOMERE: Would you not believe that as a professor at the university, PhD? I mean, if you're teaching about protocol in USB, it would be one of the topics that you would touch on.

MR. JENSEN: In my experience, typically professors and academic institutions shy away from teaching specific protocols or standards. They try to teach more general concepts, engineering concepts, because they don't want to be biased or limited, if you will, to any particular protocol. So I think it would be the exception rather than the rule that, you know, somebody would learn USB specifics.

Certainly, as Dr. Houh testified and we look at his testimony, there's two things I think relevant that he says to your question. One is that, you know, someone with those qualifications would be able to easily reference the standards and the documents and understand them and look things up, you know, if they had a question.

And we don't disagree with that, and I think that you know, that kind of dovetails with this idea that even under their, Patent Owner's definition, we would still prevail because they have explained yes, okay, of course somebody would know concepts of bridging and hubs, et cetera. But, more than that, that they would be able to simply reference the USB standards for any particular question.

But given that our definition, and there's some case law we cite in our slides that supports this, where specific USB experience is required, if

somebody doesn't have that and doesn't do it, they do not qualify as a POSITA. We said you have to have several years of experience actually, you know, designing USB systems.

Again, I come back to this idea that it may be much ado about nothing, given the admissions that their expert made that, you know, even under their level of skill in the art, somebody would either notice or so easily be able to look it up that it's tantamount to knowing it.

Let me --

JUDGE MCMILLIN: Mr. Jensen?

MR. JENSEN: Yes.

JUDGE MCMILLIN: If I can follow up on that. In the Patent Owner's response, it says, Petitioner's definition lacks evidentiary support, relying only on conclusory statements from its expert.

I have looked at your two paragraph definition of level of ordinary skill in the art that is in the petition, and I think that Patent Owner's argument may have validity.

That your proposed definition of a POSITA lacks evidentiary support. Why isn't that true?

MR. JENSEN: So Your Honor, as I mentioned earlier, I think you have to look at beyond just, I'll say, the heading itself. It would be, I think, unfair to limit the POSITA analysis to only the specific paragraphs mentioned under that heading in the petition.

But, I think the more fundamental answer is, in the Board's institution decision, I think all of them discuss the level of skill in the art and said well, we don't really have to decide that here. We're going to apply the Patent

Owner's. But the parties are free to develop this issue further in the proceeding.

And that's exactly what Petitioner did. We didn't know exactly what they were going to say about the level of skill in the art when we filed our petition.

Once they came in with what at least facially appeared like the lower level of skill in the art, which I think developed and advanced through the course of proceeding, when we submitted our reply brief, we did provide, you know, additional evidence, including based on the -- if I'm saying that, Okajima case. But it invites an analysis of the prior references themselves.

And I can direct you, Your Honor, to, if you're in the 228 proceeding, our reply brief. I'll share that on the screen here so you can see that. To page 2, pages 2 through 4, where we walk through some of the evidence we've seen in the slides in terms of the patent itself, right.

And there's a passage right in the specification of the patent that says hey, a bunch of this stuff is all known in the USB standards and we're not going to go through it in detail.

And then the Chang and Chang II references, both of which, you know, reference the standards, adhere to them, adopt them.

And then the USB standard itself, which says anybody who builds these systems is going to know the interfaces, et cetera, necessary to do that. That that is certainly substantial evidence of what the level of ordinary skill in the art should be.

And that it's -- there's a presumed knowledge of the USB standards. And that's like the table stakes that you build on from there.

JUDGE HOMERE: Counselor, you have 30 minutes remaining. I think that you probably have all the things that you want to already -- topics that you want to address --

MR. JENSEN: Yes, I don't want to -- I appreciate the --

JUDGE HOMERE: Okay, let's, yeah, I think we need to move on at this point.

MR. JENSEN: Let's jump to the combination. So the patent itself, right, has got a host path and a device path in figure 4.

On slide 35, we outline what the combinations are, right. And we included this because, you know, there's five proceedings, but there's really not very many combinations and they all rely on Chang and Chang II. And that's what I want to focus on in my remaining time, is that particular combination.

Right, Chang is a USB hub with a bridge. It has dedicated host and device ports. Chang II, right, has a dual role port. This is shown on slide 37, the second connection interface in Chang figure 1 supports both hosts and devices.

In support of being able to do that, on slide 38 we see Chang figure 5 has a Detection Unit 134, and that's for detecting whether a host or a device is connected on the downstream port.

And that's important because it will control the switching between a host-to-host connection path, as shown on slide 39, and a host-to-device connection path shown on slide 40. And that's also what Chang calls a bypass path.

And that's really the main teaching of Chang II, is you have a dual role port with a bridge that creates a host-to-host path and a bypass for a host-to-device path.

If we -- when we combine these, and I say combine, really when we modify Chang in view of the teachings of Chang II, right, we take the existing or dedicated, you know, host and device paths, apply the dual, kind of dual role port and alternative host-to-host and host-to-device paths, which is the main feature.

That's what Chang II on slide 45, that's paragraph 21. Chang II, that calls, it's the main feature of that reference, are these alternative paths.

When we apply those teachings to Chang I, we end up with the two combinations shown on slide 49. One is the, what we call the mux combination, the other is the crossbar combination.

And the mux and the crossbar, those come from the commercially available components that we describe, I think, in some detail in the papers in the petition, these USB muxes and switching components.

JUDGE HOMERE: But let's be clear, Counselor. Chang II does not particularly disclose a mux, does it?

MR. JENSEN: Chang II does not expressly disclose a multiplexer, that is correct. However --

JUDGE HOMERE: Why bring that here? I mean, why not rely on Chang II?

Because I think that the mechanism, you know, allows to switch within the two paths, doesn't it?

MR. JENSEN: Yes, it does.

JUDGE HOMERE: So why bring the mux in?

MR. JENSEN: So they're both -- so Chang II describes switching. And in fact, their expert, Dr. Houh, at his deposition testified that Chang II discloses a switch.

I'm happy to -- that's at Exhibit, let me just show you that here. That's Exhibit 1084, I think pages 205 and 206.

Right, let me start with 205. So Dr. Houh, their own expert, says Chang II is already referencing that there's a switch.

Advance a little bit to page 206. So it's clear that there's a switch that switches between those two paths.

JUDGE HOMERE: Okay.

MR. JENSEN: So I don't think there's a dispute that a POSITA reading Chang II would understand that that switching that's described there is being accomplished via some type of a switch.

JUDGE HOMERE: Okay --

MR. JENSEN: And the multiplexer --

JUDGE HOMERE: So but why did you begin with the mux then? Why use the mux?

MR. JENSEN: The multiplexer is a quintessential switch. It's perhaps the most basic type of switch there is in the engineering context.

JUDGE HOMERE: No, I understand that. But I'm trying -- for the purpose of the claim, because the claim does not recite a multiplexer.

MR. JENSEN: The claim does not recite a multiplexer --

JUDGE HOMERE: Yeah, but all of the sudden, yeah, the Petitioner is bringing in a multiplexer where you know, Chang II already has a multiplexer -- already has a switch in there.

So it seems to me, you know, it's somewhat redundant to, you know -- or cumulative, to say hey, to bring in --

MR. JENSEN: Well, that's one of their arguments is --

JUDGE HOMERE: -- a multiplexer here.

MR. JENSEN: -- that it's cumulative. And to be clear Chang -- Chang, just, I'll call it Chang I, right, does not have a switch, right.

Chang II discloses that there is switching that is being done. There is some kind of switch being used.

JUDGE HOMERE: Yes.

MR. JENSEN: And given the commercial availability and how common these types of USB multiplexers and crossbars were, it was a natural thing to use, right.

Did we have to use that exact component? No, the claim only says a routing switch. We could have used some other type of switch.

But because the multiplexers, for example, were so readily available and commonly known, you know, commercial products, you just buy them off the shelf, that that was a natural, easy, and obvious component to use to accomplish the switching function.

JUDGE HOMERE: Now, focusing on the switch that's disclosed in Chang II, are you able to ascertain what type of switch that is? Or does the claim even require a particular type of switch?

MR. JENSEN: The claim does not -- I mean, the claim recites a routing switch or I think sometimes some claims might call it a routing logic circuit, which we submit is a very generic -- a generic term. And --

JUDGE HOMERE: But would that be met with the switch that's taught by Chang II?

MR. JENSEN: Oh, yeah, I think it absolutely would be, right, and --

JUDGE HOMERE: You know, why not stop there? Why go to beyond that and bring in?

MR. JENSEN: I suppose went the extra mile, you could say. I agree that perhaps it wasn't necessary to provide all of the detail that we did. Including, for example, we'll get to this in a minute, the, like the signal detection circuit.

The patent doesn't say anything at all about a signal detection circuit. Completely silent, right. But we thought it appropriate to describe what that is, how it functions, where it could be placed, how it works, et cetera.

And sort of going, I'll say maybe above and beyond a little bit what we had -- we had to do.

So I think that's the short answer to Your Honor's question is no, the claims do not require any particular, you know, mux or crossbar.

I think the specification does refer to multiplexing switches at one point. So I don't think there should be any dispute or question that a USB multiplexer is an example of a, you know, routing logic switch.

Let me just touch briefly here on motivation to combine. So that's what the combination is, right, that's what we looked at. Why would somebody want to do this, okay.

And I'll highlight four reasons here. There's other ones in our papers.

But the first is something that the patent itself admits, which is it was a proliferation or an explosion of these dual role, dual mode devices, particularly smartphones, although not limited just to those. There were tablets and other things as well.

So those had really come on the scene by the priority date here in 2013.

Taking the -- going to the next bullet here, you know, as a matter of convenience and practicality, we probably all experience the frustration of plugging something into a port and it doesn't work.

And that's just a, I'll say a basic kind of market-driven motivation that it's impractical and inconvenient at a minimum for, you know, consumers and users to keep track of, you know, what type of USB product do I have. Is it a host, is it a device.

Or if it's a dual mode product, is it in host mode, is it in device mode. And what type of port, right, or what type of host or device port is this. Does it support just the host, just the device, or both?

That to overcome that user frustration and hassle, et cetera, that it would be natural, a POSITA would be motivated to provide dual role ports so the user doesn't have to keep track of those things or get frustrated when they plug their phone in and it doesn't seem to be working.

The third point is cost, right. We cite the Castleberry reference, which expressly addresses this. It talks about some of the cost savings that can be achieved through, you know, reducing the number of ports.

If you have a dedicated host and device port, if you can collapse those into a single dual mode port, there could be some cost savings that would be achieved by doing that.

And then you know, last but not least is compatibility, right. By making a dual mode port, anybody who already had an existing USB product, maybe it was a dedicated USB device or a dedicated USB host, it would be backwards compatible with all of those USB products, the dual-mode, dual-role port would be.

So there's, I think, really a litany of real-world, real-life, you know, motivations. And we cite, you know, the Castleberry and other references that talk about some of the benefits that are achieved that would motivate a POSITA to do this.

JUDGE HOMERE: So Counselor, while Chang I uses a dedicated port, now Chang II is directed to using a flexible or dual port. Would the combination render Chang I inoperable for its intended purpose?

MR. JENSEN: Absolutely not, Your Honor. And maybe just by way of follow-up, are you referring to the Patent Owner's dead-end argument or just more generally?

JUDGE HOMERE: Go ahead.

MR. JENSEN: So let me answer that question more generally, and I'll save maybe for rebuttal until we've heard for them on the dead-end point, right.

But Chang already had dedicated host and device ports. And it supported, you know, four devices. I think it had four originally. We do

reduce that down to -- down to three when we combine, you know one of the ports.

But nothing about Chang itself, I'll say, fundamentally in terms of the devices or hosts that you plug in has changed, other than it now supports both, you know, depending on whether it's the mux version and it has one dual role port or the crossbar version that has three dual role ports.

Everything continues to operate as intended. And what I would submit to Your Honor is this. A conventional USB hub supports, you know, however many devices, call it four.

And that's the whole point of having the hub, is you can plug in a bunch of things together all at once and they work.

What would be odd is to take that existing functionality that exists in Chang's conventional hub and when they add the bridge to it, when Chang adds the bridge, that doesn't change anything about the fundamental operation of the hub and its ability to support, you know, four different USB products at once.

It would be odd to take that existing functionality when you're modifying Chang to improve it, to somehow get rid of, you know, the ability to have simultaneous support for those devices.

You start with the USB standard in mind, and that's the design construct that Mr. Welch talks about at length in his declaration and in his deposition.

Compliance with the USB standard, the ability to support multiple devices at once for a hub is not something that comes as an afterthought.

You don't design this system and then think at the end, oh my gosh, let me check and see if this works with USB and if it still has the basic core functions of a hub.

It's the other way around, and that goes back to this notion of kind of a POSITA and would they -- what would they know. Would they have some basic fundamental knowledge base on which they're building.

And that's why we submit, for example, that they would. But Chang absolutely works completely fine with the addition of, you know, a mux or a crossbar.

Nothing about that has changed and we have, you know, the detection unit is in there, which helps support that and figure out, you know, what is plugged in. Is it a host, is it a device and do we need to toggle the mux to the other lane, right, to do that connection.

JUDGE MCMILLIN: Mr. Travis, this is Judge McMillin. You just mentioned the detection unit.

Does your combination require including a detection unit based upon the teachings of Chang II?

MR. JENSEN: Yes, Your Honor, it does. And let me direct your attention to slide 80 in our deck, where we --

JUDGE MCMILLIN: Let me get you -- let me first ask so you know where I'm going with this, where in your combination is there a detection unit that detects whether the consumer device is operating in a host mode or a device mode?

MR. JENSEN: So let me direct Your Honor's attention to slide 86. And this is an image of the combination. Actually we have, there's two flavors here, the Hub-40 and Hub-46.

But if we just look at the Hub-40 version, this is from page 49, which is the motivation-to-combine section of -- this is the PGR.

And we illustrate the detection unit as part of the combination right there in the figure. I don't think there's any doubt or any dispute or certainly there shouldn't be that the detection unit is part of our combination.

We talked in the tech background section about host device detection. Mr. Welch in his opening declaration and again in his reply declaration provides, you know, further additional details about the detection unit, including specific locations where it can be placed.

In the IPRs, because none of those claims actually recite a signal detection circuit, we didn't expressly illustrate the detection unit it the petition.

We discussed it in words, but we didn't have this exact figure, although we put it in the PGR because the claims of the PGR expressly recite the signal detection circuit.

And that's why you don't see it in the figures. But it's certainly there, right.

Just like the power, right. We don't show a power source or a power cable. Why not? Well, a POSITA would know it's there.

And we do talk about the detection unit and host device detection in some detail. And Chang II expressly discloses a detection unit.

This isn't something that, you know, we're just waving our hands and saying the POSITA. The actual reference itself discloses a signal detection unit.

JUDGE HOMERE: Counselor, wouldn't the same argument be applied to the routing logic unit of the patent here in that besides detection, you know, some kind of detection being done and everything?

So wouldn't a POSITA construe from there or ascertain from that that there's some kind of detection unit that's actually performing the detection? Because the claim actually recites, a place in the PGR recites detection.

MR. JENSEN: Well, and yeah, certainly that's correct. The PGR expressly includes as a claim element a signal detection circuit.

And I would submit, even if you infer, let's say from the IPR claims that even though it doesn't say a signal detection circuit, that a POSITA would understand that if you have routing logic, et cetera, that you would want one to be there.

I think that reinforces our argument. And it's consistent with, I'll say the patents themselves, right.

Which if you look at the specification of Aptiv patents, there is zero disclosure of a signal detection circuit. You can search high and low, it's not there.

And the reason for that is because this was something that was so well known. It's rudimentary, it's fundamental, this concept of host device detection -- that's not what, you know, that's not a point of novelty.

It's something that's, I say, I don't want to say taken for granted, because we did go to the trouble to explain it and include it and Chang II discloses it.

But it would create a real double standard if the Board were to say well, hey look, their patent doesn't say anything about it but the prior art, you know, needs to disclose it in more detail.

And the prior art does, but if you look at our combination and say well, why wasn't it illustrated in, you know, the figure in the IPR, right, I think that's creating a double standard.

And certainly we specifically reference our expert's declaration in paragraphs 192 and 193.

JUDGE HOMERE: I'm a little bit confused here. But you know, with this argument here.

So what are you saying here regarding the detection circuit, the signal detection circuit? Are you saying, are you suggesting that, well hey, because one of skill in the art would understand that if you have a routing logic circuit, you already have -- you got to have a detection circuit in there.

Therefore it doesn't need to be explicitly disclosed in the prior art.

MR. JENSEN: I think that's fair to say, but we didn't even have to go that far, because the prior art does disclose a signal detection circuit in Chang II. So we didn't have to fall back on, I'll say maybe an inherency argument, right.

JUDGE HOMERE: Okay.

MR. JENSEN: But I think that argument is perfectly sound. I think that is correct, that is right.

JUDGE HOMERE: So I don't want to – I don't want to get ahead of myself, but from a written description standpoint, I mean I know that, you know, it's not within the purview of this hearing today. But this is all linked together anyway.

So we did not confront of a written description perspective, that would not be an issue because of the fact that one of skill in the art would understand that well, hey, routing -- a routing circuit includes, inherently, includes a detection circuit in that.

Is that you admission here?

MR. JENSEN: I think that's fair to say, although I'll make it even easier for Your Honor.

We can look at Dr. Houh's, which is their expert's own testimony from his POPR declaration.

And this is on slide 93, where for example he says, it would be natural to implement a routing switch that includes the signal detection circuit, which I think is more or less what Your Honor is saying.

And he goes on to say, There is no reason to think that known detection circuits could not be included in a routing switch. As a practical matter, it would be easy to implement either configuration.

JUDGE HOMERE: But with all due respect, Counselor, isn't that the entire basis of the -- I know that it's not part of this hearing.

Isn't that the entire, you know, basis for the written description rejection in -- challenge in the PGR?

MR. JENSEN: This testimony was given in the context of the PGR in the POPR, but we did cite it in our reply brief and I was --

JUDGE HOMERE: Because essentially what you're saying here, this one is saying here, I mean there's no basis for this written description challenge, if you're admitting this.

MR. JENSEN: So we'll get, I think we'll get to that tomorrow.

JUDGE HOMERE: Okay. Yeah.

MR. JENSEN: I think there's a nuance there that explains what may facially appear to be an inconsistency.

But for purposes of the prior art, this is their own expert. You might have thought this would be our expert saying these things.

This is their own expert testifying, right, that the routing logic circuit signal detection, this is all easy. It's a design choice, the implementation is no problem.

You can put it in the routing switch. All of these are easy and would be obvious and known to a POSITA.

JUDGE HOMERE: Yeah, no but I think the only point I wanted to make here is that you know, the argument you're making here, you know, as you're saying that well, Patent Owner cannot have it both ways.

I don't think that Petitioner can either. Because if on the one hand you're saying that well, the prior art has it and then you know, it's already in the prior art.

And then on the flip side you say, now why it's not disclosed. Then we have a problem, a written description problem, and which we'll get to tomorrow. But you know, I just wanted to --

MR. JENSEN: I'd be happy to address that tomorrow --

JUDGE HOMERE: No, no, no. To make that of record --

MR. JENSEN: Divert from my limited time --

JUDGE HOMERE: We can proceed. We can proceed here.

MR. JENSEN: -- limited time here.

But the bottom line is on this point, I don't think you have to even reach some of the questions that you're asking in view of the admissions of their own expert.

And if you go and look at the testimony our expert gave, you will not find, sort of, contrary testimony like you do here, right.

The argument is more nuanced that we make. It has to do with, you know, when you're talking about indefiniteness, the outer bounds of the claim, et cetera, not things that are really undisputedly within the scope of the claim.

JUDGE MCMILLIN: Mr. Jensen, this is Judge McMillin again. I'm sorry to interrupt you. But you said that the claims in these IPRs do not specifically recite a detection unit.

Do you have Claim 3 or Claim 9 from the '420 patent?

MR. JENSEN: I can certainly pull that up, Your Honor.

And to be clear, the 643 patent does recite a signal detection circuit.

JUDGE MCMILLIN: My only point is those claims, Claim 3 of the '420 says, the USB hub module according to Claim 1, wherein the USB hub module is configured to recognize whether the consumer device connected to the USB or -- is in the USB host mode or the USB device mode and control the routing switch accordingly.

Isn't that a recitation of a detection unit?

MR. JENSEN: I think that certainly includes a signal detection circuit.

I would submit, however, Your Honor, in view of the specification disclosure of how the head end operates and how the head end can, you know, make some sort of a determination as to whether a host or a device is detected, that that you know, is something that is slightly different. It's not an exact one-to-one correspondence.

But I would certainly agree that a signal detection circuit would be within, you know, within the scope of Claim 3.

And we do talk about that, if you look at the analysis for Claim 3 and, you know, per their own expert's testimony and their positions taken in district court, you know, they admit that the routing switch, for example, which is part of the hub module, right, would have a signal detection circuit.

So I think it's an easy -- I think it's an easy answer.

JUDGE MCMILLIN: Thank you. Sorry for interrupting you.

JUDGE HAMANN: Counsel, this is Judge Hamann. You say the routing switch is part of the hub. Are you talking about the Chang Hub-40 implementation, right?

MR. JENSEN: Let me go to one of the slides that has that. Sorry, could you ask your question again? I'm on slide 86.

JUDGE HAMANN: Yes, thank you for that. I'm just trying to understand what you said that follows on before. I wasn't exactly certain, but I think you said something about the routing switch being part of the hub implementation.

I didn't know if you meant that'd be part of the hub itself or is some necessary component --

MR. JENSEN: No, if I said just hub, I misspoke. I meant hub module.

With a hub module, I think is the preamble for the claim, and that's kind of the entirety of all of the components together.

You're correct that the hub, the hub itself, as we've shown in slide 86, which is in blue, does not include, you know, a mux or a routing switch. It's the hub module that would include all of those components.

JUDGE HAMANN: Thank you.

MR. JENSEN: So in the remaining time that I have here, I wanted to just touch on some secondary considerations issues. And this is, I think, starting at slide 158.

And for the most part, I'd like to hear what they have to say on this, because I think this is really their story line and address the details in rebuttal. But I thought it might be useful to at least hit a few of the high points in the opening.

And the first is, and I'd like to start with something that I think is undisputed. There are certain secondary considerations that aren't even at issue. They don't allege them.

Those include, you know, licensing or commercial acquiescence, unexpected results. On that point, it's almost the opposite. Everything is exactly expected.

The bridge does exactly what it's supposed to do. The multiplexer, you know, routes. It does exactly what it's supposed to do. So there's no allegation of unexpected results.

For the secondary considerations that Aptiv, you know, does argue, even if those had any merit, and we submit they do not, but even if you were to take those into account, that does not counterbalance the strong showing of obviousness that we have put forward.

So in the balance, I think it's not even a close call that the claims are obvious.

The third thing I'd like to touch on is that, you know, Aptiv has a real nexus issue here. And they only assert nexus in the first instance for, I'll say, a small minority of the claims. And we can look at an example in one of the petitions.

But even when they do that, they've got a real incorporation by reference problem.

And maybe to just show an example, we can go to the --

JUDGE HOMERE: Counsel, you have four minutes remaining.

MR. JENSEN: Thank you for that, yes.

Let's look at -- this is the 229 proceeding on the '962 patent. This is the Patent Owner's response.

So if we jump down to the very, very end of that, we'll get to, and this is the last sentence before the conclusion is where they assert nexus.

And first here, they assert it only as to two claims. But what you don't find here is any sort of a claim chart or claim mapping.. What they do is they cite to their expert's declaration at paragraph 155, which is something

like a 22-page claim chart. And that is, you know, textbook incorporation by reference.

So I think that's yet another reason why the secondary considerations just kind of, you know, fall apart at the get-go. They don't get across the start line.

They only assert certain ones. For the ones they assert, it's only for a limited number of claims. Even for those claims, nexus is an afterthought that shows up only in their expert declaration.

And then if we get to just, very briefly, kind of the individual secondary considerations, there's, you know what is it, industry praise?

They cite an award that nobody's ever heard of from a non-USB organization that they self-nominated for and wined and dined the judges.

If we go to commercial success, right, look, they got -- they admit they got an early head start. They got insider information from the Jaguar car company.

Their own inventor, Mr. Voto, testified at the trial, and we cite this testimony in our brief, that there was a host of other things completely unrelated to any of the merits of the invention that were things that drove the commercial success of their product.

It was, you know, the lighting on their little hub module so it matches the car. You know, a host of other kind of cosmetic sort of things that he testified, quote, were very important to selling -- to selling the product.

There's a litany of other points on commercial success, I won't belabor those here.

When it comes to skepticism and you know, long-felt, or skepticism, there's another one that falls in that category, it'll come to me. There's a really easy answer to that as well, right.

They were given different information from Apple about what would be acceptable for CarPlay. Microchip received totally different information.

Based on that different information, yes, if for example they were told that a bridge would be fine to use for CarPlay, Microchip was not told that. In fact, they were told the opposite.

And so it's hard to, you know, fail at something that you were told to not even try.

So this notion of a failure of others and skepticism, et cetera, it's really not a failure of others, it's a failure of communication, right, is all that that was. And it doesn't show any sort of industry-wide skepticism.

Most of the people that they talk about in that context are, you know, salespeople, field engineers. There's one engineer I think that was the individual that received the email saying hey, here's what Apple told us.

So regardless of whether you look at these secondary considerations sort of holistically, from a high level in terms of nexus, et cetera, or if you, you know, push down into the individual ones, they all fall apart. They collapse like a house of cards.

And especially when you weigh that against Petitioner's, I'll say, very strong showing of obviousness, for the most part it's a two-reference combination. Chang has a hub with a bridge. Chang II has the main feature that it calls it of these alternate transition paths.

You put those together using industry-standard, commercially available off-the-shelf components, and it's a very easy, natural, and obvious combination to make.

So I'll reserve the balance of my time for rebuttal, unless there are further questions.

JUDGE HOMERE: Thank you.

JUDGE HAMANN: This is Judge Hamann. Counselor, I don't have a further question, but I would note that sometimes it's helpful, as opposed to saying Microchip, saying Petitioner, just because I always -- I don't think about the party names during. So it always gives me a pause so I can place things.

MR. JENSEN: I will make note of that and do my best. Thank you.

JUDGE HAMANN: Just a suggestion, I may be the only one that has that issue, but thank you.

JUDGE HOMERE: Patent Owner, do you wish to reserve any rebuttal time?

MR. BRAUSA: Yes, I'll reserve 20 minutes of rebuttal time and five minutes for the confidential portion of the proceeding. So 65 minutes for my presentation now, please.

JUDGE HOMERE: Okay. The floor is yours.

MR. BRAUSA: Good afternoon, Your Honors, and may it please the Board. Again, my name is Adam Brausa, Morrison & Foerster firm. I'm pleased and proud to be here representing the Patent Owner in this proceeding, Aptiv Technologies.

I have some slides that I want to make sure we get to in our

affirmative presentation. But before we do, I wanted to touch on some of Your Honors' questions to my friend from the Petitioner, just to provide our position on those.

I think, Judge McMillin, you had raised a question about Claims 18 through 20, whether those are still at issue in the proceedings. From a procedural standpoint, I would agree there are still live claims in the proceeding. However, as Your Honors recognized in the institution decision, the petition is contingent on a claim construction that did not occur. And so, unless Your Honors are inclined to revisit the claim construction issues, from our position, the patentability of those Claims 18 through 20 should be affirmed.

Even if you Your Honors were to revisit claim construction and adopt the purported Scrivener's error that counsel identified, we think Claims 18 through 20 are, nonetheless, patentable for the same reasons that Petitioners have failed to make out a prima facie case of obviousness with respect to the other claims in the '420 patent, and, in particular, Claim 17, Dependent Claim 17, which, at least in the written order, wasn't expressly analyzed as part of the institution. But, in addition to the claimed configuration of components that solves the problem that was plaguing the automotive industry, discussed in the background of the patent, it also adds, specifically, the requirements of simultaneous communication between multiple downstream ports, one of which is a host and one of which is device without interrupting modes.

And so, from our perspective, with respect to Claims 18 through 20, Your Honors don't really need to consider anything beyond the petition on

its face, which applied a claim construction which has not been adopted. And there is not any argument being made for a different construction beyond the things that were included in the petition as well.

Turning to the merits of the obviousness arguments, before I get into the specifics, I do want to start with just a summary of what our fundamental dispute is really about, which is -- because we heard a lot of, in my mind, procedural things and things which, candidly, I would regard as ticky-tack, and a failure to grapple with the actual evidence and the deficiencies in the petition and in the proposed obviousness combination. We heard things about the POSITA level and Dr. Houh's testimony about his qualifications. We heard about, well, there was an improper incorporation by reference.

And I would submit that a lot of these arguments are results-driven for very specific purposes. And that's to shore up and improve on what we view is a fundamental deficiency in the petitions across all these proceedings, which is a lack of motivation to combine the elements into the claimed arrangement.

The claims and the arrangement claimed to be USB components is the invention. It's the solution to the problem. And we just heard that, well, maybe Petitioner didn't come up with that solution because it didn't have the secret information from Apple or it didn't get the head start from Jaguar.

Well, as an initial matter, that's not what the evidence in the secondary consideration shows. But, moreover, if you accept that, that we needed secret information from Apple or from Jaguar to come up with the proposed combination, that doesn't sound like something that's obvious. That doesn't sound like something that you could come up with by just

applying or combining two abandoned patent applications together and arriving at the claimed implementations.

Now, I'll also --

JUDGE HOMERE: But, Counsel, Counsel, what would your response be to, if you have known elements performing the ordinary functions to produce a particular result; therefore, that's enough to substantiate an obviousness challenge?

And it says here, I mean, I don't believe there's any dispute that Chang I and Chang II, you know, they essentially teach all the elements that are recited in the claims and, yes, lead to hubs and the routers, and everything. They're doing what they're supposed to do. So, when you combine them, it would seem logical to one of skill in the art that, you know, you have two systems that are performing what they should be doing in order to detect a consumer device as a host or as a consumer device, and then, to route the signal accordingly.

MR. BRAUSA: Sure. So, I would take issue first with the fact that Chang I and Chang II teach every element of the claims alone. And we'll get to that because I think even though this was presented as a two-reference combination, you'll see that throughout these grounds there's heavy reliance on the POSITA knowledge as well. And certainly, that's appropriate to some extent.

But you can't use the POSITA knowledge as an end-around of identifying your grounds to state your case with particularity. You can't just assume that a POSITA knows everything and can just apply that, because that would obviate the need for any grounds at all. You would just say, well,

a POSITA would know.

And I would suggest that that's one reason, a results-driven reason, that we see this argument for this very heightened standard of the POSITA, the second issue that came up. Right? Which is, well, if they know all of this, if they've designed all these USB things, then we can cherry-pick from Castleberry, from Overtoom, from Hesse, from all of these exhibits in the record that are identified as, well, this is just part of the POSITA knowledge, not part of the combination.

In our view, that's inappropriate. That's hindsight reconstruction of the obviousness challenge, not something that a POSITA would have done at the time. And again, it's really that hindsight problem which we'll also see, and which we think Mr. Welch employed in his analysis, that answers Your Honors' questions about KSR, which is in 2013. Certainly, POSITAs knew what a hub did. They knew what a crossbar switch was.

But what's missing is an identification or any evidentiary explanation of why you would put those together in the claims configuration, in the claims combination, if you didn't already have the teachings of the patent in front of you.

And from our perspective, much of the analysis --

JUDGE HOMERE: But, Counsel, isn't the why in Chang II? Because Chang II said the purpose of telling you that, well, hey, if you have a hub, you can use this configuration to detect what mode a consumer device is in, so you can select a path. So, essentially, I would think that you could bring that in to modify, you know, what you have, the dedicated, you know, the dedicated hubs that you have in Chang I to select, to flexibly select, you

know, a different mode, based on the combination. Because Chang II explicitly tells you that's what he wants to do.

MR. BRAUSA: Sure. Sure. And so, I would agree with you that, in the context of Chang II, it does disclose a method for switching between host and device mode for a single downstream port. It doesn't ever show a dual-role device connected to it. It contemplates having a host in one instance, unplugging it, both physically and electrically, and then, plugging in a device.

And really, the use case that Chang II is talking about, if you look in the background and the problem it wants to solve, is avoiding the need to have to configure a bridge for file transfer. It's avoiding that sort of problem.

It's not at all directed to the problem which is identified in the challenged patents of maintaining this persistency and having a downstream host device that doesn't interrupt communication with the downstream devices.

Your Honor raised a good question to my friend in his presentation, which was, why didn't you just stop at Chang II? Right? If Your Honor says what you just said and what you asked him, that seems plausible.

And the reason is because many of the claims, particularly the dependent claims, require more. They require multiple downstream ports. They require the introduction of a crossbar switch.

I thought it was interesting that counsel cited slide 86 as the example of where they disclosed the detection unit, because that's only in the '643 patent. That's the only proceeding in which they actually, one, showed the

detection unit, and it's one of the two proceedings in which they relied on their mux implementations as opposed to the crossbar implementations.

There's no dispute Chang II doesn't disclose a crossbar. It wouldn't make sense because there aren't multiple ports. And so, that's yet another modification that they have to make, and their rationale --

JUDGE HOMERE: But this argument, I think that's an attack, an individual attack against the references. Because Chang I has a variety of ports, down ports, is that correct?

MR. BRAUSA: They are dedicated ports, importantly.

JUDGE HOMERE: Yes, yes, exactly. And in Chang II, although it has one down port, but the combination of them, when you combine the two -- so, you would, essentially, have a mechanism in Chang II that enables you to switch between the variety of down ports in Chang I, isn't it?

MR. BRAUSA: I don't think that's correct, Your Honor. Because, again, Chang II doesn't tell you anything about switching between a plurality of downstream ports. It only has one port. And so, it's not toggling and treating one device, or one downstream port in device mode, and one downstream device in the host mode. And so it's silent, entirely silent, as to whether there will be interruption, whether there can be simultaneous communication. Because, again, it wasn't directed to this problem.

And I think, again, you see the rationale for why they didn't stop in Chang II when you consider Mr. Welch's testimony, which we cited, where when I asked him, well, why did you come up with these four different alleged obvious combinations? -- right? He has two each for the mux embodiments, one with Chang hub 40, one with Chang 46. And so, there

are four. Why bother with all that? And I asked him, and his testimony was: it was about if a specific claim had language which could be interpreted in order to have one of these rather than the other.

And so, I think that highlights one of our concerns and the approach taken, which is the analysis started with the claims. It, then, went on to the references that he was provided by counsel. It's not as if Mr. Welch, an expert in this field, had ever heard of Chang I or Chang II.

And if we can go to slide 23, actually, I think it is? Yes, this is the line of questioning where I asked him and I said: these references were provided to you by counsel, right? -- Chang I and Chang II. Before these proceedings, before his retention in the case, he had never heard of them.

And then, I went on and said: okay. So, where did you start? And he said: well, I looked at the claims, then I looked at the references I'd been provided, and I took it from there.

And so, it's unsurprising that we see, when he's doing that, figure 4 from the patent, which you see on top, looks an awful lot like the actual obviousness combination he relied on in the '420 patent. That's unsurprising because he started with the disclosures of the patent, color-coded them, and then, used that to come with the alleged obviousness combination.

If you look at this closely, you can see that the figure that's relied upon in the claim-by-claim analysis in the petition -- and Mr. Welch's declaration is nothing more than figure 4 rotated 90 degrees. But that's not a proper obviousness approach. That's, of course, hindsight.

Again, I want to just close the loop --

JUDGE HAMANN: Counsel, this is Judge Hamann.

Obviously, in making a showing, you have to refer to a claim because the limitation is taught in looking at the references, but I have some, I think, just more fundamental questions. I want to make certain about some of the things you said and that Patent Owner may or may not take positions on.

To me, obviously, Chang II, that's my focus for this question. I don't believe Patent Owner disputes that dual-role USB devices were known at the time of the filing of the challenge patents. Is that fair?

MR. BRAUSA: That's fair, Your Honor. And I think it's important, also, to recognize that dual-role devices and ports were known after 2001. There's no debate that that's when the OTG standard was first introduced.

Nonetheless, Chang from 2005, I believe the filing date was, and the 2006 publication date, it doesn't say anything about dual-role devices. Similarly, Chang II, it has one port. And so, these motivations to combine them in this way -- and we have some slides that I hope to get to where we show what -- we actually build the modification. Because it's not as simple as just saying, well, apply Chang II to Chang I. In fact, they've fought against the argument that they're applying a bodily incorporation, and they repeatedly say, no, no, it's just the teachings of Chang II.

Now, at his deposition, I asked Mr. Welch: what specific teachings? And he said he hadn't really listed them out. And so, I think that's problem.

But just to close the loop on Your Honor's question, which may have just been a predicate question, we don't dispute the existence of dual-role ports and that being known to a POSITA.

JUDGE HAMANN: Okay. Thank you.

And at least as I understand some of your arguments, obviously, that

was within one skilled in the art's knowledge at the time of Chang. In Chang II, it's also been acknowledged. Chang II has a port that can be either a host or -- I'm drawing a blank on the other role. I apologize.

MR. BRAUSA: Device I think is what Your Honor is looking for.

JUDGE HAMANN: Thank you. Thank you.

It can be either a host or a slave, and obviously, the reason for Chang II's teaching of a detection circuit. And so, those are some of the teachings. Taking all those teaching together and knowledge of the dual-role port, you know, it seems those are the teachings that are being put together in justification four. And I'm trying to understand where the hindsight comes in when you look at you have Chang that does have dedicated ports, but at least some that are slave, one uplink host. You have Chang II that shows one port that it's host or slave. And then, there are devices that can be host and slave in the same device.

And so, obviously, there's motivations offered for that, ease of moving, you know, being able to service one device, et cetera. So, I'm trying to understand the argument from Patent Owner's perspective why there's hindsight. Because, obviously, you make a lot of discussion about hindsight and --

MR. BRAUSA: Sure.

JUDGE HAMANN: -- and how the expert, essentially, approached it with the claim first.

And there can be some weight to that testimony, but I think more the focus on, you know, arguments as to how one skilled in the art would have approached it and the references themselves. I'm just trying to understand

from that perspective why it's hindsight as opposed to, you know, the expert mentioned you look at the claim first, which I imagine just to orient yourself, you look at the claim first. So, that's what I'm trying to get to, the real crux of the hindsight argument.

MR. BRAUSA: Sure. First, on the point of the expert's analysis, in their reply papers, they, essentially, made Your Honor's point, which is you kind of have to look at the patent in some degree to get context. And that's fair, but the questioning was, how did he embark on his analysis? He didn't say, I looked at the patent for context. He didn't include in his reply declaration, hey, I read what Patent Owner is saying. That's not at all what I did. That statement in their reply has no citation to the record. And so, I think that's significant.

With respect to the substance of Your Honor's question, I think the presence of hindsight is, again, illustrated here. Because your characterization of Chang and Chang II, and what they disclose as a factual level in the four corners of those references, is correct. Missing from that disclosure is any crossbar switch, is any suggestion that you put something different in between the bridge of another implementation and you do that after you have changed the ports to dual-role. They provide motivations for that.

But, as we'll see -- and we can go ahead and go to slide 46 -- this is their first step in the modification. But the rationale for doing so, there's evidence the other way that their expert didn't even consider. And so, the hindsight is, as Judge Homere recognized, they didn't just stop with Chang II. Because some of the claims require multiple ports, why would you add

multiple dual-role ports? Why would you be concerned about persistency? Why would you be concerned about or why would you want to have a host-to-host connection that's operating simultaneously without interruption?

And we'll get to it in a moment, but just as a preview, it's significant that this check against hindsight in the law are the secondary considerations. And Petitioner is a company that has every interest in coming up with an obvious solution. Now, it's rationale for not doing so is that it didn't have the same information we did. Well, it certainly had Chang I and Chang II. You would have thought that they would have done it if it was so obvious.

But that problem and the solution claimed is not just mashing Chang I and Chang II together. There's significant implementation details, significant design choices. And for that reason, it's not just a KSR situation where everything works accordingly. There are various paths along the way and there's not been a sufficient rationale articulated for why the specific path that Patent Owner went down is what a POSA would have done in 2013.

JUDGE HAMANN: Counsel, again, this is Judge Hamann.

You know, I certainly agree with you, hindsight in concept is important to guard against, you know, impermissibly using it. But I also would suggest, obviously, there's a lot of claims and a lot of different challenged patents at issue here and they’re in different degrees.

Because some of the, you know, I think arguments maybe apply to certain independent claims and not other dependent claims and not others. And so, I think there is on some level teachings in Chang and Chang II, that don’t require, necessarily, the specificity for some claims that you would

suggest.

MR. BRAUSA: I will concede that certainly the independent claims are broader. There's less specific detail. I will say that Claims 16 and 17, for example, in the '420 patent, Claims 2 and 15 in the '962, include what we regard as, essentially, the fundamental crux of what's allowed for and what's facilitated by this claimed combination.

But I think, even for the broader independent claims, you can take them at their word in their petition. The embodiments that they relied upon, what they say is obvious is what we're about to go through, and as we'll see, there's a lot of stuff that's not in Chang I or Chang II. There's not any teaching in Chang II of, oh, well why don't you just modify all the ports to be dual-role? There's no downside to that.

And I think we realize that that's not obvious in every instance because not every USB port is, of course, dual-role. There's still dedicated hosts. Chang knew all about OTG. It had been around for four or five years at the time it was filed, and then, published. And it says nothing about it.

And so, I think the answer to your question, Your Honor, is further illustrated by walking through what their combination actually requires. Because, again, they didn't just combine Chang I or Chang II. They relied upon extensive POSITA knowledge, again, using their heightened view of the POSITA, and that's really to spackle over and fill-in the significant gaps that are in the prior art that they elected as the foundation for all of the grounds across these proceedings.

So, the first modification to Chang is to change the four dedicated ports to three dual-role ports. Now, admittedly, Chang II describes one dual-

role port. Why would you change them all? Well, we heard some of the motivations, but, effectively, they're POSITA knowledge. The slide that my friend presented didn't have any actual citations to Chang or Chang II.

They rely extensively on Castleberry, and they say, oh, it will be cheaper to have dual-role ports. But if you actually look at that portion of Castleberry -- Castleberry, it's in column one; it's Exhibit 1025 in the record. It actually talks about two prior art embodiments. One of them is OTG. One of them is dual-role ports.

And it recognizes that this is complex. It adds overhead and additional wiring and things of that nature. And so, when it talks about costs and additional overhead, I believe is the language Castleberry uses, it's not saying dual-role ports compared to dedicated ports in all instances. That's one of the examples it gives. It's saying, our approach, the Castleberry approach, which is not relied on in the grounds, reduces the overhead associated with both OTG dual-port implementations and potential dedicated port operations.

The patent itself recognizes this as well, right? It acknowledges that dual-role ports, to further address Your Honor's question, were known. This OTG, this is a standard which everyone agrees for one port to serve both host and device products.

But the patent says, look, you've got additional cables; you've got additional programming. And I asked their expert, Mr. Welch, do you have a sense for how much this would increase the cost, this modification that you made? Candidly, he testified, I wasn't asked to look at that. I didn't follow it up --

JUDGE HAMANN: So, Counsel?

MR. BRAUSA: Yeah?

JUDGE HAMANN: This is Judge Hamann.

So, you're suggesting that, even though one who's skilled in the art would understand how to do something, I think clarifying they're doing something technically obvious, if it costs too much, then that prevents that combination?

MR. BRAUSA: So, I think I would dispute the premise of Your Honor's question, which is the cost in doing that type of analysis is one reason that's it's not technically obvious. Because you would not be motivated to change something that increases cost without reciprocal benefits. And that's a failure of proof on the part of Petitioner. They didn't look at this inquiry.

And he testified plainly. Would it increase the cost? Presumably. So, that's just one instance of, why would you do this? Yeah, there are some benefits with dual-role ports. Chang II identifies benefits of a dual-role port. Why would you go to the trouble of switching all of them over and introducing this potential complexity that is identified in both the Castleberry reference and in the background of the patent?

And that's really a fundamental. It's the why that's missing. It's not the how. It's not that you could do it. It's, why would you do it?

And again, when we looked to the secondary considerations, Petitioner was not doing it. When they learned of the solution that Patent Owner came up with commercially -- and there's no dispute that the commercial product embodies the claims. And I think that's why we've seen

this incorporation-by-reference argument. Because there's no response that, in fact, the commercial product embodies these claims. They didn't say, ah, that was obvious. Ah, why didn't we do that? Or, we could have done that. They said, this can't be right. This violates USB. This isn't going to work.

And when they talked about their solution for persistency, for the requirements of the automotive industry, they said, we can't provide a solution. That's not the hallmark of obviousness; that's the hallmark of patentability.

JUDGE HOMERE: But, Counselor, what is the benefit of having looked through the idea of dual-role ports?

MR. BRAUSA: Again, it's the context of the problem being faced, which is, in the vehicle components you have multiple ports. And so, the convenience factor, you don't want to have to have a single port be capable, because you may want to plug multiple devices in, and having those multiple ports, maybe you want to charge one phone and use the other phone to play music, something like that.

But by 2013, most of the car consoles with USB had multiple ports. And so, you needed the ability, as the Petitioner's inventor -- or I'm sorry, the Patent Owner's inventors recognized, to connect to those ports. And that's in the claims. Particularly, again, if we focus on the dependent claims, it’s specifically contemplating more than one port.

JUDGE MCMILLIN: Counsel, this is Judge McMillin.

You said that the commercial product embodies the claims? Where is there evidence of that in the record?

MR. BRAUSA: So, that is in the portion of the record in the Patent

Owner's response, where we do, in fact, cite to Dr. Houh's analysis. And counsel correctly identified those as claim charts. I think he identified that as an incorporation-by-reference problem.

I would suggest that, in this context, had we not provided claim charts, we would be facing an argument that we hadn't shown it embodied, and we did, albeit we didn't take up the entirety of our word count in the Patent Owner's response by including that figure.

But there's no misunderstanding; there's no attempt to evade any word limits, which is, as I understand it, the traditional concern with incorporation -- or improper incorporation by reference. So, it's in the portion of our Patent Owner's response where we cite to the declaration of Dr. Houh and he lays out that claim-by-claim analysis.

JUDGE MCMILLIN: You cite to the declaration of Dr. Houh, but I don't see anything other than a conclusory statement that the commercial product embodies the claims. It seems that you left to the Board, you know, based upon the evidence in Dr. Houh's declaration, for us to do that analysis.

MR. BRAUSA: All right. Just to be clear, is Your Honor referencing the statement in the POR I referred to?

JUDGE MCMILLIN: Yes.

MR. BRAUSA: Okay. Certainly, that was not our intent. Our intent was to provide an element-by-element analysis, and there's not any dispute that that's what Dr. Houh provides as part of that. I would suggest that it would be extremely challenging to meet our burden to show embodiment of the commercial product if we were to put that forth for every claim and every claim element, given these claims. And so, that was the intent. Our

goal, certainly, was not to burden the Board with additional work.

I would also just indicate I don't think there's actually any debate, as I said, from the other side's expert. Mr. Welch didn't come forward and say, I looked at these charts and this element is not met. This claim doesn't embody that. And we've also cited trial testimony indicating that some of these claims are embodied by the commercial product.

But Your Honor is reading the POR correctly, and we did not include the charts in the POR itself.

JUDGE HAMANN: Counsel, this is Judge Hamann.

I think you're often -- incorporation by reference deals with arguments, and obviously, you can't incorporate arguments by reference. You know, evidence is a different thing, as incorporation by reference potentially, at least some panelists take that approach.

I do question where this statement that we're discussing here in the response falls, and is that enough of the argument included here? And then, it's just evidence that's incorporated, which may be okay. So, I don't know if Patent Owner has got a response to that concept, but it seems to me, at least as I approach this, that is something to consider.

MR. BRAUSA: Sure. And I would think that it falls much more on the side of evidence in terms of the claim charts themselves. The argument we made is that it's embodying, the product embodies, and then the evidentiary support are the claim charts. And I think the fact that it's not really argument is further illustrated by the fact that there's not any response to it. There's no rebuttal. If it was an argument, and not just evidence in the case, you would think there would be something coming forward of saying, I

disagree. And that's just not here.

So, I think, viewed through that lens fairly, I think it's evidence of the argument in the form of the claim charts. Certainly, it's detailed evidence. There's no doubt about that.

And again, the desire to do that was to confirm that the Board had all the evidence, even though it was in the declaration of Dr. Houh. So, I think, from that lens, it also passes muster and doesn't present any incorporation-by-reference issues.

JUDGE HAMANN: Thank you.

MR. BRAUSA: Turning back to the modifications, as we go, again, to get at your point, Judge Homere, which is the Chang I and Chang II references don't, standing on their own, provide enough. And Judge Hamann, you said you were focused on Chang I and Chang II, and that's how it was presented in the slides, but, again, I would encourage Your Honors, as you're reviewing the record, to note the various instances -- and we'll get to some points in Mr. Welch's deposition where he says, well, a POSITA would just know. A POSITA would just know.

And again, to your point, there's nothing wrong with a POSITA knowing certain things, but when you have multiple design choices, multiple implementation details, you've got to come forward with a sufficient rationale for why this specific one is the one they'd pursue. You've got to have some path to the actual tree you're trying to get to, not just a forest of options and say, ah, they'd be obvious.

And the mode-of-power decision that we cited in our briefs from the Board confirms that design choice still requires a very detailed obviousness

rationale and we don't think the why is sufficiently explained in the petition.

JUDGE HOMERE: Counselor, I asked you earlier about why do you need multiple ports, and you said, essentially, for convenience.

MR. BRAUSA: So, it's not for convenience. It's a design constraint on the application, which is, in a car, you have multiple USB ports.

JUDGE HOMERE: Yes, exactly, for convenience. In other words, if one port is busy, and then, another user can use another port for another purpose.

But that notion of having multiple ports where different ports can be used for different things is explicitly taught by Chang I.

MR. BRAUSA: Again, it's taught by Chang I, but there, it's dedicated ports. What's missing is the why would you have the multiple ports of Chang I with the dual-role port, singular, of Chang II? And it's the appreciation of the problem and the unique solution to the problem --

JUDGE HOMERE: Okay, but --

MR. BRAUSA: -- that makes that clear.

JUDGE HOMERE: -- you know how KSR said that, if you are able to do something for one -- what we're getting at is an obvious lever. Are you familiar with that concept?

MR. BRAUSA: Yes.

JUDGE HOMERE: That's correct, right? So, in Chang II, Chang II shows that you can have a dual port, a dual-role port. So, essentially, it seems to me that the premise of this combination is, well, hey, in Chang II we have, you know, a dual-role port and Chang I talks about a plurality of ports. So, what about that would duplicate what we have in Chang II into

Chang I? So, we have multiple ports, and we use that to Chang II, you know, as instructed by KSR to duplicate, you know, do the same type of dual-role port that we have in Chang I. Why would that not be -- I mean, that's what at least the case law, the seminal case law, that's what it instructs us.

MR. BRAUSA: Sure. If it were a matter of just simple duplication, I'd be more inclined to see Your Honor's -- agree with Your Honor's premise. But here, it's not just duplication. It's not just adding multiple dual-role ports.

You've got to add them. You've got to add a crossbar. You've got to add additional components of the bridge. You've got to modify Chang's bridge. You've, then, got to add detection algorithms. You've got to preserve simultaneous communication, and then, you've also got to implement this in a vehicle for some claims. And again, Your Honor, Judge Hamann, you're correct, some of the claims don't require a vehicle; some do.

And so, for all of those reasons, it's not just a matter of duplication. It's a matter of duplicating some aspects, modifying, adding, changing. And again, the fundamental problem is there's not a why.

And we get to this with the crossbar implementation, too, which in the '420 and '962 proceedings, both '420 proceedings. I want to make it very clear, because we saw a picture with a mux on it, with a little box on it that said, detection unit. This is the implementation that they relied on in the claims that were challenged in the '962 and the '420 patents.

And so, regardless of what Mr. Welch said in the background or what he may have thought were other obviousness implementations, this is what

they put forth in the petition. And I would suggest that this is the embodiment that Your Honors should evaluate obviousness, or lack thereof, for the purposes of those proceedings.

JUDGE HOMERE: As a passing comment, Counselor, I just want to remind you that we also are considering the PGRs. I hear nothing about the PGR here during your arguments and everything. So, keep that in mind, too.

MR. BRAUSA: Understood.

JUDGE HOMERE: Yes.

MR. BRAUSA: Understood.

JUDGE HOMERE: Okay.

MR. BRAUSA: But I think Your Honor's question about the mux embodiments is even more pertinent when we get to a crossbar switch. Because, again, they didn't stop at Chang II. They added a mux for some embodiments, and they relied on a mux embodiment for the '072 proceedings. And they relied on a mux embodiment for the '643, the PGR.

But that's still going a step further, as Your Honor recognized. And what's more, the problem that we'll get to is that, while they were putting together these pictures to look like the disclosures of the patent, they missed a few steps, and it doesn't quite work. And we'll get to that in a moment.

But the problem that that creates is that, then, you have to do more. And Mr. Welch's solution to that was to say, well, a POSA would know. A POSA would know.

These are just implementation details. But again, the level of modification necessary, the number of design choices available, that's suggestive of hindsight, not obviousness.

So again, when we see this addition of a crossbar -- and Your Honor is exactly right, this is unique to the embodiments that were relied on in the '420 patent and for the '962 patent. We see again, a POSITA will just know. They would just know that if you decided to change all these multiple ports, well, then, a mux wouldn't work because you've got to connect them all.

And again, I asked Mr. Welch in his deposition, well, how much would this cost? You're adding complexity. You're adding these different things. Did you consider that?

No, but he acknowledged candidly, to his credit, yeah, it would increase the cost.

So again --

JUDGE HAMANN: Counsel --

MR. BRAUSA: Yes?

JUDGE HAMANN: This is Judge Hamann. I just want to make certain I'm following a few things.

Obviously, I think the distinction that's been drawn between the mux and the crossbar switch is the input. There's one input for a mux and the crossbar has got multiple inputs. Is that a fair distinction or am I missing something?

MR. BRAUSA: No, I think that's a fair distinction, Your Honor, at a high level of the technical operation of those.

JUDGE HAMANN: Okay. And just some other questions to make sure I'm following.

We use the term port quite often but that seems for obvious reasons. It's in the claims, and whatnot. That's more of a logical concept, isn't that? I

mean that in the sense that, occasionally, we talk about connectors, too. It seems like that's more of a physical form factor.

So, is that relevant to everything in the discussion we're having today, you know, the difference between a port and connector? That's the record. I don't mean to invite things that aren't.

MR. BRAUSA: I think it is relevant in the sense that, when we talk and when we get to the dead-end problem, for instance, we'll talk about physical connections. And things can be physically connected, and nonetheless, be electrically disconnected and electrically isolated.

And so, that distinction I think does make a difference. I'm not sure that the difference at a high level between a connection and a port necessarily is relevant. I think, in this context, we're referring to a port that can accept either a host or device. And you can think about that in terms of the logical concept or the form factor.

But you're right, a lot of these ports had different connectors, depending on -- different physical connectors, depending on which type of product they were intended to pair with, so to speak.

JUDGE HAMANN: And just one last question. I know we talked about Chang II's detection circuit, I believe it is, that embodies a switch, at least in some form, doesn't it?

MR. BRAUSA: It certainly toggles between the path, and I think it's fair to say it is a switch. Judge Homere's comment of it doesn't really describe a mux per se is correct. And, in fact, the detection algorithm used for switching, described in figure 6 of Chang II, is yet another modification that Petitioners have proposed. And they say, well, you wouldn't just detect

when, for instance, a different device has been physically plugged in and electrically connected to a single port in Chang II; you'd know to modify that, so you can also detect dynamic switching, where a single device remains physically plugged in and it switches roles.

And again, the motivation for that, I posit, as Mr. Welch said, it's in the claims. So, I had to find that. There's not any inherent reason or rationale articulated for why a POSITA would say, oh, if I'm going to rely on Chang II, I'm going to rely on it, but, then, I'm going to tweak it a little bit, other than to make sure you satisfy the limitations.

And again, to Your Honor's point, that's in Claim 4 and some of the dependent -- Claim 4 of the '420 and some of the dependent claims of the '962 patent, but that type of functionality, it's what's facilitated by the claimed combination in the challenged claims of all the patents.

JUDGE HAMANN: Thank you.

MR. BRAUSA: I want to tick through these, because these are the steps that are in the petition. And I want to make sure I get to not only the problem that we raised in our Patent Owner's response, but also touch briefly on the guards against hindsight and what we view as significant secondary considerations.

So, the third step is to not use the bridge of Chang II on its own, but to modify it. And the petition is pretty express about this. It says Chang II -- or Chang doesn't say much about the bridge.

Chang II details various aspects of the bridge. And in Chang II, we see that the bridge 1 -- it's a little small on my sight, but Your Honors can see chip 1, or the bridge device, is item 1. It controls the control chip 13.

The control chip 13 includes the detection unit and CPU, which facilitate and allow for the switching between device and host mode.

Now, a dispute arose, based on our Patent Owner's response, on whether Petitioner identified multiple locations to put the detection. Because our view reading the petition -- and if you look at Mr. Welch's original declaration, Exhibit 1013, at Paragraphs 239, 270, and 271, the portions of the petition citing those. In our view, it makes it unambiguous and clear as day that he was saying that the detection unit that he's relying on is part of the bridge in the combination; it's not outside of it; it's not located elsewhere. It's part of the bridge, and indeed, that's where it is in Chang II's disclosure.

There was, again, a slide in the mux embodiment showing the detection unit outside of the mux. Again, not a lot of detail about how that detection unit was performing its function; how it was configured; what it was connected to, and how it would perform this function. But again, that's only in the context of the '643 patent is that detailed reference and diagram included in the petition itself.

To Judge McMillin's point, you're exactly right that, in the claims, the other claims, not the PGR claims, but the '420 and the '962 and the '643, those all refer to routing switches configured to do certain things. And the routing switches aren't going to be configured to do these things and switch between a bypass path and a bridge pass without some sort of detection algorithm. And that's why in all of the combinations that we see the detection unit of Chang plays a central role, because that's what allows the switching to occur on any of the plurality of ports between the bridge and

the bypass mode.

And so, as I mentioned, though, it's not just adding the detection unit of Chang or adding portions of Chang. And again, it's vague as to what aspects of the control chip from Chang II you actually import into Chang I. There is a critique that we were suggesting, oh, there's this bodily incorporation; we're suggesting that you just import the entirety of Chang II's bridge device into Chang. That's not what we suggested, but I will state it's not entirely clear which portions of Chang II are supposed to go into which.

There's multiple statements that Chang II's disclosure of the bridge is what they're relying on to supplement the deficiencies in Chang I, but the specifics of it are, again, left unsaid.

One of the things that is said is you don't just rely on figure 6 from Chang. The POSA would know that you've got to modify it. Again, Chang II does disclose the workflow or the algorithm for how this detection unit works in conjunction with the CPU.

And you see that in the unmodified form, part of the logic is to see whether the user has exchanged for other external devices. And so, Chang II doesn't contemplate in figure 6 any device remaining plugged in, and then, toggling between modes. That's something that's added by the Petitioner and added by the expert, who's testified, as we explained in our reply, or in our response rather, that, oh, a POSA would know that you can also say or, in addition to what Chang II says. You can check whether the existing external devices changed modes.

Again, there's not really a question that a POSA might know how to

do that. The thing that's missing is the why they do it. Why would they do that?

Again, steps 5 and 6, I'll work through quickly in the interest of time. Some of the claims talk about implementing in a vehicle infotainment system. There's the Chutorash reference, Exhibit 1029 --

JUDGE MCMILLIN: Excuse me. Excuse me, Counsel.

Could we go back to that point? Can you look at Paragraph 24 of Chang II and Paragraph 38 of Chang II?

Paragraph 24 says -- let me find it. The control chip will automatically and periodically switch the connection interface to a virtual host and virtual slave state.

And then, 38 talks about the operation of the detection unit.

So, aren't those paragraphs in Chang II talking about automatically and periodically checking whether whatever is connected to that dual-role port is operating in a slave or a host mode?

MR. BRAUSA: Not exactly, Your Honor. Certainly, you read those portions correctly. But if you look at those in the context of figure 6, the checking and the switch to the host -- and remember, this is automatically and periodically switching the host to a virtual slave or virtual host state, so it can inquire in the downstream ports. That only happens after there's been a check to see whether the user has exchanged for another external device.

So again, it's, of course, possible that you could implement Chang II in the way Your Honor described, but there's not any disclosure of the whatever is connected, why ever it changed modes, type of detection. It's only contemplated that you're removing one external device, for instance, a

host, then you're plugging in a different device and operating in device mode. And then, the enumeration process, as it's called, takes place to determine whether that's acting as a device or a host downstream.

And so, certainly, the automatic and periodic language is something that Petitioners have focused on, but it's not implementing the same functionality that we see here. And that's why the modification was proposed. Again, if Chang II were enough, they wouldn't have gone a step further. But they did, again, because that's what the claims necessitate.

Turning to steps --

JUDGE MCMILLIN: Thank you.

MR. BRAUSA: Sure.

Turning to steps 5 and 6, we have implementation in a vehicle infotainment system. Chutorash and some of the automotive references just simply state that, yeah, USB was used in cars. That's not in dispute.

None of them suggest you need to modify they're system and your hubs in order to account for USB. Chutorash, Exhibit 1049, which talks about cars becoming PCs on wheels, they don't suggest in any way that you would want to change everything to a dual-role port or add any of the functionality that we just saw.

Similarly, the simultaneous communication from a downstream host and device, hubs certainly allowed simultaneous broadcasts from an upstream host to downstream devices. Chang shows a bridge connected to a device while there are peripherals down from the device.

And certainly, it's possible that you could configure the combination such that this is --

JUDGE HOMERE: Counselor, which claim requires simultaneous use of the ports?

MR. BRAUSA: Sure. I think in the '420 patent, it's Claims 2, 8, 16, 17, 19, and 20, if I have that right, and for Claims 2 and 15 of the '962 patent. Now, I may have misspoke. Claim 4 of the '420 patent requires dynamic switching, not simultaneous communication.

But again, the --

JUDGE HOMERE: Well, the non-switching and simultaneous communication, they're not --

MR. BRAUSA: They are not the same.

JUDGE HOMERE: Okay.

MR. BRAUSA: And so, Claim 4 does not involve simultaneous communication expressly.

JUDGE HOMERE: But do you have any claims at all that --

MR. BRAUSA: Yes. Claims 2, 8 -- and let me just confirm that 16 does. Give me just one moment.

JUDGE MCMILLIN: Claim 2 says, simultaneously connect.

This is Judge McMillin.

MR. BRAUSA: That's correct.

JUDGE MCMILLIN: And there are other claims that say that, 8 --

MR. BRAUSA: Yeah, 16 and 17 as well in the '420.

JUDGE MCMILLIN: Yeah.

MR. BRAUSA: And then, 2 of the '962 and 15 of the '962 as well. So, I think 4 was the only misstatement on my part. So, I apologize for that.

JUDGE HOMERE: And in the '643 patent, do you have any

simultaneous connections?

MR. BRAUSA: So, this is the PGR claim. I do not believe those claims have a simultaneous requirement expressly.

JUDGE HOMERE: Okay. All right. So, okay. Okay.

For the PGR for a minute, I mean, let's focus on that. Because we don't have that simultaneous connection and we have the notion of multiple ports. Well, do we even have multiple ports? I don't even think we have that.

It's fairly broad. We have a routing --

MR. BRAUSA: If Your Honor is referring to the '643 patent, it does require a plurality of ports in the fourth clause.

JUDGE HOMERE: Yeah. So, I think it was clarified earlier by Petitioner that this hearing here concerns -- I mean, the prior art discussion that we have concerns all the cases, right, the consolidated cases, including the PGR?

MR. BRAUSA: Sure.

JUDGE HOMERE: Okay. So, I wanted to --

MR. BRAUSA: So, that's exactly right. And I think Your Honor is right, though, because the '643 patent you'll see here, looking at the claim, it also requires a bridge that includes a bridge controller, buffers, and those things in the claim. And once again, when they relied on that for the obviousness combination, they put the detection unit in the bridge itself, and they said, these aspects of Chang II that are in the bridge device there, they're also in the bridge device for the '643.

JUDGE HOMERE: Okay.

MR. BRAUSA: At the end of the day, the point of walking through these is to demonstrate, and hopefully, further illustrate the answer to Your Honor's question, is that it's not just a rote combination of Chang I and Chang II. There's no just duplicate things for Chang II. You've got to make various choices along the way.

And again, it's not so much of the if a POSA could technically do it; it's a question of why they would do it. And there's just not a sufficient basis in the record for that.

Moreover, the problem that we've heard referred to as the dead-end problem is something created by this, and it's a product, in our view, of glossing over these details in the hindsight approach employed, which is --

JUDGE HAMANN: Counsel?

MR. BRAUSA: Yes?

JUDGE HAMANN: This is Judge Hamann.

I think we're on slide 71 now. If I may ask if you could sprinkle in what slide we're on occasionally, just so when I'm going through the transcript at a later point, and it may be easier to orient myself.

MR. BRAUSA: Apologies, Your Honor. I intended to do that and have been doing a poor job. So, I'll work to improve in the next 11 minutes.

JUDGE HAMANN: Okay. No problem. Thank you.

MR. BRAUSA: Okay. So, we're on slide 71, which was characterized as the dead-end problem.

And the problem is that, in this crossbar implementation, I think there's general agreement that Petitioner's argument is you have two modes. If it's in host, it gets routed through the bridge. The crossbar switch sends

that port through the bridge. If it's in device, it goes around the bridge, it's in bypass. And that's slide 72 and 73 we see those different paths.

But on slide 74, we see there's a problem with this, which is, once you switch to the device mode, you've electrically disconnected the bridge from the crossbar switch. It's still physically connected, but there's no electrical detection -- or electrical connection. And so, therefore, you've got a problem. And there's not actually any dispute that this electrical disconnection occurs, and this occurs in the mux embodiment as well if the detection unit's in the bridge.

Mr. Welch's testimony on that was at Exhibit 2021, at pages 101, lines 23 to 102 line 2; page 102, lines 20 to 24; and [age 104, lines 17 to 23.

And he agreed that this would be electrically disconnected. And so, the problem with this is you can see how it's been depicted here on slide 74. It puts the bridge, and most importantly, the detection unit on an island. If the detection unit is disconnected electrically, not only from the crossbar switch and the downstream ports, it can't do much detecting.

And so, on reply, we saw even more arguments about, well, a POSA would know how to fix this, if this is, indeed, the configuration.

I touched on the fact that we think it's pretty clear that this was the configuration being relied on. I won't belabor that point here. But assuming that the detection unit -- and you take the Petitioner's statements and the claim-by-claim analysis at face value, you've got to do more. It's not enough, even in the six steps we went through. You've got to modify the detection unit to monitor the downstream ports somehow.

According to Petitioner, a POSA would know, oh, you just maintain

a high impedance passive connection; that's POSITA knowledge.

Again, I asked Mr. Welch about this. I said, so, you can't just move the detection unit to a different location. You've got to make sure you add this additional connection between the bridge, including the detection unit, and the downstream port.

And he said, yup, that's right.

He also said, well, you could also modify the head unit to control and monitor the downstream ports. And again, he couldn't quite remember where he had come up with this idea. He relies on POSITA knowledge.

But if we can go to slide 16, that's in the patent. The patent teaches the POSA that the head unit controls the switching device.

So, that's step 7. If we can go back to the -- I believe it's slide 77. Close. It was actually 79.

The basis for these statements doesn't appear to be anything in the prior art. It's POSITA knowledge, but it's knowledge that we see is provided for and taught in the patent itself.

And when I questioned him about this, the control logic from the head end, I confirmed that, well, a POSITA would need to program this and figure out how to do this to make it work in this way, right?

And he says, yeah, in general that's true.

And then, I asked him, is that in Chang? Is that in Chang II, using the head unit to control the mux or crossbar? It's not.

So, this is another example, we're just combining the disclosures of Chang I and Chang II doesn't get you there. You've got to dip into this, apparently, vast knowledge of the POSITA, who can apply any teachings of

USB to Chang I to arrive at any one -- any number of combinations.

Indeed, when Mr. Welch was asked, is there anything from USB that wouldn't be obvious to combine with Chang? His testimony was probably true; probably not. You could combine anything. And that is just not the correct legal standard.

So, very quickly, the last point is, again, adding the signaling to provide simultaneous communication with no interruption. And again, to Your Honors' questions, there are claim-by-claim distinctions. Claim 17 and Claim 20 of the '420 patent further add a limitation that it's not just simultaneous communication; it's got to have no interruption in either the device or the host downstream ports. That's really the crux of the problem that they were trying to solve; existing techniques where you flip the host to the downstream port would disconnect the upstream host.

And again, that's one of the fundamental parts of USB and one of the reasons, as we'll see, that Patent Owner was not successful in coming up with this. Because they were under the impression that you could only have one host at a time in a USB system. They didn't appreciate that you could use a bridge to bridge the two hosts and, effectively, have two hosts and eliminate this persistency and interruption problem, as it's set forth in the patent, this disconnection that was occurring, which you can imagine is not ideal in a consumer application or in a commercial way.

And so, I think that -- well, I should make a note, in slide 87, we now have the full extent of their obviousness combination. There is portions from the original petition. There's portions that were added on in the reply in response to our dead-end problem.

And I would suggest that, even though this is subject to a Motion to Strike, I think it's more probative -- I should say, the information added in the reply is what the subject of our Motion to Strike is.

But I think it's actually more probative of the lack of motivation, of the failure at the outset to look at what a POSA would have done in 2013; and instead, cobbling together after-the-facts to try and spackle over, so to speak, the gaps in Chang I and Chang II with POSITA knowledge.

And when I asked Mr. Welch about this, the response to various aspects of how would you do this? Implementation, it's just an implementation detail. It could be one way of doing it. There are other ways. It's just an implementation detail.

He didn't try to nail that down. Well, I would suggest that that's the failure in the prima facie case. And again, going back to Chang II, even his interpretation of that, he acknowledged, to his credit -- I mean, he was reading Chang II and its disclosures about switching. Why is the CPU sending a signal from the detection unit to the block labeled 132?

He says, well, that's how I read it. I don't know it. It's just plausible. It's not certain.

That's not a sufficient showing for obviousness.

When we turn to the secondary considerations that guard against obviousness, we see additional evidence of the fact that the motivation to combine is not there. We have multiple emails from Microchip personnel --

JUDGE HOMERE: Counsel, you have less than five minutes remaining.

MR. BRAUSA: Understood.

And we're on slide 94 now, from Patent Owners, in which they're talking about the Unwired solution. Now, Unwired became Delphi, which is now Aptiv, which is the Patent Owner in these proceedings. And so, when you see Unwired in the documents, that effectively refers to Patent Owner's commercial product.

And when they were talking about the solution -- again, there's unrebutted testimony that it embodies the claims, or at least certain claims, we see discussion here of the fact that they thought it was outside the capability of USB systems; that this idea of having two hosts just wouldn't work.

Internally, Mr. Steele was saying, look, if Dave wants to have data capability, he needs two USB lines. It's tradeoff. You've got more cables. Remember that complexity we saw earlier? That's what's being discussed here.

We need to emphasize that you can't do CarPlay and own the other ports with one USB data link. Anyone who does this is violating USB. As you see at the end, it's not highlighted, but it says, no bus can serve two masters.

Again, they didn't appreciate that you could put a bridge between two hosts to work around this problem. That's the inventive solution reflected in the claims.

And I'll note throughout these emails, the dates. These are months --

JUDGE HOMERE: Counselor? Counselor? Counselor? But doesn't Chang teach this? Doesn't Chang teach putting a bridge between two hosts? Because, I mean, I think that's the main thing, the main teaching in

Chang I. You have a hub that can serve as a host, to have host-to-host communication and host-to-device communication. Isn't that? And that you actually utilize a bridge when you want to have the host-to-host communication. Isn't that expressly taught in Chang I?

MR. BRAUSA: It's not, because Chang I doesn't expressly disclose the persistency and the ability to go between different states. It certainly describes a bridge, but it doesn't describe this embodiment here, where you have part life, persistency on all the downstream ports with one data link.

And again, regardless of whether Chang does, and regardless of how you read that, certainly, their expert's opinion in this case in 2024 is that that's what Chang discloses.

I would suggest that, if that were the case, Petitioner would have thought of it at the time. They had every commercial reason to do so. And I think that further highlights why that implementation is not obvious and the patentability of the claim should be upheld.

There's a like challenge that the people talking about this, that Petitioner was somehow not knowledgeable about USB. We're not engineers, I think I heard reference to them being field engineers and there's a slide in the presentation that wasn't shown where their credentials are highlighted, and field is highlighted, but not engineer. I'd suggest they're engineers. But, moreover, even sales representatives know what's going on at a company like Petitioner in terms of embodiment.

Mr. Steele himself, he's got to be, yes, in electrical engineering. He works directly with designing USB. We see in another slide from 2014 Don Perkins. He's listed as a contributor on Exhibits 1019 and 1020. This is

USB-C and the USB power spec. And so, the suggestion that they didn't know what they were talking about just doesn't pass muster.

You see here -- and I'll wrap up and I'm happy to eat into just a little bit of my rebuttal time. But they're talking about the solution again. This is in response, if you read the full email on slide 98, of Unwired's solution and the fact that GM wanted something similar.

And in response, they don't say, boy, that's an obvious solution. Why didn't we think of that? They say we're going to put together a slide deck which will illustrate the considerable complexity and lack of USB compliance from Unwired's solution, from Patent Owner's solution.

Going on, again, skepticism, failure by Petitioner in terms of this implementation. That's the secondary consideration that my friend was struggling to remember. It's the failure of Petitioner to come up with a solution to these problems.

When persistent USB is a requirement, as of 2014, they had run into a wall. I couldn’t put it any plainer. In 2014, by December even, this is over a year after the priority date, we looked at developing a solution; we don't have one. We wish we could provide a solution, but we don't have one.

The solution is in the patent. The solution is in the claims. And you don't have to take my word for it. At slide 103, the Automotive News awarded the PACE Award to Patent Owner. Importantly, the innovation that it's for must change the rules of the game.

Exhibit 2036 is a declaration from Michael Breon. It's unrebutted as to what the standards are, what the rationale are. And they could have deposed him and questioned his testimony and undermined it and suggested

that it's an award nobody's heard of, but they didn't.

As he says in his declaration, other technologies that have won this award, adaptive cruise control, keyless remote start. Rather than poo-pooing the invention, this award, again, confirms that the solutions set forth in the patents is, in fact, inventive. It's not obvious. And for that reason, I would ask that Your Honors --

JUDGE HOMERE: Well, Petitioner said that this award is not -- they self-nominated themselves to this award and it's not even an award that's known in the field. So, what's your response to that?

MR. BRAUSA: So, certainly, the process you go through for the award is self-nomination.

JUDGE HOMERE: Okay.

MR. BRAUSA: That's how it works

JUDGE HOMERE: Okay.

MR. BRAUSA: Again, Mr. Breon really confirms that in his declaration.

The assertions that it's not well-known, or things like that, are supported only by the say-so of Mr. Welch, who said, I haven't heard of it, so, therefore, it must not be a significant award.

That's not the case. If you look at the website, if you look at Mr. Breon's unrebutted testimony, it indicates that, in fact, this is an important award. But again, you don't actually need to get to the commercial success. You don't need to get to the rather the industry praise. And by the way, the commercial product was, in fact, commercially successful. That's also in Mr. Breon's declaration.

But you just look at what Microchip said in 2014, we wish we could provide a solution, but we don't have it.

So, having eaten into my time, I'll close there and reserve the rest of my time for rebuttal. Thank You

JUDGE HOMERE: Yes. So, you have eaten three-and-a-half minutes of your rebuttal time.

And ,with that said, we're going to take a five-minute recess, and then, we'll reconvene in five minutes.

(Whereupon, the above-entitled matter went off the record at 3:29 p.m. and resumed at 3:36 p.m.)

JUDGE HOMERE: Ready to resume here?

MR. JENSEN: Petitioner is ready, yes.

JUDGE HOMERE: Okay. Go ahead, and proceed with your argument.

MR. JENSEN: I see the timer, are we going to reset –

(Simultaneous speaking.)

MR. JENSEN: It looks like we overstayed the five minute break.

JUDGE HOMERE: Okay. You have 33 minutes.

MR. JENSEN: I thank Your Honors. So I'd like to use the Patent Owner's Slide 70 as, sort of, a discussion guide for my rebuttal. And this is the, I'd say a summary slide, where they have a table on the right and an image on the left that they have labeled.

And you can see there's, I think, no fewer than five references to POSITA knowledge. Apparently our combination includes a bridge from Chang and nothing else but a whole bunch of POSITA knowledge.

So I'd like to walk through that and, I would say, you know, debunk that theory or that thesis. Because that is not our combination. And I'd like to just walk through each of the rows in their table, starting with the first one, which says modify Chang's four dedicated ports to be three dual role ports. And they list as a source for that POSITA knowledge.

Now, to be sure, or at least in the crossbar implementation, not the mux, right. But the crossbar implementation does modify three of Chang's ports to be dual role ports.

But the source of that knowledge is not POSITA's knowledge. That comes directly from Chang II, which expressly discloses the use of a dual role port. And applying that teaching to the ports in Chang is how we get the, you know, multiple dual role ports.

But that's not something that is, you know, pulled out of thin air, whole cloth, or just a POSITA's knowledge. That comes directly from the Chang II reference itself.

JUDGE HOMERE: Well, Counselor, but Chang II has a single dual role port, right?

MR. JENSEN: That's correct.

JUDGE HOMERE: Okay. So how do you get to the multiple dual role port?

MR. JENSEN: So to get to the multiple dual role ports, that's actually the perfect segue into the second row here, which says at a crossbar between bridge and downstream ports. And they cite a POSITA's knowledge.

And you heard my esteemed counsel say, I think several times, or raise the question, well okay, even if you did it for one port, and you made

one port dual role, you know, why? Where's the why? Why would you do it for multiple ports, which of course would require a crossbar.

And we address that head on in the petition and our opening expert declaration. So I'd like to direct Your Honors to where we answer that question.

And I'd first point to, this is for, I'll just use the '420 petition as an example. And that's on page 39 of the '420 petition. Let me make sure I've got the right petition here. Looks like the '420. Let me jump to page 39. And this is the motivation to combine section of the petition. So this is on the bottom of page 39. And we say, one common sense reason it was desirable and obvious to a POSITA to make all downstream ports dual role is user convenience. Namely, users need not know or recall which port to use for host mode and device mode operation, or keep track of those.

In my opening, I talked about that, I'll say that motivation generally. It's equally applicable whether you apply it to one port, or two ports, or three ports. The same convenience and user frustration and hassle would occur. Because again, the user is not keeping track of which port is dual role, which one is not.

And to take a specific example, like in a vehicle context, and we talked about using this in, for infotainment systems in vehicles. There might be somebody in the passenger seat that wants to plug their phone in, or somebody in the back seat that wants to use the infotainment system and plug their phone in.

And it would, they would face the same problems and hassles of having to track all of this. What mode is their phone in? What mode is the

port in the back seat? Does it support?

And so that rationale applies broadly across both of the mux and the crossbar implementations, and explains at least one common sense reason why you would want to do this for, you know, more than one port, or all the ports on Chang's hub.

I would also direct Your Honors to Mr. Welch's declaration where he -- it talks about the same thing. This is just an example. It's Exhibit 1013 in the 228 proceeding. And he talks about the vehicle context, you know, people in the back seat. It would be desirable to allow each individual the ability to plug in their phone into any port in the car.

So not only I would say is it sort of real life, like, and I always hesitate to use the word common sense, but I think we've all experienced in some way, shape, or form this type of frustration before. But we have expert testimony that supports this rationale as well.

So I wanted to be very clear that we have addressed that question of why a cross, why would you do this for more than one port, right.

Chang II teaches how to do it, right. We have alternative paths, host and device mode. And then you apply that to the existing ports in Chang.

As one of Your Honors I think had mentioned, to begin with Chang already has several downstream ports. So it's not as if we were taking some device like Chang II by itself, and then expanding that out. No. We're applying the teaching of Chang, the concept of the dual role port to all of the ports in Chang.

MR. JENSEN: Yes. But I think the argument that Patent Owner makes here is that while theoretically you could say, okay you are trying to

expand the teaching of, you know, from Chang II into Chang, the variety of ports in Chang I, you know, where you have dual role ports.

Except that well there's a whole lot. Now in practice, you know, in practice there's a whole lot that would, you know, you would need to do a lot in order for that to happen.

And that's where I think, that was the basis for their hindsight argument. Saying that well hey where would you get that? I mean, for instance, the notion of using a crossbar. Where did it come from? Was that something that was, you know, gleaned from the application, from the patent itself, or –

MR. JENSEN: No, absolutely not. And we talked about, in our petition and the opening declaration, we provided a host of I'll say additional evidence that these crossbars, just like multi-plexors, were well known.

And we cite the Hesse reference. And we cite the Overtoom reference. Both of those have, you know, multi-port port routers that support dual mode operation. They call them crossbars. We cite Sakaki, if I remember the name right. But an older reference going back decades that describes the basic crossbar functionality.

And I think perhaps most importantly, right, if you look at the challenged patents themselves, they don't describe any of these, you know, implementation particularities either.

They don't say, oh, well here's the actual, you know, pins on the switch. Here's what you have to do to -- they use the word configure those. And there's a good and valid reason for that.

Because this is fundamental basic engineering 101 that any

undergraduate student would know and understand, how a mux works, how a crossbar works. It has, you know, two or three control signals.

This is the, precisely the type of thing where it is appropriate to rely on the understanding and knowledge of a POSITA, as reflected in the Patent itself.

So the idea that somebody, a graduate, let alone one that has several years of actual design experience, couldn't program a mux or a crossbar is not credible.

JUDGE HOMERE: Now if you look at the individual teachings of Chang, in Chang I and Chang II. So clearly Chang I discusses, you know, the dedicated ports where you can use one port at a time. And Chang II only has a single port in there.

So the notion of using the ports simultaneously, I mean, where would you get that from? How would you, how would the combination of Chang I and Chang II get to that?

MR. JENSEN: Let me direct Your Honor's attention, if I can pull up the Chang reference itself. This is Exhibit 1014. And we can look at, let's just start with Figure 1. And I'll rotate it so we can see, right.

This is a traditional, you know, USB hub. This is before it's been modified to add a bridge. And you can see that Chang illustrates, you know, four devices plugged in, a flash disk, presumably a USB drive of some sort, MP3 Player, a PDA, et cetera.

All of those are plugged in at the same time. And they're working according to the principles of standard USB hubs, which is to say they're simultaneously communicating. And I gave the example before of plugging

in your mouse and your keyboard at the same time. And they work.

Any POSITA that would be reading Chang would understand that. That this is, you know, hub fundamentals, basic hub operation 101.

If we flip ahead in the Chang reference itself to Figure 3. That's where they've added the bridge. So now the Port 50 supports host-to-host communication. And they go on in Figure 4 to show, although they don't illustrate the bridge. This is illustrating, you can see Port 50 there has a host plugged into it. So this is the invention of Chang with the bridge.

But again you have, you know, three devices and one host plugged in. And any POSITA looking at that understands what a USB hub is, by definition, would know that those are simultaneously communicating.

That if you unplug one of the devices, nothing happens to the other connections. Likewise, if you were to plug, you know, another device in, it would not interrupt the other connections. And that's the baseline starting point for making the modification, right.

Here's a hub that already has host-to-host and host-to-device paths that work simultaneously just as described in the USB standard when it talks about what a hub is.

So starting from that point, and then making the modifications that we propose, nothing changes about that fundamental principle in terms of, you know, simultaneous communication, or the ability to, you know, switch out one device for another.

If we turn back now to Slide, Patent Owner's Slide 70 and look at the next item. So the third row is, it says modifying Chang's bridge. Chang modified by Chang II.

That's certainly one of the obvious combinations, or one of the proposals that we make as part of our obviousness combination. But it's unfair to say that's the only, right.

Because we expressly discussed in our opening papers and in Mr. Welch's declaration that you can use, you know, discreet off-the-shelf components. In fact, that's one of the things Chang itself describes, is you just use an off-the-shelf bridge.

And there's nothing that needs to be done to that bridge. You can assemble these off-the-shelf components, the hub, a bridge, a mux, or a crossbar, et cetera, and make the system. So I think it's a little bit disingenuous to necessarily say that you have to modify Chang's bridge. But certainly that's one option.

And there's a little, I would say, sleight of hand that goes on here as well. Because Chang II's, the Chang II reference itself describes the entirety of its system as a bridge. So that includes everything, you know, in the Figure 5, like all the different components and the detection unit, et cetera.

And I think that's sort of a, just a holistic nomenclature that it uses. So there, you have to be a little bit discerning in terms of, you know, or a little bit careful when we talk about oh, you know, Chang II's bridge versus the bridge in our combination, which as you can see right on Slide 70, you know, the bridge shown there is right from, you know, Chang, not Chang II.

So, and there's nothing special about this bridge in the claims, right. I think there are a couple dependent claims that say the bridge has to have some ports, et cetera. But that's standard for any, you know, off-the-shelf USB bridge. It has an input port. It has an output port. It has multiple

ports.

So Chang already has a bridge. We don't need to modify it. Although he said it would be obvious to do that, you know, for a variety of different reasons, depending on the implementation you're doing.

For example, if you were going to do an integrated solution, right, where instead of assembling off-the-shelf components you are programming a chip or a controller, like Chang II discloses in its Figure 2. It just says, hey, here's the chip. You program this, the functionality into it.

And Chang itself, in Paragraph 22, when it's talking about putting, adding the bridge, where it says, hey, you know, essentially a POSITA, I think they use the term an IC designer, would understand that you could do an integrated approach just as easily, right.

Again, that's a design choice. There's reasons to do one or the other, you know. One might be cheaper for mass production and integrated solution. If you want to just get something to the market quickly, or a proof of concept, or do a prototype, you might just go buy the parts off the shelf and put them together.

So there's motivations for each of those two different sort of approaches, the integrated approach or the discreet off-the-shelf component approach.

If we go to the next, the fourth row on Slide 70, modify the detection unit algorithm. And they cite a POSITA knowledge. I think the first point here is again we're not bodily incorporating any particular algorithm from Chang II into Chang.

Rather we're simply applying the teachings of Chang. Chang teaches,

Chang II teaches a host-to-host path, a host-to-device path, a detection unit, and simply switching based on what is detected, a host or a device. And I think –

JUDGE MCMILLIN: Excuse me. Where, this is Judge McMillin. Where is the detection unit in your crossbar switch implementation?

MR. JENSEN: It could be in any of the three locations that Mr. Welch discusses in Paragraphs 192 and 193 of his declaration. And that's common to all of the proceedings. That's the same paragraph number. It's the identical disclosure in all of them.

And if Your Honor would like I'm happy to turn to that and pull it up. I think that takes us down to sort of a dead end road. But let me turn to that right now. Because I think this is an important issue and important question.

So I'm on Slide 87. And this is an excerpt from Paragraph 192 of Mr. Welch's declaration that is pin sighted in all of the proceedings. I think in various elements, they're all in the motivation to combine section. Some of it's in a footnote. Some of it's in the body of the petition.

But we describe here, right, an example deployment of a detection unit. And it uses, it's a representative example here, the mux implementation. And shows that you would place the detection unit as shown on Slide 88.

And this figure, again, is right from his declaration. And this applies to all the proceedings. He goes on to say –

JUDGE MCMILLIN: I'm sorry. Is there a similar paragraph with regard to the crossbar implementation that shows the detection unit in the crossbar?

MR. JENSEN: He did not duplicate the figure again, because it was unnecessary to do so, given that the concept is identical to both implementations, right. It's simply, you have a detection unit, connects to the switch. The switch can be a mux or a crossbar, as we'd outlined.

And Mr. Welch goes on, this is on Slide 89 in Paragraph 193, to explain in more detail the placement of the detection unit. And you'll see, the last highlight says, in a third obvious location. That's Number 3, the third location. You could put it in the bridge.

The first two locations that he said where it would be obvious to place the detection unit, right, are outside of the bridge. One of them is essentially with the switch, or inside the switch. Another one he says, it's separate, and it's between the dual role Port 50 and the mux. And as you can see, again, on the figure on Slide 88.

So the first two locations where he says, hey this is where, you know, you would put the detection unit are outside the bridge. They don't have a response to that. Their expert never said, he doesn't, they don't even allege there's a dead-end problem when the signal detection unit is located anywhere outside the bridge.

And those are the first two places where we said you would put it, where Mr. Welch explained. And he goes on, and he gives reasons why.

And I'll highlight on Slide 90. This is still Paragraph 193 of Mr. Welch's declaration. He says, after he talks about the three locations, right. He says, the detection unit must connect to the downstream port to detect the mode, as shown in Chang II.

What does Chang II show? That's on Slide 91. And it's highlighted

there. You can see the detection unit at all times, regardless of whether there's a host to device connection or a host to host connection, the detection unit is always connected to the downstream port.

Why is that? Well so the detection unit can do its job and detect a host or a device. This is in the exact paragraph where he's talking about where you would place, where Mr. Welch talks about where you would place the detection unit.

So it's counterintuitive at the least to say, well based on this disclosure, okay Mr. Welch says, hey you got to have this thing connected to the downstream port. And here's some places where you can put it, including outside the bridge, where it would be connected in that manner.

To then say the only thing that we disclose, the only thing that we relied on is something no POSITA in their right mind would ever do, which is put it in the bridge, not only in the bridge in a manner that would disconnect it from the downstream port.

To be sure, we disclosed you can put the detection unit inside the bridge. We plainly say that in Paragraph 193. What we're saying there is when you put that detection unit in the bridge you keep the same connection to the downstream port. You're just changing the location of the detection unit, not where the detection unit gets the signal that it operates on.

What they're saying is if you put the detection unit inside the bridge, somehow the only way that the detection unit gets a signal is if that signal comes through the mux or crossbar into the bridge.

That's not what we proposed at all in our opening papers. And again, that's apparent from Paragraph 193 where we say, do it like Chang II, which

has it connected to the downstream port all the time. Even though, in Chang II, the detection unit is in Chang II's bridge.

JUDGE HOMERE: But what would the condition of the detection unit inside the bridge gets you? I don't understand it. It seems to model, you know, the record, if anything. I mean, I, why not stop with the detection unit outside the bridge? I mean, I think that the --

MR. JENSEN: And we certainly could have. And I suppose, Your Honor, again, it was maybe the lawyers' impulse to go above and beyond, and go the extra mile, and talk about that particular option.

And Chang II, because it calls its entire system a bridge, there is some suggestion there of putting the detection unit, you know, in the bridge, or as part of the bridge.

And again, that would be where you're modifying the bridge in Chang. But as I noted in my comments earlier, we disclose an implementation where you don't have to do that.

There could be some bridges where you have additional, you know, functionality available, additional processing power, et cetera, that you might want to be able to take advantage of. And that would be, you know, one reason why you could put it there.

But I think, to Your Honor's question, that's why we listed it as the third option of where you could put it. If we go to Slide 89, we say, look, and it's not, I wish it wish it was highlighted. It's right in the middle. This is, we're talking about locating the detection unit outside the bridge, between the dual role port and the mux.

We say, this location is obvious because it is the first place a signal

from a downstream USB product arrives. So we do give some reasons why you would place it in these other locations first.

But, you know, we're not sort of limited to that. And there are, you know, good and valid reasons why you could want to put it, you know, inside the bridge as well.

JUDGE HAMANN: Counsel, this is Judge Hamann. I'm just looking at Paragraph 193. I know you have Slide 89 up. The sentence I find interesting in this third option is the one that you cut off. It's the very, very end. It says it.

But it looks like Mr. Welch continued on to talk about the bridge and detection unit controlling the switch functionality. So I guess there's some recognition that, you know, because of where the placement and the switching that needs to occur that that would somehow, I guess, doubles back, for lack of a better term, to deal with that switching controls. Is that my correct, am I understanding that correctly? Or is that not really fleshed out?

MR. JENSEN: Yes. And that's what I was trying to say earlier. That if you have some available, you know, processing resources in the bridge that, sure, you'd want to take advantage of those. And it could help, you know, send the signal.

Kind of like the, if we look at Chang II, right, it says there's a CPU there that has some processing that, you know, sends the signal to the, you know, to perform the switching. It's a similar concept here, right.

If you have, if you already have a bridge, and that bridge has some resources available, why wouldn't you take advantage of it? You don't have

to. If your bridge doesn't have that stuff, no problem. You just use a discreet off-the-shelf bridge, and you end up in the exact same place.

Let me toggle back to the Slide 70 that we're looking at. We're on the fourth row of modifying this detection unit algorithm based on a POSITA's knowledge. And again, we're not bodily incorporating that.

And I think something that's important to recognize here is, you know, the timing. The relevant date here, the priority date of the patent we're talking about is 2013. The references relying on Chang and Chang II are from, you know, much earlier in time. I forget the exact dates. But one of them is, I think, the mid 2000s, maybe 2006. I think that's Chang II. It could be 2007.

But this explosion or proliferation of dual role devices really picked up steam, you know, in the, you know, kind of year or two prior to 2013. That's when people started having these smart phones with the dual role, et cetera.

And so you need to look at the prior art references, not as the date when they were written sometime in 2000 or 2006. But what, you know, what would a POSITA understand based on reading that reference in 2013?

And a POSITA would certainly be aware of these numerous dual mode devices. And they would understand that if you plug a dual mode device into the Chang II, you know, downstream port, how that port would operate.

It would detect whether it's a host or a device. And if the mode's switched, right, somebody opens a different app on their phone, or whatever they do, they push a button and it switches modes, right, the device doesn't

unplug.

You don't have to unplug it. Again, it electrically disconnects, reconnects the USB terms or attachment and remove it, it removes and then it attaches again. And the algorithm in Figure 6 from Chang II would work just fine, right.

So even though we're not bodily incorporating that, even if you were to say, hey let's, you know, apply that algorithm or that process flow to the modified embodiment, it works just fine.

And worst case scenario, okay, if Patent Owner is to be believed that somehow POSITA doesn't understand what a dual role device is or how it switches modes, and what that entails, the modification is trivial, right.

In the algorithm, rather than physically unplugging, exchanging the device, the only tweak that would have to be made is to just, say you leave the device in, and as Judge McMillan noted, Chang II discloses that you automatically, periodically, and regularly detect the mode anyways.

So the algorithm would work just fine. We submit there, there doesn't have to be any modification in the first place. But even if there would, it's such a trivial obvious modification that it almost hits you over the head with it, when you're talking about, you know, how would this operate with a dual mode product.

JUDGE HAMANN: Counsel, this is Judge Hamann again. I think this question sort of comports with what you've been discussing. I'm thinking of Patent Owner's presentation as it relates to emails that I believe were from Petitioner, you know, some personnel, for lack of a better word.

And I recognize it's a nexus issue. You said it was used for secondary

considerations. But I'm trying to understand, you know, what, as to the, you know, what one of ordinary skill in the art would have considered as to the combination. You know, to the extent that that's relevant, you know, what to take from those emails, if anything.

MR. JENSEN: Yes. I think there's a really easy answer to that. All the emails that they're citing, to the extent they involve anybody who's an engineer, was Mr. Steele.

If you look at, on our, this is, it gets into the confidential material. But you'll see, and that's, I'll just give you the slide number for that. I believe it's Slide 177. We'll have to double check. It's our confidential slide.

You'll see that Mr. Steele was one of the recipients on the email summary from the meeting with Apple where they were explaining to Microchip, you know, what would and would not be acceptable to them in terms of a solution to CarPlay.

In particular, right, the messaging that Microchip received was, hey a bridge is not going to be approved. It won't work for us. So host to host bridges were very well known to be sure, right. And we cite a bunch of data sheets dating back I think to the 1990s. That's Exhibits 1034, 35, 38, 31, 36, 37, and 39.

So POSITAs were very, very much well aware of host to host USB bridges. The only reason that there was any consternation on the part of Microchip is because Apple said, we're not going to accept that. We can't, you know, approve it. You can't use a host to host bridge.

Now that turned out to be, you know, incorrect or a

miscommunication, as it turns out. But it doesn't change the fact that that was the basis on which, you know, Microchip was trying to come up with a non-host to host bridge based solution.

And that's why Mr. Steele said in those emails, we can't do it, you know. If you have two hosts connected without a bridge that would violate the USB standards. It doesn't work. We don't know what to do. And to my knowledge today nobody's come up with a solution, a non-host to host bridge solution either.

So, and that's the factual predicate. It's like the first domino in a chain of dominos. And once that domino tips everything else just washes out. So, I think those emails prove absolutely nothing other than at most there was a misunderstanding or a miscommunication between Apple and Microchip. It's much ado about nothing.

JUDGE HAMANN: Thank you. Thank you.

MR. JENSEN: Returning to Slide 70. The next, the fifth row here says implement in vehicle infotainment system. And they cite POSITA knowledge for that.

So, first off I think maybe just a broader comment here. Most of the claims don't require a vehicle or an infotainment system at all. They sort of, there's an amalgamation. At the outset Judge Homere said, hey be clear about which claim you're talking about. They've mixed and muddled a whole bunch of claims here.

There's limitations in some and not others. And they're trying to make the best case they can by pulling everything into one. And this is just an example of that, the vehicle infotainment system POSITA knowledge.

While we certainly think that, you know, using USB in a car what was within a POSITA's knowledge, we expressly cite a combination with the Chutorash reference about using USB in vehicles, in cars, for infotainment systems. So, I don't think it's fair to say again that oh, somehow that's really, you know, out of the ether POSITA knowledge.

And not only do we have the express combinations for that, but we cite a number of articles disclosing the use of USB for infotainment systems, you know, in vehicles. There's a article that says the car is a PC on wheels now. We don't need to reinvent the wheel. We should use USB.

This, there is, you know, ample evidentiary support. Any time we invoke the knowledge of POSITA it is substantiated by, you know, the context of the mux, right and data sheets, et cetera, for the crossbar.

Similarly here when we're talking about a vehicle we cite copious evidence of that. But we also have an express combination.

JUDGE HOMERE: Counsel, you have less than two minutes.

MR. JENSEN: Thank you. The last point here is the bottom row. It says, simultaneous communication from downstream host and device. I think I addressed that out at the outset when we talked about, you know, Chang is a basic hub functionality. It has the simultaneous communication paths. And nothing about that changes when you make the ports dual role.

Let me just check my notes here. Let me go to Slide 104 and address a point that was brought up, which is, and this kind of goes back to the detection unit. Where is that, you know, actually located?

So, this is Dependent Claim, let me go to the bottom bullet, Dependent Claim 4 in the '643 patent says, the routing switch includes the

signal detection circuit. So that's not in the bridge. That's in the routing switch.

We expressly address that. And their own expert, right, admits that would be a natural, obvious place to locate the detection unit. So, I think it's disingenuous for them to say that somehow, you know, for the independent claim we somehow limited ourselves to putting the detection unit in the bridge, which would work anyways.

But in the bridge in a manner that would create or manufacture, you know, a false dead end problem, when the claims themselves, you know, these sometimes expressly state where that detection unit is located. And it's outside the bridge.

And again, they have no response. Your Honors don't even need to read to the dead end argument. Because there are two scenarios where it doesn't even apply, which were in our petition. Thank you.

JUDGE HOMERE: Counsel, you have 17 minutes of rebuttal time.

MR. BRAUSA: All right. I want to take some of the comments that Petitioner's Counsel made in turn. I think first there was a suggestion that, you know, that the example from Chang II and the vehicle, that wasn't POSITA knowledge. That the idea to modify with dual role ports was expressed in Chang II.

But if you look at the portion of the petition that Counsel directed you to, that was page 39, I believe, it actually talks about the motivation for doing that. And it doesn't point to anything in Chang II. It says, well it would be common sense. And that's kind of our point, which is, every time there's something that is not taught or not described in the references, of

which there are many things and we'll go through a few of them. There's reliance on this POSITA knowledge.

Here it's common sense. It's well known and obvious to include them. And the citations for that, turning to paragraphs 208, I believe is what was cited for an Exhibit 1013, it's just Mr. Welch's say so.

There's just not any evidence. He just says, well it would be convenient, and offers no explanation for why then if this were true Chang I exists at all. Dual role ports were available. They don't –

(Simultaneous speaking)

JUDGE HOMERE: Counselor, should one divest oneself from common sense when you are looking at those things. For instance, I asked you earlier during your main presentation about why is it that, what's the purpose of getting, of using all these dual ports simultaneously?

You said, you know, essentially, although you didn't use the word convenience. But you said that it was, so, you know, it's to enable multiple people to utilize the ports at the same time, and without having to remember which, you know, what, which port is used for what.

And essentially that was a long-winded way of saying that well, you know, for use of convenience essentially.

So isn't commonsensical though that, you know, if you have a car with multiple users and everything you want to facilitate their ability to use their phone without having to remember, you know, what port it's being used for, you know, why, I mean, in light of what you have in Chang I and for Chang II?

MR. BRAUSA: Sure. Of course at a high level that's the desire. But

again, you have to balance it in the obviousness inquiry, in terms of the combination overall.

Chang I there's no problem identified with this. You could have a different physical connector and have a different port. We've all experienced this of having the wrong port to plug into a certain type of USB device. And yes, that can be frustrating. I'm not going to disagree with Counsel on that.

But nonetheless it persists because there are other considerations, design choices, cost considerations, simplification downstream is part of the process that you have to evaluate in all aspects. You can't just say oh, it would be more convenient. And so therefore you'd just do it. Because if that were the case you'd do it in every case. And here it's not that of course common sense is disregarded. Of course you can rely on common sense under KSR. That's one of the primary holdings of that.

But when you're doing that you've got to be very careful. Because that doesn't really free you from the obligation and burden of showing the motivation to combine.

So again, it's not just why in the abstract would you want a dual role port? That may be a straightforward answer to the question. That's not the obviousness inquiry here. It's why you would do so in the context of Chang, modified by Chang II, and the supply, or the rationale supplied is just knowledge of the POSA here.

So it's the combination aspect of it that is the issue in our view, not in the abstract whether dual role ports might be more convenient in some sense.

Turning to the second point. He talked a little bit about a, what I

understood to be their double standard, which is we're requiring more from the prior art than the disclosure of the patent provides.

I think that's mixing apples and oranges a little bit, and getting into our discussion tomorrow. Because again, the obviousness inquiry importantly if it's not played by hindsight is not relying on any disclosures of the patent.

So, the question is not in the abstract, well it would be obvious to put a detection unit here, or a routing switch here because the patent, the challenged patent talks about implementation in detail.

Because that's again considering the context provided in the patent, and whether something is sufficiently described or enabled, of course with the benefit of the disclosures in the patent is a very different question from whether a POSA, if they're properly doing the obviousness inquiry without hindsight, would arrive at that same solution.

And so I'll also note that there was a heavy emphasis on, boy this stuff's easy. Anyone with an undergrad could do it, I think was the statement I heard. That's flatly inconsistent with the POSITA definition that we started out the day talking about.

And I think again reflects this hindsight approach where for some things it's really easy. For some things it's really hard. Again, properly oriented under the correct definition of a POSITA that double standard just doesn't cash out here.

I think in response to Your Honors questions about the simultaneous claim on limitations. And again, during the break I confirmed it's Claims 2, 8, 16, and 17 of the '420 patent, and Claims 2 and 15 of the '962 patent.

But if we look at the figures that Counsel identified from the Chang I reference we of course see the prior art in Figure 1, the addition of a bridge in Figure 3 that we've seen many times today. And then there's a Figure 4 which doesn't have a bridge but correctly notes that there's a host there.

What I'll note is the argument that this discloses simultaneous communication between the downstream host and downstream device is nowhere found in Chang. That's something that was attorney argument presented today.

Moreover, the question is not, even if whether Chang unmodified described that, or that would be obvious. But whether it would be obvious given the fact that you have to modify Chang as well. There's no dispute --

JUDGE HOMERE: Wasn't that inherent though from the functioning of a bridge? I mean, people that, of a hub, excuse me. I'd ask your artisan, would that person know that if you have a hub with multiple ports you can, that generally allows you to plug in multiple devices at the same time? That is --

MR. BRAUSA: But Chang is not describing an ordinary hub. It's adding a bridge. And what's missing is whether that addition of the bridge changes that. And it might work that way, to be clear. I'm not suggesting it's impossible. But that disclosure is not found in Chang.

That's a argument of, well a POSA would know that this would operate this way. Or they could configure it to operate this way. They could configure it even after modifying the bridge, even after adding a crossbar, even after changing the ports to do so.

Maybe. Again, it's not so much a question why. But I think my

friend did articulate her position, which is there's not a sufficient why. And just because it might be easy to do doesn't mean that the combination overall is something that a POSA would have gone down that path.

I think the other aspect of this is there was a suggestion I heard when talking about Chang II. And I wrote down that there's a suggestion that Chang II just uses the term bridge as sort of a holistic nomenclature.

And this is getting at I think the dead end problem, to suggest that well what Chang II is calling a bridge, that's not really the bridge that we were relying on. We were relying on the bridge of Chang I.

But if you look at page 37 of the petition, if you look at page 72 it makes it clear that Chang I doesn't talk about the bridge. It doesn't tell you how it operates. It doesn't tell you what it does. Certainly it suggests that ordinary bridges were something that didn't need to be described. And we don't disagree with that.

JUDGE HOMERE: Chang I? Did you say Chang I?

MR. BRAUSA: Chang I, correct.

JUDGE HOMERE: Doesn't' Chang I explicitly say that the bridge is for the purpose of enabling host to host communication?

MR. BRAUSA: Correct. But beyond that it doesn't disclose anything outside of the ordinary from an ordinary bridge. That's why you need Chang II. Because it doesn't have any switching logic. It doesn't have any of the additional teachings that are described in Chang II.

And again, those aren't my words. Those are on page 37 of the petition, which says that Chang, and let me just turn to it so I quote it accurately.

Chang discloses little regarding its bridge. Chang II details various aspects of its bridge. It doesn't say Chang II discloses what it refers to holistically as a bridge. But it's not really a bridge.

And so the suggestion that they're not relying on the disclosures of Chang II about the bridge, to modify the bridge in Chang I, again doesn't carry water.

JUDGE HOMERE: But, Counselor, in the invention itself, the switching itself, the switching logic, is that in the bridge? I see in, when I'm looking at Figure 4 of the invention, of the, specifically in the 643 patent you have the repetition of routing logic. And then you also have a bridge. So you have a switch and a bridge. So where is the switching taking place here?

MR. BRAUSA: Say that again?

JUDGE HOMERE: Where is the switching taking place?

(Simultaneous speaking.)

JUDGE HOMERE: In the bridge or in the switch itself?

MR. BRAUSA: The switch --

JUDGE HOMERE: The routing, yes, the routing of the plexing switches.

MR. BRAUSA: The switching is occurring in Figure 4 in what's the multiplex switch. The bridge can in some embodiments control that switching through communication with the head unit.

JUDGE HOMERE: Okay.

MR. BRAUSA: But the fundamental point is, in our embodiment the detection unit is not necessarily part of the bridge. You can configure it that

way. You can combine it with other things. And that might be an embodiment we can think of.

But in their proposed obviousness combination --

JUDGE HOMERE: No. But where is that? I mean, where's the basis for that? Where in the specification anywhere is it that indicates that the detection unit itself is not part of the bridge or is part of the multiplexing switches?

MR. BRAUSA: I'm sorry. Could you restate the, re-ask the question?

JUDGE HOMERE: The detection unit, you got the detection unit being, in Chang II it is in the bridge. Whereas in the invention I guess it's somewhere else. But -- and I'm asking you where in the specification of the, in any of the Patent that indicates the position or the location of the detection unit.

MR. BRAUSA: Yes. And it does so at column 6 in lines 19 and the lines that follow it, which talks about the head unit controlling the switching via signals it receives from the downstream ports.

And so that's the detection circuitry that allows for the switching to occur, which occurs through the bridge. So, the portion we would point to, to answer Your Honor's question, is column 6, lines 19 to, effectively, line 62 of the '420 patent.

JUDGE HOMERE: Read that again?

MR. BRAUSA: Read the portion of the --

JUDGE HOMERE: Yes.

MR. BRAUSA: So, in use the head unit controls the switching device

via the USB bridge hardware or any other convenient means. And it goes on to talk about how the switching occurs, and the head unit controls used to detect and control those downstream ports.

JUDGE HOMERE: Okay. Please proceed.

MR. BRAUSA: And I apologize. It's a lengthy passage. But for the record it's column 6, lines 19 through 63.

JUDGE HOMERE: Okay.

MR. BRAUSA: Counsel said several times we have no response if the detection unit is located outside of the bridge in the proposed obviousness combination. And pointed to, as they on their reply, to paragraphs 192 and 193 of Mr. Welch's declaration.

As an initial matter in the '962 and -- or, I'm sorry, '962 and '420 proceedings that's exactly right. Because in the actual detailed claim by claim analysis Mr. Welch and Petitioner provided they didn't rely on any mux embodied.

And so, there wasn't anything to respond to. Because as Judge Hamann recognized the Paragraphs 192 to 193 don't describe any locations for crossbar implementations in terms of the detection.

Now there is a suggestion that well it wasn't necessary. It would be apparent to any reader that you could do the same thing. But again, it's Petitioner's burden in this case to set forth their case with particularity under Section 312 of the statute, as Your Honors all know. And they just didn't do it here.

So, we didn't respond to that argument because it was a background argument, you know, a background statement that wasn't in a crossbar

implementation. And it wasn't included in the detailed graphs.

Moreover, even for the 96, or I'm sorry for the 072, which does include a diagram of a mux embodiment in the detailed analysis of that claim, it doesn't actually include the figure that we saw from the 643 proceeding, where the detection unit is shown adjacent to the mux.

Now in fairness, in the 643 proceeding that figure is relied on. But as I noted, and we can discuss this more tomorrow, they're also relying on the bridge controller language in the claim, or mapping that language again to Chang II's bridge, which includes the detection unit as part of the bridge.

And there's not any explanation of how you would implement that detection unit if it's associated with the mux, but not actually part of the bridge in the diagram showing, again, only in the 643 proceeding.

So it's not surprising we didn't respond to it, because that's not an argument that they made in the petition in terms of the detailed routes.

JUDGE HOMERE: You have less than two minutes.

MR. BRAUSA: If we could pull up Slide 109? This is a figure from their presentation. It's PDX 91. And this, I wanted to pull this up briefly because this is the diagram and the annotation where they say, well we argued that directly, that Chang II talks about the detection unit directly connected to the downstream port. It maintains this direct connection.

If you look at the petition, you're not going to find a figure highlighted like this. The word "direct" is not talked about at all when they're talking about Chang and the connection to the downstream ports.

And in his deposition in Exhibit 2048 after we saw this figure I asked Mr. Welch, did you ever say that the detection unit is directly connected to

downstream ports? And he said, well no I didn't say that in my opening declaration. He just talks about the connection.

And so, this is another example of a new argument where they're trying to fill in the gaps in the obviousness combination in response to our arguments. That's not how it's supposed to work, that's not how it should work here.

Lastly, and I won't say too much about it. But the Slide 177, which I think we're going to hear about in just a few moments, I encourage Your Honors to look at it very carefully.

Because I don't see any language in it. I was looking at it during the break where it says, don't use a bridge. And so, I think the suggestion that they have different information, they had something that Apple told them wouldn't work, is inconsistent with the record.

There aren't any emails saying, boy, we wish we could use a bridge. Apple told us not to. And for that reason we do find the evidence in the emails probative of the issue of non-obviousness.

JUDGE HOMERE: Thank you.

MR. JENSEN: So, Your Honors, I think we're at the point where we've reserved some time for the confidential argument. Is that right?

JUDGE HOMERE: Yes. That is correct, yes. But I'm instructing the technical team here to disconnect the public line before we start.

MR. JENSEN: I think we can shortcut this. In view of the arguments that have been made we're happy to waive our two minutes.

JUDGE HOMERE: Okay.

MR. BRAUSA: I'll be brief. I just wanted --

MR. JENSEN: He can't respond to anything, because I didn't bring anything up. There's nothing --

JUDGE HOMERE: Okay. So even, if there's an agreement on both sides that we're not going to have the confidential portion then we can stop here. But if not then I'm going to have to give instruction as to, you know, what, how we proceed from here. So, are you waiving your confidential portion as well? Or do you want to present arguments?

MR. BRAUSA: In view of the comments that closed my argument I think we're fine with waiving.

JUDGE HOMERE: Okay. All right. I think -- give me one second here. All right. Do we have anything further for now from the Panel?

JUDGE HAMANN: I'm good.

JUDGE HOMERE: No. Okay. All right. Well, thank you for appearing today and answering questions. Please stay here to see if you have any questions for the court reporter.

(Whereupon, the above-entitled matter went off the record at 4:30 p.m.)

IPR2024-00228 (Patent 9,619,420 B2)
IPR2024-00229 (Patent 9,645,962 B2)
IPR2024-00230 (Patent 11,176,072 B2)
IPR2024-00495 (Patent 9,619,420 B2)

PETITIONER:

Travis Jensen
Jeremy Jason Lang
ORRICK, HERRINGTON & SUTCLIFFE LLP
tjensen@orrick.com
jlang@orrick.com

PATENT OWNER:

Adam Brausa
Alex Yap
Mehran Arjomand
Andrew Jones
Bryan Blumenkopf
MORRISON & FOERSTER LLP
abrausa@mofo.com
ayap@mofo.com
marjomand@mofo.com
andrewjones@mofo.com
bblumen@mofo.com

Clinton Ewell
clint.ewell@outlook.com