

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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VALVE CORPORATION,  
Petitioner,

v.

IMMERSION CORPORATION,  
Patent Owner.

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IPR2024-00582  
Patent 11,175,738 B2

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Record of Oral Hearing  
Held: June 23, 2025

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Before MICHAEL R. ZECHER, CHRISTOPHER L. OGDEN, and  
IFTIKHAR AHMED, *Administrative Patent Judges*.

APPEARANCES:

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The above-entitled matter came on for hearing on Monday, June 23, 2025, commencing at 10:00 a.m. EDT, via video-conference.

P R O C E E D I N G S

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(10:00 a.m.)

JUDGE OGDEN: Hello. Welcome to the Patent Trial and Appeal Board. We're convened for oral arguments in IPR 2024-00582, which relates to patentability challenges for claims in U.S. Patent Number 11,175,738.

I'm Judge Ogden, and also appearing are Judge Zecher and Judge Ahmed. So let's start with appearances for both parties. And if you could, let us know who will be arguing and also who is attending remotely for your party today including, for example, if there's a client present. Please identify who is appearing for each side.

And if necessary, if you could spell your names as well. So let's start with appearances for Petitioner.

MR. SPEED: Good afternoon, Your Honor. It's Nathan Speed from Wolf, Greenfield, and Sacks. I'm joined by Dr. Elisabeth Hunt, Lead Counsel. I'll be doing the argument today.

JUDGE OGDEN: Okay, thank you, Mr. Speed, and --

MS. HAYDEN: Good morning or afternoon, everyone. Oh, excuse me.

JUDGE OGDEN: Go ahead.

MS. HAYDEN: I'm jumping in. Good morning or afternoon, everyone. My name is Amy Hayden of Folio Law Group, and I am joined by my colleague, Stefan Szpajda, Cliff Win, and Alexandra Fellowes.

I think you asked us to spell our names. Last name is H-A-Y-D-E-N, and we don't have a client present today. Thank you.

1 JUDGE OGDEN: Okay, thank you, Ms. Hayden. Will you be  
2 arguing on behalf of Patent Owner?

3 MS. HAYDEN: Oh, yes, that's correct.

4 JUDGE OGDEN: Okay. Okay, great. Thank you. This is a public  
5 hearing, and recording of any PTAB hearing is prohibited. The Court  
6 Reporter will be taking a transcript of the hearing and that will become part  
7 of the record at a later date.

8 So to ensure that the transcript is as clear as possible, I'd like to ask  
9 you to identify yourself before speaking the first time and speak directly into  
10 the microphone, and also identify any particular slide numbers or places in  
11 the record that you'd like to direct our attention so that we can be sure to  
12 have those on the record.

13 And if you could mute yourself while you're not speaking, that would  
14 be helpful. If there are any technical difficulties or loss of connection,  
15 please call us back and try to get connected. And if we notice there's a  
16 disruption, we'll pause the proceeding until we get things fixed.

17 So part of the hearing order, which is Paper 28, each party will have  
18 60 minutes total time to argue their cases. Petitioner will open the argument  
19 and can reserve rebuttal time, which should not exceed more than half of  
20 Petitioner's total time.

21 And then likewise, Patent Owner will respond to Petitioner's argument  
22 and can reserve surrebuttal time, which also should not exceed more than  
23 half of Patent Owner's total argument time.

24 And please remember that your argument should be limited only to  
25 those arguments that have been previously made in the briefs. And we are

1 aware of the parties' arguments regarding certain matters that each party  
2 alleges has been untimely made.

3 Petitioner argues that there was some arguments untimely made in the  
4 Sur-reply that were improper. And then Patent Owner also challenges  
5 certain of the demonstratives on a similar ground that certain arguments  
6 were not made in a timely manner by Petitioner.

7 Those objections are on the record and we're aware of them. So  
8 there's no need to specifically make those objections today.

9 For the purpose of this hearing, we're going to allow each party to  
10 make their arguments that they had previously made in the briefs. And we  
11 will take up the issue of whether those arguments were untimely at a later  
12 date.

13 So no need to object to any of that when it comes up. The objection is  
14 on the record and noted.

15 So I will maintain a clock which hopefully you can see on the screen.  
16 And I'll try to give you a warning when your time is coming to an end.

17 But the time will count down from the initial time you reserved. And  
18 when it gets to zero, it will start coming up. And then I will add additional  
19 time for your rebuttal or surrebuttal.

20 All right, so I think we're ready to start for Petitioner. Mr. Speed,  
21 would you like to reserve some rebuttal time?

22 MR. SPEED: Yes, if I could reserve 15 minutes, Your Honor, that  
23 would be great.

24 JUDGE OGDEN: Okay. I'll put 45 minutes on the clock, and I'll  
25 start the timer when you begin and you can start when you're ready.

1 MR. SPEED: Good afternoon, Your Honors. Nathan Speed on behalf  
2 of Petitioner Valve. If we can start with Slide 2 of our demonstratives, I'd  
3 like to give a short overview of the patent and then dive right into the  
4 disputed issues.

5 The patent at issue in this trial is Immersion '738 patent. This patent  
6 was filed in 2016. As reflected in the independent claim one that you see on  
7 the slide, the patent claims a device with at least two sensors.

8 The first is a proximity sensor that the text, quote, a non-contact  
9 interaction with the touch sensitive device. That's a proximity  
10 determination. For example, it would detect when the person's finger is  
11 approaching the touch-sensitive device.

12 The second sensor is a touch sensor that actually detects when the  
13 person actually touches the screen. The device also has a haptic output  
14 device, like an actuator, that can create a haptic effect like a vibration in  
15 response to receiving a haptic output signal.

16 There's no dispute that proximity sensors, touch sensors, and haptic  
17 output devices were well known in the art. The alleged novelty with this  
18 claim is the argument that the haptic output signal that triggers the haptic  
19 effect must be based at least in part on signals from both the proximity  
20 sensor and the touch sensor.

21 As we established in the Petition, the idea to output a haptic effect  
22 based on both proximity and touch detections was not novel. We could turn  
23 to Slide 3, Your Honors.

24 The Petition advanced four grounds. Ground one relies on craft and  
25 in particular two embodiments that practice closes. One embodiment is

1 called the rate of approach embodiment, in which the haptic effect that  
2 output when a person touches a touchscreen. It's selected based on --

3 JUDGE OGDEN: Hold on, we've got some feedback. Let's go off  
4 the record for a second.

5 (Whereupon, the foregoing matter went off the record at 10:09 a.m.  
6 and went back on the record at 10:10 a.m.)

7 JUDGE OGDEN: Mr. Speed, sorry about that interruption.  
8 You can, if you want to just keep going on or back up a little bit, I'll  
9 give you just a little bit of extra time to get back into the swing of it.

10 MR. SPEED: No worries, Your Honor. Ground one relies on Pratt.  
11 Pratt has two embodiments. That's where I was. The first is called the rate  
12 of approach embodiment.

13 That's where the haptic effect that is output when a person touches the  
14 screen is selected based on how quickly they're approaching the screen,  
15 which is a proximity determination.

16 The other effect that we talked about with Pratt is its bubble effect,  
17 and that's the effect in which the touchscreen of the device actually moves  
18 up as it detects the finger's approaching, and then when you actually touch  
19 it, it goes down.

20 So to the user, it feels like they've clicked the bubble or a button or  
21 it's a clicking sensation that they feel.

22 We demonstrate in the Petition that those two embodiments anticipate  
23 and/or render obvious the challenged claims.

24 We then have grounds two and three, I feel here on Slide 3. Grounds  
25 two and three rely on Ku. The way that the trial's unfolded, they largely rise  
26 and fall together.

1           The real dispute there is what are Ku's teachings in Figure 7 and 12,  
2           how a POSA would have implemented those. And so those two grounds  
3           kind of rise and fall together at this point.

4           And then ground four has the Jiang reference that's added in to  
5           address one of the dependent claims.

6           If we turn to Slide 4, this slide, I tried to capture the disputed issues  
7           that we will be talking about today or I anticipate we'll be talking about  
8           today.

9           And they can really be divided into two buckets. The first bucket are  
10          the issues at the top of Slide 4, which are ones where Immersion's claim  
11          construction for haptic effect, which we'll talk about, but their construction  
12          is that a haptic effect should be interpreted as an unmodified or a single  
13          unmodified haptic effect.

14          That construction is not relevant to the issues in this first bucket. And  
15          that bucket includes whether or not Pratt's rate of approach embodiment  
16          anticipates or renders obvious the claims, the ground three Ku teachings, and  
17          then is ground four as well.

18          The one bucket where their construction does matter, would arguably  
19          matter, would be with the bubble effect embodiment with Pratt. So I'll talk  
20          about that at the end.

21          So with that kind of setup of the case, of the trial as it's proceeded so  
22          far, I'd like to jump ahead to Slide 6 and talk about Pratt.

23          JUDGE OGDEN: Mr. Speed, just for the record, just so I understand  
24          what you're saying here, are you saying that we don't need to construe  
25          "haptic effect" to reach ground one, three, or ground two, ground one on the

1 rate-of-approach embodiment, but we do need to construe it for purposes of  
2 ground one in the bubble-effect embodiment?

3 MR. SPEED: The rate-of-approach embodiment and the bubble-  
4 effect, they hit the same claims. So if you were to find the claims  
5 unpatentable in light of the rate-of-approach embodiment, then you wouldn't  
6 need to turn to the bubble-effect, and that's the only one where the claim  
7 construction would matter.

8 So you would not need to reach the construction of haptic effect if you  
9 were focused on Pratt's rateofapproach embodiment. The rate-of-approach  
10 as I'll discuss, that is, even under their construction, it's an effect that's a  
11 single, unmodified haptic effect that's based on both proximity and touch.  
12 So even under their construction, it would meet the claims.

13 JUDGE OGDEN: Okay, I think I understand you, but basically what  
14 you're saying, if we don't meet the bubble-effect embodiment in Pratt, we  
15 don't need to construe haptic effect. That's what you're saying?

16 MR. SPEED: That's correct. You would --

17 JUDGE OGDEN: We could just rely on the plain language of the  
18 claim.

19 MR. SPEED: I'm sorry, can you say it one more time?

20 JUDGE OGDEN: We could just rely on the plain language of the  
21 claim.

22 MR. SPEED: Correct.

23 JUDGE OGDEN: Okay. Thank you.

24 MR. SPEED: So as we see, I'm on Slide 6 for the court reporter, as  
25 seen in its second paragraph, Pratt discloses techniques for generating a  
26 haptic effect based on proximity, touch, and/or force detections.

1           So it uses any combination of those detections to generate a haptic  
2 effect. In its detailed description, Pratt discloses a consumer device with a  
3 touchscreen and a touch sensor.

4           And as explained in Paragraph 22 of Pratt, the touch sensor can make  
5 a capacitive sensor that uses changes in capacitance to detect the proximity  
6 of a user's finger. That is how close the finger is to the screen or how  
7 quickly it's approaching the screen.

8           That same capacitive sensor can also detect when the user touches the  
9 screen, which is a touch detection, and the same sensor can even detect how  
10 much force is being applied to the screen.

11           The touch sensor sends its sensor data to a Processor 112. And if we  
12 turn to Slide 7, we can see, Pratt's Paragraph 20 explains that the processor  
13 included three modules, a proximity classification module that I've  
14 highlighted in green, a touch classification module that I've highlighted in  
15 blue, and a force classification module that I've highlighted in orange.

16           Based on the touch sensor's data, these various modules calculate  
17 corresponding proximity, touch, and/or force events and the haptic response  
18 search module that I've highlighted in yellow in Figure 1 receives that  
19 information and generates a haptic command based on that information.

20           For example, as Pratt explains in Paragraph 24, the haptic response  
21 module -- the haptic response module can determine whether or not they  
22 match the calculated proximity touch and/or force events to a stored haptic  
23 profile. So it looks at proximity, touch, and/or force, and says let's find a  
24 profile that matches that.

25           Now, if we turn to Slide 8, we can look at the rate-of-approach  
26 embodiment that we mapped in the Petition to Claim 1. In that paragraph,

1 Paragraph 41, Pratt describes how haptic effect types may be selected based  
2 on the rate of approach of the user's finger as it moves toward a touch  
3 screen, with one particular haptic effect following a fast approach and a  
4 different haptic effect following a slow approach.

5 There's no dispute that the rate at which a person's finger is  
6 approaching the screen is a proximity determination.

7 The Petitioner argued that a POSA reading Paragraph 41 would have  
8 understood it to disclose an embodiment in which Pratt's processor  
9 determines a haptic effect based in part on proximity and touch signals.

10 It uses proximity to determine what haptic effect to select and then it  
11 outputs the haptic effect based on touch.

12 As support for that logical reading of Paragraph 41, we also pointed to  
13 Pratt's Paragraph 39, which is just two paragraphs earlier, and it's talking  
14 about an embodiment in which Pratt outputs a haptic effect, unsurprisingly,  
15 when a person actually touches the device.

16 And so that demonstrates that Pratt is talking about haptic effects in  
17 the context of a touch detection.

18 Importantly, Paragraph 39 is also using proximity. Paragraph 39 is  
19 focused on a latency issue where what occurs with Paragraph 39 is it, based  
20 on the approach of the person's finger, the proximity data is used to  
21 precharge the actuator so that when you actually touch it, you get the haptic  
22 effect quicker.

23 Right? So it's already charging so it can give you that haptic effect  
24 almost immediately, which is, Pratt teaches is beneficial to its system.

25 So that's an embodiment which it's already using proximity data and  
26 it's providing a haptic effect based off of touch.

1           If we can turn to Slide 9, we cited to Dr. Welch, our expert in this  
2 case, and he explained that a person in the skill of the art reading Paragraph  
3 41 of Pratt would understand that what it's describing is that the type of  
4 effect is decided based on proximity, but the actual effect that is selected  
5 does not occur until the user's finger touches the screen. This is in  
6 Paragraph 149 of his opening declaration.

7           As he explained at the end of that paragraph, a POSA would  
8 understand that the haptic effects described in Paragraph 41 were intended to  
9 be introduced only after the finger touches the screen, because otherwise, the  
10 finger would not feel the haptic effect.

11           This makes complete sense. Haptic effects are meant to be felt, and  
12 so it makes sense that the haptic effect that is selected based on proximity is  
13 output when the user actually touches the screen.

14           And if we turn to Slide 10, we also have Dr. Welch at Paragraph 150  
15 of his declaration where he said, even if somehow you read, a POSA could  
16 read Paragraph 41 some other way that it somehow did not output the haptic  
17 effect based on touch, that's at least an obvious implementation of the  
18 teachings of Pratt and pointed to Paragraph 39, which talks about actually  
19 providing the haptic effect based on touch, and Paragraph 41, which talks  
20 about selecting the haptic effect based on proximity.

21           So even if there wasn't an anticipatory disclosure, it would have  
22 obvious, is testimony from Dr. Welch on that point.

23           And if we turn to Slide 11, Your Honors at institution found the  
24 Petitioner's arguments persuasive. Your Honors even went so far as to  
25 identify additional evidence that we had not necessarily relied on in the  
26 Petition, which is Claims 16 and 19 of Pratt.

1           And if you turn to Slide 12, Your Honors, we can see Claims 16 and  
2           19. They are as pointed to, and Your Honors were one hundred percent  
3           correct in pointing to it, what Claim 16 recites is that user interface  
4           controller that uses proximity data to determine a user interaction property,  
5           like a rate of approach, and it matches the property to a haptic profile.

6           Importantly, Claim 19 says that not only does the controller use  
7           proximity data, it will also use data related to a user touch. So Pratt is not  
8           only describing an embodiment in which proximity and touch are used to  
9           provide a haptic effect, there's claims that are directed to that concept as  
10          well.

11          And if Your Honors look at Slide 13, again, Your Honors, in the  
12          Institution Decision, you observed that Pratt makes general statements  
13          throughout its disclosure about how its processor can generate a haptic  
14          command by matching proximity, touch, and/or force events to store haptic  
15          profiles.

16          The "and" indicates, as everyone would know, that that means it can  
17          use any combination of that. Your Honors pointed to Paragraph 24 of Pratt,  
18          which we had identified in the Petition as well, as in Paragraph 24, it says  
19          exactly that, that the haptic response module may match the calculated  
20          proximity, touch, and/or force event data to a stored haptic profile.

21          Now, if we turn to Slide 14, we can see the entirety of Immersion's  
22          response to the rate of approach argument. This is on 14. We have the  
23          Patent Owner's Response at 35.

24          It's two paragraphs. And the first paragraph is really just a sentence  
25          describing what the rate of approach is. You can see in this response, they

1 did not -- they elected not to address any of the evidence that we or the  
2 Board cited.

3 They didn't talk about Claim 19 that Your Honors cited. They didn't  
4 talk about Paragraph 24. They didn't talk about Paragraph 39. They didn't  
5 address Dr. Welch's testimony about Paragraph 39. And they certainly  
6 didn't address our argument that at minimum, it would have been obvious to  
7 implement Paragraph 41 such that the haptic effect that's selected based on  
8 proximity is output when you touch it.

9 All they did in their Patent Owner Response is recycle their pre-  
10 institution argument that somehow Paragraph 41 should be read as limited to  
11 a pre-touch haptic effect.

12 Essentially, it's a haptic effect that's provided but you don't touch the  
13 screen, and it happens before you touch the screen.

14 The only support they have for that are two paragraphs from Dr. Akl's  
15 declaration that are verbatim to what you're seeing on the slide right here.  
16 He just copied the Patent Owner's Response or vice versa, but there's no  
17 analysis, there's no consideration of Paragraph 39. There's no consideration  
18 of Paragraph 24 or Claim 19. None of that analysis that you would expect to  
19 see if they were truly rebutting what we put forth in the Petition.

20 And so, we point at the fact that they didn't address any of this  
21 evidence out in our reply. And so, unsurprisingly, in their Sur-reply, they  
22 pivoted.

23 And we can see on Slide 15, they newly argue in the Sur-reply that  
24 Paragraph 39 and 41 are just two completely incompatible embodiments.  
25 And so you would never think to combine those in an obviousness  
26 combination, and you certainly wouldn't read them together, right?

1           Now, there's a few problems with that. First, it's nowhere present in  
2 the Patent Owner's Response, so we think it is an improper new argument  
3 that shouldn't be considered by the Board.

4           But fundamentally, because it's a new argument that they've  
5 presented in their Sur-reply, they have no evidentiary support for it. It's all  
6 attorney say-so.

7           And even that attorney say-so, I mean, we agree, as I've tried to  
8 highlight on Slide 15, we agree that Paragraph 39 describes the use of  
9 proximity to pre-charge an actuator to reduce latency, and that the haptic  
10 effect in 39 is delivered after the user touches the screen.

11           We also agree with the first part of what they say about Paragraph 41.  
12 That is that the rate of approach of a user's -- the device uses the rate of  
13 approach to select the haptic effect.

14           Where we diverge is on that last part where it says, according to  
15 Immersion, they read Paragraph 41 as only delivering the haptic effect prior  
16 to the user touching the surface.

17           We've seen Paragraph 41 earlier. There's absolutely nothing in there  
18 that would support that interpretation. The proximity is described as being  
19 used to select the haptic effect, and so it's to how fast you're going toward  
20 the screen.

21           The logical import of how fast you're going to the screen is you're  
22 going to touch the screen, and that's when logically you would expect to feel  
23 the haptic effect.

24           And it's not just the logical interpretation, it's completely consistent  
25 with what Pratt describes just earlier in 39 as to when haptic effects are  
26 output.

1           If we turn to Slide 16, Your Honors, again, I'll just -- I'm bringing  
2 back up Paragraph 41 of Pratt. There's simply nothing in here that would  
3 support the notion that the rate of approach is -- the haptic effect that is  
4 selected is also only output during a pre-touch scenario.

5           But again, fundamentally, even if that reading was somehow  
6 reasonable, and I really don't think it is, but even if it was, there's still the  
7 fact that we've advance in our Petition, and our expert explained, it would  
8 have been at least an obvious implementation of what Pratt's teachings are,  
9 that you would implement Paragraph 41, such that the haptic effect that has  
10 been selected is only output when you actually touch the screen, because  
11 that's when you're going to feel it with your finger, which is what Pratt's  
12 figures are all showing, a finger going toward the screen.

13           It makes sense, and they have no argument against that obviousness  
14 combination. If we turn to Slide 17, Your Honors, again, I just wanted to  
15 highlight another aspect of Pratt which is just background discussion in  
16 Pratt.

17           Pratt is using haptics in the same way that everyone else uses haptics,  
18 which refers to a sense of touch. And a touch requires some type of  
19 touching of the screen in this scenario.

20           And so, when he is describing haptic effects that have been selected  
21 and then are going to be output, a POSA reading this would logically  
22 understand that the haptic effect is output when you actually touch the  
23 screen.

24           So that's really all I have on the rate of approach embodiment. Unless  
25 there are any questions, I can move over to Ku.

1 JUDGE AHMED: Can you point us to where in the Petition you  
2 argued the modification aspect, that you could modify Pratt to output the  
3 signal after the touch rather than before the touch?

4 MR. SPEED: Yes, Your Honor. So Page 20, the very top of 28, we  
5 say in any event, it would have been obvious to implement Paragraph 41 this  
6 way, dot dot dot, and we cite to Paragraph 150 to 151 of Dr. Welch's  
7 testimony and to Paragraph 53 of Pratt, which says that embodiments may  
8 be implemented in combination.

9 JUDGE AHMED: Thank you.

10 MR. SPEED: No problem.

11 JUDGE ZECHER: This is Judge Zecher. So is there anything that  
12 would lead you to believe that Paragraphs 39 and 41 are so divorced from  
13 each other, that they are describing different embodiments?

14 MR. SPEED: No, I don't believe so. I think if you read 39 and 40,  
15 are describing a scenario where you use proximity for a particular purpose,  
16 which is to reduce latency. So you're pre-charging the actuator.

17 41 is the immediately following paragraph that says in certain  
18 embodiments, you can use sensor data for other things such as selecting a  
19 haptic effect.

20 So I would read 39 through 41 together as describing different uses of  
21 the proximity data that its system is already obtaining. The first one says  
22 you can use it to pre-charge the haptic actuator so that you get the effect  
23 quicker, and 41 is saying another thing you can do is you can select the  
24 haptic effect that is going to occur based on that proximity data.

1           And so they are -- they might be different embodiments but they're  
2 completely compatible. You could, as we explained in the Petition in  
3 Paragraph 150 of Dr. Welch's testimony, you could do both things.

4           You already have the proximity data that you're using to pre-charge  
5 the actuator. So you could pre-charge the actuator and use that same data to  
6 determine what haptic effect to select when, or to provide when the user  
7 actually touches it. So they're completely compatible together.

8           JUDGE ZECHER: So I guess maybe I could summarize this for you  
9 so I understand it better. You're saying you would not read them as  
10 describing separate things. They should be read together. That would be  
11 kind of the guise or what underlies your anticipation ground, right? Based  
12 on Pratt.

13           But if we were to read them as separate embodiments, they're  
14 compatible embodiments, and that would underlie your obviousness ground  
15 based on Pratt. Is that fair?

16           MR. SPEED: That's fair. Thank you, Your Honor.

17           JUDGE ZECHER: Okay, thank you.

18           JUDGE OGDEN: Mr. Speed, I have a follow up question. In  
19 Paragraph 40 of Pratt, it mentions, you know, rate of approach, and then it  
20 also separately mentions a rate of approach in Paragraph 41.

21           And I assume that you would combine Paragraphs 40 and 41 into a  
22 single embodiment with Paragraph 39. And correct me if I'm wrong, but my  
23 question is, it seems like in Paragraph 40, the rate of approach has a different  
24 purpose than it does in Paragraph 41.

25           It seems like in Paragraph 40, the rate of approach is used to  
26 determine what the threshold P value is, whereas your argument is that

1 Paragraph 41 uses the rate of approach to select a particular haptic effect  
2 after the touch.

3 So did you recognize those as two separate purposes for the rate of  
4 approach? And is it your position that in this combined embodiment, from  
5 Paragraphs 39 to 41, that you could do both things, or do you have to choose  
6 one way of using the rate of approach or the other?

7 MR. SPEED: Our position would be that you could do both, and  
8 that's what Dr. Welch said in his declaration at 149 and 150, that a person  
9 skilled in the art would read these paragraphs as describing uses of the  
10 proximity data.

11 And so you can use it to pre-charge the actuator. And one way you  
12 use it to pre-charge the actuator is setting that threshold P that Your Honor  
13 just pointed out.

14 But you can also use it to select the haptic effect. And those two  
15 things can occur together. You could separate them out into two different  
16 embodiments.

17 You could have one that, if you really just cared about latency and  
18 addressing that, you could just use proximity for that. But Pratt is saying  
19 another thing you could do is you could use proximity to select the effect.

20 And reading those together, Dr. Welch said a person skilled in the art  
21 would read Paragraph 41 to just be a more specific species of the broader  
22 embodiment, of the latency embodiment described in 39.

23 But fundamentally, I'll just get back to the 103 argument, which is  
24 these are completely compatible. They're using the same data.

25 So they're already collecting the data and they're just going to use  
26 them for different but completely compatible purposes. You're going to

1 have an effect that's selected based off of proximity, but you're also going to  
2 -- you're going to get it quicker.

3 The user's going to feel it quicker because you've already pre-charged  
4 the actuator.

5 JUDGE OGDEN: Thank you.

6 MR. SPEED: If there's any more questions, I can jump to Ku in Slide  
7 19. So Ku teaches a method for providing a user with haptic feedback, a  
8 particular attempt when the user touches an icon that his or her finger was  
9 hovering over for a period of time prior to touching the icon.

10 When the user touches an icon after first hovering over it, the icon,  
11 you feel a stronger vibration than if you touch an icon that you weren't  
12 hovering over.

13 The basic idea is that if you hovered over an icon for a period of time  
14 and then touched that icon, you intended to touch that icon, whereas if you  
15 touch a different icon, you might not have intended to do it.

16 So Ku wants to give you, the user, a way to distinguish between  
17 intentional and unintentional touches by vibrations.

18 You can see on Slide 19 we have Ku's Figure 7, which is also  
19 described on the lefthand side in Columns 11–12. It has a -- it determines at  
20 Step 505 whether or not there's a proximity signal that has been detected.

21 So it detects whether or not you're approaching the device. And if so,  
22 it outputs a first vibration signal. It then detects whether or not you have  
23 actually touched the icon at the same place that you were hovering, and if so,  
24 it outputs a touch signal.

1           And then the actuator that's driving it would combine those into a  
2           single vibration that's felt as Vibration 715. We'll see in a second in another  
3           example.

4           So, you've got a proximity detection and a touch detection, creates a  
5           single combined vibration that the user feels. It's of higher intensity than if  
6           they hadn't been hovering over the icon in the first place.

7           If you turn to Slide 20, Ku has these fun little figures here where you  
8           can see Figure 12 and you can see this hand icon on the lefthand side of  
9           Figure 12.

10          You can see the finger hovering in green and then it's touching in  
11          blue. And when the user touches it, they get a Vibration 715. That's what  
12          they feel.

13          Now to get Vibration 715, Ku's Column 16 explains that the device  
14          adds a Vibration Signal 705, and that corresponds to the touch signal, and a  
15          Vibration Signal 710 that corresponds to a proximity signal. Add them  
16          together, you get Vibration 715.

17          So, in this system, you only experience Vibration 715 if the signal or  
18          the system detects both the proximity signal, i.e., the hovering, and a touch  
19          signal, i.e., you've actually touched it.

20          Now, if we turn to Slide 21, we can see what we argued in the  
21          Petition. The Petition argued that it would have been obvious to generate a  
22          single haptic output signal calling for Vibration 715 directly based on both a  
23          detected proximity signal and a detected touch signal.

24          As we explained, it would be more efficient and flexible than sending  
25          multiple haptic output signals to Ku's driver and pair haptics driver and

1 expecting the driver to kind of combine them in a way that they feel as a  
2 single vibration to the user.

3 But also say processing power on this argument, we pointed to or  
4 cited Dr. Welch's expert testimony as well as Exhibit 1020, which is the  
5 Tierling reference.

6 And if you turn to Slide 22, you can see Dr. Welch's testimony at  
7 Paragraph 226 where he goes into more detail on the Tierling reference and  
8 explains kind of the common sense idea that having a processor send a  
9 single command signal can be more efficient than having the processor send  
10 two signals and expecting the haptics actuator to perform the combined  
11 vibration.

12 And we cited the Tierling reference just to confirm that it was known  
13 in the art that you could take multiple inputs and have a single output  
14 command signal that with this effect combine or sequencer was an example  
15 in the prior art that POSAs would have been familiar with when they  
16 approached Ku's teachings.

17 And so, in light of that background knowledge, they would have  
18 found it obvious that one way to simplify Ku would be to just have it issue a  
19 single haptic output signal rather than the two that it would arguably be  
20 doing in the unmodified version.

21 So we set forth all this argument in our Petition. And if we turn to  
22 Slide 23, we can see there, Patent Owner Response. In the Patent Owner  
23 Response, there was either some confusion or just mischaracterization of the  
24 ground.

1           They essentially argued at Pages 52–53 that we were presenting Ku as  
2 an anticipatory reference. You can see here they argued that Ku does not  
3 anticipate.

4           Even if that were true, and I think it's a close call, but even if that  
5 were true, our argument the whole time in the Petition has been an  
6 obviousness argument.

7           We argue that it would have been obvious for efficiency reasons to  
8 implement Ku to generate a single haptic output command signal based on  
9 both the detected proximity signals and the detected touch signals.

10          That's one signal that's unmodified. So again, Immersion's  
11 construction doesn't matter for this ground.

12          We highlighted Immersion's misunderstanding or mischaracterization  
13 of our Ku argument in the reply. And if we turn to Slide 24, you can see in  
14 the Sur-reply, they try for the first time to really address the obviousness  
15 argument that we presented in the Petition.

16          Basically, as best I can understand it, Immersion's arguing that  
17 combining a first haptic output signal based on proximity with a second  
18 haptic output signal based on touch to generate a single command signal  
19 doesn't meet the claim because that command signal is a combination of  
20 haptic output signals, not itself a single haptic output signal.

21          There's a few problems with the argument that I can see. The first  
22 again, this wasn't presented in the Patent Owner Response so it should be  
23 waived.

24          Second, because it was new and presented only in the Sur-reply,  
25 there's no evidence to support this interpretation of Ku. It's all attorney  
26 argument.

1 But again, third and fundamentally, it's still attacking a straw man,  
2 because the Petition's obviousness ground was not premised on combining  
3 Ku's haptic output signals.

4 It was premised on using a proximity detection signal and a touch  
5 detection signal to generate a single haptic output signal. You can see this  
6 on Slide 25.

7 Slide 25 is depicting what I showed earlier, which is Dr. Welch at  
8 Paragraph 226 in our Petition, Page 66. As you can see here, the argument  
9 we set forth is that you would generate a single haptic output signal calling  
10 for Vibration 715 based on both the proximity and touch signal sensor  
11 signals.

12 Right? So it would have both the Petition and in Dr. Welch's  
13 testimony. The argument has always been that a POSA for efficiency and  
14 power savings reasons would have generated a new single haptic output  
15 signal based on the proximity detection signal and the touch detection signal.

16 And that new single haptic output signal would be what causes the  
17 actuator to produce a Vibration 715. Again, if we could turn back to Ku on  
18 Slide 26, remember, Ku talks about detecting proximity signals and touch  
19 signals from the touchscreen.

20 This is in green and blue again on Slide 26. The modification here  
21 isn't using the first and second vibration signals that are associated with the  
22 proximity and touch signals in Ku's unmodified method.

23 The modification is using the detected proximity and touch signals  
24 themselves to generate a single haptic output signal. That's what makes it  
25 more efficient.

1           You don't have the in between step of generating a vibration signal  
2           that's associated with the proximity signal. You just use those two signals  
3           directly to issue out a 715 or whatever it would be in the various  
4           implementations.

5           So again, I don't --

6           JUDGE OGDEN: Mr. Speed, sir?

7           MR. SPEED: Yes?

8           JUDGE OGDEN: Sorry to interrupt. Our timer has stopped. Let's  
9           go off the record for just a second --

10          MR. SPEED: Sure.

11          JUDGE OGDEN: -- until we can figure out what's going on here.

12          (Whereupon, the foregoing matter went off the record at 10:38 a.m.  
13          and went back on the record at 10:43 a.m.)

14          JUDGE OGDEN: Again, sorry for the interruption. You can start  
15          back up again when you're ready, or if you need a second to get things in  
16          order, you can take that now.

17          MR. SPEED: Great, I'm good to go, so --

18          JUDGE OGDEN: Go ahead.

19          MR. SPEED: Perfect. So I think we were getting toward the end of  
20          the Ku ground. If we could go to Slide 27, the other argument that they set  
21          forth in the Sur-reply, it's their first time that they tried to address the  
22          Tierling reference that we cited as background evidence in the Petition.

23          Basically, they say the Board should ignore it because our arguments  
24          regarding it were allegedly incorporated into the Petition by reference to Dr.  
25          Welch's declaration.

1           The procedural argument is wrong but I wanted to highlight first the  
2 fact that Immersion is not disputing any of the substance of what we said  
3 about Tierling.

4           We cited it in the Petition. We discussed it in the reply. And they've  
5 never had any response to Dr. Welch's testimony of how a person in the skill  
6 of the art would have read Ku in view of their background knowledge  
7 including as evidenced by Tierling.

8           And so they have no real response to the substance. On the  
9 procedural issue, again, Your Honor, it's Page 54 of the Petition. We cite to  
10 Tierling explicitly in the Petition. It's Exhibit 1020.

11          We provided a parenthetical highlighting why we were citing to it.  
12 And we cited to Dr. Welch's testimony. Now, Dr. Welch's paragraph 226,  
13 again, it's just one paragraph.

14          Normally, the cases I've seen where incorporation by reference has  
15 been an issue, you're talking about like 10 paragraphs being incorporated in.

16          But it's just a single paragraph. And he does describe in a little bit  
17 more detail what Tierling teaches. But all of that detail is just to corroborate  
18 the argument that's in the Petition at 54, which is that POSAs would have  
19 recognized given Ku's teachings that an obvious way to implement it that  
20 would be more efficient would be to send a single haptic command signal  
21 rather than multiple.

22          So I think their procedural argument fails and I just, I do want to  
23 highlight for the Board that they have no real response to substance.

24          And to the extent that they're arguing that we needed Tierling to be  
25 part of the formal ground, I just wanted to highlight on Slide 28, that's  
26 intention.

1           It's wrong, I will say, in light of the Federal Circuit case law. The  
2           Federal Circuit is clear that a POSA's background knowledge as evidenced  
3           by documentary evidence is relevant and should be considered and the  
4           Board should not ignore that evidence simply because it was not a part of a  
5           ground.

6           The Genzyme decision, as I have highlighted on Slide 28, actually  
7           talks about the Ariosa decision, and in the Ariosa decision, the Federal  
8           Circuit went even further and vacated or remanded and instructed the Board  
9           to consider a reference that was identified to demonstrate POSA's  
10          background knowledge, but which was not part of the ground.

11          And the Federal Circuit said that the Board can't dismiss evidence  
12          simply because it was not elevated to part of the formal combination. So  
13          unless there's any questions about Ku's Figure 7 and 12 disclosures, I can  
14          briefly discuss Ground 4.

15          JUDGE OGDEN: I've got a question about Figure 7 of Ku. And  
16          maybe it would be helpful to go back to your Slide 19. There's a step S505  
17          that says that -- it asks if there's a proximity signal that's been detected at a  
18          location of a specific menu icon and then if so, it outputs a vibration  
19          corresponding to the detected proximity signal, and that's Step 510.

20          I'm just, it's not clear to me exactly how that vibration happens. Is  
21          this a vibration according to your understanding, is this a vibration that the  
22          user would feel?

23          And if so, it doesn't seem like there's been a touch yet.

24          MR. SPEED: So I think, if we're looking at Slide 19, the one thing I  
25          just wanted to clarify one thing, which is that the controller output the  
26          vibration, vibration signal.

1           So it's giving us a particular signal that the actuator then starts to  
2           vibrate. And I think the idea would be that because it's starting to vibrate  
3           and then you add another vibration on top of it, what you're going to feel  
4           when you actually touch it is going to be stronger than it would be if you  
5           hadn't already been vibrating before your finger approached.

6           I would agree that your finger that's approaching is not going to feel a  
7           vibration because you need to touch it to feel the vibration. But because it's  
8           already vibrating and then as soon as you touch it you're going to output  
9           another vibrational signal, that's why you would feel a stronger vibration,  
10          because you were pre-vibrating, if you will, with the proximity signal.

11          JUDGE OGDEN: So the thing that you would characterize as the  
12          haptic effect would be what happens in Step S520 where it says that it  
13          outputs a vibration in which vibration signals each corresponding to the  
14          proximity signal and the touch signals are combined. So that would be the  
15          actual haptic effect in Petitioner's view?

16          MR. SPEED: With the caveat that we've made an obvious  
17          implementation, which would be what we're seeing here is a little bit of the  
18          complexity of Ku where Ku has a proximity detection and outputs a  
19          vibration signal to the actuator based on proximity, and then it gets a touch  
20          determination and outputs a vibration signal based on touch.

21          What we're saying is rather than have those two intermediate steps  
22          and having the actuator generate a combined vibration, just use those two  
23          determinations to issue a single signal that would cause the actuator to give  
24          you a vibration of the intensity equivalent to 715 in Ku.

25          So that's what would be happening. So where Ku says they combined  
26          them, I would agree that I don't see much daylight between the claims and a

1 combined signal. But even if there was some daylight between them, our  
2 combination is that you're not going to use a combination of two vibrational  
3 signals.

4 You're going to generate a single signal that is -- that calls for the  
5 Vibration 715 directly rather than a 705 and a 710 where the end result is a  
6 715 vibration, if you will.

7 JUDGE OGDEN: Okay, thank you.

8 MR. SPEED: So if we look at Slide 29, Ground 4, the only addition  
9 with Ground 4 is that it goes after a Dependent Claim 6. Dependent Claim 6  
10 is one that requires an integrated sensor that detects proximity, touch, and  
11 outputs the vibration, right?

12 So it's got to be all three of those. For Ground 4, we demonstrated  
13 that using such a sensor in Ku would have been obvious.

14 If you turn to Slide 30, Jiang discloses an electromechanical polymer  
15 based sensor, EMP, that can detect proximity, it can detect a touch, and it  
16 can be given a voltage to actuate and be a haptic actuator.

17 And if you look at Slide 31, we explain the Petition, POSAs in view  
18 of Jiang would have recognized that there's benefits to using its particular  
19 EMP sensor.

20 In Ku, namely, it provides localized haptic feedback. So rather than  
21 having to vibrate the whole phone, you could have the vibration very  
22 specific to the icons that you're touching.

23 If we turn to Slide 32, the Patent Owner Response, I think we're on  
24 the same page, but Sur-reply, as I'll show in a second, kind of makes it a  
25 little confusing.

1 But I think Ground 4, we all agree rises and falls with Ground 3,  
2 which is Ku alone. That's because in their Patent Owner Response, they  
3 didn't argue that POSAs would not have seen the benefits to using Jiang's  
4 EMP sensor in Ku.

5 They just argued that if you did that, you're still going to have two  
6 haptic output signals in Ku, and that's not going to resolve the kind of  
7 critical dispute that we were just talking about.

8 And we don't disagree, we didn't add Jiang in to address the  
9 proximity and touch signal issue. We just brought in Jiang for the integrated  
10 sensor issue.

11 But the converse is true, too. So if Your Honors agree with us that an  
12 obvious implementation of Ku's Figure 7 and 12 teachings would be to issue  
13 a single unmodified haptic output command, then they don't have a real  
14 response in the Patent Owner Response to our motivation to combine for  
15 Ground 4.

16 So mind you, I think Ground 3 is more going to rise and fall together.  
17 If we look at Slide 33, the Sur-reply makes it a little confusing because they  
18 do seem to, for the first time, argue that there might not be a motivation to  
19 use Jiang's sensor.

20 Their slides that they've submitted today, I haven't seen this  
21 argument, so I'm not sure if they're going to move forward with it, but just  
22 to highlight very quickly for Your Honors, as seen on Slide 33, notably, they  
23 don't address any of our evidence or argument from the Petition where we  
24 were focused on the benefits of localized haptic feedback that Jiang would  
25 provide Ku.

1           They don't address that. And so our arguments are rebutted there.  
2           And even in their reply, they seem to concede that the combination would be  
3           theoretically better than the original, so the unmodified Ku.

4           But there seemed to be taking some umbrage with the fact that it's  
5           theoretical. But respectfully, that's what all obviousness arguments are.

6           They're theoretical. What would a POSA have done had someone  
7           actually done this? Then it would be an anticipation argument.

8           But because we're in 103, it is hypothetical. But as they rightly  
9           observe, it is better than -- modified Ku is better than Ku alone. Because  
10          Jiang's sensor provides for that localized haptic feedback.

11          So with the arguments that I've already addressed now, the only thing  
12          that is left would be the bubble effect and the haptic effect claim  
13          construction.

14          So I'll briefly address that, but I just wanted to highlight again, Your  
15          Honors don't need to get into these grounds because the arguments that I've  
16          already presented would be enough to cover all the challenged claims and  
17          hold them unpatentable.

18          If we turn to, let's go to Slide 36, Slide 36 shows the bubble effect.  
19          Basically, as the finger approaches the screen goes up, and when you touch  
20          it, it goes down.

21          And so, how that feels to the user with their finger is that they click  
22          something, so there's actual -- feels like they've pushed a mechanical button  
23          or a bubble. There's a couple different descriptions for it in the prior art.

24          The patent itself, as I've highlighted in the Petition as you can see  
25          here on Slide 36, that Column 11, 30-40, the patent describes a pushing of a

1 virtual button, and they describe that as a haptic effect. That is what, in our  
2 view, that is what Pratt's bubble effect effectively is.

3 If we turn to Slide 37, Your Honors at institution agreed, you said that  
4 even if you were to somehow split the bubble effect into two effects so that  
5 the rising of the screen is somehow its own effect and dropping the screen  
6 down is a different effect, that the dropping would still be a haptic effect that  
7 takes into account both proximity and touch because it would feel different  
8 if it hadn't already been raised.

9 And Your Honors also agreed with us that the haptic -- the bubble  
10 effect of Pratt is very similar, and probably the same as, the pushing effect  
11 that's described in the specification.

12 Now, if we go to Slide 38, Your Honors, you can see in there they  
13 made two, what I think are pretty helpful concessions for us, in their papers.

14 First, in the Patent Owner Response, they seemingly concede that to a  
15 person, when they get the bubble effect, it feels as a single sensation.

16 It feels like a click. And so if Your Honors agree that a haptic effect,  
17 whatever the outer bounds of that might be, if it encompasses a single  
18 sensation, then Pratt's bubble effect clearly captures that.

19 And they also agree, or they at least don't dispute, that the bubble  
20 effect is the same as the pushing effect in their patents. Now, that latter one  
21 would seem almost dispositive if -- did we lose the hearing -- okay, there,  
22 sorry.

23 That would seem dispositive if Pratt's bubble effect is the same as  
24 what the patent's identifying as a haptic effect. That would mean Pratt's  
25 anticipating the claims. But if we turn to 39, we can see this is where they

1 come up with their claim construction for haptic effect, which is a single,  
2 unmodified haptic effect, right?

3 And so their argument here is that the bubble effect is actually two  
4 effects. You've got the rising and then the lowering, and that's why the  
5 bubble effect isn't captured by the claims, and also why their own pushing  
6 embodiment in their specification is an unclaimed embodiment.

7 And I see my time is running, so I'll just go briefly on this. If we can  
8 go to Slide 40, really, I mean, the claim language might be all we really need  
9 on this, but determine a haptic effect, the word modified, single, it's not  
10 there.

11 It's a haptic effect, one or more haptic effects. They are the Patent  
12 Owner. If they want to put in unmodified and single into their claim  
13 language, they could have done so.

14 They didn't do it. They got broad language. And the consequence of  
15 that is that they have a claim that reads on to Pratt's bubble effect.

16 If you look at Slide 41 just briefly, and we've highlighted all this in  
17 our reply, the patent itself, in Columns 5, Lines 19–23, describes haptic  
18 effects very broadly.

19 They can range from a simple vibration to something more complex  
20 like a stroking sensation to a surface deformation. And that's irrelevant,  
21 because if you look at Dr. Welch's declaration at Paragraph 136, he explains  
22 the deformation effect that's being described in the patent as an example, the  
23 haptic effect, that's what a POSA would understand the bubble effect of  
24 Pratt to be.

25 And if you go to Slide 42, again, all of this is cited in our reply, but  
26 there's other disclosures that describe a haptic effect generally. It's just an

1 effect that's perceived or sensation felt by a user, which that's the claim of a  
2 haptic effect. It's a broad term. They elected it. It's not a single,  
3 unmodified haptic effect, whatever the outer -- whatever that really means.

4 Now if we jump to Slide 44, the lone support they have on this is  
5 Column 11, Lines 32–40, where their reading of this is where it says that the  
6 processor may be configured to output a particular haptic effect associated  
7 with a particular control on user interface elements displayed on a touch  
8 sensitive surface.

9 Such a haptic effect may be further modified or combined with  
10 another haptic effect. So their argument is that the first haptic effect is what  
11 they call the original haptic effect, and this modified or combined one is a  
12 secondary haptic effect that is outside the claim language.

13 There's just nothing in that paragraph respectfully that would support  
14 that. There's nothing about primary or secondary haptic effects.

15 And I just want to point out while we're on this slide and I'll conclude  
16 with this, that the very last sentence in this paragraph, I think really  
17 highlights the flaw here.

18 It says, for example, the haptic effect, or sorry, not the very last one,  
19 the penultimate sentence, it says, in some embodiments, the haptic effect can  
20 include one or more haptic effects.

21 So a haptic effect can be a modified combination of effects or it can  
22 even be two separate haptic effects that are felt by a user as a single effect, a  
23 single sensation.

24 Now, we're going to hear from Immersion that they didn't claim all --  
25 that they don't need to write claims that cover all the embodiments.

1           That's true. I agree with that. But the Federal Circuit is clear that we  
2 should typically construe claims to cover disclosed embodiments.

3           It's only when it's highly persuasive evidence to the contrary that we  
4 will read claims as not including an embodiment. They cite the Magnetar  
5 case, the roller coaster case, which had a claim language of extending the  
6 length of an object.

7           And the court said in light of this claim language, and the intrinsic  
8 record, length means the entire length of the object. And so while that did  
9 read out embodiment, the court said we needed to do that because of the  
10 plain language of the claim.

11           Here, the plain language of the claim, a haptic effect, is exceedingly  
12 broad, and it covers Pratt's bubble effect. Unless there's any questions, I'll  
13 reserve the remainder of my time for rebuttal.

14           JUDGE ZECHER: Yes, Mr. Speed, this is Judge Zecher. Do you  
15 think that the prosecution history of the '738 patent here has any bearing on  
16 the construction of the term haptic effect?

17           MR. SPEED: I do not, Your Honor. If you could turn to Slide 47 on  
18 that point, so they argue that the Board actually found that a combined  
19 haptic effect is insufficient to anticipate Claim 1.

20           But that's not what happened. The relevant prior art during  
21 prosecution was the Choe reference, and it discloses two haptic effects, one  
22 is 225 and one is 226.

23           Choe also had a general statement that haptic effects can be  
24 synthesized or output sequentially. The Board said that that general  
25 statement does not disclose that the specific effects 225 and 226 were

1 actually combined, and therefore, the examiner's anticipation rejection had  
2 to be reversed.

3 The Board never said that a haptic effect that is the result of  
4 combining two haptic effects would not meet the claim. It simply found that  
5 Choe did not disclose such an effect.

6 And if you look at Slide 48, we can see Choe. Choe is nothing like  
7 the bubble effect in Pratt. Choe has two different effects. 225 is shown on  
8 Figure 16 on the lefthand side here on Slide 48. And on the righthand side is  
9 226.

10 And they are -- okay, I'll just conclude with, they have two different  
11 effects for two different output at two different times for two different  
12 reasons.

13 One is to alert the user of their approach and the other is to alert that  
14 they've made a payment on the screen. Completely different reference than  
15 what we had with the bubble effect.

16 So I don't think -- I don't think that the prosecution history and  
17 particularly the proceedings before the Board previously impact the claim  
18 construction, certainly not in a way that's favorable to Immersion.

19 JUDGE ZECHER: Okay, thank you.

20 MR. SPEED: So, with that, I'll --

21 JUDGE OGDEN: Thank you, Mr. Speed.

22 MR. SPEED: Thank you.

23 JUDGE OGDEN: Yes, thank you, Mr. Speed. Sorry, I apologize for  
24 the technical interruptions there. I think we've got it ironed out, hopefully.  
25 So you'll have about roughly 10 minutes left in your rebuttal time.

26 MR. SPEED: Thank you.

1 JUDGE OGDEN: Okay, let's turn to Patent Owner now. Ms.  
2 Hayden, would you like to reserve surrebuttal time?

3 MS. HAYDEN: Yes, I'd like to reserve 15 of my 60 minutes for  
4 surrebuttal.

5 JUDGE OGDEN: Okay. Let me put that on the timer.

6 MS. HAYDEN: Thank you.

7 JUDGE OGDEN: All right, and you can begin when you're ready.

8 MS. HAYDEN: Okay, I'll begin my presentation. Now I'm looking  
9 at Slide 3 of Patent Owner's demonstratives, with a brief background of the  
10 invention.

11 I'll then move on to the meaning of the claim term haptic effect. And  
12 then I'll explain how each of the Petition's four grounds fail. I'll take  
13 Ground 1 first and show that neither of the Pratt embodiments that Petitioner  
14 relies on anticipate or render obvious the claims.

15 I'll then move on to Ku and explain why that reference does not  
16 render obvious the claims. And then I'll move on to the combinations of  
17 Pratt with Ku and Ku with Jong and also explain why those combinations do  
18 not invalidate any of the challenge claims.

19 I'm now moving to Slide 5. Let's turn to the background of the  
20 invention. So, the challenge patents, the 73 Patent, is entitled Systems and  
21 Methods for Proximity Based Haptic Feedback.

22 Moving to Slide 6, at Column 11, Line 53 through Column 12, Line  
23 20, the '738 Patent explains that haptic feedback that incorporates proximity  
24 related information offers numerous advantages, such as allowing a user to  
25 navigate a touch sensitive user interface without looking at it.

1           This functionality can be particularly useful in the gaming context so  
2           that the user can focus his attention on the screen showing the gameplay  
3           rather than having to look at the gaming controller.

4           Moving to Slide 7, the claimed inventions here provide haptic effects  
5           using both proximity and touch data. In Step 508 of Figure 5 of the '738  
6           Patent, a haptic effect is determined using the proximity sensor signal and  
7           the touch sensor signal.

8           Moving to Slide 8, and then in Step 510, a haptic signal is based on  
9           both proximity and touch information. That signal is transmitted so that then  
10          in Step 512, the haptic effect can be output.

11          Turning to Slide 9, I'll present Independent Claim 1, which is  
12          representative for purposes of Patent Owner's argument. Claim 1 is directed  
13          to a device comprising a proximity sensor capable of detecting a non-contact  
14          interaction with a touch sensitive device and outputting a first sensor signal.

15          Claim 1's device also has a touch sensor signal capable of detecting a  
16          touch with a touch sensitive device and outputting a second sensor signal  
17          that's highlighted on Slide 10.

18          Moving to Slide 11, Claim 1's device also has a processor configured  
19          to receive the first sensor signal, the one based only on proximity, and the  
20          second sensor signal, the one based only on touch, and to generate a haptic  
21          output signal based at least in part on both of those signals.

22          As highlighted on Slide 12, Claim 1's device then transmits that single  
23          haptic output signal to a haptic output device such as an actuator.

24          And then as highlighted on Slide 13, that haptic actuator outputs a  
25          single haptic effect in response to that single haptic output signal.

1 I will now turn to the sole claim construction issue in this proceeding,  
2 which relates to the term haptic effect. Patent Owner's construction is on  
3 Slide 15 and is a single unmodified haptic effect that is based on the  
4 proximity sensor signal and the touch sensor signal.

5 This was proposed in response to the Board's Institution Decision and  
6 Petitioner offers no competing construction. Moving to Slide 16, which has  
7 the claim line at the beginning --

8 JUDGE ZECHER: Ms. Hayden?

9 MS. HAYDEN: Excuse me?

10 JUDGE ZECHER: Ms. Hayden?

11 MS. HAYDEN: Go ahead.

12 JUDGE ZECHER: Yeah, this is Judge Zecher. So, I see that your  
13 construction here on Slide 15 is different from the plain language of the  
14 claim in two important respects.

15 I think you add this language "unmodified" and you also seem to  
16 remove this language "at least in part" from the based on. So, I'm just  
17 curious, why are these changes to the plain language required to come to  
18 construction of this term?

19 MS. HAYDEN: So, this claim construction is not meant to remove  
20 the based "in part" on out of the claim. Whether the signal, the haptic output  
21 signal, is based entirely or in part on the proximity sensor signal and touch  
22 sensor signal, this construction just conveys that that signal has to be based  
23 on those two signals.

24 It doesn't mean that it cannot be based on something else in addition  
25 to those two signals. And this "unmodified" portion of the construction

1 comes more from the specification disclosure than the claims, which I can  
2 go into if you'd like.

3 But I'd also note that Patent Owner's position is that even if you do  
4 not accept and adopt the specific definition in these quotes, and I can explain  
5 that a little bit, too, that the plain meaning of haptic output signal, both in  
6 view of the claims, the specification, as well as the file history, requires a  
7 single haptic output signal that is based in part on both the proximity sensor  
8 signal and touch sensor signal that causes a single haptic output effect,  
9 excuse me, a single haptic effect.

10 JUDGE ZECHER: Okay, yeah, can you -- I'm sure you're getting to  
11 this, but where this "unmodified" language comes from in the specification.

12 MS. HAYDEN: Okay. Great, I'll move on to the specification, then.  
13 I think we've talked about the claim language on Slide 16 anyway, so I'll  
14 move to Slide 17.

15 And here, this shows how the specification supports both Patent  
16 Owner's construction as well as the plain meaning I mentioned. So, in  
17 Figure 5, which we looked at earlier in the background of the invention, this  
18 teaches that a single haptic effect is generated based on both the proximity  
19 sensor signal as well as the touch signal.

20 And now moving to Slide 18, Column 11, Lines 29–32, which  
21 describes Figure 5, states that the Processor 102 determines a haptic effect  
22 based at least in part on the touch sensor signal and on the proximity sensor  
23 signal.

24 In other words, the claimed haptic effect described in this text is a  
25 single haptic effect based on both proximity and touch. And this is made  
26 even more clear with the following language.

1           So, in Column 11, Lines 35–37, shown in the center of Slide 19, this  
2 indicates that single haptic effect discussed at the beginning of the slide, the  
3 claimed haptic effect, can be modified or combined with others.

4           And Lines 37–40 shown on the bottom of the slide indicates that in  
5 some embodiments, the haptic effect can include more than one  
6 embodiment.

7           And as an example of multiple haptic effects that are combined  
8 together, the '738 patent provides an example that Mr. Speed mentioned,  
9 something that confirms pushing on a virtual button.

10          But a modified haptic effect or a combination of haptic effects, these  
11 are simply unclaimed embodiments. The claims in this relevant disclosure  
12 in the specification make clear that the claimed haptic effect is limited to a  
13 single one caused by a single haptic output signal based on both proximity  
14 and touch.

15          And I'll briefly go over what's on Slide 20, this Intamin, the Magnetar  
16 case that Mr. Speed also mentioned, but I think Your Honors are well aware  
17 that the -- go ahead, excuse me.

18          JUDGE ZECHER: Ms. Hayden? So back on Slide 19, the last part of  
19 the quoted portion there, it says in some embodiments, the haptic effect can  
20 include one or more haptic effects.

21          But it says the haptic effect, singular, can include one or more haptic  
22 effects. Does that indicate that you could think of a single haptic effect as  
23 including multiple haptic effects?

24          MS. HAYDEN: In some circumstances, yes, but not in the context of  
25 the claims. Not in the context of the claimed haptic effect. There may be  
26 other haptic effects that are combinations or modifications of a haptic effect

1 that results from a single haptic output signal that's based on both proximity  
2 and touch, but those modifications or combinations are unclaimed  
3 embodiments.

4 JUDGE ZECHER: But this passage uses haptic effect, singular, and  
5 so does the claim. So, what's the difference between -- how do we know  
6 that this part of the specification is exactly what's being claimed here,  
7 because they both refer to a single haptic effect?

8 MS. HAYDEN: This goes back more to the haptic output signal  
9 limitation. Perhaps, looking at Slide 16 is useful that has the claim  
10 language. The claim language indicates that in the claimed embodiment, a  
11 single haptic output signal is generated.

12 And I can -- and then as a result of that single haptic output signal, a  
13 haptic effect is output by the haptic actuator. Just that single haptic output  
14 signal cannot output multiple haptic effects as are contemplated by some of  
15 the embodiments in the specification but rather output a single haptic effect  
16 in response to that single haptic output signal.

17 JUDGE ZECHER: But the haptic output signal, according to the  
18 claim, has to be based on two other signals, right? The first and second  
19 sensor signals.

20 MS. HAYDEN: Yes, that's right.

21 JUDGE ZECHER: So, you're somehow combining two distinct  
22 signals into a single signal and then that signal produces a haptic effect,  
23 right?

24 MS. HAYDEN: Yes.

1 JUDGE ZECHER: So, there's already a little bit of combination here,  
2 at least in terms of the signal, right? And then the -- it refers to a single  
3 haptic effect right in the claim.

4 And then, I just -- it's not clear to me how to interpret that last  
5 paragraph on Slide 19. What is it really about the claim language itself that  
6 would lead us to think that that last paragraph is not embodied in the claim?

7 MS. HAYDEN: Because there's nothing in the --

8 JUDGE ZECHER: Or sorry, or do we --

9 MS. HAYDEN: Excuse me. Sorry.

10 JUDGE ZECHER: Or are we mainly relying on the expert testimony  
11 for this rather than the claim language itself?

12 MS. HAYDEN: Not relying on mainly the expert testimony, although  
13 that is part of it. But there is nothing in the specification that discloses that a  
14 single haptic output signal can somehow cause multiple haptic effects to  
15 occur.

16 So, in these embodiments in the specification on Slide 19, these  
17 modifications or combinations, those contemplate using multiple haptic  
18 output signals to output each of the haptic effects, not a single one to output  
19 the multiple effects.

20 JUDGE ZECHER: But the claim language doesn't, as far as I can  
21 see, doesn't say how you would combine the first and second sensor signals.  
22 It just says that the haptic output signal that ultimately produces the haptic  
23 effect is based on the first and second sensor signals.

24 Just looking at the claim language itself, couldn't the combination of  
25 two sensor signals be sequential?

1 MS. HAYDEN: Your Honor, I don't believe so. So, looking at the  
2 claim language, it says that there is a processor that's configured to receive  
3 the first sensor signal and the second sensor signal.

4 And then it is also that processor that generates this single haptic  
5 output signal that is based on both the first and second sensor signals.

6 JUDGE ZECHER: So, why couldn't the processor just generate the  
7 two signals in sequence and then call it a single haptic output signal?

8 MS. HAYDEN: Because two haptic output signals that are generated  
9 in sequence would not be a single haptic output signal. And that is the point  
10 of novelty of these claims is I think even Petitioner's counsel admitted.

11 JUDGE ZECHER: Okay, thank you.

12 MS. HAYDEN: Thank you. I'm going to move on to the plain  
13 meaning of haptic effect. So, as I mentioned a little earlier in my  
14 presentation, that even if the Board does not accept the specific definition  
15 that we have proposed, the Board still needs to give the claim term its plain  
16 meaning in the context of the specification.

17 JUDGE ZECHER: Ms. Hayden, are we looking at Slide 21 here for  
18 that, plain meaning of haptic effect? Is that correct?

19 MS. HAYDEN: I'd actually like to skip to Slide 23 if it's okay with  
20 Your Honors, just in the interest of time, and address the prior PTAB  
21 holding on this issue.

22 So, there was a PTAB holding during prosecution that indicated that  
23 the claims of the '738 Patent require generating a haptic effect based on both  
24 a proximity signal and a touch signal.

25 I don't think anyone here is disputing that, but particularly relevant to  
26 the issues in this proceeding, the Board specifically held that haptic effect is

1 used in the claims, quote, does not mean that one haptic effect may be based  
2 on proximity, and another haptic effect may be based on touch.

3 Rather, the Board made clear that, quote, both touch and proximity  
4 signals must be used to generate each haptic effect. So, I think this goes to  
5 one of Your Honors' questions about whether there could be haptic output  
6 signals that are generated in sequence, one based on proximity, one based on  
7 touch.

8 That's not what these claims are directed to, and we talked about that  
9 in the context of the claims themselves. And this is something that the  
10 Board has previously held during a prosecution appeal.

11 And I'm aware that Mr. Speed spoke of this prosecution appeal during  
12 his presentation, but he did not mention this portion of the decision that's on  
13 Claim 23, where the Board addressed what this haptic effect and haptic  
14 output signal mean in the terms of the challenged claims.

15 And just to sum that up -- excuse me, go ahead.

16 JUDGE ZECHER: Yes, Ms. Hayden, this is Judge Zecher. Looking  
17 at this snippet here that you have on Slide 23, are you arguing that the Board  
18 in the previous appeal during prosecution was construing the term here? Or  
19 was this just kind of some explanation to then dive into what, I think it was  
20 the Choe reference, C-H-O-E, that was applied by the Examiner in  
21 anticipation context and whether or not that Examiner erred?

22 MS. HAYDEN: I think that's right. The Board did not need to  
23 engage in claim construction here because as the snippet shows, that neither  
24 the examiner nor the applicant disputed what the broadest reasonable  
25 interpretation (BRI) was.

1 But the Board stated what it understood the BRI to be, and that is that  
2 portion -- that type of statement in the file history is relevant to  
3 understanding the claims here.

4 JUDGE ZECHER: Okay, so, I mean, yes, but I think it's been well  
5 settled for a couple years that we apply the District Court claim construction.  
6 We follow *Phillips*.

7 So, you're saying that the BRI would be the same as what we would  
8 construe that term under Phillips and the District Court progeny?

9 MS. HAYDEN: Well, if anything, the Phillips construction would be,  
10 could be more narrow than the BRI. So, even -- so the point here is even if  
11 the BRI applied, something that could be broader than the proper  
12 construction under Phillips, the plain meaning under the BRI still indicates  
13 that there needs to be one haptic output signal that's based on both proximity  
14 and touch, and that haptic output signal that's both -- that's based both on  
15 proximity and touch has to cause a haptic effect.

16 JUDGE ZECHER: Okay, so the key here according to you is a signal.  
17 I think -- single. Sorry, I don't want to confuse that. A single one, one  
18 haptic effect, correct?

19 MS. HAYDEN: That's right.

20 JUDGE ZECHER: Single.

21 MS. HAYDEN: One haptic output signal that is based on the two,  
22 what I'll call the input signals, the proximity and touch input signals. Those  
23 input signals are used by the processor to generate a single haptic output  
24 signal that then causes the haptic effect.

25 JUDGE ZECHER: Okay, I understand your position. Thank you.

1 MS. HAYDEN: If Your Honors have no further questions on claim  
2 construction, I will move on to the grounds of the Petition.

3 JUDGE AHMED: So, Ms. Hayden, going back to Mr. Speed's  
4 framework, does Patent Owner agree with Petitioner's framework that the  
5 claim construction dispute is only relevant to Ground 1 based on the bubble  
6 effect and not to the other grounds? And to what extent do you disagree, if  
7 you do?

8 MS. HAYDEN: I agree with that, actually. The claim construction is  
9 only relevant specifically to the Ground 1 bubble effect embodiment. But I  
10 do think understanding the scope of the claims is also helpful for  
11 understanding why some of the obviousness arguments fail.

12 Okay, and if there's no further question on the Bachman issue, I'll  
13 move on to the grounds. I'm going to begin with Pratt and as we've  
14 discussed, Pratt, the Petition presented two Pratt theories, the bubble effect  
15 embodiment and the rate of approach embodiment.

16 So, I'm skipping forward in the interest of time to Slide 29. And I'm  
17 just going to take us through the bubble effect briefly. So, this bubble effect  
18 is made up of two haptic effects, not a single one.

19 The first haptic effect is a deflection of the touch screen. And this  
20 deflection occurs when a user's finger is detected by the proximity sensor.

21 This deflection occurs prior to any touch, and is based only on  
22 information from the proximity sensor. Moving to Slide 30 --

23 JUDGE ZECHER: Ms. Hayden, how is that a haptic effect if there's  
24 no touch yet? The user doesn't seem to feel anything, and maybe there's a  
25 haptic output signal at that point, but what is the haptic effect until there's  
26 been a touch?

1 MS. HAYDEN: The haptic effect would be the deflection of the  
2 touch screen. And just because the -- this will actually be relevant to the rate  
3 of approach embodiment, too, just because the user's finger is not touching  
4 the screen, that does not mean the user cannot feel the haptic effect.

5 Most of the devices we're talking about, whether it be a phone or a  
6 game controller, are held by a user in their hand. So, the haptic effect could  
7 be felt by the user in their hand.

8 And I think we've also experienced this where we have our phone on  
9 a table and there's a haptic effect generated and we hear that buzzing sound.  
10 So, that would be another sign that a haptic effect is being output.

11 Pratt doesn't specify exactly what type of haptic effect that is, whether  
12 it's a vibration or something else, but this movement of the touch screen  
13 would cause some type of haptic effect that the user could feel in one of  
14 those ways.

15 JUDGE ZECHER: Okay, so I think I see what you're saying. So,  
16 you're saying that if this is a mobile device, the user may be holding the  
17 device and they would feel it in their other hand rather than in their finger  
18 that's in proximity to the screen.

19 MS. HAYDEN: Right, just like how I picked up my phone and was --

20 JUDGE ZECHER: Okay.

21 MS. HAYDEN: -- had my finger hovering over it but not touching it.

22 JUDGE ZECHER: Okay, I see. Thank you.

23 MS. HAYDEN: And then moving to Slide 30, this is the second  
24 haptic effect that makes up this bubble effect. This is a return of the screen  
25 level to default.

1           And this return to default occurs when the touch sensor determines  
2           that the user's finger has actually made contact with the touchscreen.

3           So, the return to default is based only on information from the touch  
4           sensor.

5           I'd like to address something in the Board's Institution Decision on  
6           Page 15. The Board likened Pratt's bubble effect to the '738 Patent's  
7           embodiment that confirms that a virtual button was pushed, referring to  
8           Column 11, Lines 37-40.

9           Assuming that's a fair analogy, as discussed earlier in the context of  
10          claim construction, this virtual button pushing embodiment is a combination  
11          of multiple haptic effects, not a single one as required by the claims.

12          So, the virtual button pushing described in the '738 Patent is nothing  
13          more than an unclaimed embodiment, just like Pratt's bubble effect.

14          And briefly summing up, neither of these two haptic effects of Pratt's  
15          bubble effect are based on both proximity and touch. The first is based only  
16          on proximity. And the second is based only on touch.

17          And notably, the Petition presents no obviousness arguments based on  
18          Pratt's bubble effect, thus, as would be required, moving to Slide 32, thus as  
19          would be required --

20          JUDGE ZECHER: Before we move to Slide 32, I just want to clarify  
21          something. Do you believe that the user would feel a difference in their  
22          actual finger that's touching the screen based on whether or not there's been  
23          a pre-charge effect before the actual touch begins?

24          And if there's a difference between whether you pre-charge or not  
25          pre-charge and what the user feels with their finger, then why is that not the

1 same haptic effect that's based on both the proximity sensor and the touch  
2 sensor?

3 MS. HAYDEN: So, the bubble effect doesn't involve pre-charging.  
4 That would be the rate of approach, excuse me, the latency embodiment that  
5 is combined with the rate of approach embodiment in the Petition's second  
6 theory.

7 So, there's nothing about pre-charging a haptic actuator in the bubble  
8 effect. But as for the latency embodiment --

9 JUDGE ZECHER: Okay, maybe I misunderstand. I'd assumed that  
10 the bubble effect is caused by the fact that the touch screen is deflected  
11 upwards as the user's finger is approaching the screen, and then when the  
12 actual touch happens, that deflection is released and then the finger feels  
13 kind of a popping sensation at that point.

14 Do I understand that incorrectly?

15 MS. HAYDEN: I don't believe so. Is it Your Honor's thought that  
16 there would be some type of pre-charging prior to the deflection? Or that  
17 the deflection represents pre-charging? I'm just not sure I understand.

18 JUDGE ZECHER: Well, that's kind of what I understood the pre-  
19 charging -- yes, I sort of understood the pre-charging is what's responsible  
20 for that upward deflection that happens before the touch. Or is there -- am I  
21 confusing the pre-charging with that -- is that deflection something different  
22 from the pre-charging?

23 MS. HAYDEN: I mean, that may well be the case that there's some  
24 pre-charging prior to the deflection. I would need to look back at Pratt on  
25 that issue, because we were more focused on the pre-charging issue for the  
26 second embodiment in Pratt.

1           But I think in any event, whether there's pre-charging or not  
2 associated with this deflection, the deflection is a first haptic effect that is  
3 based only on proximity and the return to default is a second haptic effect  
4 based only on the user contacting the screen, so touch.

5           JUDGE ZECHER: Okay. And maybe it doesn't -- maybe it doesn't  
6 ultimately matter whether we call it pre-charging or deflection. I guess the  
7 main thing is that you're saying that the deflection is not part of that bubble  
8 effect.

9           And so, I wonder if you could maybe explain that a little bit more. If  
10 that deflection affects the actual experience that the user has, that tactical  
11 experience that the user has, whether, if it would have been different with  
12 deflection than without the deflection, then why is that not the same haptic  
13 effect?

14          MS. HAYDEN: Your Honor, I apologize. I don't understand your  
15 question. What are the two haptic effects that you're comparing?

16          JUDGE ZECHER: So, as I understand it, you're saying that the two  
17 haptic effects are the deflection and then the vibration that happens, or  
18 whatever effect happens upon the touch afterwards, right?

19          And you're sort of carving out that deflection from the haptic effect  
20 here so that you're saying that there's two different haptic effects.

21          But I'm wondering, just, it seems like the fact that there's deflection  
22 beforehand makes what the user experiences different from if there were no  
23 deflection.

24          So how do you -- why do you carve it out that way when it seems like  
25 the user's experience is related to both the deflection and the haptic output  
26 signal that happens upon the touch?

1 MS. HAYDEN: I think that's exactly the point, that the user's  
2 experience is different if there is two haptic effects than a single one. So,  
3 with the first one, the deflection, there's deflection towards the user and then  
4 the return to default that happens as a result of the touch.

5 And it's these two haptic effects that cause the sensation to the user.  
6 And I know this term sensation is used in some of the briefing and Mr.  
7 Speed's presentation.

8 But what matters here is not whether there's a sensation, but whether  
9 that sensation or haptic effect was generated as a result of a single haptic  
10 output signal based both on proximity and touch.

11 And that's not what we have with Pratt's bubble effect. Rather, there  
12 are two different haptic output signals, one based on only proximity and one  
13 based only on touch.

14 JUDGE ZECHER: At that exact moment of the touch, is there a little  
15 bit of overlap there on those two signals?

16 MS. HAYDEN: There wouldn't be, because the screen had already  
17 been deflected towards the user prior to the touch. But even if there were,  
18 that would not be -- that wouldn't be particularly relevant, because there  
19 would still be two different haptic output signals generating two different  
20 haptic effects.

21 JUDGE ZECHER: Regardless of whether or not there's some overlap  
22 at that one point?

23 MS. HAYDEN: Exactly. That's right.

24 JUDGE ZECHER: Okay, thank you.

1 MS. HAYDEN: Of course. I'm going to go ahead and move on to  
2 the rate of approach embodiment. I know we talked about this a lot, so I'll  
3 short circuit some of my introduction on this in the interest of time.

4 But briefly looking at Slide 35, this goes into the Paragraph 41  
5 embodiment, this rate of approach embodiment, and it's undisputed that  
6 there's only signals from the proximity sensor used here.

7 And given that, there is no anticipation argument in the Petition based  
8 on the rate of approach theory. Rather, in an attempt to overcome the rate of  
9 approach embodiment's deficiency of only using signals from a proximity  
10 sensor, the Petition proposes a modification in which the haptic effect is  
11 generated only after there is contact with a touch surface, and cites to  
12 Paragraph 39 of Pratt, which as shown on Slide 37 concerns a different  
13 embodiment, what I'll refer to as Pratt's latency embodiment.

14 And as Mr. Speed admitted during his presentation, these two  
15 embodiments use proximity information for different purposes. Rate of  
16 approach uses it to determine rate of approach and generate haptic effects  
17 that indicate that rate to the user, and the latency embodiment uses proximity  
18 signals not to generate any haptic effect but rather to pre-charge the actuator  
19 to reduce latency in the event that there is a touch.

20 So here, information from the proximity sensor is used only for this  
21 pre-charging, not for any haptic effect. And any haptic effect in Paragraph  
22 39's embodiment is based only on touch.

23 JUDGE ZECHER: Ms. Hayden, this is Judge Zecher. I think I heard  
24 Mr. Speed say that -- let's assume we agree with you, that you're talking  
25 about different embodiments here on Paragraphs 39 and 41.

1 But he said even if they were, they're compatible. So how would you  
2 argue they are incompatible?

3 MS. HAYDEN: For one of -- for the exact reason that I just said.  
4 This rate of approach embodiment is used to generate -- it uses proximity  
5 information only to generate haptic effects to provide the user information  
6 about the user's rate of approach to the screen.

7 And then the latency embodiment uses this proximity information  
8 only to pre-charge the haptic actuator, and then only provides haptic effects  
9 to the user in the event there's a touch on the screen.

10 So, if you would combine these two such that there was only a haptic  
11 effect just based on touch, you would lose functionality for the rate of  
12 approach embodiment.

13 You would lose the functionality of being able to communicate  
14 something to the user about the rate of approach in the event there's not a  
15 touch.

16 And this is something that the federal circuit has indicated that can be  
17 considered by the Board in determining whether an obviousness  
18 combination or modification makes sense. And that's the Cook Group v.  
19 Boston Scientific case that we mentioned in our briefing and is reflected on  
20 Slides 42 and 43.

21 JUDGE AHMED: Ms. Hayden, how do you address Petitioner's  
22 argument that if for example the haptic effect is a vibration, you wouldn't  
23 generate that vibration in the rate of approach embodiment unless the screen  
24 is touched, right?

25 So, it makes sense to generate it only after it's been touched. So that's  
26 what Paragraph 41 is talking about there.

1 MS. HAYDEN: I understand that Petitioner takes that position, and  
2 that's something we disagree with. So, I think it would help to just think  
3 about this: how this could work in the real world?

4 So, if your finger is approaching the screen, just like we said, you are  
5 likely holding your phone with your other hand or holding the game  
6 controller.

7 So, the fact that there can't be any haptic effect sensed by the user  
8 unless there's a touch and that finger has to be the one that feels the haptic  
9 effect, that just doesn't make sense.

10 So, it's not necessarily this finger that's hovering above the screen  
11 that needs to feel this effect, but another part of the user's body can.

12 And that's consistent with Pratt's general disclosure. So, Paragraph  
13 42 of Pratt immediately following the Paragraph 41 embodiment we've been  
14 talking about, makes clear that Pratt's haptic effects can be based on  
15 proximity alone.

16 And if I may address some parts of Petitioner's presentation, one thing  
17 that Petitioner points to in the presentation, looking at Slide 12, are Claims  
18 16, 17, and 19 of Pratt.

19 And importantly, these claims are not part of the Petition's rate of  
20 approach theory. The only portions of Pratt the Petition cites in its theory on  
21 Pages 26 to 28 are Paragraphs 39, 41, and 53.

22 The Petition doesn't cite any claims. I understand these were cited in  
23 the Board's Institution Decision, but the Board cannot rely on these claims  
24 in its final decision because that would amount to improper gap length that  
25 the federal circuit has cautioned against because it's Petitioner that bears the  
26 burden here.

1           And in any event, looking at this Slide 12, Claims 16 and 17 involve  
2           only using proximity information. And Claim 17, which depends from  
3           Claim 16, is specifically directed to this rate of approach embodiment.

4           Claim 19, which the Petitioner relies on for this touch disclosure,  
5           involves using proximity, touch, and force, but not in context with the rate of  
6           approach embodiment. It doesn't depend from Claim 17. It depends from  
7           Claim 16.

8           And unless Your Honors have any further questions on Pratt, I'm  
9           going to move on to Ku at this time.

10          JUDGE AHMED: Just one more. How do you address Petitioner's  
11          argument which is supported by expert testimony that a person of skill in the  
12          art would have modified Pratt to implement it this way where the haptic  
13          effect is generated only after touch?

14          MS. HAYDEN: I think that goes back to something we were  
15          discussing earlier with how, if you made that modification, you would lose  
16          functionality of Pratt's rate of approach embodiment, which communicates  
17          information to the user without there needing to be a touch.

18          So, communicating information to the user based on the rate of  
19          approach before there's any touch that occurs.

20          Okay, I'll now move on to Ku. I'll start with Slide 46. Actually, 45.  
21          And take a look at Figure 7. Figure 7 is a flow diagram showing a method  
22          for distinguishing different types of input signals, namely proximity and  
23          touch signals.

24          At Step S 505, Ku determines whether the proximity signal has been  
25          detected, and then if so, at Step S 510, outputs a vibration corresponding to  
26          the detected proximity signal.

1           So here, there is a vibration before any touch with the screen occurs.  
2           At the next step, moving not Slide 46, in the next step of the diagram, Ku  
3           determines whether there has been a touch signal input at a given location,  
4           and if so, at Step S 250, a combined vibration effect made up of two  
5           vibrations is output, with one corresponding to the proximity signal and the  
6           other haptic effect corresponding to the touch signal.

7           That's the same that's shown in Ku's Figure 12. Ku Figure 12  
8           illustrates vibration curves for haptic effect 705 based only on touch and 710  
9           based only on proximity.

10          And moving to Slide 48, Figure 12 then shows a representation of  
11          what the user would feel if the two haptic effects were overlayed in time,  
12          simply summing the intensity values to create the vibration pattern labeled  
13          715.

14          So, this vibration pattern 715 is two haptic effects overlayed on top of  
15          each other, one based only on proximity, the other based on touch.

16          Moving to Slide 49, so the Petition recognizes that Ku discloses  
17          sending multiple haptic output signals in scenarios where two haptic effects  
18          are overlayed rather than a single haptic output signal as required by the  
19          claims.

20          The Petition at Page 66 proposes that it would have been obvious to  
21          have Ku's controller 180 issue a single haptic output signal such as a  
22          command signal causing this vibration 715 because that would have been  
23          more efficient.

24          But as we can see from the excerpt of the Petition on the slide, the  
25          Petition's description of this modification is entirely conclusory and  
26          unsupported by admissible evidence.

1           It provides no detail on how Ku's proximity and touch signals could  
2 be combined into a single command signal. It also offers no explanation of  
3 why a POSA would have been motivated to do so aside from efficiency, but  
4 the Petition does not establish that there would have been an increase in  
5 efficiency at all, let alone how much.

6           Rather, this proposed modification, it simply shifts what component  
7 of Ku combines the proximity and touch information. In this proposed  
8 modification, Ku's controller 180 combines the proximity and touch sensor  
9 information rather than Ku's haptic driver, which is what actually happens in  
10 Ku's disclosure.

11           The Petition did not establish if the processor performing this  
12 operation, rather than simply passing along the signal to the haptic driver to  
13 do so, would have resulted in increased efficiency.

14           And even if there were some minimal increase in efficiency, there is  
15 no evidence that a POSA would have been motivated to go through the  
16 trouble of modifying a fully functioning system to obtain this benefit.

17           So, this modification uses nothing more than impermissible hindsight  
18 bias to modify a piece of prior art to arrive at the challenged claims.

19           And moving to Slide 51, on reply, the Petitioner argued for the first  
20 time that making its proposed modification to Ku would have been obvious  
21 to a person of skill in the art in view of the Tierling reference, Exhibit 1020.

22           But the Petition's Ku ground, Ground 3, did not even mention the  
23 Tierling reference. The Petition only mentioned Tierling in passing in  
24 Ground 2 and did not propose using Tierling as part of any ground.

25           Moving to Slide 52 --

26           JUDGE ZECHER: Ms. Hayden, this is Judge Zecher.

1 MS. HAYDEN: Sure.

2 JUDGE ZECHER: I understood Mr. Speed to say that the  
3 introduction of Tierling in the Petition was as evidence of the general  
4 background knowledge in the art.

5 And as such, Petitioner can provide that as evidence for justifying its  
6 proposed combination, but it doesn't otherwise need to be listed as part of  
7 the ground. Can you respond to that argument?

8 MS. HAYDEN: Yes, of course, and Patent Owner does not dispute  
9 that basic principle. I believe that was the holding in the Jianzhong case that  
10 Mr. Speed cited that was citing this *Ariosa* case that he mentioned.

11 The problem here is that --

12 JUDGE ZECHER: I think it's *Ariosa*.

13 MS. HAYDEN: I'm sorry, excuse me?

14 JUDGE ZECHER: I was just saying, I think the original case is  
15 *Ariosa*, but yes, you're correct.

16 MS. HAYDEN: The problem here is that the Petition does not rely on  
17 Tierling in any way in its Ground 3. That's why as shown on Slide 52, this  
18 is why the reply has to cite to the expert declaration exclusively when  
19 discussing Tierling in the context of Ground 3 rather than the Petition.

20 And if we go back to Slide 51, this shows the sole mention of Tierling  
21 in the petition, and this is in Ground 2. So even if we were to charitably  
22 allow the petitioner to use this disclosure in Ground 2, the statement in  
23 Ground 2 in its Ground 3, all the petition says about Tierling is that it  
24 discloses a combiner sequencer within processor for combining multiple  
25 haptic effects.

1           It doesn't discuss anything about the state of the art or how a person  
2           of skill in the art would have relied on Tierling to understand the state of the  
3           art or to understand the efficiency concerns that the petitioner now brings up  
4           on reply and at the hearing.

5           JUDGE ZECHER: So, your argument is that Tierling was cited in  
6           reference to Ground 2 and not with respect to Ground 3, so we can't apply it  
7           in that regard?

8           MS. HAYDEN: I think that's part of it. I think that's part of it, but  
9           the other part is that even if you would take the argument that's in Ground 2,  
10          there's very little discussion of Tierling in the petition.

11          There's no discussion of how a person of skill in the art would rely on  
12          it. There's no discussion of how Tierling would inform a person of skill in  
13          the art about these efficiency concerns that would allegedly cause a person  
14          of skill in the art to modify the Ku reference in the way the petition  
15          proposes.

16          JUDGE ZECHER: So, "it's not an adequate explanation" is basically  
17          what you're saying, in the Petition.

18          MS. HAYDEN: Exactly. There's nothing here. And this is on one of  
19          our slides. I think it's Slide 52. There's this 3M v. Evergreen Adhesives  
20          case which we cited in the briefing that affirmed the Board's reliance on  
21          Section 42.6, which is the arguments must not be incorporated by reference  
22          from one document into another regulation, and affirmed the Board's  
23          reliance on that regulation in its refusal to consider an argument provided  
24          only in 3M's expert report, not in its petition.

25          And that's the -- as we can see on Slide 52, that's what's happening  
26          here, is there was a passing mention of this Tierling reference in Ground 2 in

1 the petition and now the petitioner tries to elevate that to something more on  
2 reply, but as evidenced by what's cited on reply, this was not cited in the  
3 petition. It was only cited in the expert declaration, and the Board's  
4 regulations prohibit a petitioner to rely on material that's in its expert  
5 declaration only and not in its petition.

6 JUDGE ZECHER: Okay. Thank you.

7 MS. HAYDEN: If there's no further questions on Ku, I'm going to  
8 just briefly mention the Pratt -- the Ku and Jiang ground. We'll rest on the  
9 papers on this ground, but for the most part, but I just wanted to point out  
10 that the Ku-Jiang ground fails for the same reasons as Ku itself, because the  
11 only thing that the petitioner is relying on Jiang for is this integrated sensor.

12 And so, Jiang does not remedy the deficiencies of Ku, which are  
13 related to the haptic output signal and the haptic effect. And I'll just address  
14 one part of the Pratt-Ku issue.

15 I don't agree with Mr. Speed that this ground rises and falls with Ku.  
16 There's a separate issue at play here, is whether a person of skill in the art  
17 would be motivated to modify, motivated to combine Pratt and Ku.

18 So, as we've discussed in detail today, the Ku reference does not  
19 render obvious a single haptic output signal based both on proximity and  
20 touch.

21 But even if it did, the references would not be combined because these  
22 references are directed to different problems and different solutions.

23 So, looking at Slide 57, this shows a part of the petition on Pages 47  
24 and 48. The petition admits that Pratt does not address the problem Ku  
25 discusses, which is distinguishing between different types of touch.

1           Excuse me, different types of touch signals and proximity signals.  
2           That's because as we discussed earlier, Pratt's latency embodiment, which is  
3           what is relied on in this combination, is directed to the problem of reducing  
4           latency in the event there is a touch.

5           And Pratt's latency embodiment, proximity information is only used  
6           to pre-charge the actuator, not for generation of any haptic effect. The  
7           petition claims that a person of skill in the art would have had reason to  
8           modify Pratt so that it would instead output one haptic effect if they were  
9           both proximity and touch signals, and a different haptic effect if there were  
10          only proximity signals.

11          But a POSA would not have modified -- been motivated to modify  
12          Pratt's Figure 4 embodiment, which is what it relies on in this ground in this  
13          way.

14          This modification would have been directly contrary to the problem  
15          Pratt was aiming to solve with its use of proximity information, reducing  
16          latency by pre-charging the actuator, not by providing any haptic effects  
17          corresponding to proximity information.

18          Okay, so unless the Board, Your Honors, have any questions, I'll  
19          reserve the remainder of my time for rebuttal.

20          JUDGE OGDEN: Okay, thanks, Ms. Hayden. It looks like you've  
21          got about a minute into your sur-rebuttal time.

22          MS. HAYDEN: Okay, thank you.

23          JUDGE OGDEN: So, you have about almost 14 minutes left for  
24          surrebuttal time. So, all right.

25          MS. HAYDEN: Thank you.

1 JUDGE OGDEN: Mr. Speed, let's go back to petitioner. You have a  
2 little bit less than 10 minutes of rebuttal time. You can start when you're  
3 ready.

4 MR. SPEED: Thank you, Your Honor. Sorry about that. All right,  
5 now I'm the one having technical difficulties. My apologies. All right.

6 So, I'll take it going reverse order just so that what is freshest in our  
7 mind can be addressed first.

8 On Tierling, the contention that we did not raise Tierling in Ground 3,  
9 I would point Your Honors to Slide 21. On Slide 21 we have on the bottom,  
10 we have the petition at 54. That's Ground 2 where we cited to Tierling and  
11 we cited to Dr. Welch's Paragraph 226.

12 That is Section 7(b)(3) of the petition. On the righthand side, you  
13 have petition at 66. That's the Ground 3. And it's specifically, as I've  
14 highlighted here, refers back to the discussion we had in Ground 2.

15 The daylight between Pratt and Ku and Ku alone was very minor.  
16 Essentially, as counsel was just explaining herself, the difference is what  
17 circuit is outputting the command.

18 In one of them, you have Pratt's processor 112 and in Ku you had a  
19 controller. But the signal and the obviousness combination that we set forth  
20 is the same in both of them, which is which device is doing it.

21 So, the Ground 3, petition at 66, explicitly refers back to the prior  
22 discussion. It talks about efficiency, all the same arguments that we had in  
23 Ground 2.

24 And importantly, if you look at Slide 22, you can see that we have  
25 Paragraph 259, which we cited on Page 66 of the petition. Paragraph 259 of

1 Dr. Welch's testimony, again, he also refers back to his earlier analysis, and  
2 he's even more specific.

3 He doesn't refer to it by section number. He refers to the specific  
4 Paragraph 226, and he says in particular, you should look at my discussion  
5 of the Tierling reference.

6 So, Ground 3 plainly presented Tierling in this argument. We linked  
7 it back. I don't know how we could have been clearer other than repeating  
8 verbatim what we had already provided in Ground 2.

9 JUDGE ZECHER: So, Mr. Speed, your position is that this cross  
10 referencing was what we really need to look at to get the more fulsome  
11 explanation.

12 MR. SPEED: I think in Ground 3, we provided the efficiency  
13 argument and we corroborated with the cite to Dr. Welch at 259 where he's  
14 pointing back to his earlier analysis.

15 So, yes, I would agree that you need to look back at the Ground 2  
16 analysis, which is just again one paragraph in his declaration to understand  
17 how he was also applying it in the Ku reference.

18 Because again, at the end of the day, the daylight between Ku alone  
19 and Pratt plus Ku is very minor on this point. It's just which -- is it a  
20 processor or the controller that's doing the single signal?

21 JUDGE ZECHER: Great. Thank you.

22 MR. SPEED: On Pratt, I have kind of a high level observation with  
23 Pratt. What I heard today was this, what I'll call the two hand argument,  
24 where we have -- we now have a device that you're holding in one hand and  
25 your finger is approaching with the other, and the haptic effect, one haptic  
26 effect is for your gripping hand and the other is for your finger.

1           That is completely new. It was never raised in the papers. And so, I  
2           tried to look through Pratt real quick to see if there is any disclosure to  
3           support that.

4           It's certainly not in Paragraph 41. And I'll just note for Your Honors  
5           if you look at the figures, every single figure when it's talking about the  
6           haptic effect, it's a finger approaching a touch screen. You don't see another  
7           hand gripping it. So, I just wanted to point that out to the extent that that  
8           impacted any of your views of the grounds.

9           Judge Ogden, you were asking --

10          JUDGE ZECHER: Mr. Speed, I'm curious then, when for example  
11          Ku, in Figure 7 of Ku, Step S 510, it says, "outputs vibration corresponding  
12          to detected proximity signal."

13          But this is before there's been any touch. So, what other -- what  
14          exactly is the haptic effect in that case if there hasn't been a touch, if it's not  
15          some vibration in the device that might -- that the user might experience  
16          with the hand that's holding the device?

17          MR. SPEED: So, just one minor point, or perhaps major point, is  
18          we're now looking at Ku, whereas the two handed argument I had  
19          understood was with Pratt.

20          JUDGE ZECHER: Yes, I recognize --

21          MR. SPEED: Okay.

22          JUDGE ZECHER: Specifically in the case of Ku, and then maybe  
23          you can sort of --

24          MR. SPEED: Yes.

1 JUDGE ZECHER: -- answer in the case of Pratt as well. It seems  
2 like Pratt might be disclosing also some sort of a vibration that occurs before  
3 the actual touch.

4 MR. SPEED: I think the idea with the pre-touch vibration is that  
5 because it's vibrating, the actuator is pre-charged in a sense, so it's already  
6 starting the vibration so that when you touch, you can have a -- you can  
7 quickly get to a higher vibration because you've already started to vibrate.

8 It's kind of like the saying of if the tree falls in the woods and no  
9 one's around to hear it, do you hear a sound? A vibration that you don't  
10 touch, is that a haptic effect because you haven't touched it yet? I think you  
11 could go either way on it, because if you did touch it, that vibration would be  
12 felt, and so it is a haptic effect in some sense. It's just that it's not felt unless  
13 you are doing this two handed approach argument that we've heard for the  
14 first time.

15 But I think with respect to Pratt, we can get even more precise on this,  
16 which is there is some conversation about what the bubble effect is.

17 And if you look at our Slide 36, we've actually rather than talk about  
18 an abstract, we've provided Paragraph 50 which is the paragraph describing  
19 the bubble effect.

20 And I think I've heard counsel say that the bubble effect, where it  
21 rises, where the screen rises, that that is -- that wasn't involving pre-charge.

22 But you can see here at the top of Paragraph 50, it says in response to  
23 the proximity detection, a haptic driver may pre-charge a haptic actuator to  
24 cause the touchscreen to deflect toward the user's finger.

25 So, there's nothing there describing that pre-charging initial  
26 deformation as some form of haptic effect. And there certainly is no

1 description there that you, because you're holding it with your other hand,  
2 you're going to feel that deformation.

3 As Your Honor I think was hitting on, Judge Ogden, fundamentally,  
4 because that screen has moved up, the effect that you would feel, and we all  
5 agree that there's an effect that occurs as soon as you touch it, that effect is  
6 influenced by the proximity.

7 If you didn't have the proximity signal as an input to that second -- to  
8 that haptic effect that occurs on touch, the screen would not have moved up.  
9 And so, you would just be touching the flat screen, so you would not feel the  
10 bubble effect.

11 And I think it bears note that on Slide 36 at the bottom, you can see  
12 Pratt itself in Paragraph 51 describes its bubble effect, which we all admit  
13 occurs when you touch it.

14 It says, of course, the proximity based deflection operations are not  
15 limited to click effects. So, Pratt itself is referring to this operation, which is  
16 a touch based operation in part, as a proximity based deflection operation as  
17 well because Pratt, just like Ku and all these other references, are  
18 recognizing that you can combine a proximity detection with a touch  
19 detection to do some type of unique event.

20 Again, Paragraph 24 of Pratt gives that general disclosure that Your  
21 Honor identified in the Institution Decision that Pratt is describing a  
22 processor that can take proximity, touch, and/or force events.

23 And I think it bears note that when you read Patent Owner's papers,  
24 whenever they're talking about proximity, force, and touch, they leave out  
25 the and and they just go with or. They're trying to make it sound like you

1 can only use one of those detections. But Pratt is pretty clear throughout its  
2 disclosure that his processor is able to use all of these.

3 On the Cook case, that case --

4 JUDGE ZECHER: Mr. Speed, just -- you're under your 10-minute  
5 mark.

6 MR. SPEED: Yes. On the Cook case on interoperability, I agree that  
7 there are scenarios where you can propose a combination where it will  
8 render the primary reference inoperable and therefore it would not have been  
9 obvious for a POSA to do it.

10 In the Cook case, it was a medical device case, and you had the  
11 primary reference, its principle purposes were to identify and resect tissue.

12 The combination would have removed the ability to identify or resect  
13 tissue. And so, the Board correctly said why would a person skilled in the  
14 art possibly do this if it's taking out the two primary purposes of the primary  
15 reference?

16 And the federal circuit affirmed. That case is nowhere close to what  
17 we have in this case. Pratt, if you look at Paragraph 2 of Pratt when given its  
18 overview, Pratt is directed to a user input device that provides haptic  
19 feedback based on proximity, touch, and/or force.

20 Our obvious implementation of Paragraph 41 is using proximity to  
21 select a haptic effect and then choosing text to output that haptic effect.

22 It's completely consistent with Pratt's design and with the invention  
23 that Pratt disclosed. It's no way does it render Pratt inoperable. The only  
24 way that you could possibly get the Cook case to align with this case would  
25 be if we had made an argument in our Petition that you would remove  
26 something like haptic effects from Pratt.

1           That would be an example of actually making a proposed combination  
2           that renders inoperable the primary reference for its intended purpose. But  
3           we didn't do that. We just identified a logical evidence based reason for  
4           how you would implement Paragraph 41 in a way that's completely  
5           consistent with Pratt's general disclosures.

6           Unless there's any other questions, I'm thankful for your time today,  
7           Your Honors.

8           JUDGE OGDEN: Okay, Mr. Speed, thank you. Ms. Hayden, you  
9           have a little bit less than 14 minutes for sur-rebuttal. You can start when  
10          you're ready.

11          MS. HAYDEN: Okay, thank you, Your Honor. I'll just go in the  
12          same order that Mr. Speed did. First, turning to the Tierling issue, in  
13          Ground 3, even if it does adequately refer to Ground 2, the disclosure that  
14          we looked at in Ground 2 is inadequate.

15          This was on Slide 51, showing that the sole description of Tierling in  
16          the Petition, anywhere in the Petition, simply says that, quote, disclosing  
17          combiner sequencer within processor for combining multiple haptic effects.

18          There's no other discussion of Tierling in the Petition at all. And on  
19          Page 66, this is looking at Slide 49. Well, I guess Slide 49 doesn't help us  
20          because it doesn't contain the citation to the Welch declaration that Mr.  
21          Speed mentioned.

22          But all that is is a cross-cite to the expert declaration. So again, this is  
23          just an improper -- an attempt to improperly incorporate material from one  
24          document into another from an expert declaration into the Petition that is  
25          forbidden by 37 CFR Section 42.6.

1           It is the Petition that needs to set out the Petitioner's theories, not  
2 other ancillary documents submitted with it.

3           And moving on to Pratt, unless Your Honors have questions on  
4 Tierling and Ku, it seems to be Petitioner's argument that there cannot be a  
5 haptic effect that's based solely on proximity, but that doesn't make sense.  
6 Pratt's Paragraph 41 makes clear that there can be a proximity based effect  
7 only. As Mr. Speed mentioned, there's portions of Pratt that say that the  
8 processor can take proximity, touch, and/or force signals and generate a  
9 haptic effect.

10           And as one of Your Honors commented, there's a similar disclosure in  
11 Ku. So, when I was giving an example of how a different part of the user's  
12 body could feel the haptic effect, this isn't a new argument. It's just a real-  
13 world explanation that is in line with what we discussed in the Patent Owner  
14 Response and Sur-reply, that in Pratt's bubble effect, there's two haptic  
15 effects. The first one is based solely on proximity.

16           And it seems that under Petitioner's theory that the only haptic effect  
17 in Pratt's bubble effect occurs with this return to default. And as we  
18 discussed, that return to default haptic effect is based solely on touch. So  
19 that's another reason that the Petition's theory fails. This return to default is  
20 based solely on touch. And if Mr. Speed is correct, that the first part of the  
21 bubble effect, this deflection of the screen, is just, is nothing more than a  
22 pre-charging of a haptic actuator that results in this deflection and there is no  
23 haptic effect, that's nothing different than the latency embodiment we  
24 discussed in Pratt.

1           And I would just address one other thing briefly. I believe Your  
2 Honors' Institution Decision as well as Mr. Speed in his presentation  
3 referred to Paragraph 24 of Pratt.

4           That's another paragraph that's not mentioned anywhere in the  
5 Petition's theory and cannot be relied upon in support of it in Your Honors'  
6 final decision.

7           I know I have some time remaining, but those are the issues that I  
8 wanted to address with Mr. Speed's rebuttal. So, unless Your Honors have  
9 any other questions, I will yield the remainder of my time.

10          JUDGE OGDEN: Okay, I don't think we have any more questions.  
11 Thank you very much, Ms. Hayden and Mr. Speed, and I think this hearing  
12 has been very helpful.

13          We'll take the arguments under consideration and issue our final  
14 decision in due course. We are adjourned. We're off the record.

15               (Whereupon, the above-entitled matter went off the record at  
16 12:00 p.m.)

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