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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC.,
SAMSUNG SEMICONDUCTOR, INC., and
SAMSUNG AUSTIN SEMICONDUCTOR, LLC,
Petitioner,

v.

CHIEN-MIN SUNG,
Patent Owner.

IPR2024-00533 (Patent 8,974,270 B2)
IPR2024-00534 (Patent 9,138,862 B2)
IPR2024-00535 (Patent 9,724,802 B2)

Record of Oral Hearing
Held: June 20, 2025

Before BARRY L. GROSSMAN, GEORGE R. HOSKINS, and
FRANCES L. IPPOLITO, *Administrative Patent Judges.*

APPEARANCES:

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P R O C E E D I N G S

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JUDGE IPPOLITO: Hello. This is the oral argument for IPR2024-00533, IPR2024-00534, and IPR2024-00535. I'm Judge Ippolito, and as you can see, I am joined by Judge Grossman and Judge Hoskins.

Judge Grossman is joining us from the hearing room in Alexandria. Can I have the parties introduce themselves, beginning with Petitioner? Petitioner, are you here?

MR. HA: Yes, Your Honor. This is Yung-Hoon Ha for Petitioner, and I am also joined by my backup Counsel, Laura Avena.

JUDGE IPPOLITO: Welcome. Patent Owner, are you here as well?

MR. CHAN: Yes, Your Honor. Good morning, Panel. My name is Alex Chan. I'm the lead Counsel for Patent Owner joining today's hearing. Alongside me are my colleagues, Mr. Andrew Sherman, Mr. Lowell Jacobson, Mr. Jason Shapiro, as well as Mr. Peter Mazur.

JUDGE IPPOLITO: Thank you for coming. The hearing order sets out our procedures that we will follow today. And per our order, each side has 120 minutes of total presentation time. Patent Owner has been allowed an additional 15 minutes through our LEAP Program.

And to start, I wanted to say that we do have the three cases together today. The parties have some flexibility in how you want to present those cases. Upon our review of the cases, it seems that there is overlap in some of the issues, not all the issues.

And, so, we're not going to have you allocate a specific fixed

amount of time per case out of your amount, your total amount of time, and then reset the hearing each time, like, okay, we're going to do this case first, this case second, this case third.

Our preference is for you to present your arguments. The Petitioner goes first, Patent Owner, and then we'll have responses if we have surrebuttal and a rebuttal. That's our preference but, again, if you have a strong desire to do it different logistically, this would be the time to let us know. So, I just want to have that out there first. And, Petitioner, do you have any thoughts about how you'd like to organize today's - your presentation today?

MR. HA: Our preparation was in accordance with what you just laid out for your preference, Your Honor. So, we'd like to approach it in that manner.

JUDGE IPPOLITO: And Patent Owner, do you have any feedback or comments?

MR. CHAN: Yeah. No specific preference either. Although, I suggest that we can start with '802 since that one seems to have a lot more issues than the other two. But, again, I would defer to the Panel on what's best.

JUDGE IPPOLITO: Okay. Well, certainly, Petitioner will start us off, and Patent Owner, if you want to start off with the different response to however you want to organize your argument, you can let us know and direct us to whatever demonstratives you want us to look at.

We're going to have a long day. So, we're going to have breaks. And feel free to let us know if you need a break. You don't have to wait for

me to tell you that it's time for a break. We're very flexible that way. I foresee us needing at least two breaks. The ones that I've planned would be after Petitioner's initial presentation, and then, one after Patent Owner's. And then, we'll see if we need a third or if we can keep going.

It's going to be pretty far into the hours by that point, and maybe we'll just be ready to finish up. But if not, that's not a big deal. And, also, if, for any reason, you need to take a break or we need to stop because there is a technical issue - maybe the audio isn't coming through or someone has dropped off, we can do that. And telling us a little earlier is great because, then, we don't have to backfill or kind of revisionist - like, reenact what happened earlier. Sometimes, that happens too when we drop off.

Okay. I did see that there were some objections to demonstratives. And, generally, in this case as well, we're going to handle that in due course with our final decision if needed. Our expectation today is that you're going to present what you're going to present. You're going to have an opportunity to respond, and that demonstratives are not evidence. So, we're going to hear everything, and if it is an issue that we have to deal with at the final stage when we write it up, we will deal with it then.

Okay. And I already mentioned rebuttal and surrebuttal. I think both of you know. All of you know that we have time that you can reserve for rebuttal and surrebuttal.

Keep in mind it is a big chunk of time, so our expectation isn't going to be 60/60, you know, or 30 and then, you know, 90. Something like that. So, keep that in mind. I will keep time on my relatively trustworthy phone here but it doesn't always, you know, it could crash.

So, my preference is that you also keep track of your time on your own, and the panel has two - at least two time trackers, and I will give you reminders. Because we aren't together in one room, we don't have our lovely clock on the wall we can usually look at together. So, please keep track of whatever time you've allocated for the different parts of your argument.

Okay. So, if we're ready, we can start, but I wanted to stop and see if there was any questions or anything else my panel members wanted to add for today's logistics. Okay. Seems like we're ready. Petitioner, do you want to reserve any time for rebuttal?

MR. HA: Yes, Your Honor. Probably about 25 minutes or so.

JUDGE IPPOLITO: Okay. All right. I have that down. And whenever you would like, you can begin.

MR. HA: Great. Thank you, Your Honor. May I share my slides?

JUDGE IPPOLITO: That is a great question. I don't know if I have the ability - oh, there you go.

MR. HA: Great. Thank you very much. Good afternoon, Your Honors. Let me just start with Slide number 2. I'll just jump right into the issues. The three patents at issue in these three IPR proceedings are family members of each other.

Here, the '802 patent is a continuation-in-part of the '862 patent, which, in turn, is a continuation-in-part of the '270 patent. And they all name Dr. Chien-Min Sung as the sole inventor.

And as you can see, the earliest possible priority date for the '270 and the '862 patent is May 23, 2011. We're not challenging that. However,

as I'll explain in a few slides, the earliest possible priority date for this '802 patent is the actual filing date of the patent itself which is October 3, 2014.

Slide 3. Before we get into the specifics of the disputed issues, I just wanted to lay out some background information. The technology generally relates to something called CMP pad dressers or conditioners. And CMP stands for chemical mechanical polishing. CMP is carried out in all semiconductor manufacturing these days because the structures on the semiconductor wafer have to be polished.

CMP uses very soft plastic polishing pads that rotate against the wafer. And you can kind of think about this like using a very soft sandpaper to polish down structures that's on these silicon wafer.

And the chemical portion of the name has to do with the fact that a chemical called a slurry is applied to help the overall polishing process down here. But just like a sandpaper can get dull over time, the CMP pad can also get dull over time through use.

So, something called the CMP pad dresser or conditioner and labeled here as a diamond dresser is used to revive the surface of these CMP pads. That's called CMP pad conditioning.

And on the right, here, we've schematically illustrated what happens. Over time, these asperities can get clogged up, and so you'd bring down the CMP pad dresser with sharp diamond particles that are on it to basically regenerate these asperities. And when you have those, then those asperities then act on the wafer again to keep the polishing pristine.

Turning to Slide 4. The diamond particles are placed on a substrate such that they're all generally level with each other. And why is

that? Well, it's pretty intuitive. You want all the diamond particles to be uniformly scratching up the polishing pad.

But imagine sort of the complete opposite scenario where you have this massive single, large, diamond particle that's protruding so much higher than all the other tips. Well, in that case, only that large diamond particle will rub against the CMP pad, and none of the other particles will contribute to reconditioning of that CMP pad.

And all you get, really, is just one single large scratch going across the polishing pad. So, you want to try to level everything out so that you can uniformly revive the CMP pad. And I put here just one example of a paper that was published in 2010, before the earliest possible priority date of any of these three patents, where leveling of the diamond tips to within about 50 microns of each other were already carried out. That was well-known.

Turning to Slide 5. Now, there are different types of CMP pad dressers that are out there in the real world, and I'm going to provide two examples here that are probably most relevant to the discussion at hand today.

On the left, here, is something called a brazed diamond disk. The name comes from the fact that these diamond particles that are shown as black dot-like structures are fixed onto the substrate, the metal substrate here, and these are the sort of regions where the diamond particles are. They're affixed to the substrate using something called a metal braze. Effectively, it's a metal that's used to hold onto the diamond particles.

On the right is something called an organic diamond disk, where, again, you've got these diamond particles, but, now, instead of a metal braze,

1 you're using some sort of an organic material like an epoxy to affix these
2 diamond particles onto the substrate.
3 Turning to Slide 6 and 7. I'll show you one technique called
4 reverse casting that was known to make these BDD and ODD structures.
5 Slide 6 shows the general process for a BDD, the brazed diamond disk,
6 which was published in 2008 by none other than Dr. Sung himself, the
7 named inventor of the three patents.
8 How is this carried out? Well, you, first, place these diamond
9 particles onto a temporary substrate, and you use something called a spacer
10 layer, like an adhesive, to basically affix those particles in place. Then, you
11 apply a molten braze. So, basically, you melt the metal, and you flow it over
12 here. And what happens then is you remove the adhesive layer or the spacer
13 layer, and the temporary substrate, this is now flipped 180 degrees, and you
14 end up with a CMP pad that has brazed diamond disk.
15 Turning to Slide 7. This is for the ODD. Essentially, the same
16 thing happens with the ODD. Again, published in 2007 by none other than
17 Dr. Sung himself. You've got diamond particles that are placed on this
18 temporary substrate with a spacer layer, 36. And then, instead of a molten
19 metal, you're flowing in a liquid organic material which, then, you harden,
20 for example, through polymerization. And you then get rid of the temporary
21 substrate and the spacer layer, flip it over, and you end up with this ODD.
22 Essentially, the same process.
23 Now, I just want to point out in both of these processes, you end up
24 with these particles that have been affixed in either the brazed or organic
25 matrix with substantially leveled particles that effectively follows the surface

1 roughness of this mold, right?
2 You have these particles that are deposited onto the top surface of
3 this temporary mold. And then, you affix it using a metal or an organic
4 material, and you remove it. And, so, these top side, top sort of points of
5 these diamond particles are following along this top surface of this
6 temporary substrate.
7 So, with that background, I'd like to begin our discussion with the
8 '802 patent which I think was Patent Owner's preference as well. So, the
9 '802 patent is shown here on the top of the family tree, and it was filed on
10 October 3, 2014. And it actually claims priority to more than 10 different
11 applications, including these two other patents that are at issue in these three
12 proceedings today.
13 So, let me start with a short overview of the '802 patent. And let
14 me just jump right to the claims. As you can see here on Slide 12, the '802
15 patent claims a CMP pad dresser, CMP pad dresser that has a support
16 substrate, support substrate, and a monolayer of a plurality of superabrasive
17 particles that's coupled to the support substrate.
18 And these superabrasive particles have the following
19 characteristics - and I've kind of colored them into three different colors for
20 ease of reference: first one, each of the superabrasive particles are aligned
21 along something called a designated profile, which is essentially the contour
22 to which you're intending to align these superabrasive particles with a tip
23 variation from about 5 to about 100 microns. Second characteristic is the
24 two highest tips, the highest and the second highest protruding tip, have a
25 difference that's less than or equal to about 50 microns. And then, the third

1 characteristic is the highest 1 percent of the protruding tips have - are within
2 about 80 microns of one another.
3 So, basically, Claim 1 is directed to a CMP pad dresser that has a
4 level tip, having certain leveling tolerances with some details about some of
5 the highest protruding tips among the CMP pad dresser. And as you can see
6 here, on Slide 13, the '802 patent says that the same reverse casting process
7 that I just talked to you about that was well-known long before the priority
8 date of any of these patents can be used to make the claimed CMP pad
9 dresser.
10 JUDGE HOSKINS: Mr. Ha? This is Judge Hoskins. Can you go
11 back to your slide on the Claim 1 with the different colors, please?
12 MR. HA: Yes.
13 JUDGE HOSKINS: Thank you. So, this is your Slide 12. And I
14 have a question about the green limitation. In your petition, you kind of
15 have two - what I think are two claim construction petitions; whether the
16 term "tip variation" requires a tip-to-tip variation or a tip-to-designated-
17 profile variation. And in our DI, we preliminarily concluded that the latter is
18 the proper claim construction. Do you agree with that, what we did in the
19 DI?
20 MR. HA: So, the reason why we proposed two different potential
21 constructions is it was a little unclear what the claim term is talking about.
22 But regardless of which interpretation you take, our position is that the prior
23 art teaches it regardless. And, so, we will not push back on sort of the - we
24 will not push back on the construction that Your Honors have adopted which
25 is it has to vary from the designated profile to the tip.

JUDGE HOSKINS: Thank you.

MR. HA: Thank you, Your Honor. So, going back to Slide 15, we're presented the following grounds shown here. And they involve three prior art references which is Tsai, Sung '026, and Sung '146. And because of the main disputes largely centered around these two references, Tsai and Sung '026, I'll just provide a very quick overview of these two references.

Slide 16. As you can see here, Tsai is describing none other than the ODD that we just talked about using the same reverse casting process that I just discussed earlier which is shown here on the right. Slightly different schematic but the same concept.

You, first, place diamond particles over this mold, affix them using an adhesive - that's in blue - and you put an organic layer labeled as epoxy on top, and then, you remove the adhesive and the mold, and you end up with this ODD. And what results is a leveled CMP pad dresser where the particles are aligned generally following the surface roughness of this mold, because you've placed these particles on the mold. And then, you've removed the adhesive and the mold. These particles are generally aligned along the surface of - surface roughness of that mold. And in this particular example that they made, the diamond particles are now more or less leveled within about 20 microns of one another.

Sung '026, this is on Slide 17, also talks about the same reverse casting method and provides some additional details about how leveled those diamond particles can be. Specifically, Sung '026 teaches that the tips can vary from the designated profile by from about 1 micron to about 150 microns. And the designated profile is just the contour to which these

1 diamond particles, the contour following the mold, to which the diamond
2 particles are intended to be aligned.
3 In other words, it is following the surface roughness of that
4 temporary substrate. So, then, let me jump to Slide 19, where we've
5 identified four disputed issues. The first disputed issue has to do with the
6 priority date of the '802 patent and what that - what the proper priority date
7 should be. And that's important because it answers whether Tsai, Sung '026,
8 and Sung '146 can, indeed serve as prior art. So, let me begin with that.
9 Slide 20. I said this earlier, but our conclusion is the proper
10 priority date for the '802 patent is its October 3, 2014, filing date. And I'll
11 provide three reasons why that's true.
12 So, starting with Slide 21. Reason number one: Dr. Sung
13 disclaimed all earlier priority dates. Let me provide some context first on
14 why he disclaimed that earlier priority.
15 So, Dr. Sung was involved in a number of litigations in Taiwan
16 and in Delaware against a company called Kinik that made CMP pad
17 dressers. And the reason why those litigations started is - even some further
18 background information. Dr. Sung and Kinik entered into a joint venture
19 agreement to develop CMP pad dressers all the way back in 1996. That joint
20 venture ended in October 2013. And these lawsuits were then filed, aiming
21 to try and figure out whether Kinik had ownership interest to the '802 patent.
22 And there's a lot of history there but I think the key part for us is
23 what Judge Andrews concluded, where he said the, "Subsequent to these
24 briefings, however, Plaintiff has clearly stated that he only claims priority to
25 October 3, 2014."

1 So, why did Judge Andrews conclude that? Well, that's answered
2 here on Slide 22. Dr. Sung submitted a declaration which reads as follows:
3 paragraph 17, "After the joint venture terminated, I continued to conduct my
4 own research and development in CMP technology. During this period, I
5 invented the subject matter that forms the basis of the '802 patent."
6 It then continues, paragraph 18, "I invented this new subject
7 matter, which is claimed in the '802 patent, after the joint venture with Kinik
8 ended on October 28, 2013. This invention is not disclosed in any of the
9 patents or patent applications to which the '802 patent claims priority."
10 And I highlighted where this October 28, 2013, date falls relative
11 to the family tree that we put in which shows the full scope of the priority
12 claimed at the '802 patent date.
13 Slide 23. This argument was pushed by the very same law firm
14 that represents Dr. Sung in these IPRs. In 2020, when Dr. Sung wanted to
15 avoid giving Kinik any ownership rights of the '802 patent, Dr. Sung and his
16 Counsel said, "After the expiration of the JV agreement, Dr. Sung invented
17 the subject matter that forms the basis of the patent application, the '802
18 application, from which the '802 patent issued."
19 Then, in 2024, now, when he's faced with potentially losing the
20 '802 patent altogether because he's now dealing with the fact that some of his
21 earlier publications can serve as prior art against the '802 patent, he and his
22 Counsel have now stated the following: "Independent Claim 1 of the '802
23 patent is fully supported by Sung '026", which is on the bottom here, "and
24 Sung '817," which is on the short - right above that.
25 But if what they're saying now in 2024 is true, that means Kinik

1 would have to be co-owner of the '802 patent. Dr. Sung vehemently
2 opposed that notion back in 2022 - sorry - back in 2020, declaring under
3 the penalty of perjury that he should be the sole owner of the '802 patent by
4 saying he invented the new subject matter that forms the basis of the entire
5 '802 patent after the JV ended with Kinik in October 2013.
6 So, that's reason number one why Dr. Sung should not get an
7 earlier priority date. Turning to Slide 24, reason number two is Patent
8 Owner should not be afforded an earlier priority date because Patent Owner
9 failed to meet its burden to prove an earlier priority date.
10 So, on the left, here, on Slide 24, Your Honors noted that of all of
11 the intervening applications, only the '704 application was ever co-pending
12 with the '802 patent. And based on that, Your Honors encouraged both
13 parties to address whether there are requisite intervening applications for
14 *Hollmer* and the related case law.
15 But in the Patent Owner's response, Patent Owner didn't do much
16 more than distinguish *Hollmer* based on the facts of that case and this case
17 only. Patent Owner never performed the proper co-pending application
18 requirement analysis. Specifically, as I'm showing here on Slide 25, the
19 only three applications that Patent Owner even attempted to demonstrate
20 priority back to are the ones that I've circled here in red.
21 They did not do any kind of analysis for any of these intervening
22 applications that I've marked up using Xs to demonstrate that the co-pending
23 application requirements were met.
24 And to be clear, we produced the case law here, on Slide 26. If the
25 Patent Owner wants to prove that they're entitled to an earlier priority date,

it's the Patent Owner that has the burden to prove that. The Fed Circuit said, "Claims in a patent or patent application are not entitled to priority under § 120 at least until the Patent Owner proves entitlement to the PTO or the Board." And moreover -

JUDGE HOSKINS: Mr. Ha?

MR. HA: Yes, Your Honor.

JUDGE HOSKINS: Let me just get a clarifying question on that. The Petitioner bears the ultimate burden of persuasion on this issue as part of demonstrating that the references are prior art. So, the burden on Patent Owner I think is just a burden of production. Would you agree with that?

MR. HA: So, I partly agree with that, Your Honor. I think that the natural alternative says that the Patent Owner has to actually prove entitlement of an earlier priority date under § 120 if they want to actually get an earlier priority date. There is the other burden of production question which *Parus Holdings* is talking about here, on the right, which is when the Patent Owner is trying to antedate the prior art reference, the Patent Owner assumes the burden, temporary burden of production despite the fact that the Petitioner always carries the burden of demonstrating invalidity.

JUDGE HOSKINS: So, then, your case law for that are these two cases that I see cited at the left on Slide 26, right?

MR. HA: Yes, Your Honor.

JUDGE HOSKINS: Thank you.

MR. HA: So, and moving on to Slide 27, Patent Owner did no such analysis. And I'll demonstrate one example of why this is important. Just looking at the priority claim in the '704 application itself which is - I've

1 colored it here in purple - demonstrates that the priority chain cannot go all
2 the way back to the '786 application, which I've added a brown X over.
3 So, let me kind of walk through this a little bit. The filing date of
4 the '802 patent was October 3, 2014. And as Your Honors observed, the
5 '786, which I've colored here with a light green arrow, that one issued on
6 January 7, 2014, which means it issued about 10 months before the '802
7 patent was ever filed.
8 And as Your Honors correctly noted, the '704 application with this
9 purple arrow now is the only application that was co-pending with the '802
10 patent in that case. So, what that means is the '704 application must provide
11 a continuous priority chain all the way back to the '786 application with this
12 brown X over it.
13 But if you look at the actual priority claim of the '704 application,
14 it only makes a proper priority chain back to this '817 application which I've
15 colored in red. It never properly goes back to the '704 application.
16 And the Patent Owner did no such analysis for any of the other
17 applications, and they've not met their burden to prove their priority claim.
18 And, so, that's reason number two.
19 JUDGE HOSKINS: So, Patent Owner does argue that they made
20 that priority claim. And they cite Sung '026 which is the publication -
21 excuse me. No. They cite the publication of the '074 application, I think.
22 But looking at your evidence, which was the Application Data
23 Sheet from the '074 patent application, it does actually refer to the '786
24 patent application on it. So, why isn't that reference in the Application Data
25 Sheet sufficient to say that when they filed the '074 application, they

1 intended to claim priority to the '786 application?
2 MR. HA: So, I'll provide a short answer, and then I'll promise sort
3 of - on my rebuttal time, I'll add in some sort of coloring and graphics to
4 that ADS to kind of explain to you why that was improper. But the short
5 answer is, yes, the ADS does mention this, but it actually starts off a separate
6 priority chain off of the '802 - I'm sorry - off of the '704 application which
7 is not shown here. And that separate priority chain was defective. And I can
8 demonstrate that for you sort of in my rebuttal time, if that's okay, Your
9 Honor.
10 JUDGE HOSKINS: It's up to you. But if Patent Owner doesn't
11 address this issue in their argument, then I don't think you can address it in
12 rebuttal. But it's up to you.
13 MR. HA: Well, then, let me try to demonstrate this for you real
14 quick. Or maybe just for the ease of time, maybe I could ask opposing
15 Counsel if he's intending to address this or not if that works for you, Your
16 Honor?
17 JUDGE HOSKINS: Sure.
18 MR. HA: Alex?
19 MR. CHAN: It's difficult for me to say whether I have any
20 comments depending on your argument. So, unfortunately, I'm unable to
21 give you my position at this point.
22 MR. HA: Okay. Then, Your Honors, if you would bear with me
23 for just one moment, let me put up this graphic that I think should elucidate
24 this. Okay. So, this is sort of a graphic that's probably most illustrative.
25 So, this is the ADS that we're talking about here on the left. And

1 this is a priority chain or the family tree that we've drawn out on the right.
2 And kind of let's start with this, right?
3 This is purple, the '704 application. And it does go through the
4 series of purple to green to yellow to pink to red, right? From the green to
5 the yellow, and then yellow, to the pink, and then pink, to the red. And then,
6 it stops. Well, it continues down here but it stops.
7 And then, it ticks off a new priority claim chain, starting off of the
8 '704 which is not identified in this family tree at all. And it actually then
9 tries to go through these additional priority claims which ultimately then
10 ends up at the '817. But what's kind of key here is - and I don't know if
11 Your Honors can see this. The '704 app - sorry?
12 JUDGE HOSKINS: Just saying yes, we can. And we're looking at
13 - you've colored up Exhibit 1057, just for the record. That's what you're
14 talking about.
15 MR. HA: Yes, Your Honor. Actually, it says 1057. So, but I
16 could double-check exactly what the exhibit number is.
17 JUDGE HOSKINS: I thought that's what I said. So, if I said
18 something other than 1057, I meant to say 1057.
19 MR. HA: And maybe Your Honor did. I heard 1054. So, sorry
20 about that. But yeah. What's most important here, though, is that the '704
21 application was filed on March 12, 2013. But this application which was not
22 shown in this family tree was issued more than two years earlier on March 8,
23 2011, meaning there was no co-pendency from here to here and, hence, all
24 the way down here.
25 So, it just lost - it was a defective priority claim in the '704

application, and it lost that priority claim all the way to the '786 application. Does that answer your question, Your Honor?

JUDGE HOSKINS: It does. Thank you very much.

MR. CHAN: And for the preservation of record, I just wanted to object to this slide since it's not in any of the demonstratives. Again, just for the preservation of record. Thank you.

MR. HA: And I think that messed up my presentation in terms of my PowerPoint for some reason. So, if you don't mind, I will restart that.

JUDGE IPPOLITO: And I've paused your time as you do the technical aspect of it. I mean it'll take you probably 30 seconds but it's probably us more than you.

MR. HA: Thank you very much, Your Honor. And sorry for the technical difficulties. Now, I have to swap this. Okay. So, I think we've just covered this. And, so, we're now on Slide 28.

There's a third reason why none of the applications provide § 112 support because the case law is clear. A single application must provide the priority in order to - must provide the one support in order for parent app - sorry. Let me start over again.

The case law is very clear. 35 U.S.C. § 120 requires an applicant to meet the disclosure requirements of § 112, first paragraph, in a single parent application in order to obtain an earlier filing date for the individual claims.

And for the sake of time, I'll just focus on Limitations 1E and 1F. And just the '817 application here, with the red arrow next to it because among other reasons, that just demonstrated that the Patent Owner cannot go

1 back to the '786 application which I've covered - crossed out here with an X.
2 And there's no dispute between the parties that the '074 provisional
3 here, on the right, does not provide written description of support for
4 Limitations 1E and 1F. So, what are limitations -
5 JUDGE HOSKINS: So, let me just push back on that a little bit.
6 The Patent Owner Response does give us some albeit brief discussion of
7 how Limitation 1D is disclosed in the provisional. So, I don't know if I
8 would agree with you that that's not disputed.
9 MR. HA: I think one, yes. I agree with you regarding Limitation
10 1D. I was specifically referring to Limitations 1E and 1F.
11 JUDGE HOSKINS: Okay. Thank you.
12 MR. HA: Great. So, Limitation 1E specifically requires the
13 difference in protrusion distances between the highest and the second-
14 highest protruding tip to be less than or equal to 50 microns. And 1F
15 specifically requires the difference in protrusion distance between the
16 highest 1 percent of the protruding tips to be within 80 microns or less.
17 These limitations are not supported by the '817 application.
18 Now, turning to Slide 29. These are all of the cites that Patent
19 Owner relied on as allegedly providing 112 support for the claims. But none
20 of these passages specifically discuss or call out anything about the
21 protrusion distance differences between the two highest or the top highest 1
22 percent of the protruding distance as the claim requires.
23 These are all just discussions about how the diamond tips must fall
24 within some range from a designated profile. Turning to Slide 30. The Fed
25 Circuit made clear that the written description requirement can't be satisfied

1 if the disclosure revealed only a broad invention from which the later filed
2 claims carved out a patentable portion.
3 In this case, the '817 application had a broad disclosure of tips
4 varying from a designated profile by a certain amount but there was never
5 any disclosure regarding the protrusion height difference amounts between
6 the two highest or the top 1 percent highest protruding tips. Meaning, the
7 '817 application needed to have provided it under the case law, blaze marks
8 that those claimed ranges between those specifically the two highest and the
9 top 1 percent of the highest protruding tips will be something patentable.
10 There were no such blaze marks in any of these applications.
11 Turning to Slide 31. I noted that these are the cites that Patent
12 Owner relies on. And, specifically, there's sort of disclosures about the
13 designated profile varying from the tips from about 1 to 150, less than 10
14 microns, and by from about 20 to 50 microns.
15 Patent Owner is no longer really talking about these latter two.
16 Rather, they're really focusing on this first portion as allegedly providing the
17 '112 support. Well, how do they actually allege the support is provided?
18 Turning to Slide 32. Patent Owner's entire argument is premised
19 on Dr. Tsai, Patent Owner's expert's, testimony during his redirect
20 examination that a POSITA would know the '817 application's designated
21 profile refers to the highest protruding tip.
22 And starting from there, their logic is that because all the particles
23 are 1 to 150 microns away from the highest protruding tip, the claimed
24 ranges of the 50 and 80 would fall somewhere in here, and POSA would
25 clearly know this by looking at that disclosure.

1 But, again, Patent Owner's position is untenable for three reasons
2 again. First, there's no intrinsic support for the designated profile being the
3 highest protruding tip other than Dr. Tsai's say so. How do we know? Well,
4 the '802 patent defines the term profile as "A predetermined contour above a
5 substrate, support substrate to which a plurality of superabrasive particles or
6 other cutting elements are intended to align."
7 But Dr. Tsai did not apply this definition of profile when he read
8 the term, designated profile in the '802 patent. How do we know? I asked
9 him the question. Question, "Did you apply that understanding of the term
10 'profile' as written in column 6, lines 21 through 25 when you read the term
11 'designated profile' in Claim 1?" His answer, "No." And there's nothing in
12 the intrinsic evidence that will say designated profile means the highest
13 protruding tip.
14 Second reason why this position is untenable is Dr. Tsai's
15 testimony on this is highly dubious. Why? Because he changes his
16 testimony between his cross and his redirect.
17 As I show here on Slide 34, I asked him in his cross, "When you
18 read the '802 patent Claim 1, the word 'designated profile,' you were
19 thinking either the substrate or the highest protruding tip. Is that right?" His
20 answer, "Yes." And that's shown here using these two arrows.
21 Slide 35. What does he say now? Indirect. He changes his
22 testimony to say that the '802 patent's designated profile is only the highest
23 protruding tip. And the reason why he changed his testimony is to argue that
24 the prior art Tsai reference had a different designated profile which is at the
25 substrate. This is Exhibit 1004. That's Tsai. And not at the highest

1 protruding tip, like the '802 patent's designated profile.
2 And here's a final third point why Patent Owner's position is
3 untenable. If you define the designated profile as the highest protruding tip,
4 well, then, these other cites that they initially relied on, they would not
5 provide written support. So, let's look at how they're arguing to affect that
6 second cite here which is less than about 10 microns.
7 In this scenario, from the highest to the substrate would be 10
8 microns. Well, then, 1E, which requires the highest and the second highest
9 protruding tips to be less than 50 microns, would not work. Same thing with
10 1F.
11 So, in sum, Patent Owner's arguments are simply incorrect and not
12 supported by intrinsic evidence. What that means is shown here on Slide 38
13 is once Your Honors find that the '802 patent's proper priority date is indeed
14 October 3, 2014, then each of the prior references relied upon in the petition
15 are prior art against the '802 patent.
16 Each of Tsai, Sung '026, Sung '146, was published more than a
17 year before the '802 patent's proper priority date, and qualify as prior art.
18 So, with that, unless the Board had some further questions on the priority
19 date arguments, I'll turn next to the other disputed issues, assuming that Tsai
20 is indeed prior art.
21 Okay. Slide 40. We relied on Tsai as either an anticipatory
22 reference or a single reference obviousness reference. And this is a paper
23 that's co-authored by Patent Owner's expert, Dr. Tsai, along with the named
24 inventor of this patent, Dr. Sung.
25 Now, I alluded to the fact that the dispute involves Limitations 1D

through 1F earlier. And let me start here again with Limitation 1E and 1F because I think the issues surrounding 1E and 1F seem to be rather minimal or may have even dissipated at this point.

So, as I'm now on Slide 41, we relied on two different evidence in Tsai to prove up Limitations 1E and 1F. First, we relied on the portion on the left where it generally says the ODD can be leveled to less than 50 microns because the diamond tips are already leveled.

And then, the second evidence that we relied on is the figure here on - excuse me - figure here on the right, Figure 6, where it shows a specific example of tips varying from one another of about slightly less than 20 microns.

That means because all of these diamond particles are leveled to be less than, for example, 20 microns here, or 50 microns here, that they squarely fall within the claimed range of highest and the second highest and the top 1 percent of the highest protruding tips being less than 50 or 80 microns respectively.

JUDGE HOSKINS: Mr. Ha, before we move away from Slide 41, isn't there at least a slight inconsistency between the figure and the written description? How do we get less than 15 microns, which is what it says in the written part, from the figure?

MR. HA: Yeah. So, that's just a little bit of an infirmity of the reference itself but regardless of which position we take or which interpretation we take, it wouldn't really matter because it would fall within this range of the claims. So, I think we can take either one of these teachings, and it would teach. We cited to both sort of as a belt and

1 suspenders approach here, Your Honor.
2 JUDGE HOSKINS: Thank you.
3 MR. HA: Slide 42. In Patent Owner's response, Patent Owner
4 repeated verbatim the same arguments that they made in the Patent Owner's
5 preliminary response which Your Honors rejected. And after we pointed
6 this out in our reply, Patent Owner did not make any further arguments
7 regarding Limitations 1E and 1F in the surreply. So, it seems like the
8 dispute surrounding 1E and 1F appears to have dissipated.
9 So, then, let me move on to Limitation 1D which is where the bulk
10 of the dispute is. We're now on Slide 43. And quite frankly, the argument is
11 pretty simple. Patent Owner's argument is that the claimed term tip variation
12 requires a variation between the tip to the designated profile as Your Honor
13 just asked me earlier.
14 But Tsai does not teach the '802 patent's designated profile. So,
15 Tsai also cannot teach this Limitation 1D because it recites a designated
16 profile. We think they're wrong on that for several reasons. And let me start
17 with the first one. Slide 44. Patent Owner's expert's testimony on this is not
18 credible. That's reason number one. Why? Patent Owner's initial position
19 is that Tsai does not have a designated profile.
20 And Patent Owner relies on Dr. Tsai who, as a co-author of that
21 Tsai paper, and I quote here, "Confirms under oath that there is no
22 designated profile in Tsai, nor any mention of a profile or contour."
23 But here's the interesting part, Your Honor. As you can see here
24 on Slide 45, in his redirect examination, not even cross, redirect
25 examination, Dr. Tsai now says the Tsai reference does have a designated

1 profile which is at the substrate.
2 Question, "Can you please clarify for the record which one is the
3 accurate reflection of what you believe to be a designated profile of the '802
4 patent and Tsai Exhibit 1004." "This Exhibit 2014 here."
5 And I'd like to just remind Your Honors that this was yet another
6 change from his cross-testimony where he said the '802 patent's designated
7 profile is in two different locations. But, now, it's only here
8 (INDISCERNIBLE).
9 So, Slide 46, I think we tried to just put this right next to one
10 another. Bottom line is with respect to the Tsai paper, Dr. Tsai initially
11 declared under oath that there is no designated profile in Tsai, only then to
12 testify under oath again that Tsai does have a designated profile. It's just at
13 the substrate, which is different from the '802 patent's designated profile.
14 Clear inconsistency. Not credible. But let's step back and try to
15 understand what the Tsai paper is actually teaching from the perspective of a
16 POSITA. As you see here, in Slide 47, ODD was meant to mimic an earlier
17 version of the CMP pad dresser that Dr. Sung made, called an advanced
18 diamond disk.
19 What is advanced diamond disk? Well, it's a CMP pad dresser that
20 contains diamond grits, diamond grits with equal heights and identically
21 shaped tips. And you can see these pyramids of diamonds having exactly
22 the same height and exactly the same shape that would've been great for
23 leveling purposes across the entire CMP pad dresser, right?
24 But ADD was too expensive because you had to start from this flat
25 substrate of diamond, and you have to etch out all of these surrounding

regions such that you end up with these identically shaped and heighted diamond pyramids.

So, ODD was actually meant to mimic that performance of the ADD and tried to give you a cheaper version of that ADD. How do we know that? Well, turning to Slide 48, Dr. Tsai confirmed that, right? Question, "So, ODD was really trying to mimic ADD but trying to make it at a lower cost. Is that fair?" Answer, "That was what we intended to try using different approaches to, first of all, reducing the cost and also minimizing the differences of the tip heights to try to make them into equal height."

That's what ODD was designed to do. And as you can see here, and I have alluded to this earlier again already but I'll say it again. These particle tips, I flipped over sort of - well, I didn't flip it over but the figure flipped it over where these particles were deposited against the mold, right? And these particles are aligned against the surface roughness of this mold.

And, so, what that means is the particles are intended to be aligned along the surface of that mold. In other words, if this mold surface is flat as depicted, Tsai's designating a flat contour above this epoxy substrate to which each of these tips of the diamond particles are being intended to align.

But in reality, this mold is not flat. It's not perfectly flat. It's going to have some little ups and downs along this way, right, which is why you are seeing exactly this variation here. Some are going to fall on this line. Some are going to be above. Some are going to be slightly below, depending on what the true surface roughness of that mold was.

And for the record, I'm now looking at Slide 49. So, you have ODD which has, you know, on average, a protrusion height of about 24.2

1 microns according to Figure 6. And the variation depending on what the
2 surface roughness of that mold was will vary from 13.2, all the way up to 33
3 microns.
4 So, Petitioner respectfully submits that Tsai does indeed disclose a
5 designated profile, and Limitation 1D is taught by Tsai. And that brings us
6 to the final disputed issue from Grounds 1A and 1B which I can move on to
7 unless Your Honors have further questions.
8 So, this final dispute in Grounds 1A and 1B are directed to
9 Dependent Claims 2-5 and 20 to 21. And it's really a simple issue. I'm on
10 Slide 51 now. The Patent Owner's argument is that we can't take a zoomed
11 in image from Tsai because this is really only a zoomed in image that shows
12 how these particles are arranged and assume that this is representative of the
13 entire disk. That's their argument.
14 So, I asked Dr. Tsai. I'm now on Slide 52. "How are the diamond
15 particles placed on the mold?" And he said, well, he's using a mesh. So,
16 essentially, let me just explain this. He puts a mesh over this mold with the
17 adhesive, and he lets the particles, the diamond particles, fall through these
18 holes, right?
19 And I asked him for the mesh that you utilized to make the ODD
20 shown here on Figure 5B. Does the spacing of holes on the right side of this
21 new exhibit we're generating approximately equal the spacing of the holes
22 on the left side of the image? "We will do our best to make them equal."
23 How about top and bottom? "We'll do our best to make them the same."
24 And that's true across the entire concentric circle of this image, right? "We
25 will try to do our best to make them the same."

1 So, Dr. Tsai is confirming that the calculations Dr. Shanfield
2 performed based on the zoomed in images in Tsai are reflective of what's
3 happening across the entire CMP pad dresser.
4 So, that brings us to the final disputed issue for the '802 patent,
5 which is directed to Dependent Claims 8 through 12 in Ground 2. Unless
6 Your Honors have further questions on the earlier ones.
7 Okay. And to be clear, as I explained here at Slide 54, for Grounds
8 2 and 3, the only substantive dispute is directed to Claims 8 through 12 in
9 Ground 2. The only other argument that the Patent Owner makes with
10 respect to Grounds 2 and 3 is whether Tsai, Sung '026, and Sung '146 are
11 prior art or not based on the priority break argument.
12 If Your Honors find in our favor, number one, on the issue of
13 priority, and number two, on the specific issues regarding Claims 8 and 12,
14 well, that means all of the challenged claims will be found unpatentable
15 based on Grounds 2 and 3 alone.
16 And the argument regarding Claims 8 through 12 is, actually,
17 again, very simple. As shown here on Slide 55, the only argument raised by
18 the Patent Owner is whether the diamond particles in Tsai and Sung '026 are
19 acting as, quote, "cutters" to meet the claimed working superabrasive
20 particles.
21 No other challenge was raised by the Patent Owner. And we do
22 submit that both Sung '026 and Tsai teach cutters. But I'll just focus on
23 Sung '026 for the purposes of discussion today because I think this would be
24 dispositive in and of itself.
25 Sung '026 is teaching in Claim 3 that a majority of the plurality of

1 superabrasive particles protrudes to a predetermined height above the
2 solidified organic material layer.
3 Claim 4, which depends on Claim 3, then says wherein the
4 predetermined height produces a cutting depth. So, what that means is the
5 majority of the plurality of superabrasive particles are producing a cutting
6 depth and hence acting as cutters.
7 And if Your Honors find in our favor on this fact alone, as you did
8 in the institution decision already, all of the challenged claims should be
9 found unpatentable under Grounds 2 and 3 alone.
10 So, let me jump to Slide 58 because there's one other reason that
11 I'd like to just highlight for Your Honors on why both Tsai and Sung '026
12 would need the claimed working superabrasive particles. It's because the
13 term working superabrasive particles are defined as superabrasive particles
14 that cut or otherwise deform a CMP pad.
15 And based on the fact that Tsai says all the particles are sharing
16 equal dressing load which is shown here on Slide 57, right? The more
17 cutters that can dress the pad and thus they share an equal dressing load, that
18 means all of the superabrasive diamond particles are at least making physical
19 contact with the CMP pad and, hence, deforming this very soft polyurethane
20 pad.
21 And it's really undisputed that many, many types of deformations
22 will occur when the diamond particles are pressed down to the CMP pad.
23 Dr. Tsai admits this. He says, "When this particle presses down to soft
24 material, that that material will be pressed down, and there are many, many
25 types of deformations." And the same is true for Sung '026 obviously

1 because it talks about how these particles may be configured to uniformly
2 distribute frictional forces across potentially each superabrasive particle.
3 So, I think with that, unless Your Honors have further questions, I
4 think that addresses my openings for the '802 patent. Okay. So, then, I'll,
5 next, move on to the '862 patent. And I'm now on Slide 61. The '862 patent
6 is a parent of the '802 patent.
7 And, again, let me just jump straight to Claim 1, which is on Slide
8 64. '862 claims a method of conditioning a CMP pad. And that method
9 includes two very simple steps. Step one, pressing a CMP pad dresser
10 against a CMP pad. Step number two, rotating the dresser against the CMP
11 pad.
12 And the specifics of the CMP pad dresser and its performance are
13 as follows: here, again, you've got the two highest tip differences, right?
14 The highest protruding tip and the second highest protruding tip. And in this
15 case, it has to be less than about - less than or equal to about 10 microns.
16 And then, you've now got - instead of the top 1 percent as in the
17 '802, the top highest 10 protruding tips have to be less than 20 microns. And
18 then, the final characteristic here is that when you do this rotating the dresser
19 against the CMP pad, you have basically a maximum cutting depth of 60
20 microns.
21 And, again, just as we've been talking about all along, the '862
22 patent also says the reverse casting process or method can be used to make
23 the CMP pad dresser that's recited in the claims.
24 Turning to Slide 67. This table summarizes prior art references
25 that we relied on with Sung '026 as a sole - I'm sorry. I got a message that

one of Your Honors was talking but may have been muted.

JUDGE IPPOLITO: I don't think that we did but you can continue, and we might start talking, now that we've started.

MR. HA: Sure. So, we're using Sung '026 as a sole or primary reference for all of the claims. And as you can see, Sung '026 is the very same '768 application we just talked about with respect to the '802 patent's priority claim. And let me just provide a couple more additional details about what the - oh, I think -

JUDGE GROSSMAN: We've having an audio problem.

MR. HA: There you go. Sorry about that. Did you have a question, Your Honor?

JUDGE GROSSMAN: I want to go back to the question that I tried to ask earlier and, apparently, there was some audio difficulty. It is on your slide - let's see. It has the - the claim language on it, it's - let's see. If you'll give me a second, I'll tell you what number it was. Okay. It's your Slide 64.

MR. HA: Yes, Your Honor. I think I'm on it now.

JUDGE GROSSMAN: And in the green, where you talk about the difference in protrusion difference between the highest 10 protruding tips are within about 20 microns or less. Does that mean that if you take the 10 highest protruding tips, the difference between the number 1 highest and the number 10 highest is 20 or less? Or that each of the 1 through 10 is 20 or less?

MR. HA: No. That's a great question, which I will not have a very satisfactory answer to because this Claim feels a little indefinite to me as

well. But, regardless, the prior art that we rely on, whether it's between 1 and 10 or tip 1 through 10, it would still meet, so we didn't really address this particular claim construction issue for the purpose of the IPR, Your Honor.

JUDGE GROSSMAN: Yeah. So, even if it's collectively 1 through 10 or 20 or less or individual -

JUDGE IPPOLITO: Let's just pause for one second. I think we had someone trying to come in. I don't know if we need to deal with that. Did anyone drop off? Okay. Well, maybe I should ask the question differently. Petitioner, you look like you're here. Patent Owner, you look like you're here. It looks like the panel is here. So, we'll continue. Sorry about that. I just wanted to make sure there wasn't anything going wrong on our line.

MR. HA: I did get a message from one of my colleagues that the public line got muted but I don't know if that's something that we need to deal with. We can push along unless Your Honors want to deal with it.

JUDGE IPPOLITO: I think it looks like we are reconnected. We have been having some difficulty with our public line, and it seems to be working but it does look like it needs a little handholding.

MR. HA: Yeah.

JUDGE IPPOLITO: So, please continue.

MR. HA: And I did just get another message that it's now back on. So, great. Okay. So, sorry. Your Honor, I think maybe you were midstream in your thought or maybe you finalized it?

JUDGE GROSSMAN: I was just trying to make sure that I

1 understood the answer, that it doesn't matter whether collectively 1 through
2 10 are within 20 microns or individually each of 1 through 10 are within 20
3 microns. Was that your - did I understand your answer correctly?
4 MR. HA: For the purposes of determining the patentability or
5 unpatentability of this claim based on the references that we're relying on,
6 that's correct, Your Honor. Great. Okay. I think I was right here on Slide
7 68, and I was noting that Sung '026 is the very same '786 application that we
8 just talked about with respect to the '802 patent's priority chain.
9 And I was trying to provide a couple more details about this Sung
10 '026 relevant to the '862. And the first point is the same, which is the same
11 reversed casting methods can be utilized to manufacture the CMP pad. But
12 Slide 70 goes into a little bit more detail which is it provides different
13 examples of how much the tips can vary from the designated profile.
14 And it says that designated profile can be a plane, for example.
15 And one of the examples is the variation can be less than about 1 micron.
16 And this goes to your question, Your Honor, that you just raised, which is
17 what that basically means is it doesn't really matter if it's, you know, 1
18 through 10 or 1 and 10 difference, right? Because all of the particles will be
19 within about 2 microns of one another. And, so, to be clear, relying on the -
20 JUDGE HOSKINS: Excuse me. That -
21 MR. HA: Yes, Your Honor?
22 JUDGE HOSKINS: That kind of presumes a flat profile, right?
23 What if the profile was like at a severe angle so that the - they're both pretty
24 close, like, the number 1 and number 10 are both within the 2 microns of the
25 profile. But because of the angle, maybe number 1 and number 10 are more

1 than what the claim says they have to be.
2 MR. HA: Yes, Your Honor. Which is why we specifically relied
3 on this particular embodiment or example of the designated profile being
4 just a flat plane. And, so, with that understanding, I think my comment
5 about 2 microns within each other still holds. Does that address your
6 question?
7 JUDGE HOSKINS: Yes. Thank you.
8 MR. HA: Great. And to be clear, I just want to make this very
9 clear. We're relying on this very narrow range of this 1-micron variation,
10 not the 1-to-150-micron range embodiment that the Patent Owner is relying
11 on for the alleged written description of support. And, finally, we've got
12 here on the bottom right Sung '026 teaching a cutting depth that can be about
13 1 to 20 microns.
14 JUDGE GROSSMAN: Mr. Ha? This is Judge Grossman again. I
15 think there's a question that the Patent Owner raised about whether the Sung
16 '026 presses the CMP pad dresser against the CMP pad as Claim 1 states.
17 And my understanding of the reference is that the Sung '026 reference is that
18 there's friction between the pad dresser and the pad. And there wouldn't be
19 friction unless one is - they're touching. And that touching means there's
20 got to be some force on one pressing on the other.
21 MR. HA: Yes, Your Honor.
22 JUDGE GROSSMAN: Tell me your understanding of how the
23 Sung '026 actually is operated - is there a clear disclosure about the pad
24 dresser is pressing against the pad?
25 MR. HA: Yes, Your Honor. And I was - I'm sorry. Go ahead.

JUDGE GROSSMAN: No. I was - sort of the question that might follow that is do we need to have a claim construction of what pressing means?

MR. HA: So, to answer your last question, no, I don't think we need a claim construction on the pressing. And I was just about to start going through my explanation of why Sung '026 teaches this. So, I can run through these slides, I would very much - I think that would address your question, Your Honor. Would that work?

JUDGE GROSSMAN: Okay.

MR. HA: Great.

JUDGE GROSSMAN: Okay. Thank you.

MR. HA: And to address that specific question, Your Honor, I just want to kind of step back and point out what the Patent Owner is arguing about Sung '026, right, which is that Dr. Sung, who himself submitted to the patent this related '802 patent which then is - and Sung '026 is a parent of that '802 patent - he is now saying the Sung '026 reference itself does not disclose pressing a CMP pad dresser against a CMP pad because a POSITA would not understand what's actually occurring when Sung '026 is talking about the dressing operation and the friction that's getting generated.

So, just want to make that - set that stage. And I want to explain what Patent Owner's position is and why that's wrong. So, I'm now on Slide 74. Patent Owner's arguing that, three, and now maybe four, according to the latest papers, different scenarios are possible when carrying out this CMP pad conditioning. So, the first scenario is there's some downward force being applied from the CMP pad dresser to the CMP pad.

JUDGE GROSSMAN: Mr. Ha?

MR. HA: Yes?

JUDGE GROSSMAN: Just one more question to clarify. On your Slide 74, the images are what I'll call upside down.

MR. HA: Yes.

JUDGE GROSSMAN: Compared to what they were in the Patent Owner's slides. Is there any specific reason why you did that other than to look like the one that was pressing is on top rather than on the bottom?

MR. HA: Yes. That'll become evident when we talk about the next slide on 75 in terms of why I flipped that image but, Your Honor, it's absolutely correct that it has been flipped. And to address your question, because Dr. Tsai explained to us this is how things ordinarily occur in CMP pad dressing operation.

And then, I'll get to that right in the next slide. If you don't mind, I will just cover what these three scenarios are first and then get to that question. Is that okay, Your Honor?

JUDGE GROSSMAN: Okay. Yes. Thank you.

MR. HA: Great. And the second scenario is where the CMP pad is applying some upward force in this rotated image towards the CMP pad dresser. And the third scenario is both the CMP pad dresser and the CMP pad are applying some force against each other.

Now, Patent Owner's also arguing that there's a fourth scenario that now exists, if only gravity is used and there's no downward arrow in either of those - against either the CMP pad dresser and the CMP pad but I respectfully submit we all kind of know force equals mass times

1 acceleration. Gravity is acceleration, 9.8. And, so, there would be a
2 downward force in that situation as well similar to what's shown here in
3 Scenario 1.
4 JUDGE GROSSMAN: And, Mr. Ha, just to make sure I
5 understand where you're going with this - is what you're saying is the Patent
6 Owner thinks that pressing only means downward pressing. And is it your
7 position that pressing can mean either a downward pressing or an upward
8 pressing?
9 MR. HA: No, Your Honor. I think what Patent Owner's position
10 is in order for you to meet this pressing a CMP pad dresser against a CMP
11 pad, you need to be actively pressing some gravity plus some additional
12 force towards the CMP pad dresser as shown in Scenarios 1 and 3.
13 If you're only pressing up at the CMP pad and the CMP pad
14 dresser is not doing anything, there's no external force being applied to the
15 CMP pad dresser, it would not meet the claim limitation. I think that's what
16 Patent Owner is arguing. Does that address your question, Your Honor?
17 JUDGE GROSSMAN: Yes. Thank you.
18 MR. HA: So, you know, Patent Owner is I think admitting that
19 Scenarios 1 and 3 would read on the claim limitation. And I think basically
20 what they're arguing is that because this scenario is also possible, that Sung
21 '026 doesn't actually teach which one of these different scenarios it is. Sung
22 '026 doesn't actually read on it.
23 So, turning to Slide 75. We put one of Dr. Tsai's papers in front of
24 him in his deposition that shows an actual CMP pad conditioning machine.
25 And we asked him to identify where the CMP pad dresser is and where the

1 CMP pad is, right? And he labeled it.
2 Here is the diamond disk which is the CMP pad dresser. And on
3 the bottom, there, is a CMP pad. And I asked him. Did manufacturers
4 actually press the CMP pad that's on the bottom upwards against the CMP
5 pad dresser that's on top? And his answer is, well, the first way is the
6 ordinary way where you have the pad at the bottom, and that's why we
7 flipped this image, Your Honor. And the diamond tips are at the top, and it
8 is - his words, "Presses down to the pad." That's the ordinary way of doing
9 CMP pad conditioning.
10 In other words, Dr. Tsai's own words, Scenario 1 is the ordinary
11 way of how anyone does CMP pad dressing, and that's how a POSITA
12 would've understood Sung '026. Now, on the right of Slide 75 is yet another
13 paper published by Dr. Tsai in 2011, over a decade before he was retained
14 for this particular matter. And what does he do? He has the same
15 configuration of the CMP pad dresser on top with the CMP pad on the
16 bottom, and he draws a downward force because, typically, you ordinarily
17 apply some amount of Newtons of force onto the CMP pad dresser that then
18 pushes down.
19 And as you can see, that, in effect, generates these friction forces
20 that the Sung '026 patent is talking about and would meet the claim
21 limitation. But that's not all. One additional point, right? As I showed here
22 on Slide 76, there's Newton's third law of motion at play here, right?
23 Newton's third law of motion, pretty simple, right? If there's a force applied
24 onto an object, there will be an equal and opposite force that's acting against
25 that applied force.

1 And, so, in his deposition, I drew that equal and opposite force
2 here in red, and I asked him, based on Newton's third law of motion, will
3 there be an equal and opposite force that's acting against the force that's
4 shown here in Figure 6? He's hedging a little bit, saying, but in reality,
5 there's many factors to be considered, but in theory, yes, it's effectively in
6 what he's saying.
7 So, what happens when these two objects are being pressed against
8 each other? Friction is getting generated. And that's exactly what we
9 proved in the petition as shown here on Slide 77 where said, "Since
10 frictional forces on the CMP pad dresser described by Sung '026 can only be
11 the result of CMP pad being pressed against another object. For example, a
12 CMP pad dresser, Sung '026 discloses this limitation."
13 And I've just provided the cite from Sung '026 paragraph 51 that
14 we relied on there. But I think the more important point here on Slide 78 I
15 guess - yeah, Slide 78, is what the Fed Circuit said. "The dispositive
16 question is whether a skilled artisan would reasonably understand or infer
17 from a prior art reference that every claim limitation is disclosed in that
18 single reference."
19 And given the fact that this is the ordinary way of doing CMP pad
20 conditioning as evidenced by Dr. Tsai's own papers decades earlier, a
21 POSITA would've readily understood Sung '026 that teaches this limitation.
22 JUDGE GROSSMAN: Mr. Ha?
23 JUDGE HOSKINS: Go ahead, Judge Grossman.
24 JUDGE GROSSMAN: I just want to get your understanding of
25 paragraph 54 in the Sung '026 reference. And I don't know if you have that

reference available to you, in paragraph 54, about a third of the way down, there's a sentence that says, "The greater downward force applied by higher central portions of the tool may offset some higher rotational velocity." Is that greater downward force suggesting that you've got the presser on the top, pressing downward onto the pad?

MR. HA: I would submit yes, Your Honor. Sorry. I did not mean to cut you off. Sorry, Your Honor.

JUDGE GROSSMAN: I think I misspoke. I said the presser pressing downward. I meant to say the dresser pressing downward.

MR. HA: Yes, Your Honor. I'd submit that it is. And in fact, it's just going into some of the microcosms of how the forces are getting distributed across the CMP pad dresser. And that's yet another evidence that this limitation is being met. Yes, Your Honor.

JUDGE GROSSMAN: Thank you.

JUDGE HOSKINS: So, this is Judge Hoskins again. So, the question I was going to ask - I think when your colleague representing Patent Owner gets up to argue, I think one of the things he's going to say is that what you walked us through before Judge Grossman asked his question was more of an obviousness analysis than an anticipating analysis. And you didn't present that in your petition. So, I'm wondering whether you have a response to that.

MR. HA: I think this goes back to the case law that we - I just cited here on Slide 78, right, which is the dispositive question is what a skilled artisan would reasonably understand or infer from this prior art reference, which is, A, this decades old technology of these plurality of

1 abrasive particles that are configured to uniformly distribute frictional forces
2 while it's doing a CMP pad dressing. The ordinary way of doing this is to
3 press down the CMP pad dresser onto the CMP pad. And any POSITA
4 having some knowledge of CMP pad conditioning would be able to readily
5 understand that from this disclosure.
6 JUDGE HOSKINS: Thank you.
7 MR. HA: Right. So, then, the next disputed issue is whether Sung
8 '026 discloses or renders obvious Limitations 1B through 1D. And I've
9 summarized here Limitations 1B through 1D on Slide 80. And I'll just
10 quickly try to quickly walk through this. 1B has to do with the monolayer of
11 the superabrasive particles in a matrix layer.
12 1C has to do with these height differences that we already talked
13 about regarding the highest and the second highest and the highest 10 tips.
14 And then, the last one had to do with the cutting depth.
15 And interesting argument, point about this argument from the
16 Patent Owner is they do not dispute that Sung '026 teaches each of these
17 Limitations 1B and 1D individually. And we've kind of on Slide 81, kind of
18 color-coded and matched up the corresponding disclosures with the
19 limitations that we just walked through.
20 What they are arguing is, though, that a POSITA would not have
21 combined these separate aspects. They're saying these disclosures are found
22 in different portions of Sung '026. So, a POSITA would not have been able
23 to combine these separate aspects together to arrive at the claims.
24 They also raised the argument about no reasonable expectation of
25 success and the fact that Sung '026 is not an enabling disclosure. But I think

1 they're wrong in all three respects and let me try to address these in turn.
2 On the first point, Slide 83, Patent Owner's assertion is that a
3 POSITA would not have combined some allegedly different aspects. But if
4 you look at the claims of the Sung '026 itself, it's readily combining these
5 allegedly different aspects together. And, you know, they called out sort of
6 four, maybe five different aspects.
7 So, I've color-coded those allegedly four or five different aspects
8 together. And then, I tried to also color-code the different claims that
9 combine these allegedly different aspects together here as well. And I won't
10 belabor the point but let me just walk through maybe two claims here, right?
11 In Claim 3, for example, Aspect 1, which is in blue, and Aspect 3,
12 which is in Claim 1 are combined together. In Claim 12, which depends on
13 Claim 7, which then - which is right here - which then depends on Claim 3
14 means you're combining Aspects 1, 2, and 3 together. So, basically, a
15 POSITA was able to readily mix and match any of these different aspects
16 together which is evidenced by the claims of Sung '026 itself.
17 And, in fact, Patent Owner's expert admits as much. As you see
18 here on Slide 84, the question begins with a premise that three different
19 aspects of Sung can be - Sung '026 can be combined. And Dr. Tsai then
20 responds - well, let me just read the question. "Sung '026 intends to make a
21 diamond disk that has protrusions with identical heights with the same
22 orientation which combines the three different aspects you described in
23 paragraph 69. Is that correct?"
24 His answer is, "In addition, it also intends to control depths of
25 penetration into the pad," which is the other aspect that they're saying is

1 allegedly different and separate. So, I asked a question. "And just to be
2 clear, it's not the '862 patent, right? It's the Sung '026 that's trying to
3 combine all of these and I misspoke here. I should've said four aspects
4 together, correct?"
5 Answer, "Well, that's right. For Sung '026 to achieve that, I
6 personally think that they should achieve those conditions." So, Dr. Tsai
7 also admits that Sung '026 not only could - a POSITA could not only could
8 combine them but Sung '026 actually intended to combine all of these
9 different aspects together.
10 And the case law is very clear on this again. Slide 85. If a
11 POSITA would at once envisage the claimed combination, that's sufficient
12 for the prior art reference to teach the claimed combination.
13 JUDGE GROSSMAN: Okay. Mr. Ha?
14 MR. HA: Yes, Your Honor?
15 JUDGE GROSSMAN: The one thing that's lurking under the
16 surface of this argument is what is the definition of a person of ordinary skill
17 in the art? I understand on your slide whether that person would've been
18 able to at once envisage but we haven't heard anything about what is the
19 definition of that person? And that definition could significantly affect
20 whether what you have on your Slide 85 is correct. But it also goes to some
21 other things related to the motion to exclude and whether - with
22 Dr. Shanfield's testimony - but it also goes to adopting what is the level of
23 skill?
24 At the initial stage the Patent Owner did not take any position on
25 what that was. In their response, they did take a position which differs from

your position as Petitioner. And I guess I'd like to hear from you why you think yours is right and theirs is wrong.

MR. HA: Yes.

JUDGE GROSSMAN: In terms of what is the definition of a person of ordinary skill in the art in this case?

MR. HA: Yes, Your Honor.

JUDGE GROSSMAN: Because we have to - we have to pick one or the other. Or we have to come up with our own. But I want to give you a fair chance to argue what you think that correct definition of a person of ordinary skill in the art is.

MR. HA: Yes, Your Honor. I was intending to cover that at the end because it sort of subsumes all three patents but I'm happy to jump to that right now -

JUDGE GROSSMAN: No. If you'd like to do it at a later time, that's fine with me. I just would certainly like to get your views before we run out of time and while we were talking about what would have been obvious to a person of ordinary skill, it seemed like an appropriate spot for me to say.

It's hard to determine what would've been obvious until we know who that person of ordinary skill is. But if you want to do it at a later time, that's fine with me. I think you just need to be careful of the time, so you don't run out of time and never get to answering that question which really covers a lot of different issues in this case.

MR. HA: Yes, Your Honor. I'll make sure that's covered but I will just point back out one point the question you raised which is I think

1 regardless of whether the Patent Owner's definition is adopted or the
2 Petitioner's definition is adopted, the POSITA would be able to readily
3 combine these allegedly different aspects together because this is nothing
4 more than just simply particles on a substrate that produces cutting when
5 you do a CMP pad conditioning, right?
6 These claims are directed to a method of CMP pad conditioning
7 using CMP pad conditioners that have certain characteristics and produces a
8 cutting depth. And these are just very simple concepts that either the
9 POSITA, as defined by Patent Owner or Petitioner would be able to readily
10 do.
11 And, so, then, kind of jumping to the second dispute I think, you
12 know, second sub-dispute directed to Limitations 1B and D, Patent Owner's
13 making the argument that a POSITA would not have had a reasonable
14 expectation of success in making the proposed modifications but that can't
15 be correct because Sung '026 and the '862 patent are both describing the
16 reverse casting process to make the same CMP pad dressers that are recited
17 in the claims.
18 So, the fact that a reverse casting process generates a CMP pad that
19 has all of these allegedly separate aspects built into that CMP pad dresser
20 demonstrates their argument about not being able to combine as well as this
21 reasonable expectation of success is incorrect.
22 JUDGE IPPOLITO: Counsel, I'm just going to -
23 MR. HA: Yes, Your Honor?
24 JUDGE IPPOLITO: - jump in and tell you you have a little less
25 than 15 minutes left of what you've allocated. If you end up going into some

of your rebuttal time, I'll just keep track, but just letting you know.

MR. HA: Thank you so much. Now, turning to the third issue about the cutting depth, this is a very simple one. They're saying it's not enabled but the cutting depth is a very simple concept. And how do we know that? Dr. Tsai says, if I want to penetrate 10 microns into the pad, then the protrusion height should be at least 10 microns. And, so, this is a very simple issue. No reason why it would not be enabled.

And then, that brings us to the final disputed issue for the '862 patent, which is Patent Owner's argument is that we're assuming from the lack of information in Sung ICPT that there's no superabrasive particles in the central region in the image shown here on the right.

So, we just asked Dr. Tsai, are there diamond particles in the central ring? He said there's no diamond particles. So, I think that ends the dispute. So, I'll move on to the '270 patent, and I'll try to breeze through this one so that I do get to the POSITA issue as quickly as possible.

'270 patent, Slide 94. Again, we're now back to the CMP pad dresser claims. We now have two monolayers of superabrasive particles. And then, you've got these tip variations between the two highest tips being less than 50 microns and then the particles, their positions have substantially the same distribution on both sides.

And interesting thing about this is Claim 1 of the '699 patent or '8,777,699 patent is substantially similar to Claim 1 of the '270 patent. And, in fact, there was a terminal disclaimer that was filed to overcome obviousness. More interesting is the fact that Slide 96 shows the '699 patent was already found to be unpatentable by a reference called Chou in an

1 earlier IPR brought on by Kinik against Dr. Sung.
2 And, so, we rely on basically the same teachings of Chou. And for
3 this different limitation, this 1B, we rely on the combination of Chou and
4 Sung '479. And as I summarize here on Slide 100, Sung '479 teaches that a
5 CMP pad dresser uses low melting point braze using the same reverse
6 casting technique that we've been talking about.
7 And Sung '479 states that the particles can be leveled within 1
8 micron of the designated profile much like the Sung '026 reference that
9 we've just been talking about.
10 Dispute number 1. Patent Owner focuses on Sung '479 and not the
11 combination of Chou and Sung '479 that was presented in the petition and
12 argues that Sung '479 is not enabling. And they rely on Dr. Tsai's testimony
13 for the proposition.
14 But, again, not a tenable position because I'm taking one example
15 from Dr. Tsai's declaration where he says this RA value is not enabled. So, I
16 asked him. "What's an RA value?" He goes, "I'm not sure. I need to check.
17 I need to check the '479 patent." Gave him a copy of the '479. His answer
18 again, "I don't quite remember what this RA value is."
19 He cannot opine on something that's not enabled without even
20 having a fundamental basic understanding of what that technological feature
21 is. An RA value is not something esoteric or complex. In fact, had he
22 actually read our petition, he would know RA value is basically average
23 roughness. It's a measure of the roughness of a surface as determined by the
24 difference in height between the peak and a neighboring value. But he didn't
25 read our petition. He didn't know what RA value was, and in fact, he did not

1 even understand the law.
2 And I'll skip some of these so that I can get to the POSITA
3 arguments if you don't mind. So, that I think brings us to the question that
4 Judge Grossman was keen to hear about which is who qualifies as a
5 POSITA?
6 Let's begin with how a Petitioner defined the level of a POSITA
7 across the three different proceedings which is shown here on Slide 119. In
8 all three, the level of the POSITA was consistently defined as someone
9 having a bachelor's degree in an engineering field or related field for the
10 education part and the minimum of two to three years of experience in the
11 field of integrated circuit processing and fabrication.
12 And I think this makes complete sense because, number one,
13 they're all family patents of one another. So, they should be consistent.
14 Number two, the '802 and '270 patent claims CMP pad dressers, and number
15 three, the '862 patent claims a method of conditioning a CMP pad that's used
16 in integrated circuit processing and fabrication.
17 And, so, all of these definitions make complete sense. Turning to
18 Slide 120. How does the Patent Owner define the level of skill? Well, it's a
19 little inconsistent across the three patents. I will concede that for the
20 requisite experience part, it is defined consistently across the three patents.
21 But I'm going to explain a little in just about the next couple of
22 slides but it's incorrect because that definition is too narrow. For the
23 requisite education level, it's certainly inconsistent across the three patents
24 because the Patent Owner required a bachelor's degree in mechanical
25 engineering in the '270 patent but did not articulate anything in the '802 and

1 '862 patent.
2 So, I tried to ask Dr. Tsai about this discrepancy between the three
3 IPRs, and I got actually a surprising response. I asked him, "So, is a
4 bachelor's in mechanical engineering sufficient or not to meet the level of
5 POSITA?" And he goes, "Well, I think it would take at least a master's
6 degree or a PhD degree." So, I tried to get him to clarify the record.
7 I'm just trying to make sure that the record's clear so it's a very
8 simple question. Do you want to change this from at least a bachelor's
9 degree in mechanical engineering to at least a master's degree in materials
10 science? His answer, repeated four times on the record, I don't know - sorry
11 - "I'm not sure. I'm not sure. I'm not sure. I'm not sure."
12 Similar questions. I asked him, "Do you want to add any statement
13 about the POSITA having at least a master's in the field of materials science
14 to these two sentences here for the other two patents?" His answer, "I'm not
15 sure. I'm not sure." Patent Owner's expert can't even articulate clearly and
16 accurately what the requisite education level is. He just wasn't sure. Next,
17 turning to the requisite skill of the POSITA. I've reproduced in Slide 123
18 here what Patent Owner is relying on, for example, in the '802 patent
19 proceeding.
20 JUDGE GROSSMAN: Mr. Ha?
21 MR. HA: Yes, Your Honor?
22 JUDGE GROSSMAN: Before we go too far from the slides that
23 compare the two - the different proposed definitions in the three cases by
24 the parties, I just want to clarify one or two things. And that is your
25 proposed definitions I think are consistent across all three cases. Minimum

of two or three years of experience in integrated circuit processing and fabrication techniques is common to all of them. The education is the bachelor's degree in the same disciplines of materials science and mechanical engineering, electrical engineering, or physics.

But the claims are a little different in some of the cases, then. For example, in '534, we've got method claims. And it's really almost a method of using. And my question for you is if I'm - in the method claims where you're using the technology, is it necessary to understand how it's built or how it's made or how it's designed?

Or do you just have to understand how it operates and when you should use certain pressures or certain heights or certain numbers of the cutting edges on the CMP pad dresser and whether a common definition really applies to all three cases is my question more simply.

MR. HA: So, number one, to address the last portion of the question, I do think the same POSITA being applied makes sense here because these are all family patents of one another, right? And, so, we should have a consistent POSITA defined across all three patents. We can't start looking at just individual claims and say a POSITA for Claim 1 in this patent is different to, you know, a POSITA for these other claims I think.

And, number two, your question about does a POSITA require understanding of how the CMP pad dresser is designed for a method claim? I think that's exactly our point, which is we've defined it broadly enough such that it encompasses both types of claims, right? A person who has experience in integrated circuit processing and fabrication techniques would know how to utilize a CMP pad dresser.

1 And this is a very simple technology, placing particles onto a
2 substrate with some protrusion distances, and that person would also be able
3 to readily understand how the CMP pad dressers are designed. And, so, I
4 think our definition makes sense. They're trying to exclude Dr. Shanfield's
5 testimony by trying to define it narrowly and in so doing does not even read
6 and even potentially address the claim of '862 patent.
7 JUDGE GROSSMAN: Thank you.
8 MR. HA: Thank you, Your Honor.
9 JUDGE IPPOLITO: And you have a little bit more than three
10 minutes left.
11 MR. HA: And that'll be perfect because I think I'm wrapping up
12 very shortly. So, next, turning to the requisite skill of a POSITA, the Patent
13 Owner's relying solely on Dr. Tsai's declaration of support. And this is from
14 the '802 patent. And, you know, this is the only cite that they give.
15 And if you look at paragraph 21, that's wrong, but if you look at
16 paragraph 16, there is no objective evidence that Dr. Tsai cites to support his
17 view on what the requisite skills should be.
18 But as I showed here on Slide 124, if you look at the intrinsic
19 evidence such as the references that were cited during prosecution and
20 whatnot, our proposed definition of somebody who has experience in
21 integrated circuit fabrication and processing makes sense because references
22 like Dinh-Ngoc and Nabeya are in fact directed to the fabrication of
23 electronic devices or manufacturing a semiconductor silicon wafer substrate
24 or minute electronic circuits such as an integrated circuit.
25 And here's a final point that I want to make which is on Slide 125.

1 Even if the Patent Owner's POSITA definition is adopted, Dr. Shanfield
2 would nevertheless qualify. And why is that? Well, first of all, it's actually
3 interesting to me that Patent Owner elected not to depose Dr. Shanfield
4 during these proceedings where they could have tested his qualification as an
5 expert through a series of depositions.
6 They didn't. All they did was submit a deposition transcript from
7 the parallel litigation related to the *Markman* hearing in which one of the
8 attorneys from the Devlin Law Firm asked him some questions about his
9 technical experience. And we submitted a few excerpts from that deposition
10 transcript in our opposition to the Patent Owner's motion to exclude Dr.
11 Shanfield's opening declaration. And I'll just read some of it.
12 Question, "Are you an expert in CMP equipment design?"
13 Answer, "I'm very familiar with the design of CMP equipment." Question,
14 "Would you call yourself an expert in CMP pad dressers themselves?"
15 Answer, "I have familiarity with CMP dressers from multiple experiences of
16 either watching the operation or actually performing the operation of the
17 CMP."
18 Question, "Have you ever been involved in the manufacture of
19 CMP pad dressers?" Answer, "Yes." This confirms that Dr. Shanfield
20 would qualify even under Patent Owner's narrow definition of a POSITA.
21 And with that, I think unless Your Honors have further questions, I'll wrap
22 up the opening.
23 JUDGE IPPOLITO: I'm seeing no questions from the panel. I'm
24 going to stop this timer here, and you were pretty much about 30 seconds
25 left, so I think you're probably right on the nose for the timing.

I'm going to say that we take a seven-minute break right now as we do the transition. And then, that would put us at, say, 2:50. And then, we can come back and resume.

MR. HA: Thank you, Your Honor.

(Whereupon, the above-entitled matter went off the record at 2:42 p.m. and resumed at 2:50 p.m.)

JUDGE IPPOLITO: All right. We are back on the record. Our court reporter is here, and our - I believe our Counsel are here as well. Petitioner and Patent Owner, Counsel, your videos are off. Okay. Great. Thank you. I think we're still waiting on Patent Owner Counsel to - are not on the camera. All right. Thank you.

MR. MAZUR: All right. So, Alex Chan is going to join. I see he's back now. Okay.

JUDGE IPPOLITO: Great. Okay. So, we are all back, and Patent Owner, you know I'm probably going to ask you this question. Would you like to reserve time for the surrebuttal? You have a total of, let's see, 135 minutes.

MR. CHAN: Thank you, Your Honor. We will reserve roughly between 30 to 45 minutes for rebuttal.

JUDGE IPPOLITO: Well, I'll keep track of your time, then, as you go. And once you hit that 45-minute mark, I'll let you know, and you can keep going or decide what you want to do.

MR. CHAN: Thank you. Logistically, we have - well, we'll have different attorneys arguing different cases. The cases are consolidated but as lead Counsel, I wanted just to make it clear that at least for the first case, I'll

be doing the oral argument.

And then, my colleague, Mr. Jacobson, will be arguing the second. And, finally, with the third IPR, one of our esteemed associates would be doing the argument.

JUDGE IPPOLITO: So, just for the fact that we are going several hours in, when we get to those transition points, just make sure to let us know which IPR we're heading toward. I know you'll have slides and whatnot but it would be good to have that on the record too for our transcript, so we just have a good idea of what's going on. And then, also, you know, who's presenting on each issue.

MR. CHAN: Will do. Thank you, Your Honor.

JUDGE IPPOLITO: Thank you. And I have my trusty clock here. And, hopefully, you have yours. Whenever you're ready, you can begin, and I will start the timer.

MR. CHAN: Great. Good afternoon, esteemed panel, and with the Board's permission, I want to just briefly show two physical samples of CMP pad conditioners.

I think, you know, oftentimes, we've talked about inventions but you really - it's different when you actually see it in person. And, so, because this is a virtual hearing, I will hold each sample up to the camera to give the Board a general sense of their structure and service design.

JUDGE IPPOLITO: Before you do that, I just want to jump in really quick. Petitioner, have you seen these demonstrative items? And what are your thoughts?

MR. HA: I have not seen them, so I do not have any thought but I

1 will just kind of maintain the posture of we potentially object, not having
2 seen them earlier.
3 JUDGE IPPOLITO: Okay. So, Patent Owner, I would say that
4 given that these have not been shared with Petitioner nor do we actually
5 have anything in front of us - in fact, I think this is one of those times where
6 if we were in person, it would be a little bit easier for you to hand it over to
7 Petitioner and have Petitioner's Counsel look at it and then have a decision.
8 I would say for this one, let's not do that. I'm sure you have other
9 ways of describing what's going on here, but this is just going to make our
10 record a little messy because we did not have these ahead of time.
11 MR. CHAN: Sure. Thank you, Your Honor. So, the conditioners
12 are -
13 JUDGE GROSSMAN: Mr. Chan?
14 MR. CHAN: Yes, Your Honor?
15 JUDGE GROSSMAN: This is Judge Grossman. Maybe I can -
16 maybe this will help or you tell me if it doesn't, but I noticed that in some of
17 the exhibits that are in the case, there are some pictures of something similar
18 to what you were just trying to show us, two different things.
19 And the one I pulled up - came first was the Petitioner's Exhibit
20 1051. And Exhibit page 10, Figure 9, it shows some examples of the CMP
21 pads and dressers. Is that similar to what you were trying to show us with
22 the actual samples?
23 MR. CHAN: Correct.
24 JUDGE GROSSMAN: All right. Thank you.
25 MR. CHAN: And, so, as Your Honor would understand, pad

1 conditioners differ in several critical aspects, including the diamond particle
2 size, the arrangement patterns, and also the surface density. These
3 differences are not just cosmetic. They actually directly impact how each
4 conditioner performs in planarizing wafers.
5 Now, it's really important for all of us to understand that these are
6 not simple interchangeable disks. Each conditioner itself is the result of
7 careful engineering tradeoffs that balance aggressiveness, pad wear, debris
8 removal, and also the overall uniformity.
9 Even slight adjustments to particle size or even a tip height
10 distribution can materially affect a conditioner's performance and also the
11 lifespan. And, so, this level of technical nuance and also design precision is
12 precisely why an individual who barely uses these conditioners such as a
13 technician or even a process engineer in a lab may have no insight into how
14 they're actually designed, optimized, or manufactured.
15 Now, use doesn't confer understanding of the intent of the design,
16 the material science, and also the process of how you align different
17 diamond tips to within microns of a designated profile, which we'll
18 obviously speak about later today.
19 So, as the Board considers the qualifications of both sides' experts,
20 I only ask that Your Honor keep in mind that meaningful expertise in CMP
21 pad conditioning requires more than just operating or observing a process.
22 Again, this is just the prelude as to what is to come but with that preface,
23 what I would like to do now is take an opportunity to present or at least to go
24 back to some of the slides that the Petitioners have shown. If I may, I would
25 like to share my screen with you. Let me know if you're able to see my

screen, Your Honors.

JUDGE IPPOLITO: I can see it. It looks like it's a split screen with slides, and you have something else in the background. I don't know if that's what you want.

MR. CHAN: Maybe that's - here maybe this will help.

JUDGE IPPOLITO: Or there might be a way for you to pick a particular like view or window. I'm not sure how to do it on your computer.

MR. CHAN: Yeah.

JUDGE IPPOLITO: Maybe you don't want to show something where there might be markups from -

MR. CHAN: No. These are just all the exhibits already in the record. So, but I'm going to see if I can streamline the sharing of the PDF by showing just the PDF itself. So, now, I only have one slide that is in front of you.

This is Petitioner's demonstrative, starting at Slide number 13. What I want to discuss very quickly is about reverse casting. I know we have heard quite a lot of things from a colleague on the other side about reverse casting.

I just want to take a moment to say that reverse casting is distinct from the claimed designated profile, which Petitioners actually have shown on Slide 13 of the demonstrative here.

What they have shown here, and I would read for the Board the specification here refers to reverse casting as being used to orient and attach diamond particles to the substrate. And such methods can include initially securing the dressing segments to the substrate using a mask.

1 Now, nothing here mentions a reverse casting in the Tsai
2 publication. And let me direct your attention quickly to Slide 16 where the
3 Tsai application says you have to reverse the substrate. And this is labeled
4 under E. You basically have to reverse the substrate as part of the reverse
5 casting process.
6 Yet, the specification never mentions any reversing of any
7 substrate. And, so, when Petitioners argue in their Slide number 16 at the
8 very top, that ODD was made by the same reverse casting method to make
9 the claimed CMP pad dressers, that statement is misplaced because the
10 patent itself never mentioned a use of reverse casting to manufacture the
11 dressers as recited in the claims. Instead, it says in one embodiment that
12 perhaps reverse casting can be used to orient and attach the dressings and
13 nothing more beyond that.
14 So, I wanted to just bring that to your attention and make sure that
15 we understand the statements from that context. And, obviously, if there's
16 any lingering doubts about whether the '802 or the Tsai publication actually
17 uses designated profile, which, again, we'll address further after today, Dr.
18 Tsai has confirmed that the concept of a designated profile was never the
19 subject matter of his experiment in his Tsai publication article.
20 With that, let me just quickly address another issue about Slide
21 number 16. Now, earlier, we have talked about the designated profile, and
22 the Petitioner's outside Counsel has alluded to that on a number of occasions
23 but I wanted to just refresh the Board's recollection very quickly.
24 In the petition, their expert actually takes the average of the tip
25 heights of the ODD which is what we see here in Figure 6 by this purple

1 square that you see on the left side between maximum and minimum values
2 of the diamond tip heights.
3 So, at the time, when they filed the petition, they are basically
4 pointing to those points as designated profile, whatever the average is. And
5 now, they have shifted their attention away from this Figure 6.
6 And now, on to the Exhibit 1048 which is on Slide 34
7 demonstrative. And so, now, you see the sudden shift from what they
8 believe to be the designated profile on to what Dr. Tsai has testified to the
9 baseline.
10 And, so, with that note, let's talk about, you know, all the potential
11 inconsistencies or what they believe to be inconsistences between Dr. Tsai's
12 testimony. But before we go to 34, I want to just go one slide, a couple of
13 slides. Actually, if I may, let me just go to Slide 31 of the Patent Owner's
14 demonstratives.
15 And my apology to the Board in advance. I will be jumping
16 between two different demonstratives just to give more context about some
17 of the arguments the Petitioners have made. So, right now, I'm actually on
18 Patent Owner's Slide number 31, Demonstrative number 31. And, here, the
19 critical difference that Dr. Tsai has alluded to between the claimed
20 designated profile and the baseline as used in his experiment is now shown
21 in Exhibit 2013 which we have included as part of our surreply.
22 And in accordance to the expert, the claimed designated profile is
23 actually used to define the highest point - and I want to emphasize that - the
24 highest point as the reference point, and then downwards to find out, for
25 example, the number of - the tip height of the number of working particles,

1 which, in his view, is the most direct and most effective.
2 By contrast, the baseline that he used in Exhibit 1004 that you saw
3 earlier, and he said this in his deposition, it's not so level, not so flat, and
4 that's because the substrate itself, the baseline that you're seeing here, the
5 blue line, that's the substrate. That line is never flat if ever. And that's
6 because it's a substrate, right?
7 When you build the substrate, it's really hard to determine with all
8 the materials and manufacturing. It's very nearly impossible to simplify a
9 substrate, and that's why we talked about reverse casting in his experiment.
10 And, again, we'll go back to reverse casting in just a second. But
11 because the substrate itself is never flat, you cannot get an accurate
12 measurement of the diamond heights when you're trying to measure the
13 diamond heights itself using that baseline.
14 And, so, to cure that flatness, right, using reverse casting, you
15 reverse it so the surface will become very flat. And if I may, going back to
16 the Petitioner's demonstrative -
17 JUDGE HOSKINS: Mr. Chan? Let me just -
18 MR. CHAN: Yes?
19 JUDGE HOSKINS: Point of clarification, please. When you're
20 talking about the substrate here, are we talking about the substrate that's used
21 - like, so, you're showing us Petitioner's Slide 16. And, so, when you're
22 talking about the substrate, are you talking about the gray one, the one that is
23 - we see in the initial step A, or are you talking about the black one that gets
24 added later and then flipped? Which one of those is the substrate you're
25 referring to?

1 MR. CHAN: Very good point, Judge Hoskins. So, reverse
2 casting, the so-called substrate would be the mold. So, the mold itself, it's
3 what they use to - where the diamonds are laid flat on top of the mold. And
4 subsequently, through this reverse casting method, you remove the mold,
5 leaving with just epoxy, glue that glues them together.
6 So, at the end of the reverse casting, there is no substrate. You
7 only have the epoxy left in this reverse casting experiment which is probably
8 another reason why this article isn't relevant in the sense that there is no
9 (CROSSTALK) -
10 JUDGE HOSKINS: No. Please, let's go back to my question for a
11 moment.
12 MR. CHAN: Sure.
13 JUDGE HOSKINS: So, in all of these illustrations we have from
14 Dr. Tsai, the question was when he's pointing to that substrate, which one of
15 those two things is he pointing us to?
16 MR. CHAN: Initially, he's pointing to the mold. So, mold is the
17 substrate that he's pointing to because this is reflected in A where you put
18 the diamonds on the mold. So, the mold would be the substrate at this point.
19 JUDGE HOSKINS: So, when we look at all those - the hand-
20 drawn illustrations from Dr. Tsai's deposition, when he's pointing to the
21 substrate, he's referring to the mold that begins the reverse casting process?
22 MR. CHAN: That's the beginning process, correct. But, again, as
23 you go through different steps, and, here, once you get to E, there will be no
24 mold, right? So, when you go back to the drawings that he put up, and let
25 me just show you again, the blue line, right? This is the initial process

where you put the diamonds down onto the substrate. And that's what he's sort of labeling as Exhibit 1004, which is the mold.

JUDGE HOSKINS: I see. Thank you.

MR. CHAN: So, with this additional background, I think it's important to understand that the baseline that he drew in blue, which he also has written as Exhibit 1004, this is different from the purple line where he labeled it as DP.

Now, there's some chatters about, well, you know, he said this is the designated profile versus this is baseline. Really, this is a form of semantics. There is no dispute, and I didn't hear Petitioner's Counsel making this argument that when you use the baseline which is the blue line here, when you use the baseline, you're obviously not using the highest tip, right? The blue line is where the tail resides, whereas the purple line labeled as DP is where the highest tip resides. And, so, I think that's -

JUDGE HOSKINS: I'm sorry, but to back up a sentence - this is Judge Hoskins again. How is that the highest tip? Because you've claimed a CMP pad dresser. And, so, when you make the CMP pad dresser, this thing gets flipped. So, I'm struggling to understand, you know, why is that the highest tip?

MR. CHAN: I think there's a confusion. We don't use the reverse casting method. At least, the claims do not cover a reverse casting method. The reverse casting method has to do with the experiment in Exhibit 1004.

JUDGE HOSKINS: We're talking about Tsai, right?

MR. CHAN: We're talking about the Tsai publication now.

JUDGE HOSKINS: What you're showing us on Slide 31?

MR. CHAN: Slide 31, this is a drawing provided by Dr. Tsai. And, so, he gave an example where if you have diamonds resting on a substrate, well, what the baseline would be, that is the baseline as described in the Tsai reference versus the -

JUDGE HOSKINS: Which is reverse casting, right?

MR. CHAN: Well, there's no reverse casting in this drawing. He's just basically saying in his experiment he used the blue line as the reference point, whereas, the claims, the '802 patent claims use the purple line as the reference point.

JUDGE HOSKINS: So, I guess I'm going back to my original question. When he's talking about the substrate here, it sounds like he's talking about the epoxy, the black part that we saw in Figure 2 of Tsai rather than the gray part.

MR. CHAN: Well, if you're talking about the end product, correct. Absolutely. I'm sorry. I was focused on the beginning of the process. But the end product itself, you would look at this correct. The epoxy would be the blue line with the end product. Whereas, the purple line would be the designated profile for the same end product.

JUDGE HOSKINS: Okay. Thank you.

MR. CHAN: And, Judge Hoskins, you know, you asked whether the Petitioners would agree with the Board's interpretation earlier that the tip variation refers to the tip to designated profile variation as opposed to the tip-to-tip variation. And Petitioners argue that under either interpretation, the Tsai reference would still read on the claims.

But I question since they alleged the designated profile in the Tsai

reference as the baseline, you know, then, the experiment in that case is not going to be able to measure the tip to designated profile because the claims, again, require that the tips align along that designated profile, and there is no such alignment here where the baseline is simply used for measurement, for diamond height measurement.

JUDGE HOSKINS: So sorry to interrupt. Do you know? Where do Petitioners argue that the blue line here can be the designated profile? I thought that was Dr. Tsai was just trying to say this is how Tsai works. I don't know. Did Petitioners ever say that the blue line can be the designated profile of Claim 1?

MR. CHAN: Yeah. I think they're - what I'm trying to say is I think they asked the question, which I will go over it later. Part of his testimony posted to him was whether the designated profile applies to both lines, the purple line and the blue line.

And in one of the slides, they simply said, yeah, it's both. They simply just said yes. And, so, I took that to mean they're interpreting both lines as designated profile.

JUDGE HOSKINS: I see. Thank you.

MR. CHAN: But, again, that sort of goes back to what I said earlier where, initially, in the Petition, they have used the Figure 6 as the designated profile. And now, they have shifted their attention to Dr. Tsai, where they simply believe that Dr. Tsai has now set the blue line as the designated profile. But thank you for that question. It's very important that I clarify what I'm speaking here.

And if I may, let me just turn your attention very quickly back to

1 the Petitioner's demonstrative on Slide 22. Petitioners have highlighted the
2 statement from Dr. Sung which says, "I invented this new subject matter"
3 which is claimed in the '802 patent after the joint venture with Kinik ended.
4 I wanted to just take a moment to emphasize that this statement is entirely
5 consistent with black letter law and doesn't amount to a disclaimer with the
6 earliest possible priority date.
7 And, in fact, if you were to just look at this statement in isolation,
8 it reflects a fundamental principle which is new subject matter introduced for
9 the first time in a CIP application is only entitled to the filing of that CIP, not
10 to the filing of any early application.
11 This is a surprise to no one. Now, with respect to this declaration,
12 Dr. Sung doesn't assert or suggest that all claims in the '802 patent are
13 directed solely to the new subject matter referenced, nor does he ever -
14 JUDGE HOSKINS: Mr. Chan, I'm sorry. This is Judge Hoskins.
15 What he says is that this new subject matter which is claimed in the '802
16 patent. There is only one independent claim in the '802 patent, and that is
17 Claim 1. So, how am I supposed to read this as directed to anything other
18 than Claim 1 does not have priority to anything before October 28, 2013?
19 MR. CHAN: Because new subject matter can be residing in
20 dependent claims. New subject matter -
21 JUDGE HOSKINS: He doesn't say dependent claims here. He
22 says the new subject matter which is claimed in the '802 patent. He doesn't
23 say Claim 8. He doesn't say Claim 1. He refers to the subject matter
24 claimed in the '802 patent.
25 MR. CHAN: That's a point well taken. He doesn't say any claims.

1 But, again, by that same logic, because he never said any specific claims, the
2 question that becomes - is he referencing only some claims, all claims, or no
3 claims, right? This is why the Federal Circuit has required a claim-by-claim
4 analysis when determining entitlement to priority.
5 Now, if all we go with is just the declaration from the Inventor,
6 you can imagine how this would open a Pandora's box for all the Inventors
7 who simply filed a declaration and say, hey, I'm entitled to an earlier priority
8 date. And, so, what I'm really trying to argue here is a claim-by-claim
9 analysis is essential not just in this case but to any case where the claim
10 priority is an issue.
11 JUDGE HOSKINS: Okay. So, let me ask about Claim 1 then.
12 Let us suppose your position is correct for the moment, that Claim 1 has
13 priority to the '786 application. What implication does that have to do with
14 Paragraph 17, the preceding paragraph of Dr. Sung 's declaration where he's
15 saying that the '802 patent is outside of the joint venture because it doesn't
16 go before October of 2013? Is he then incorrect on that?
17 MR. CHAN: Well, I want to emphasize that he is not the
18 prosecutor. He wasn't the one who drafted the claims, and, in fact, had he
19 been deposed, he would've clarified this issue. But the Petitioners have
20 never deposed Dr. Sung in this case, probably for good reasons.
21 And I do want to allude to the fact that, you know, his statement is
22 not entirely wrong because his assumption is the '802 claims new subject
23 matter. That is actually factually true, and we have demonstrated that in our
24 POPR and also PRR as far as which subject matter is new versus which
25 subject matter is previously disclosed or old, right? We have -

JUDGE HOSKINS: Specifically, in your view, the new stuff is Claims 8 through 12. Is that right?

MR. CHAN: Correct. And we did a claim-by-claim analysis, right, citing to the specification in order to identify exactly which subject matter is new. And this is probably a process that any Board, any party would appreciate, right?

Had we not done the analysis, we wouldn't have known exactly which subject matter Dr. Sung is referencing here in his declaration. So, this is just a long-winded way of saying this is a factual representation, that he is attesting to, that new subject matter is, in fact, under the law, can only claim priority to the original - excuse me - not original - filing dates and not the earlier priority dates.

There are also a couple of other things I wanted to emphasize here - is that the context in which he's submitted the declaration, and as you have alluded to, Judge Hoskins, if a question of whether the ownership of the patent - well, putting it another way, it was whether it was invented such that it is not or it is the product of a joint venture.

So, in that context, this declaration wasn't submitted in the sense that it was - it required an analysis under 120 or Rule 112, right? Statements made for one legal purpose do not always operate as binding waivers. And this is sort of something that is really important to understand, which is when, you know, this is not a case where the Inventor was disclaiming priority.

He was merely distinguishing new matter from the old matter to demonstrate the absence of the joint ventureship which obviously has never

1 been addressed by the court.
2 The case ended thereafter, and as you know, maybe it's not
3 relevant for the purpose of this argument, you know, obviously, there's no
4 standing issue in this case or in the district court matter as far as I
5 understand. No party has ever raised any standing issue. And, so, to my
6 understanding, this issue is not an issue or is probably mooted at this point.
7 With that, I just want to - let me just quickly go to Slide number
8 23, Petitioner's demonstrative. This is a slide I would like to quickly
9 address. The other side has somehow argued that we, Dr. Sung 's Counsel
10 has made certain disclaimers. I want to make sure we understand the
11 language Petitioners have highlighted here. Says, "After the joint venture
12 agreement, Dr. Sung invented the subject matter that forms the basis of the
13 application from which the '802 patent issued."
14 This is, again, a recitation of the legal standard underlining the
15 CIP. And any subject matter that doesn't form the basis of the '802, that is,
16 any subject matter already disclosed in the priority (INDISCERNIBLE) and
17 applications which could still be claimed is obviously beyond the purview of
18 this statement.
19 But more fundamentally, there is no disclaimer by Counsel nor is
20 there any statement or declaration binding here because the Counsel is not
21 the Inventor. The Inventor had never acknowledged any disclaimer beyond
22 the fact that the new subject matter here is entitled to only the filing dates.
23 JUDGE HOSKINS: Just a quick clarifying question on that, if I
24 could.
25 MR. CHAN: Yes?

JUDGE HOSKINS: The statement here is after expiration of the JV agreements. When did the JV agreements expire?

MR. CHAN: So, Your Honor, I do not recall the exact dates. And I will defer to the record to the extent we have that date. It should be in the panel, in a response. But, unfortunately, I do not recall the exact dates.

JUDGE HOSKINS: If you could go back to Petitioner's Slide 22 for a moment.

MR. CHAN: Sure.

JUDGE HOSKINS: So, would you disagree with the statement in Paragraph 18, that the JV ended on October 28, 2013?

MR. CHAN: I'm not in a position to disagree because this is in his declaration. So, if Dr. Sung said the joint venture ended October 28, 2013, then that would be the (INDISCERNIBLE) date.

JUDGE HOSKINS: Okay. Thank you.

MR. CHAN: I would like to bring the Board's attention to Petitioner's Slide number 27. And this is a really interesting slide. Earlier, I know we have talked about the matter relating to the ADS, and I wanted to re-emphasize that the ADS was never brought to our attention. It was not an argument that was made on the record. And, so, our understanding is that the argument is waived.

JUDGE HOSKINS: Well, let me just stop you on that because the ADS was cited in the Petitioner reply. What was new in the oral argument was the coloring that they presented on the ADS.

MR. CHAN: I think that's what I was trying to say is the argument relating to the ADS weren't ever raised. Thank you for clarification. But,

1 with that, the co-pending requirement under 120 is actually very
2 straightforward. The question is one of whether the patents or application at
3 the time of filing was still co-pending with the parent application.
4 And maybe I'm hearing this incorrectly, but the Petitioner seems to
5 be suggesting that the '786, for example, or '6786 application must be co-
6 pending at the time when the '802 was filed, meaning not looking at the '704
7 patent, that there's got to be a co-pendency between the '6786 application as
8 well as the '802 patent. That is not my reading of Rule 120. Rule 120 has
9 never required that very narrow view of co-pendency.
10 Here, in this instance, because the '802 - and we have
11 demonstrated in the Patent Owner response as well as the surreply that the
12 '802 at the time of filing - and let me zoom in. Excuse me. Let me zoom in
13 so we can see the date more clearly.
14 It is very clear that the '802 was filed in October 2014 which, at the
15 time, the '704 application was still pending. It was not invented until three
16 years after the filing date of the '802.
17 And, again, if you were to go through the filing date as well as the
18 subsequent issue date, you see a chain of co-pendency throughout, all the
19 way, starting from the earliest application, provisional application filed on
20 May 16, all the way to the '802 application.
21 So, my understanding, and the law seems to be very clear that the
22 way they interpret Rule 120 in terms of the co-pendency requirement is so
23 narrow that they would require essentially the '802 patent to be co-pending
24 at the same time as the other parent application. That is not the correct
25 reading of the law.

JUDGE HOSKINS: So, this is Judge Hoskins again. Before we move away from the co-pendency, I just - do you have Exhibit 1011 from the '802 patent IPR handy?

MR. CHAN: I do.

JUDGE HOSKINS: Okay.

MR. CHAN: Exhibit - this is 1011.

JUDGE HOSKINS: Yeah. So, this is the declaration of Dr. Sung from the litigation. So, thank you for putting it up on the screen. I'm looking at the end of Paragraph 22. Thank you. So, the final sentence in Paragraph 22 is "Neither the Taiwan '625 Patent nor the '704 Application discloses the claimed subject matter of the '802 patent."

And I want to ask about the '704 application. For present purposes, I'm not concerned with the Taiwan '625 patent. Do you have any reason to disagree with this statement from Dr. Sung that the '704 application does not disclose the claimed subject matter of the '802 patent?

MR. CHAN: So, let me just go back to the '704 application just to make sure I understand. So, he's referencing, assuming this is the '704 - excuse me, that I highlighted, 13/797704. I think what he's referencing here, in this instance, is the new subject matter of '802. Again, the nuance here is he never said specifically about which claims.

And I think, again, I think it's easier - it's pretty easy to read into this statement and say, hey, maybe all claims of the '802 patent are not supported by the parent application, but I don't think this is what he's saying in this instance in this statement.

JUDGE HOSKINS: Okay. Thank you.

JUDGE GROSSMAN: If you could just stay on that slide for a minute, Judge Hoskins, err, Mr. Chan. I just wanted to confirm one very simple thing. It's a lot less complex than some of the other things we've been talking about, and I haven't seen it confirmed on the record.

And this is a good example on this document. Is Dr. James Sung the same as the named inventor? Because as the signature - it looks to be the name used on - as the Inventor, but I've also seen - he's got under his signature James Sung. And I've seen it on some of the publications, the reference to James Sung. And I just want to confirm with you that they're the same person?

MR. CHAN: They are the same person.

JUDGE GROSSMAN: Thank you.

MR. CHAN: Going back to Petitioner's Demonstrative Slide 29 now. I want to just take a quick moment and address the issues surrounding this slide. Again, we have gone back and forth on Limitations 1E and 1F.

What I wanted to quickly address here is if Your Honor may, let me go ahead and turn your attention to Patent Owner's Demonstrative Slide number 8. Now, the '817 application states that the tips of the abrasive particles can vary in height relative to the designated profile by a range of values. And we have, for your convenience, re-identified some of these ranges. For example, from about 1 micron to about 150 microns, or anything by less than about 1 microns.

Again, these ranges show that the particle tips do not all align perfectly on the designated profile. But, instead, they can be positioned below it by up to 150 microns. And that's sort of the disclosure in '817.

1 Now, with that background, let me go to Slide number 10 of Patent
2 Owner's demonstrative. With this background, again, Dr. Tsai sort of ties
3 these disclosures together by drawing the designated profile, again, starting
4 from the top line that passes through the tip of the highest particle.
5 And he has sort of labeled this - I don't know if you're able to see
6 my mouse. He has written this as highest tip or HT in this instance. From
7 there, he shows a vertical downward measurement of 150 microns.
8 Again, this is the disclosure of the '817 where it extends downward
9 by that same amount from the highest point, down to the bottom. And this
10 represents the full range within which any tip can be arranged.
11 Again, it's not difficult to understand what he's drawing but what's
12 really essential here is that because the designated profile includes the
13 highest tip, then the distance from the profile to any lower tip is simply the
14 difference between the highest tip and that lower tip.
15 And, so, when Claim 1 says the difference between the highest and
16 the second highest tip is less than 50 microns, that's really describing, for
17 example, a subset of what the '817 application already discloses.
18 In other words, the '817 application allows the second highest tip
19 to fall up to 50 microns below the designated profile. And if the second
20 highest tip is only 50 microns below, well, then, this is obviously not
21 something that can be disputed mathematically because this number is well
22 within this prescribed range. To sum up -
23 JUDGE HOSKINS: Mr. Chan, before you move on - sorry to
24 interrupt again. This is Judge Hoskins. Petitioner's response to that
25 argument is they cite the *Vas-Cath* decision and some other decisions,

1 saying there's a difference between an anticipatory disclosure and a claim
2 supporting disclosure.
3 And, so, just having, for example, one value which might
4 anticipate a claimed range is not going to demonstrate support and
5 demonstrate possession for written description purposes for that same claim.
6 So, why doesn't what you just walked us through here with this Slide 10 - it
7 might be sufficient for anticipation but walk me through why it's also
8 sufficient to demonstrate written description support.
9 MR. CHAN: So, let me just - I want to make sure I understand
10 the slide that you're referencing. You may be referencing Slide - the cases
11 that they cited on Slide - is it 30 or something similar?
12 JUDGE HOSKINS: Thirty is similar. That's one of them, yeah.
13 MR. CHAN: Okay. So, with respect to these cases, for example,
14 while *Purdue* addressed the written description requirement under '112, the
15 Federal Circuit in that case actually did not hold that a Patentee cannot claim
16 or can never claim a narrow subset of a previously disclosed range.
17 Instead, this case stands for a narrow and very specific proposition
18 which is that a Patentee cannot retroactively, for example, claim a precise
19 value absent any indication in the specification that the Inventor possessed,
20 that narrow subject matter at the time of filing. Here, it's different because
21 the '817 application explicitly teaches ranges of tip height variation.
22 And we see quite a lot of different variation from 5 to 100 microns
23 or 10 to 75 microns or 10 to 50 microns or even less than 1 micron. So,
24 these are numerical ranges describing the variation of the protruding tip from
25 a designated profile, exactly the kind of physical structure that is being

1 further refined in Claim 1 of the '802 patent.
2 And our expert has shown as a POSITA that within this disclosed
3 range, that a POSITA would obviously understand and recognize that the tip
4 height and the tip range can naturally and predictably fall within the claim
5 range in the '802 as well as the '817 patents.
6 Again, all the consistencies are not disputed in this case, and that's
7 because Petitioners haven't really provided any expert rebuttal. After our
8 expert was deposed, they filed their reply. Interestingly, they did not file a
9 rebuttal declaration for the expert, seemingly understanding and agreeing
10 what Dr. Tsai has testified to as far as the understanding from the
11 perspective of a POSITA.
12 So, with that, I just want to clarify one thing which is while *Purdue*
13 involved a lack of support for a previously undisclosed narrow range, courts
14 have always routinely held that it's subset ranges - when they fall within the
15 disclosed broader ranges, and when the narrowing is supported by the
16 disclosure or at least reasonably inferred by a POSITA, and Dr. Tsai has
17 certainly done that, and we have certainly done that, mapping the exact
18 language to the range.
19 JUDGE HOSKINS: What's your best case law citation for that?
20 MR. CHAN: I don't want to cite any cases that are not on the
21 record, and I want to be mindful not to cite anything in that regard. And, so,
22 I would defer to the briefing to the extent we have cited such cases.
23 JUDGE HOSKINS: Can you cite your best case from the briefs
24 for that?
25 MR. CHAN: I can cite you a couple of cases during our rebuttal

time if that's okay with you, Judge Hoskins.

JUDGE HOSKINS: Sure. As long as it's in the brief.

MR. CHAN: Absolutely. Also, another point I wanted to make is the Petitioners seem to suggest that we need to literally have the phrase, you know, highest 1 percent protruding tips or at least exact language in the disclosures. And I just want to quickly touch on this point which is that no case has ever held that a specification has to have the exact same language or at least recite the claim language verbatim to provide written discretion support.

And, again, through the drawings that we have seen here through the demonstratives and what Dr. Tsai has walked through with us, he has now demonstrated how the ranges are falling well within the ranges disclosed in the '817 application.

With that, let me direct your attention to Patent Owner Slide number 14 regarding the '786 application. Regarding the '786 application, that application also provides written disclosures to support Limitation 1E. And the reason is the same as what we have discussed with respect to the '817 application because the '786 disclosure actually provides the same range as the '817 application, including the tips vary from the designated profile by here, again, 1 micron to about 150 microns and so forth. And on Slide number 10 that was -

JUDGE HOSKINS: I'm sorry. Before you go away from that slide, please. Sorry. Why do you think - this is something we see a lot in patents, these kind of disclosures of lots of ranges where the ranges kind of get smaller and smaller as you go through the description. What's the

1 purpose of that?
2 MR. CHAN: Well, because every different range offers different
3 performances metrics, right? We have, at the beginning, when I started this
4 oral argument, every range will give you a different performance metric.
5 And, also, different life span, for example.
6 And, so, each range on its own will necessarily - necessitates
7 different design considerations. And, so, when you have different
8 parameters as described here where you have a broader range, and then you
9 have a narrow range, that is really a way for the Inventor to say, you know,
10 each of those ranges actually have its own advantages and, also, sometimes,
11 disadvantages.
12 But, again, all of these design considerations have to be sort of
13 pulled together, and everything has to be considered in totality in designing a
14 well-rounded pad conditioner. I'm not sure if that addresses your question.
15 Hopefully, you know, at least, from my perspective, the Inventor has these
16 different ranges really because each range on its own, you can actually
17 design, and you need a pad conditioner that focuses on that specific range
18 which could be different from another conditioner pertaining to a different
19 range which, obviously, would have different performance considerations.
20 JUDGE HOSKINS: Great. Thank you very much.
21 MR. CHAN: With that, I just, again, I just want to reiterate that
22 the arguments for '817 application also applies to '786 because the '786 also
23 offers the same written disclosures and ranges just like the '817. And let me
24 just direct your attention quickly to Patent Owner Demonstrative Slide
25 number 16 as well, applying to Limitation 1F.

1 Here, in this instance, again, the '786, just like the '817 also
2 describes a very similar range. Again, you have tips that vary from the
3 designated profile from about 5 microns to 100 microns or 10 to 75 and so
4 forth.
5 The reasoning, again, unless the Board has questions, the logic and
6 the reasoning behind '817 also applies to '786. And this is something that
7 the Petitioners likewise do not appear to argue other than the fact that they
8 argue '817 doesn't offer the written support for the claims of the '802 patents.
9 Allow me to turn your attention now back to Petitioner's
10 Demonstrative Slide number 33. Just a quick nuance here is that they argue
11 Dr. Tsai did not apply the definition of the term profile but there would be
12 no reason for him to apply the term profile because Claim 1 already offers
13 and, in fact, defines the phrase designated profile which is, again, reading
14 directly from the claims which is where the tip of each of the plurality of the
15 superabrasive particles aligns.
16 Next slide, which is Slide 34. They cited certain testimony from
17 Dr. Tsai, again, to suggest that the designated profile can be both the
18 substrate and the highest protruding tip. But the question, and if you read
19 carefully, the question that Dr. Tsai answered doesn't support that notion.
20 And more specifically, the question being asked here was whether
21 Dr. Tsai was thinking about either the substrate or the highest protruding tip
22 when looking at the word designated profile. Now, this question was asked
23 in the disjunctive, not conjunctive. And, so, when he said yes, he was
24 obviously referring to the substrate.
25 Thinking of this another way, if Dr. Tsai said no to this question, it

1 would mean that he wasn't even thinking of the substrate, which is obviously
2 not true in this instance. And there's no testimony of support from Dr. Tsai
3 or even from Dr. Shanfield that the claimed designated profile refers to both
4 the top line that we saw earlier, the purple like, Judge Hoskins, or the blue
5 line that we saw with the baseline that we saw earlier.
6 Nor, again, would it make sense to equate the claim designated
7 profile to the blue line because, again, the claims are pretty clear that it is the
8 tips and not the tails that have to align along the designated profile which,
9 again, based on the specification must include the highest tip.
10 And there's no highest tip when you use the blue line or even the
11 substrate or baseline in that context. And, again, if there's any way to quash
12 any potential confusion, Dr. Tsai has once again - it appears that the
13 Counsel for Petitioners does not argue - which is that he already clarified at
14 least during his redirect as far as what he viewed as the designated profile in
15 his drawing versus the baseline in his experiment.
16 JUDGE HOSKINS: So, let me just ask you a clarifying question,
17 Mr. Chan. When you say the specification makes clear that the highest tip -
18 I can't remember exactly what you said but it was something about the
19 highest tip is part of the designated profile. So, are you saying that when
20 we're trying to find the designated profile from Claim 1 in a reference that
21 whatever that profile in the reference is, the highest tip has to be exactly
22 along that profile?
23 MR. CHAN: Well, if you read the claims, Your Honor, the claim's
24 pretty clear that the tips have to align along the designated profile, meaning,
25 the designated profile must include the tip.

JUDGE HOSKINS: But the claim gives a tolerance; 5 to 100 microns.

MR. CHAN: So, if you talk about - when you say tolerance, are you talking about the tolerance between 5 to 100 microns? So, there may be a tolerance but it doesn't deviate from the fact that the designated profile has to have the highest tip. Right. Without the highest tip, there would be no designated profile.

And, so, meaning, based on his drawing here, I think this is a good example here in 1048. Dr. Tsai drew a designated profile at the top using the red line, and he labeled this as number two. And, so, the tolerance that you're referring to, for example, could be the diamonds below the highest tip, right? So, that tolerance is built into the claims, meaning, you can still have diamonds shorter than the highest tip as long as they're well within that range.

JUDGE HOSKINS: So, your view, then, is that you couldn't move that red line down just a fraction of a - a little bit, right? That would no longer - that can no longer be the designated profile because the designated profile has to include the highest protrusion of the highest tip.

MR. CHAN: Correct. And I think the Board actually -

JUDGE HOSKINS: So, what's your best specification? I don't see that in the claims. So, what's your best support for that in the specification?

MR. CHAN: So, the specification says, and I will phrase this in a way that is verbatim from the specification. The specification starting at column 11, lines 42 to 45 says that the term tip, and I quote, is "intended to include the highest protruding point of a superabrasive particle." And,

1 again, this appears at 11, 42 to 45.
2 And, so, when you look at the word tip, it has to include a highest
3 point. And that makes sense because you can't draw the designated profile
4 without knowing where the highest point is. And, in fact, that's the reason
5 why we use the highest point to deviate or at least to distinguish the next
6 highest point because you have highest point and the second highest point.
7 If you don't have the highest point, you can never decipher what
8 the second highest point is because, again, the highest point has to do with
9 the designated profile. And, in fact, that's really the novelty is you don't
10 sometimes - you don't need to know the tip height as long as you know
11 where the designated profile is and where the tip of the next point is going to
12 be.
13 JUDGE HOSKINS: Thank you.
14 MR. CHAN: I know I'm well beyond my time, but let me just go
15 through a couple more slides for the Board to make sure I have all the
16 questions answered. I'm on Petitioner's Slide number 41. And Figure 6,
17 again, illustrates, well, what's so-called the diamond height variation which,
18 in my view, which I think we've argued it's not really the tip the designated
19 profile variation that the Board has now construed as far as what the tip
20 variation means.
21 Now, at that position, Dr. Tsai has made it very clear that the less
22 than 15-micron average height shown here in Figure 6 is a statistical average
23 taken from an average of 100 to 200 points that he manually measured using
24 a 2-D pen stylus. So, he basically put a pen stylus on each diamond to
25 measure the height.

1 Now, it would be impossible to manually measure tens of
2 thousands of diamonds on the conditioner by hand. And, so, for example, in
3 the context of statistical differences, if you measure three tips, let's say one
4 at 100, one at 30, and one at 20, right, the average of those three would be 50
5 microns, right? So, the tip height variation here would give you that
6 statistical average.
7 But this average is not - doesn't give you any information about
8 the difference in height between, let's say, the highest and the second
9 highest, which, in this example, would be, what, 100 minus 30. That would
10 be 70 microns. And that's because, again, the diamond height variation that
11 we are seeing here in Figure 6 is the reflection or what he calls the
12 protrusion height.
13 And, so, you can have an average protrusion height of 50 microns
14 but that doesn't necessarily indicate the difference of the actual protrusion
15 heights between the two highest tips. Now, again, statistical analysis versus
16 actual measurement are two very distinct approaches.
17 And, again, for good reasons. When you take only a portion or
18 area, a specific area within the disk and to measure that, the question that
19 becomes - are you capturing the highest and the second highest? Right
20 now, that issue has been swept under the rug. You have not heard any
21 testimony from anyone, much less Petitioners that says, yes, what they have
22 captured, what Dr. Tsai has measured actually encapsulates the highest and
23 the second highest tip.
24 It's assumed but that's, again, a false assumption because Dr. Tsai
25 has already said when you capture only one tiny, little area, that is not

1 representative of entire disk.
2 And we don't know the distribution of the diamonds across the
3 disk. You really don't know where the highest level or the second highest
4 diamonds are located on the disk.
5 And, again, it goes without saying with respect to Limitation 1E
6 which requires the highest and the second highest. Here, Figure 6 doesn't
7 really mention any second highest tip, solely because, again, the Petitioners
8 also believe that the second tip is already subsumed into this range that they
9 have drawn up along the purple square.
10 But if so, then they surely would also support Patent Owner's
11 priority argument that the claimed range is also subsumed into any ranges
12 already disclosed in '817 or '786 application.
13 And, Judge Hoskins, earlier, I think you asked why there's an
14 inconsistency between what the reference says, right, which is 15 microns
15 versus what Petitioners have drawn up. Well, again, that inconsistency is
16 because the 15 microns here is in reference to the statistical difference which
17 is not the actual measurement.
18 JUDGE HOSKINS: So, just a quick question on that, Dr. Chan -
19 err, Mr. Chan before we move past. So, Figure 6, it doesn't read in the
20 descriptions of the axes, they don't say anything about statistical sampling or
21 an average. They just say diamond height variation along the vertical axis.
22 And then, the title of the figure is Height Variation in Tips. It doesn't say it
23 was selected from 10 percent or 20 percent or whatever, however many of
24 the tips Dr. Tsai actually measured. So, why can't we just take what the
25 reference appears to disclose on its face?

MR. CHAN: I'm sorry, Judge Hoskins. I was able to capture only a part of what you said but I think I get the gist. If you can just summarize it very quickly again, I would be able to answer in due course.

JUDGE HOSKINS: No worries. So, I'm looking at Figure 6, and I'm looking at what it says. And, so, it describes the vertical axis as being, quote, "diamond height variation," end quote. It doesn't say diamond height variation of selected 10 percent of the particles or selected 20 percent of the particles. Whatever it was that Dr. Tsai that actually measured. It just says "diamond height variation." And, so, why can't we just take that to be what it appears to disclose, which is all of the particles have a diamond height variation falling within the envelope that is shown there with the lines going across the figure the Petitioner added?

MR. CHAN: You cannot because all the diamonds have different sizes and shapes and also geometric orientation or metrical orientation, and this is actually in his testimony. And, so, you can't really take one portion and say, a-ha, I'm going to measure all the diamonds and look at the size and look at the statistical average and then say this is representative or is representative of the entire disk.

That has never been the case in this industry, and Dr. Tsai has already testified on numerous occasions that you really have to measure every single tip in order to encapsulate the geometry for the entire disk. And, again, that's because when you have diamonds of different sizes as well as orientation, it is nearly impossible - this is from the performance perspective - to gauge the performance just by looking at one area.

Again, if you were to only look at one area, well, what happens if

1 you design a disk where you want, you know, diamonds to be even across
2 the board? You're going to have to ensure that all the diamonds actually
3 have equal heights or equal sizes in order to make that design a reality.
4 So, really, this is just another way of saying you can't look at one
5 area and say this is symbolic of the entire disk because no one in the
6 industry, and I can confirm that - neither Dr. Tsai or Dr. Shanfield could
7 actually reliably say that could be representative of an entire disk from this
8 perspective. I don't know if that answers the question, Judge Hoskins. I'm
9 trying the best that I can.
10 JUDGE HOSKINS: Thank you. I welcome you to move on.
11 Thank you.
12 MR. CHAN: Okay. I'm going to direct the Board's attention
13 quickly to Petitioner's Demonstrative Slide number 45. Again, they cited
14 certain testimony from Dr. Tsai. Actually, I'm going to move on since I
15 think we already addressed this. But the only thing I wanted to say on Slide
16 45, again, we have gone - we have already talked about this on a number of
17 occasions, whether, you know, his baseline is the designated profile or
18 whether the designated profile is his baseline.
19 I just wanted to make this extra caveat which is that even if Dr.
20 Tsai does recall, somehow say he calls the baseline a designated profile, it is
21 his version of the designated profile which really said is different from the
22 designated profile as claimed by Dr. Sung because, again, his version is
23 measured from the bottom, the blue line or the substrate whereas the
24 designated profile is measured from the highest tip.
25 With that, the only thing I wanted to address now is about the

1 definition of a POSITA, understanding that my time is limited. I want to
2 make sure my colleagues have time to go through their cases. The thing that
3 Petitioners didn't really address, and I think it's worth the Board's review and
4 analysis which is we submitted Exhibit 2004 which Petitioner's Counsel
5 alluded to earlier, which, it's a transcript of Dr. Shanfield. We ask him point
6 blank, have you ever designed a CMP pad dresser? He said no. This
7 appears in Exhibit 2004, 19, page 19, line 13.
8 We also ask him, were you involved in the active design of any
9 particular pad dressers that he used for any of his projects? He said, "I might
10 have provided instructions but not the design of the dressers themselves."
11 And, so, again, the CMP is a highly complex process involving
12 multidiscipline areas and components, right? We are aware of wafers. We
13 know slurries. We know pads and conditioners. And each really plays a
14 distinct role in part of the CMP. So, when an operator or process engineer,
15 for example, when someone like that may have used pad conditioners as part
16 of their work or as part of the broader CMP system, that is fundamentally
17 different from having technical expertise to design or develop the
18 conditioners themselves.
19 Again, that's because designing the conditioners requires
20 specialized knowledge in materials science or mechanical engineering and
21 also physics. Now, just quickly, now, Petitioners have shown a couple of
22 slides where Dr. Tsai says, well, he's not sure about adding contents or
23 additional definitions to his version of a POSITA.
24 And I want to emphasize that I think - Judge Grossman actually
25 mentioned this and alluded to it - which is that it is not only permissible to

1 have different definitions but, oftentimes, are necessary and also appropriate
2 for one expert to define the POSITA differently across different cases.
3 And that's because the definition of a POSITA is never fixed. It is,
4 again, Judge Grossman seems to allude to, which is it is a very case-specific
5 legal construct, right, that depends on the technology, the scope, and the
6 nature of the claims, the prior art, and also the level of technical
7 sophistication.
8 Our expert, just like any competent technical witness, has rightly
9 adapted and adopted that the POSITA definition to match the nuances of
10 each case. And that said, it is routine. It is legally sound, and I would be
11 hard-pressed for the other side to say that we only did one definition even
12 though the method claims, for example, cover different areas of the CMP or
13 conditioners.
14 So, with that, that concludes my opening. I would like to now take
15 the time to pass the baton to my colleague, Mr. Lowell Jacobson, so that he
16 can start with his opening for the IPR '534.
17 JUDGE GROSSMAN: Mr. Chan?
18 MR. CHAN: Yes, Judge Grossman?
19 JUDGE GROSSMAN: Before we pass the baton, just on what you
20 were talking about which is this definition of a person of ordinary skill in the
21 art - and I don't want to lose the thread of your thoughts on that but in Dr.
22 Shanfield's expert report which is exhibit 1002, and I'll refer to - that's in the
23 '534 case. I think it's similar in the others as well. In his paragraph 3, he
24 talks about his experience, and I know you quoted something out of the 2004
25 litigation, but this is out of his declaration in these cases.

This one, as I said, is from the '534 in the IPR. But it's Exhibit 1002, and he says that he worked directly with engineers in the selection, installation, and optimization of several chemo mechanical polishing systems, CMP, including analysis of operational maintenance and performance monitoring. Now, isn't that what we're talking about with some of the dressers? We're talking about maintenance and performance monitoring.

He also says that he used multiple CMP systems in establishing the required metallurgy which he then, in a parenthetical, defines as optical thickness monitoring for maintaining polishing uniformity standards. So, isn't that - let's say when we're talking about - in the claim, in that particular case which is the '534 case, it was the method claim.

But isn't that testimony saying that he has experience in maintaining performance monitoring and maintaining polishing uniformity standards? Wouldn't that be a skillset that would qualify him to be competent to testify on CMP dresser pads?

MR. CHAN: Well, he's not talking about CMP pad conditioners specifically. He's speaking in relation to CMP in general. And with that, the analogy here I would give is, you know, using a scalpel, right, doesn't make someone a surgical instrument designer, right?

Likewise, operating a CMP tool, right, with a pad conditioner doesn't mean the operator actually understands let alone contributes to the conditioner's internal design parameters and engineering tradeoffs.

And that distinction, again, matters because the patent itself, if it's with respect to the '802 patent, relates to the structure and the arrangement

and performance of the abrasive layer of the conditions.

Here, with respect to paragraph three of his declaration or Exhibit 1002, he has never testified to any experience in terms of understanding or designing or developing the structure, arrangement or performance for that matter.

And, so, again, all of these fall squarely within the lane of product developers and design engineers and not just the end users. And I believe Mr. Jacobson will obviously address that additional point with respect to the '534. So, I would defer to him on any additional arguments with respect to this definition.

JUDGE GROSSMAN: Thank you.

MR. CHAN: Mr. Jacobson, the floor is yours.

MR. JACOBSON: Thank you. But before I begin, I wanted to reference back to what Judge Ippolito said and just check in to see if a break is necessary at this time before I get going.

JUDGE IPPOLITO: I think we're planning on probably getting through all of them.

MR. JACOBSON: Okay.

JUDGE IPPOLITO: And I think, at this point, let me see. Sixty-four minutes is what I have for the clock. And that means you've got about 26 for what you allocated to have a 45-minute surrebuttal. But, again, you know, you can go into your surrebuttal time. We'll just keep track of it.

MR. JACOBSON: Thank you, Your Honor. I will try to be as brief as possible. And if Your Honors have any specific questions, please stop me. I'm happy to answer them as we go.

1 JUDGE IPPOLITO: You don't have to be brief if we have
2 questions. But I'm just letting you know your time.
3 MR. JACOBSON: Thank you, Your Honor. So, the big picture
4 issue here is on the background. We're here to talk about the petition that
5 Petitioner filed and the arguments and evidence that are made therein and
6 not what could've been made. As we know, the burden is always on the
7 Petitioner to prove unpatentability by preponderance of the evidence. And
8 those arguments must adhere to the evidence and invalidity hearings that are
9 identified in the petition with particularity. And it's that with particularity
10 that's missing here.
11 For anticipation, what has to be disclosed is the limitation or range
12 or combined as recited in the claim. And ambiguous references can't
13 anticipate as a matter of law. That is fatal to Petitioner's case for Limitations
14 1A and 1D.
15 Obviousness was only argued in the petition for Limitation 1C and
16 there only as a fallback would've been obvious to try argument. So, even if
17 the ground is obviousness rather than anticipation, there's nothing in
18 obviousness argument in the petition that plugs the holes missing from 1A
19 and 1D.
20 Moreover, it was only argued as Your Honors recognized in the
21 institutional decision in conclusion fashion, supported by an expert who
22 Patent Owner believes is unqualified, as we can get into in a little bit more
23 detail.
24 So, in the institution decision, as Your Honors recall, the Board
25 split Ground 1 which was anticipated or obvious based on Sung '026 into

1 two separate and distinct grounds, anticipation and 1A and obviousness in
2 1B because they are separate conditions of patentability that have different
3 tests and different elements for - but as I just referenced, the petition didn't
4 address anticipation or obviousness separately for Ground 1.
5 More importantly, the institution is not a final decision on the
6 merits. It's only a reasonable likelihood of success required to institute
7 review. And, here, what we're talking about is invalidity by preponderance
8 of the evidence which is a higher standard. And, of course, the Board is free
9 to change its view of the merits after further record of development.
10 And, in fact, it should do so if it's convinced that its initial
11 inclinations were incorrect. And, again, in the petition, Petitioner only
12 argued that Sung '026 disclosed Limitations 1A and 1D. Here's what they
13 didn't argue: they didn't argue that there was some sort of inherent disclosure
14 in Sung '026.
15 They didn't argue that Limitations 1A and 1D were obvious to a
16 POSITA or would've been obvious to a POSITA over the disclosure of Sung
17 '026. Or they didn't argue in the petition that they would've been at once
18 envisaged - I'm sorry. I misquoted that - by a POSITA upon reading Sung
19 '026. They just said they're disclosed.
20 But what's there doesn't support that disclosure. Petitioner also
21 argued that the requirements of 1C were disclosed in Sung '026 and only for
22 this limitation was an obviousness argument advanced. But, there, it was
23 still limited that it would've only been obvious to try to level the
24 superabrasive tips as recited.
25 No obviousness argument was martialed in Ground 1 for - no

other obviousness argument was martialed in Ground 1 for Claim 1. So, what Petitioner, again, didn't argue was that it would've been obvious to combine these different aspects or embodiments of Sung '026 to create the image that Dr. Shanfield created to support the argument in the petition.

And, again, this matters because the Board must assess what the petition actually presents. And we are not allowed to adopt arguments on behalf of Petitioners that could've been but were not raised by the Petitioner.

And the Board cannot deviate from the grounds in the petition and raise its own theories of invalidity. And the issue is that the petition's invalidity argument for Ground 1 failed to show either anticipation or obviousness because obviousness was limited to 1C and only as a narrow obvious to try theory in the alternative. The gaps for 1A and 1D remain unaddressed, which we will go into in more detail. So, on 1A, again, this is just Claim 1 over here. What's at issue are Claims 1A, 1C, and 1D. Or Limitations 1A, 1C, and 1D.

JUDGE IPPOLITO: Counsel, can I just pause you? I'm not sure I know what slide you're on, and you're not sharing.

MR. JACOBSON: I'm sorry, Your Honor.

JUDGE IPPOLITO: No. It's fine. I mean I know - we know the cases but -

MR. JACOBSON: I'm sorry. I forgot to share. I apologize.

JUDGE IPPOLITO: We know the cases but it's going to be hard for the transcript.

MR. JACOBSON: I apologize, Your Honor.

JUDGE IPPOLITO: Thank you.

MR. JACOBSON: I forgot to hit the share button. Are you able to see my screen now?

JUDGE IPPOLITO: Yes. And now, it makes a lot more - but still, if you can, identify what you're -

MR. JACOBSON: I will be sure to do that going forward, Your Honor.

JUDGE IPPOLITO: - in the transcript, we won't know.

MR. JACOBSON: I apologize. I was just going through the introductory slides prior to Claim 13. So, Claim 13 shows that what's at issue are Limitations 1A, 1C, and 1D in Claim 1.

The anticipation standard requires that the reference must disclose within the four corners of the document all of the limitations claimed, and the disclosure must be arranged or combined in the same way as recited in the claim. Both of those are at issue here.

The former is really what's at issue for Limitation 1A. The pressing is not within the four corners of the document. And for C and D, they are not - to the extent there is any disclosure, what is disclosed is piecemeal, and it's not arranged or combined in the same way as recited.

That's from the *Net Money* case which also says that it's improper in an anticipation analysis to combine different embodiments in a single prior art or to supplement missing limitations, no matter how minor, in proving anticipation. This requires -

JUDGE GROSSMAN: Mr. Jacobson?

MR. JACOBSON: Yes, Your Honor?

JUDGE GROSSMAN: You've said that pressing wasn't within the

1 four corners of the reference. Can you tell me what you mean by pressing?
2 MR. JACOBSON: Yes, Your Honor. As we said in our briefing, I
3 think we're consistent about this. Pressing requires application of an
4 external force, consistent with the plain and ordinary meaning of the term
5 pressing.
6 If the claim had - it's a method claim, first of all, so it has to be
7 performed by some person or entity. And if it merely encompassed resting
8 such that a frictional force resulted, we think that's an absurd result.
9 Pressing is an act.
10 JUDGE GROSSMAN: And, so, what you're saying is that the
11 Sung reference does not press?
12 MR. JACOBSON: The Sung reference -
13 JUDGE GROSSMAN: Is there some other way it operates? It
14 seems to be a part of the same Sung family of dressers that seem to operate
15 pretty much in the same way. And as Dr. Tsai said, it's the ordinary way
16 where you press down. And, so, why doesn't this particular Sung reference
17 do the same thing that all of his other patent disclosures do?
18 MR. JACOBSON: Your Honor, I'm happy to get into that. I
19 believe that's my next set of slides.
20 JUDGE GROSSMAN: Good.
21 MR. JACOBSON: So, that leads right into it. Let me just phrase
22 over there. So, there are three scenarios in which two objects are pressed
23 together with an external force. You can apply force to the dresser. You can
24 apply a force to the pad, or you can apply a force to both.
25 Now, to clear up some confusion of Petitioners which we did

1 address in our briefing, these arrows are not and never were purported to be
2 a free-body physics diagram of what's going on here but, rather, they show
3 where - or the object or objects to which the external force is applied.
4 There's also a fourth scenario which Dr. Tsai referenced in his
5 deposition testimony in which the objects are maintaining contact without
6 any external pressing on any objects, i.e., by gravity.
7 In all four of those cases, there are going to be the frictional forces
8 recited in the Sung '026 reference. But you cannot determine as a necessity
9 and, moreover, Petitioner never argued inherency. They just said it's
10 disclosed in there.
11 But it is not disclosed in there. As I think Your Honor picked up
12 on earlier, they're essentially trying to backdoor an obviousness argument
13 into this by saying that if POSITA would've understood it's the case because
14 it's ordinarily the case. But even if they had argued inherency, it doesn't
15 meet that standard because it's not necessarily the case. There are other
16 ways to do it.
17 JUDGE GROSSMAN: I asked this question of Petitioner's
18 Counsel, and I'll ask it of you. Looking at paragraph 54 of the Sung '026
19 reference, about a third of the way down that paragraph, there's a sentence
20 that begins, "The greater downward force applied by higher central portions
21 of the tool may offset the higher rotational velocity at the periphery."
22 And what caught my attention in that paragraph was the
23 "downward force applied." What's applying the downward force, and what
24 is it applying it to in that paragraph?
25 MR. JACOBSON: Well, the downward force is being applied to

1 the CMP pad but nothing it says - nothing in that portion says whether that
2 force is resulting from gravity, from an external force applied to the pad,
3 from an external force applied to the dresser, or both. It's referring only to
4 the forces between the pad and the dresser rather than how those forces are
5 being generated in the first instance.
6 JUDGE GROSSMAN: And what in the claim tells me how those
7 forces are being generated?
8 MR. JACOBSON: Well, the claim requires pressing a CMP pad -
9 sorry, pressing a CMP pad dresser against the CMP pad which requires - it
10 excludes any situation or scenario in which no external force is applied to
11 pad dresser.
12 So, if the pad dresser is merely resting on top of the CMP pad, for
13 example, as Dr. Tsai referenced during his deposition testimony, that would
14 not satisfy this limitation.
15 JUDGE GROSSMAN: And is there something specific in the
16 specification that tells us that pressing requires an outside force rather than a
17 gravitational force?
18 MR. JACOBSON: Your Honor, I think it's the plain and ordinary
19 meaning of the word pressing. Pressing doesn't mean resting. If they
20 wanted to just refer to the internal forces or - they would've phrased it such
21 that friction results between the pad and the dresser. Instead, they
22 specifically chose to use the phrase, "Pressing a pad dresser against a CMP
23 pad to exclude scenarios in which no external force is applied to a CMP pad
24 dresser."
25 JUDGE GROSSMAN: And doesn't Sung '026 refer I think in

1 several places to a frictional force?
2 MR. JACOBSON: Absolutely.
3 JUDGE GROSSMAN: And, so, do we care how that frictional
4 force is created? If you've got a force between the two elements and it's
5 pushing downward, why doesn't that meet what the claim says is just the
6 broad word pressing?
7 MR. JACOBSON: Because the point of this portion of our
8 briefing is that frictional force can be generated in three or four different
9 manners. Two of them in which some amount of external force is applied to
10 the dresser satisfy 1A. And two of them in which no external force is
11 applied to the pad dresser do not meet that limitation. And that's why it
12 matters.
13 JUDGE GROSSMAN: Okay. Thank you.
14 MR. JACOBSON: The fact that an (CROSSTALK) might be
15 relevant to an obviousness argument but, again, they never argued that
16 Limitation 1A would've been obvious to a POSITA in view of Sung '026.
17 JUDGE GROSSMAN: Thank you, Mr. Jacobson.
18 MR. JACOBSON: So, again, the fact that this is ambiguous means
19 that it can't anticipate as a matter of law. And, again, Petitioner's didn't
20 argue inherency, and even if they did, they wouldn't have been able to
21 satisfy it because it's not necessary that the frictional forces would result
22 from pressing on the pad dresser.
23 Turning on to 1C, the issue for this and for 1D is that what Sung
24 '026 describes isn't a range or combined as recited in Limitation 1C. I think
25 we've discussed this extensively in our briefing but this has never - what's

1 recited in 1C, the structural aspect is never disclosed in one single
2 embodiment or aspect which is why Petitioners and Dr. Shanfield had to
3 cobble it together from distinct portions of '026 so Dr. Shanfield could
4 generate an image that is nowhere in the records itself.
5 It wasn't arranged or combined as recited. They try to rely on
6 some open-ended boilerplate in Sung '026 but as to other combinations, you
7 know, it's the standard patent language we see but that lacks the required
8 specificity and doesn't address the inventive features in any detail.
9 We've pointed this out in our briefing but the Petitioner's effort to
10 use that boilerplate to get a gotcha response from Dr. Tsai during his
11 deposition we think should be rejected, particularly because they also made
12 a big deal about Dr. Tsai's lack of expertise with substantive patent law. So,
13 he had no understanding during his deposition that this boilerplate language
14 they were confronting him with on the spot was of legally no import.
15 Again, this is just a depiction here on Slide 22 of some of the seven
16 pages of the meat of the disclosure of Sung '026. The yellow portions are
17 the portions across these four pages of the reference that show the particular
18 parameters that they cherry-picked to show what a Petitioner would've at
19 once envisaged upon reading Sung '026.
20 The pink text over here, on the left, shows the various profile
21 aspects of which they pick one. The blue shows the protrusion aspects, of
22 which they pick one, and the green shows the deviation aspects, of which
23 they pick one.
24 Again, there are pages and pages of other details of other aspects,
25 each with a host of specific parameters. But Petitioners cherry-picked these

1 to say, yeah, this was disclosed, and a person of skill in the art would've at
2 once envisaged this. The only way they could've envisaged this at once was
3 with the benefit of hindsight, which is what we think was going on here.
4 When Petitioner resorts to the claims, they still confirm rather than refute
5 that even in the claims, there was no one embodiment that satisfied -
6 JUDGE GROSSMAN: Mr. Jacobson, I won't interrupt but just,
7 again, to clarify for the record, to make sure we know what we're talking
8 about, on your cherry-picking argument, you were referring to your Slide 22,
9 and now we're looking at -
10 MR. JACOBSON: That's correct, Your Honor.
11 JUDGE GROSSMAN: - at the highlighting on your Slide 23.
12 MR. JACOBSON: Yes, Your Honor. I'm sorry. I will try to be
13 better at that going forward.
14 JUDGE GROSSMAN: Yeah.
15 MR. JACOBSON: So, on Slide 23, we show what Petitioner's
16 argument actually claims. Claim 12 and 41 specify particular variation
17 aspects, and they depend from Claim 7 which is a generic profile aspect and
18 31, which is a generic protrusion height aspect respectively.
19 But for Petitioner's argument that these are disclosed in Sung '026
20 as combined or arranged in Limitation 1C would require a different
21 dependence than what's actually there. They would have to be dependent
22 from Claim 8 which is the particular planar profile highlighted in yellow, or
23 Claim 37, which is the planar profile from the protrusion height respectively.
24 But that's not in the claims of Sung '026 either.
25 Moving on to Claim 24, I'm sorry, Slide 24, this also applies to the

1 height variation aspect which is only recited in Claim 35 in blue here which
2 depends from Claim 31. But for their argument to have succeeded, the
3 Claim 35 would have to have some dependency on it or a reference to the
4 claims referencing variance from or protrusion to the predetermined profile
5 if not both. But no such dependency exists. So, Petitioner's argument that
6 this is somehow shown by the claim structure we think fails by its own
7 terms.
8 Nor, as we said, would a POSITA would have at once envisaged
9 this particular combination from among the infinite potential combinations
10 of the distinct aspects in Sung '026. This is just pure hindsight. There's
11 nothing in Dr. Tsai's testimony that's to the contrary. Moreover, if you
12 actually look at the questions and responses, Petitioner's Counsel didn't elicit
13 responses on what the correct legal standard would've been which is what a
14 POSITA would've done at the time of the '862 patent.
15 Dr. Tsai isn't your POSITA. It's pretty clear that he's one of
16 extraordinary skill in the art, and the questions were asked from his own
17 personal perspective, and his answers were given from his own personal
18 perspective as one of extraordinary skill rather than what would've been
19 known to a POSITA at the time.
20 His answers were also phrased in the present tense and based on
21 his current knowledge and the decade plus of technological development
22 that occurred since the relevant timeframe in 2011. They didn't purport to
23 opine on what anyone, let alone a POSITA would've done at that time.
24 Also missing in the disclosure, arranged or combined, is Limitation
25 1D which requires rotating the dresser, and it's the "the dresser" language

1 that is important - against the CMP pad such that asperities are cut with a
2 maximum cutting depth.
3 Now, this doesn't just require rotating some generic dresser but
4 requires rotating the specific dresser with the material composition of
5 Limitation 1B and the specific structural dimensions of Limitation 1C such
6 that that dresser generates asperities with a maximum cutting depth of 60
7 microns.
8 Again, Petitioners didn't argue inherency or obviousness but they
9 haven't identified any disclosure in the Sung '026 reference that connects any
10 particular cutting depth to any such dresser. So, whatever is in there about
11 cutting depth, it's not arranged or combined as recited in 1D.
12 JUDGE GROSSMAN: How does Sung '026 cut if not using the
13 CMP pad dresser that's positioned - it appears to be on the top of the pad to
14 cut into the pad?
15 MR. JACOBSON: It does disclose cutting using a pad dresser, but
16 it does not disclose any cutting depth produced by a pad dresser having the
17 specific structural requirements of 1C, which, as we just discussed, Dr.
18 Shanfield had to cobble together from various different aspects throughout
19 the disclosure in order to meet something that satisfied 1C. It's not just
20 cutting depth from a generic dresser. It's cutting depth from the specific
21 dresser in 1C.
22 JUDGE GROSSMAN: Would you agree that Sung '026 rotates to
23 do the cutting that it does?
24 MR. JACOBSON: Absolutely.
25 JUDGE GROSSMAN: And it rotates against the pad to do the

1 cutting?
2 MR. JACOBSON: Absolutely. But it doesn't disclose rotating
3 that dresser, and it never provides any information about any dresser - what
4 relationship exists between the cutting depth and the structural composition
5 of a dresser. All it says is that it's going to be caused by some unspecified
6 predetermined height without ever saying what that predetermined height is.
7 And, again, that ambiguity is important and cannot anticipate as a
8 matter of law. Petitioners didn't make an obviousness argument for 1D.
9 Like, they said it's disclosed but it's not disclosed. There's at the very least
10 some inferential gaps that need to be filled in with the knowledge of a
11 POSITA but that can't be done in an anticipation argument.
12 There's nothing in Sung '026 that discloses what the predetermined
13 - what that particular predetermined height that produces a particular cutting
14 depth is. And, in fact, it says that any predetermined height would be useful
15 in an abrading tool is within the scope of the invention.
16 This is just more bullet points about that argument. Moreover, on
17 Slide 28, Sung '026 describes the resulting cutting depth as just one aspect in
18 various components of the structure - is various other aspects of the
19 invention.
20 So, in addition to what Dr. Shanfield cobbled together for 1C,
21 you're cherry-picking one more cherry for 1D to add that together. But,
22 again, there's no obviousness argument for 1D.
23 The only relationship at all in Sung '026 between tip height and
24 cutting depth is a critique of the limited performance of a prior art pad
25 dresser in paragraph 6, and this is on Slide 29.

1 But, there, that also doesn't meet the prior art - sorry, that doesn't
2 meet the claimed limitation. It's not arranged or combined as recited
3 because that prior art pad dresser is specifically described as using a
4 traditional metal matrix which doesn't satisfy Limitation 1B, and so it cannot
5 be the dresser that's used in 1D to have the maximum cutting depth.
6 JUDGE GROSSMAN: In Sung '026, in paragraph 56, it goes
7 through a long recitation of various ways that you can cut along a designated
8 profile. And it talks about the depth, the tip is intended to include the
9 highest protruding point, and it goes through a whole range of things.
10 Doesn't that range include some of the specifics that are in the claim? For
11 example, just the 60-micron cutting depth, and isn't that included in some of
12 the options that you have disclosed in Sung '026, in paragraph 56?
13 MR. JACOBSON: But, Your Honor, we don't dispute that there's
14 somewhere in Sung '026 it talks about a cutting length that satisfies the
15 depth requirement part of Limitation 1D. The problem is that depth
16 requirement isn't tied to the dresser recited in 1D which has to satisfy the
17 compositional requirements of 1B and the dimensional requirements of 1C.
18 So, it's not arranged or combined as recited. We also have factual
19 testimony on the record from Dr. Tsai that is unrebutted that there's - a
20 POSITA would not have known how to select any particular height profile
21 to produce any particular cutting depth because the cutting depth alone
22 provides insufficient information to determine the height profile or tip
23 structure that produced it.
24 And this is on Demonstrative Slide 30. Rather, the actual
25 performance of the dresser is highly dependent on its usage conditions which

include a substantial number of factors that were just not well-characterized circa 2011.

JUDGE IPPOLITO: Counsel, I'm going to let you know that you hit that 90-minute mark but you can keep going. I'm just letting you know that that's been hit.

MR. JACOBSON: I will just go - again, Slide 31 is just more of the - what's not arranged or combined as recited. Again, for Petitioner's argument to succeed based on the claim structure, there'd have to be some dependency on a reference to what the predetermined height is to the cutting depth that's recited in these draft claims which were never issued in a patent. But none exists. So, I will wrap up quickly on obviousness.

JUDGE GROSSMAN: Okay, Mr. Jacobson, let me ask you just one more question related to this pressure issue that we've been discussing too. While you're still at the podium and I have the opportunity to ask this question, in Sung '026, it's in the background section of the invention. It's paragraph 2, 0002. It's about five or six lines in. It talks about the polishing process entails applying the wafer against a rotating pad. Is that applying a wafer against the pad different than pressing?

MR. JACOBSON: Let me just pull that up, pull up that exact quote, Your Honor, so I have it in front of me.

JUDGE GROSSMAN: Yeah. It's paragraph 2, about starting around line 6, five sentences, starts with line 5. "Such polishing processes entail - generally entail applying the wafer against the rotating pad."

MR. JACOBSON: No, Your Honor. I don't think applying the wafer against the rotating pad - first of all, generally entail doesn't say

1 necessarily entail as we referenced earlier which leaves open the fact that for
2 the other possibilities - and applying the wafer against the rotating pad is
3 not satisfied pressing the wafer against the pad.
4 For example, the wafer can be applied against the rotating pad
5 merely by resting it and having gravity generate the frictional forces without
6 the need to apply an external force which is consistent with this. It's
7 consistent with the argument we've been making, and it's also supported by
8 Dr. Tsai's testimony during his deposition. I'm sorry, Your Honor?
9 JUDGE GROSSMAN: And just one last question is in paragraph
10 5 on that same page of the Sung '026 disclosure. The very last two lines, it
11 gives an example about "lower CMP polishing pressures, comma, smaller
12 size abrasive particles in a slurry, comma, and polishing pads of a size and
13 nature that do not over-polish must be used." Are those polishing pressures
14 the same as the pressing that's being referred to in the claims?
15 MR. JACOBSON: I don't believe so, Your Honor. First of all,
16 this is in the background. It's speaking generally, and even if it is referring
17 to pressures between the pad and the dresser which is what's relevant for the
18 CMP pad performance referred to here, again, because it's talking about that
19 do not over-polish the wafer. So, the relevant consideration from these
20 polishing pressures are the pressures that exist between the dresser and the
21 pad. They do not address how those pressures are generated, either with or
22 without external force being applied.
23 JUDGE GROSSMAN: Thank you.
24 MR. JACOBSON: Turning briefly to obviousness, starting with
25 Slide 32 and then Slide 33, again, it only applies to Ground 1 - sorry, to

1 Limitation 1C and Ground 1B. And it doesn't address the holes in 1A and
2 1D that we've just discussed.
3 Turning to Slide 34, again, obviousness requires more than a mere
4 showing that there are separate references covering each separate limitation
5 in a claim or in the case of Sung '026, separate embodiments covering each
6 of these separate limitations.
7 The POSITA would've had to have been motivated to combine
8 them, would've selected them in the normal course of research, and had a
9 reasonable expectation of success in doing so.
10 Turning to reasonable expectation of success as opposing Counsel
11 argued in his opening, the issue isn't that there wasn't a reasonable
12 expectation of success which was sort of misses the point. The issue that we
13 raised in our response and we I believe also referenced in our surreply is that
14 they needed to argue reasonable expectation of success in the first instance
15 in their petition, and they failed to do so. And having failed to do so, they
16 failed to make a prima facie case of obviousness here.
17 And obvious to try which is the only obviousness argument raised
18 in the petition is an even higher bar. Evidence of obviousness, even when
19 it's properly support - especially when it's offered in support of an obvious
20 to try theory is insufficient unless it indicates that the possible options were
21 finite, small, or easily traversed and that skilled artisans would've had a
22 reason to select the route that produced the claimed invention.
23 Where there's only general guidance in contrast as to the particular
24 form or how to achieve it, it's impermissible to rely on an obvious to try
25 theory to support an obviousness finding. That's in Slide 35.

1 We did show where those elements are picked off in my previous
2 slide. I don't have the number right now where we showed the cherry-
3 picking about 1C on the disclosure. But in Slide 36, we talk about how,
4 again, there's never an argument in the petition that there would've been a
5 reasonable expectation of success to do this trying.
6 It doesn't really matter what the references say because Petitioners
7 needed to make this argument and support it in their petition, and they failed
8 to do so. It was only raised in reply and only in conclusory argument which
9 was, again, not supported by any additional statement or declaration from
10 Dr. Shanfield. There's only one single paragraph in the reply on page 13
11 trying to establish that there was a reasonable expectation of success. There
12 was no evidence cited. It also failed to identify where this was made in the
13 petition because it wasn't. That's in Slide 37.
14 Slide 38, the only evidence of record shows that there was no
15 reasonable expectation of success in Dr. Tsai's declaration, which we cite
16 here. In paragraph 99, the claimed ranges would not necessarily result from
17 following the teachings of Sung '026, and the deviations of height need not
18 result merely by trying to follow its teaching as Dr. Shanfield testified.
19 To the extent they're making this obviousness argument, again, it's
20 impermissible in hindsight because Petitioner fails to explain why these
21 particular aspects were chosen with these particular parameters other than a
22 conclusory assertion by Dr. Shanfield that a POSITA would've been
23 motivated to level the tip heights as precisely as possible.
24 And where I will close for now, Petitioner's argument is
25 impermissible in hindsight because the particular chosen values which he

1 doesn't explain were hardly finite, small, or easily traversed in the universe
2 of the disclosure.
3 He picks one out of - and this is Slide 40 - one particular one out
4 of the 13 deviation aspects, one out of the three protrusion aspects, one
5 particular designated profile in order to arrive at something that meets what
6 is recited in 1C throughout the entire disclosure of Sung '026. That's hardly
7 finite, small, or easily traversed, which is what's required for this argument
8 to work. And that, unless Your Honors have any further questions, I will
9 pass the microphone to my colleague, Mr. Sherman.
10 JUDGE GROSSMAN: I had no further questions.
11 JUDGE IPPOLITO: I don't see any questions. Let's see. We are
12 about 100 minutes in, so you've got 35 for your rebuttal time that you can
13 use. And I'm going to assume that this is our LEAP practitioner? Is that
14 correct?
15 MR. JACOBSON: Yes.
16 JUDGE IPPOLITO: Okay. Great. So, you know, 15 to - if you
17 need it.
18 MR. SHERMAN: Okay. Thank you. Good afternoon, Your
19 Honors. It's a pleasure to be here today. I'm going to start off essentially
20 just covering the topics that our colleagues on the other side of the aisle
21 presented regarding the '270 patent. That's IPR 00533. And I am going to
22 share. Okay. Are you able to see my screen at the moment?
23 JUDGE IPPOLITO: I can. It's a little small but I can see it. I
24 don't know if it's just me. Yeah. That's a little better.
25 MR. SHERMAN: A little better? Okay. So, Petitioners with

1 respect to the '270 patent, '270, really put forth three different arguments in
2 their opening. One of those is with respect to this idea of quote, unquote,
3 "RA values." And they try to make hay out of our expert, Dr. Tsai, not
4 understanding what RA values are at least in terms of their use in the prior
5 art reference Sung '479. And what's really interesting about this argument is
6 that it's not defined even in that reference, the Sung '479.
7 If you notice here, I'm on Petitioner's Slide 104 right now, where
8 they begin to make this argument. If you move to Slide 105, you'll see that
9 they actually require another reference to make their argument that is well-
10 known in the art.
11 So, we know for sure that RA value is not defined in that Sung
12 '479 reference. On top of this, it's actually not used in the '270 patent's spec
13 or the claims, and there's no indication in the briefing at all that Petitioners
14 are trying to equate this to the claimed protrusion distance. So, really, this
15 argument is just a red herring. It has nothing to do with the case at all.
16 Another argument that Petitioners made during their opening is
17 that Dr. Tsai doesn't have an understanding of the law. And if we move to
18 Slide 107, they used this quote where they questioned him. "So, you don't
19 understand the legal understanding sections in your declarations, correct?"
20 And Dr. Tsai replies, "For those, indeed. I don't have much understanding."
21 And this isn't surprising. Dr. Tsai isn't a career expert, let's say.
22 He's a technical guy, and he doesn't have much understanding. But nowhere
23 do Petitioners claim that the legal principles he uses in his declaration are
24 wrong. And, you know, we, as his Counsel, describe the legal principles he
25 needed to use.

1 So, his lack of understanding, his legal - the legal principles at
2 play really shouldn't be held against him at all. And we think this argument
3 is also just hand-waving to say that he's not credible.
4 Another argument that Petitioners made is that we don't cover the
5 combination of Chou and Sung '479 at all, that we only say that Sung '479
6 isn't enabling. That's just not the case. I mean as you can see, in Patent
7 Owner's slide deck here, on Slide 30, there's a header for that, and it's called
8 "The Combination of Chou and Sung '479 Does Not Teach Element 1B."
9 And if we move to Slide 31, we have an outline here, letters A
10 through E with citations to the POR and the surreply, indicating where those
11 arguments were made.
12 And, so, I wrote these down during the break. In the POR, we
13 argue against the combination generally on pages 26 to 29 and the
14 motivation to combine those references on pages 29 to 33. In the surreply,
15 on pages 14 to 17, we argue against the combination generally, and on pages
16 17 to 23, we argue against the motivation to combine.
17 JUDGE IPPOLITO: Counsel?
18 MR. SHERMAN: There's extensive briefing on this. Excuse me.
19 Sorry, Your Honor.
20 JUDGE IPPOLITO: I'm going to jump ahead because I know
21 you've got your clock running. I think a big issue for all the cases but
22 specifically for this one would be enablement is the level of ordinary skill in
23 the art, and also the motion to exclude Dr. Shanfield.
24 If we disagree with your level of ordinary skill in the art and we go
25 with something that's a little different, and Dr. Shanfield is not excluded,

1 isn't there enough then for the enablement? Does this issue really - I think
2 we're talking about Dr. Tsai and Dr. Shanfield, and I mean Dr. Shanfield
3 supports that there is enablement. So, isn't this really just an issue of
4 whether or not you can get your motion to exclude granted?
5 MR. SHERMAN: In terms of the enablement argument?
6 JUDGE IPPOLITO: Yes.
7 MR. SHERMAN: I think that we have enough arguments here that
8 stand alone, separate from enablement. Specifically, the ones you see on the
9 screen before you. So, we do argue against enablement, but we also argue
10 against the combination of the two references. And, so, even if you find that
11 Sung '479 is enabled, we don't believe that there's a reliable combination that
12 could be made between the two references.
13 JUDGE IPPOLITO: Why? Can we focus on that? Then, why is
14 that? Because we have been shown pretty much almost everything. I mean
15 we don't have that range, right? I think that's the issue that we have in this
16 case is that range. That's recited in, let's see, it's 1B. So, why isn't it - why
17 can't we say that it is taught in Sung '479?
18 MR. SHERMAN: We don't have the range but we actually - we
19 don't believe that we have a lot of the other elements based just on Chou
20 because all of those are trying to be met with just a figure, right? The Chou
21 figure doesn't - that's all that's being used for rejection here in the collateral
22 estoppel argument.
23 JUDGE IPPOLITO: Where do you have that in your Patent
24 Owner response?
25 MR. SHERMAN: We have that. Let me find it. Slide 33. We

1 cite this case law that the patent drawings cannot be relied on to show
2 particular sizes. We also argue in the Patent Owner response that collateral
3 estoppel doesn't apply because the issues are not identical to those that were
4 in the IPR covering the '699 patent.
5 JUDGE IPPOLITO: Sure. I mean, you know, let's just take
6 collateral estoppel off of the table because, yes, that's one way of us
7 addressing the limitation, all the limitations. But what I'm trying to
8 understand is other than limitation 1B, where in your briefing do you contest
9 the other limitations are not taught in the primary reference for the '103
10 combination? And the answer might be that you don't. I just want to make
11 sure I understand given what you've said today. What we have here is that
12 range that is taught in Sung '479. But that everything else is in Chou.
13 MR. SHERMAN: So, I will say that we do focus - the main focus
14 here throughout the briefing has been on that Element 1B with the range.
15 That said, we do contest that collateral estoppel applies but the attack really
16 was on the range using the combination of the Sung reference with Chou.
17 Even if you believe that Chou does show the rest of the claim
18 elements, the combination, I don't - the combination still fails. I think for at
19 least the reasons we set forth here. Each of these reasons is, you know, cited
20 to the briefing.
21 I do not have a cite for you right now and where we referenced
22 Chou not teaching the other elements in the POR at this moment. I can look
23 into that and get back to you after the oral argument.
24 MR. SHAPIRO: Your Honors, this is Jason Shapiro. I'm a backup
25 Counsel in this proceeding. And as Andrew is a LEAP practitioner, I

1 believe I can chime in during his argument if I have the Board's lead to do
2 so.
3 JUDGE IPPOLITO: Very briefly.
4 MR. SHAPIRO: Yes, I know. We're running out of time. But I
5 think Andrew just mentioned there was a lot of focus on those ranges, right,
6 but he's not conceding that there wasn't argument regarding the other
7 limitations. In fact, you know, he mentioned the collateral estoppel, and as
8 Your Honors noted, that's certainly an issue.
9 But the thing is that the Petitioners relied on collateral estoppel.
10 They didn't offer an independent argument for some of those limitations.
11 And, so, if their collateral estoppel argument goes down, then they don't
12 have an obviousness argument for the other limitations.
13 And, so, I think - and that is represented in our briefings. Plus, as
14 Andrew was just saying, you know, even in the collateral estoppel argument
15 we were talking about the deficiencies in the Board's decision in that other
16 unrelated IPR. And it had to do with this drawing which is why he brought
17 up the drawing. They were really relying on that drawing on the prior art
18 which, you know, we believe the Board erred because the - you can't rely on
19 drawings for size such as the size of the space between the diamonds.
20 And we're looking at it from one - it's one view. We don't know
21 what the rest of the pad dresser looks like. So, you know, Andrew didn't get
22 to that point but because the Petitioner relied on the collateral estoppel
23 argument. And with that, I'll let Andrew complete his argument.
24 JUDGE IPPOLITO: So, I would just follow up with that the
25 Petitioner will have an opportunity to respond but I didn't read the petition to

1 rely only on collateral estoppel for these, for their arguments. I think they
2 also provided arguments and the citations to the evidence of record
3 regarding the limitations separately to the references.
4 But I'm not going to speak for the Petitioner. I think that there's an
5 opportunity to come back but that's what I understood was in the petition.
6 Yes, and in interest of time, if you want to respond to that, you can, but you
7 can keep going with your presentation, if you like.
8 MR. SHERMAN: I mean, honestly, Mr. Shapiro jumping in kind
9 of took the collateral estoppel point. That was the last point the Petitioners
10 made for me to respond to at this point. So, I mean with that, are there any
11 other questions from Your Honors to get really - to drill down into any of
12 the points that you'd like elaboration on at this time?
13 JUDGE IPPOLITO: No. I don't. I don't see anything to ask of
14 you, so I'm going to stop the timer. I'm going to do some calculations but I
15 think we do need another break. So, if you will indulge that, I would say
16 let's do another seven minutes, and we'll come back and start with the
17 rebuttal with 25 minutes for the rebuttal, and then I'm going to do some math
18 for the surrebuttal. I haven't figured it out yet.
19 (Whereupon, the above-entitled matter went off the record at 4:45
20 p.m. and resumed at 4:54 p.m.)
21 JUDGE IPPOLITO: All right. I think that we have all returned.
22 Our court reporter is here. I'm going to check to see. I think our hearing
23 staff is here too. And let's see. Okay. Let me go back to my notes here.
24 Petitioner, for rebuttal, I have 25 minutes. And, also, for Patent
25 Owner, I calculated close to 13 minutes left for you. So, you'll have that in

1 your surrebuttal. And with that, if, Petitioner, you're ready, you can start,
2 and I can start the clock. And I am sorry if you hear noise. It's started to
3 pour rain, and that's what that noise is.
4 MR. HA: Sorry. I had an issue with my mute as well. But I am
5 ready, Your Honor, if everybody else is. Sorry about that.
6 JUDGE IPPOLITO: Go ahead when you're ready.
7 MR. HA: Great. So, I'll start with the '270, and I'll just make two
8 points here. I agree with Your Honor that we have presented both the
9 substantive arguments regarding all of the other limitations as well as the
10 collateral estoppel argument, the actual proof that Chou teaches these
11 limitations are actually extensively in our petition from pages 21 through 45.
12 And as Your Honor noted, collateral estoppel is just one other way
13 to demonstrate that these Patent Owners should not be allowed to argue
14 against what's already ruled against them before.
15 Second point I want to make about the '270 is the RA value. I
16 think - I don't have his exact words but I think Counsel said it's not related
17 to the claims, and this is just a red herring.
18 I want to just note that it is the Patent Owner's expert who opened
19 the door by saying things like RA value is not enabled. And why we're kind
20 of utilizing that type of testimony is to demonstrate the lack of credibility of
21 Dr. Tsai's testimony because not only does he not understand the underlying
22 technology on what he's opining about but he's also said, I do not really
23 understand the legal section of my declaration that he submitted, and he said
24 that repeatedly during the three days of deposition. On the '862, I tried to
25 cobble together a couple of slides real quick. So, with Your Honor's

1 permission, I'm going to share that real quick.
2 JUDGE IPPOLITO: Okay. I'm going to ask this question again:
3 you say cobbled the slides together. Do you mean that these slides have also
4 been seen by Patent Owner's Counsel?
5 MR. HA: Yes, Your Honor.
6 JUDGE IPPOLITO: Okay. Sorry.
7 MR. HA: Particularly, screenshots from the different
8 demonstratives that I've just cobbled together.
9 JUDGE IPPOLITO: Okay.
10 MR. HA: Apologies. So, the point I wanted to start off was with
11 Judge Grossman - was asking about paragraph 2 and 5 of Sung '026. And,
12 you know, this doesn't really help our cause but I just want to present this
13 because it will clarify the record.
14 Those passages of Sung '026 are talking about sort of the action
15 that's happening between the wafer and the polishing pad here. What we're
16 talking about when the Limitation 1D talks about pressing is is this diamond
17 dresser pressing down onto the CMP pad? So, I think those are not relevant.
18 Second point I wanted to make on this is Patent Owner presented
19 this Slide 25. But basically saying Petitioner's Counsel did not elicit
20 responses on the correct legal standard, i.e., what a POSITA would've done
21 at the time of the '862 patent. That's not correct.
22 So, our Demonstrative 54, here, goes into Dr. Tsai's deposition
23 testimony which starts specifically at 50 - sorry, page 50, line 5, and goes
24 all the way to page 51, line 23 of Exhibit 1049. And with that, I'm going to
25 stop sharing my slides.

JUDGE HOSKINS: So, Mr. Chan (sic), so, you were actually just referring to your Slide 84 as opposed to 54. The 8 looks a lot like a 5, but it's just for the record, it's 84.

MR. HA: My apologies. You're absolutely right. Old eyes now. So, thank you for that clarification. And what I wanted to point out was that deposition transcript that we cited is ultimately sort of the wrap up to the series of questions that start at page 43, line 10, of that same Exhibit 1049.

And if you start from there, you can actually see the type of questions that I asked, right, where I said, can you please turn to paragraph 68 of your declaration? And I read to him what he said.

I said, paragraph 68 says, "In my opinion, viewed from the perspective of a person of ordinary skill in the art, these various portions of Sung '026 are separate and distinct aspects or embodiments of a new invention, et cetera."

And, again, I pointed him to paragraph 69 of his declaration which starts at page 44, line 25 of Exhibit 1049. And, again, I said let's continue. Paragraph 69, you say, "It's also my opinion that it would not have been obvious to a person of ordinary skill in the art circa 2011 to combine these distinct aspects."

He recognized that. He said, "Yes." And I further asked him, "And you still stand by this opinion, correct?" He said, "Yes." These questions that we cited on Slide 84 of our demonstrative were based on very clear discussions about what it would mean from a person of ordinary skill in the art.

And I just wanted to make one final point on the pressing

1 limitation. Sorry. Just getting my notes back together. So, Sung '026 is
2 very clear in describing how frictional forces exist between the dresser and
3 the pad to perform the CMP pad conditioning. That's point number 1. And
4 then, the next question is whether a POSITA would read Sung '026 and
5 understand that the pad dresser is actually pressed against the pad.
6 And by Dr. Tsai's own admission, the answer has to be yes because
7 he admits that's the ordinary way that conditioning is performed. So, of
8 course, the person, a POSITA reading Sung '026 would understand Sung
9 '026 to disclose the ordinary way of doing the CMP pad conditioning such
10 that it could achieve those frictional forces that Sung '026 is talking about.
11 So, we think there's no doubt that Sung '026 teaches the pressing limitation.
12 And the final thing I wanted to address is on the '802 patent. And
13 with that, if Your Honors will let me, I will again share my slides. And
14 these are just exhibits that I want to put up on the screen so you guys can
15 look at that more closely.
16 So, I think my opposing Counsel referred you to column 11, line
17 42 to 45 regarding the designated profile being the highest protruding tip but
18 I think that was read a little bit out of context because if you start at line 35,
19 it starts by saying, "While it is intended that the tip of the superabrasive
20 particles align along the designated profile, some level of deviation may
21 occur."
22 And then, what opposing Counsel was pointing to was line 42. It
23 says, "Also, when referring to the designated profile, it should be noted that
24 the term 'tip' is intended to include the highest protruding point of a
25 superabrasive particle." It's not talking about the highest protruding tip. It's

1 just saying when we talk about tips in the context of a designate profile, we
2 should just be looking at the highest point of individual particles such that
3 that's where we determine the deviation or the variation away from the
4 designated profile.
5 Second point I wanted to make was with regards to opposing
6 Counsel's characterization that we somehow invited or made a
7 representation to Dr. Tsai that the designated profile exists on both the
8 substrate as well as the highest protruding tip. Because if we look - and that
9 testimony that we had on our demonstrative Slide 34 started at page 14, lines
10 11 through 16 of Exhibit 1055.
11 But if you just look at page 13, I start the question by saying, and
12 I'm looking at page 13, line 7, "Can you please turn to Claim 1? Do you see
13 the term 'designated profile' in Claim 1?" Answer, "Yes." Question,
14 "What's your understanding of the term 'designated profile?'" Answer,
15 "Usually, when we do researches, we give two definitions. There are two
16 definitions. The first one is that we will define the designated profile based
17 on the substrate, and the second definition is that we will take the highest
18 protrusion diamond and define the designated profile."
19 Question, "So, it could actually mean two different things? It
20 could mean the substrate or the highest protrusion tip of the diamond. Is that
21 right?" Answer, "Right." We did not invite that testimony. Dr. Tsai
22 provided that testimony in response to a very open-ended question.
23 And then, the final point I want to make, and I'll end with this, is
24 we were talking about Exhibit 1011. And Your Honors noted that, you
25 know, there were some discussions about these additional paragraphs. And I

1 wanted to highlight a couple more things out of this declaration.
2 So, let's begin with paragraphs 20 and 21 which is Dr. Sung said,
3 "I've reviewed the '862 patent and the '270 patent. Neither the '862 patent
4 nor the '270 patent disclose a claimed subject matter of the '802 patent."
5 And then, in paragraph 21, he specifically says, "For example,
6 neither the '862 patent nor the '270 patent discloses a designated profile with
7 a tip variation associated with the superabrasive particles or a tip variation
8 at, for example, about 100 microns, all of which was discovered by me after
9 the joint venture had terminated."
10 We're now talking about that right side branch of the family tree
11 that we were talking about. That is specifically directed to the type of
12 limitations that are recited in Claim 1 of the '802 patent.
13 Then, what do they continue to say? Paragraph 22, sorry about
14 that. "Further, I am the inventor of the Taiwan patent '625," and he says,
15 "The Taiwan 625 patent has a related '704 application." That's now on the
16 second, the left side of the family tree branch that we're talking about the
17 first application off of the '802.
18 And he's saying the '704 application is related to the Taiwan '625
19 patent. And then, what does he say? For example, in paragraph 23, "Taiwan
20 '625 patent does not disclose the use of a designated profile, paren, which is
21 recited in Claim 1 of the '802 patent, defined by protrusion tips."
22 He's not talking about Claims 8 through 12 in any of his
23 declarations. He's talking about all of the limitations that are found in Claim
24 1 of the '802 patent. And with that, that means the priority break must be
25 given, and if that's true, the only remaining dispute was regarding Claims 8

1 through 12 and Grounds 2 and 3 which was very minor, as we talked about.
2 And with that, I think that means all of the claims are found
3 unpatentable for the '802 patent. And with that, I'll - I'm sorry. With that,
4 I'll cede the rest of my time.
5 JUDGE IPPOLITO: Thank you. Patent Owner, you have 13
6 minutes. Whenever you're ready, you can begin.
7 MR. CHAN: Thank you, Your Honor. Judge Hoskins, just want
8 to circle back to the question you had earlier regarding any cases. Patent
9 Owner has cited in our surreply - we cited the case GlaxoSmithKline v.
10 Banner Pharmaceutical on page 9 of our surreply. In that case, the Federal
11 Circuit upheld a priority claim even though the earlier application disclosed
12 a broad range, and the later patent claimed a narrower range, not expressly
13 carved out.
14 And, again, this is on page 9 of our surreply. But, also, another
15 thing I wanted to mention which seems to be a critical point that may not be
16 apparently, well, clearly apparent, which is that in our POR, Patent Owner
17 response, 11, we cited to the disclosures, for example, to the '786
18 application, where we specifically mapped out the written support of the
19 claims to the specification of the '786 specification.
20 And on page 11 of the POR, we specifically cited and said the '786
21 discloses that a majority of the particles have tips that vary from the
22 designated profile to less than 10 percent, for example, of the average size of
23 the particles. Again, this is on page 11 of the POR. And we also cited on
24 that same page where the size is from 30 to 500 microns.
25 And, so, you know, doing some quick math, 10 percent of, let's

say, 30 to 500 microns is roughly 3 microns to 50 microns which corresponds if not substantially overlaps the range that we have in Claim 1 of the '802 patent.

And, so, this is really not a case where we have a narrower range or where the narrow range was not disclosed in the priority patents or applications, specifically, the '786 and the '817 application, and as such, the issues that we saw in *Purdue* and also *Gilead* are really not present here.

With that, I also just wanted to quickly point out that, you know, I know Counsel for the Petitioners have gone through Exhibit 1011, specifically including paragraph 23, for example. You know, obviously I would observe - I would first submit my objection that, you know, this is going beyond the scope of our opening. But I do want to take this opportunity, though, to quickly address what the Petitioners have now cited.

And, again, the Taiwan '625 patent is not relevant here, but I think Exhibit 1011 that we have seen, and if I may just quickly share that with you just so we're on the same page about what we're seeing here, here, the first sentence is pretty clear. Paragraph 23, "Taiwan '625 patent does not disclose the use of a designated profile," which is recited in Claim 1 of the '802 patent.

I don't think we've ever, again, taking notice that the fact that Taiwan '625 patent is not relevant here, I don't think we ever said anything about designated profile not being disclosed in the priority applications.

And, obviously, they speak for themselves because '786 and the '817 applications do actually, in fact, say clearly in no uncertain terms about designated profile.

1 So, with that said, I really don't understand the weight of the issue,
2 the respective paragraph 23. But, again, going back to what we said earlier
3 in terms of whether the '704 application discloses the claimed subject matter,
4 what we haven't heard from the Petitioners is why the Board needs to set
5 aside for the Circuit precedent requiring claim-to-claim analysis but instead
6 wants this Board to really focus on this declaration where, honestly, the
7 claim, excuse me, the statements themselves are really arbitrary.
8 There's no dispute. The inventor has never said that all claims are
9 entitled to only the new filing dates. We don't have any, any, any evidence.
10 And, so, the question for the Board, obviously, is how to draw the
11 conclusion. But, again, I will be mindful not to set aside a Federal Circuit
12 precedent where the claim-to-claim analysis must be performed.
13 And as we have seen by now, well, there's really not much
14 argument about whether the applications themselves disclose the subject
15 matter claimed in Claim 1. So, with that, I'm going to pass - unless the
16 Board has any questions about the '802 patent, I'm going to yield my time to
17 my colleagues to address additional issues raised during the rebuttal by the
18 Petitioners.
19 JUDGE IPPOLITO: You have about eight minutes left.
20 MR. JACOBSON: Thank you, Your Honor. This is Lowell
21 Jacobson, for Patent Owner. I think we can - I can be relatively brief. I
22 wanted to respond to only on the pressing argument, and I think Petitioner's
23 Counsel actually made our case for us on Limitation 1A.
24 Petitioner's Counsel seemed to admit that pressing is not literally
25 disclosed within the four corners of Sung '026. Instead, they are drawing

1 inferences from the fact of frictional forces, which, as we've discussed, can
2 happen in a number of different ways. To infer that Sung '026 actually
3 teaches is the ordinary way it's done, that would make a very fine
4 obviousness argument but they didn't argue obviousness.
5 They argued only anticipation, and they said it's disclosed. And
6 what they've argued here simply does not meet the anticipation standard. It's
7 not within the four corners of the document. It is ambiguous as to how those
8 frictional forces result because they logically can happen in a few different
9 ways.
10 They never argued inherency, and even if they did, they wouldn't
11 meet the standard because it's not necessarily the case that friction would
12 result from the recited pressing. It's only the ordinary, the ordinary way
13 which is insufficient for anticipation here.
14 The ambiguity as we've cited case law in our briefing and our
15 demonstratives cannot support anticipation as a matter of law. With that, I
16 have addressed the - any questions from the panel, I will pass the baton to
17 my colleague, Mr. Sherman.
18 MR. SHERMAN: Thank you, Mr. Jacobson. At this time, I think
19 between the opening and rebuttal and the briefing, we covered all of the
20 issues that I would be able to address at this time. So, unless Your Honors
21 have additional questions for me, we'll cede the rest of our time.
22 JUDGE IPPOLITO: No additional questions from me. I look to
23 my colleagues.
24 JUDGE GROSSMAN: No further questions. Thank you.
25 JUDGE IPPOLITO: Well, thank you for your presentations and

working with us through all those questions. I believe, with all that, we are finished for the day. The cases are submitted but we do have our court reporter here who may have questions about spellings and whatnot. So, please stay on afterwards and answer those questions if there any.

MR. CHAN: Thank you, Your Honor.

MR. HA: Thank you, Your Honor.

(Whereupon, the above-entitled matter went off the record at 5:16 p.m.)

IPR2024-00533 (Patent 8,974,270 B2)
IPR2024-00534 (Patent 9,138,862 B2)
IPR2024-00535 (Patent 9,724,802 B2)

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