

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ARASHI VISION (U.S.) LLC (D/B/A INSTA360)
Petitioner,

v.

GOPRO, INC.
Patent Owner.

Case IPR2024-00984 (Patent 10,015,413 B1)
Case IPR2024-01052 (Patent 11,336,832 B1)

Record of Oral Hearing
Held: October 7, 2025

Before WILLIAM V. SAINDON, NABEEL U. KHAN, and
BRIAN D. RANGE, *Administrative Patent Judges*.

Case IPR2024-00984 (Patent 10,015,413 B1)

Case IPR2024-01052 (Patent 11,336,832 B1)

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The above-entitled matter came on for hearing Tuesday, October 7, 2025, commencing at 12:00 p.m., at the U.S. Patent and Trademark Office, Southwest Regional Outreach Office, 207 South Houston Street, Room 155, Dallas, Texas.

PROCEEDINGS

(12:00 p.m.)

JUDGE KHAN: This is an oral hearing in case numbers IPR2024-00984 and IPR2024-01052. I am Judge Khan. With me is Judge Range, and appearing remotely is Judge Saindon.

Let's start with appearances. Petitioner, why don't you go ahead?

MS. NGUYEN: Good afternoon, Your Honors. Jean Nguyen from Morrison & Foerster, representing Petitioner. With me is my colleague Mehran Arjomand. Also with me are my other colleagues, Lily Li, Anna Yuan, and Alex Yap.

JUDGE KHAN: Thank you so much. And for Patent Owner?

MR. GLASS: Good afternoon, Your Honor. Jim Glass for Patent Owner. With me today are counsel of record, Patrick Schmidt and Quincy Lu.

JUDGE KHAN: Okay. Thank you. So, the procedure for today is a little bit particular because we have two cases and we have some confidential information. So the way we're going to proceed is each side will have two hours total time to make your arguments. We have a clock here. Unfortunately, it only goes up to 99 minutes. So we're going to set it up for 60 minutes and then cycle over for another 60 minutes. And we're going to be able to keep track of Petitioner's time and Patent Owner's time separately. So just keep a lookout for the clock and allot your time at as you see fit.

We're going to have a -- we're going to break this hearing up into two portions. We're going to have a public portion and then a confidential portion at the end. For the public portion, we can break that up as well and

1 start with the '984 case first. Petitioner, you'll go first with your opening
2 arguments. Patent Owner, you can respond additional; Petitioner, you can
3 do a rebuttal; and Patent Owner, surrebuttal. We'll then take a little bit of a
4 break, and we'll switch to the '1052 case and then just repeat additional
5 opening and with Patent Owner responding and rebuttals, if you have time.
6 And then we're going to take another break and switch over to the
7 confidential portion of the -- of the hearing.

8 During the public portion, just remember not to mention any
9 confidential information, if you can. Does that make sense? Any questions
10 or concerns from either side?

11 MR. GLASS: No, Your Honor.

12 JUDGE KHAN: Okay. Just a couple of other reminders. We want to
13 keep the record as clean as possible, so please speak slowly and clearly. We
14 have your slides in front of us. As you go through your slides, just please
15 remember to identify the slide number, please. And if you refer to anything
16 from the record, identify the item as specifically as you can.

17 And then, finally, please remember to speak into the microphones and
18 make sure the microphones are on. Judge Saindon will not be able to hear
19 you if we don't do that.

20 And that's it from us. We can begin whenever you're ready, Petitioner.

21 MS. NGUYEN: Your Honor, we've prepared hard copies of slides, if
22 I can approach the bench.

23 JUDGE KHAN: I think we're fine. We have your slides in front of
24 us. Yeah, that's fine.

1 MR. GLASS: Just one quick point, Your Honor. In most hearings, we
2 have discussion on how to handle objections. I assume in this case we
3 handle them like all others, where we do not have objections.

4 JUDGE KHAN: That's correct, yeah.

5 JUDGE RANGE: This is Judge Range. I'll take your copy.

6 (Off-microphone comments.)

7 JUDGE KHAN: Petitioner, whenever you're ready.

8 MS. NGUYEN: May it please the Board. Good afternoon or good
9 morning, Your Honors. My name is Jean Nguyen of Morrison & Foerster,
10 representing Petitioner Arashi Vision, also known as Insta360.

11 Petitioner respectfully submits that the '413 claims, the challenge
12 claims, are unpatentable. If you could please turn to Slide 2. We prepared a
13 number of slides for today's hearing, broken up into six modules. The first
14 two modules, I'd like to talk about a brief overview of the '413 Patent and the
15 claim construction issues between the parties. And then for modules three
16 and five, I'd like to discuss the instituted grounds and prior art. And then,
17 finally, module six, secondary considerations, I'd like to reserve that for the
18 confidential portion of the hearing.

19 Now, taking a look at Slide 4, a brief overview of the '413 Patent. The
20 '413 Patent is directed to converting an input image from a source aspect
21 ratio to an output image having a target aspect ratio, where the source aspect
22 ratio is different from the target aspect ratio. The conversion applies a
23 transformation having different, or, in other words, non-uniform, amounts of
24 shadow shifting. For example, the center circle in an image would be fully
25 corrected, and that would have less shifting compared to other pixels, such

1 as the corner region in an image, which would have more shifting and
2 therefore more distortion.

3 Now, turning to Slide 5, this slide shows Claim 1 of the '413 Patent.
4 And it's also emphasizing the limitations in dispute between the parties,
5 including an image sensor configured to capture an input image and physical
6 processors configured to obtain the input image, determine a portion, and
7 apply a transformation that non-uniformly shifts the pixels.

8 Now, I'll talk in the next module about claim construction, but there
9 are two issues in dispute for claim construction. The first one is underlined
10 in red, related to non-uniform. And then the second limitation is shown in
11 green, determine a portion.

12 If you could turn to Slide 6, Your Honors, this slide shows Claim 2.
13 Now, Claim 2 is no longer challenged in the IPR proceeding. However, two
14 of its dependent claims, Claims 6 and 7, do remain challenged, so we think
15 it's important to understand the scope of Claim 2. If you look at Claim 2
16 compared to Claim 1, there are two notable differences. The first is with
17 respect to the preamble. So the preamble of Claim 1 requires an image
18 capture apparatus, whereas Claim 2 is broader and it requires, in the
19 preamble, a system more generally. The second notable difference is that
20 Claim 1 requires an image sensor configured to capture an input image.
21 And, as you can see here on Slide 6, Claim 2 does not have that requirement.

22 Now, Slide 7 provides Claim 6 and Claim 7 for Your Honors'
23 convenience. And then, if I may go to claim -- or Slide 9, this shows the two
24 claim construction terms under dispute. If I may, I'd like to start with the
25 term "non-uniform." Slide 10 provides non-uniform as shown in elements

1 1[g] and 2[e]. Both recite "the transformation non-uniformly shifts the
2 pixels."

3 Slide 11 provides both parties' constructions. Petitioner believes that
4 non-uniform should be given as ordinary and customary meaning, which
5 would not be the same in all parts or areas. Patent Owner, trying to
6 differentiate over the prior art, believes that non-uniform should have the
7 meaning of non-linear. And, according to Patent Owner, non-linear means
8 no two pixels will have the same shift.

9 Now, Your Honors may see that today Patent Owner arguing that this
10 is not their construction. However, if you note on paper the POR Paper 25,
11 page 27, in trying to draw a distinction between the '413 and the prior art,
12 Patent Owner emphasizes that, in the '413, a non-linear transformation is
13 applied to every pixel.

14 Now, if you could turn to Slide 12, you'll see Patent Owner then pull
15 back its construction in its surreply, Paper 37 at page 4, and this is shown on
16 the bottom of Slide 12. Patent Owner now has a non-linear transformation
17 applied to a part of the image would still meet the claims. This is, of course,
18 the first time we've heard this new construction in the surreply. But you'll
19 see, Your Honors, as I'll discuss later, the prior art, including Meulen, still
20 teaches Patent Owner's construction of non-uniform.

21 And before we talk about the party's arguments, if we could turn to
22 Slide 13, there is one thing I'd like to clarify for Your Honors. Slide 13
23 shows the surreply Paper 37, at page 6, where Patent Owner argues that
24 Petitioner made this argument that non-uniform shifting can be
25 accomplished by linear scaling alone. This is highlighted on the slide, and I
26 just want to note, Your Honors, this is incorrect. As you can see, following

1 the yellow-highlighted passage, Patent Owner has not cited to anywhere
2 where Petitioner made this argument, and that's simply because Petitioner
3 never made that argument.

4 Now, if we could turn to Slide 15, this slide shows the output image
5 216 of Figure 2B of the '413 Patent, which the parties do not dispute shows
6 non-uniform shifting. The '413 specification describes the output image 216
7 as including a center circle that is fully corrected so that it maintains the
8 original shape, and, as a result, that center circle has zero shift. Thus, this
9 shows that non-uniform encompasses shifting two or more pixels by the
10 same amount, such that non-uniform does not mean non-linear.

11 Now, Petitioner is not relying solely on the figures, and that's very
12 clear from this slide here. It relies on the passage shown on the bottom-
13 right. It also relies on other passages, such as column 5, lines 25 to 27 of the
14 '413 specification, which states perceivable distortion is small or zero near
15 the center of the image.

16 If we can turn to Slide 16, this shows the ordinary and customary
17 meaning, as given by dictionaries such as Cambridge Dictionary. And note
18 that Patent Owner does not dispute this definition. Also, its expert testified
19 that it did not even consider dictionary definitions when providing his
20 opinion as to the meaning of non-uniform.

21 And if we could turn to Slide 17, and let's look at what Patent Owner's
22 support is. In the POR, Patent Owner points to two parts. The first part is
23 Figure 2B, and Figure 2 in general, which I discussed earlier. The second
24 part is the abstract shown on Slide 17 here, where Patent Owner points to
25 one sentence, highlighted in yellow, that says, "the output image is non-
26 linearly warped relative to the input image."

1 But, as Your Honors can see here, this says nothing about the
2 definition of non-uniform. It does not even use the word "non-uniform," nor
3 does it associate non-uniform with non-linear. And to the extent that Patent
4 Owner is somehow trying to argue lexicography, nowhere in the abstract or
5 any part of the intrinsic record does Patents show clear expression of intent
6 to define the term. And Patent Owner has not shown that its definition meets
7 the high bar required by case law to narrow the meaning of non-uniform.

8 Now, then turning to Slide 18, Patent Owner, in its surreply, for the
9 first time points to two other passages, but, Your Honors, neither move the
10 needle. The first is Claim 3, shown on Slide 18. As you can see, Claim 3
11 does not make a distinction between uniform and non-uniform as one being
12 linear or non-linear, as Patent Owner argues. In fact, Claim 3 doesn't even
13 use the word "non-linear," nor do any of the claims. And you can see here
14 that the Claim 3 does use the word "non-uniform," but note that it depends
15 from Claim 2. This means Claim 3 narrows the non-uniform shifting of
16 Claim 2 to non-uniform warping. And, as a result, non-uniform shifting
17 cannot have the same meaning as non-uniform warping.

18 Also, Claim 3 uses the word "function" to narrow the transformation
19 to one that involves functions or, in other words, equations, which is what
20 Dr. Katsaggelos, Petitioner's expert, was referring to during his deposition.
21 And that would be at page 83, line 19, to page 84, line 5, Exhibit 2026,
22 mischaracterized in the surreply, Paper 37 at pages 2 and 3.

23 Now turning to Slide 19, Patent Owner points to the equations in the
24 '413 specification for its second part of support. These equations are shown
25 on the left of Slide 19. But, as Patent Owner's expert testified, as shown on
26 the right, these equations are examples; the patent is not limited to only these

1 equations. So, in other words, these equations do not support Patent
2 Owner's request that Your Honors narrow the meaning of non-uniform to
3 non-linear.

4 And what makes this even more confusing is that Patent Owner, in its
5 surreply, Paper 37, at pages 23 to 24, then states that the passage at column
6 6, lines 65 to 66, the same paragraph that includes the first set of equations
7 on the top, are not even encompassed by the claim. So it's unclear, Your
8 Honors, what Patent Owner's construction really is. Is Patent Owner arguing
9 lexicography? Because it stated in its POR that all claim terms should be
10 given its ordinary customary meaning? Is Patent Owner excluding
11 embodiments from the specification? Because, as shown on Slide 19 on the
12 right, its expert said otherwise.

13 Okay. So, if Your Honors have any questions about non-uniform, I'd
14 like to turn to the next disputed limitation.

15 JUDGE KHAN: No questions. Go ahead.

16 MS. NGUYEN: Okay. Determine a portion. And if we could turn to
17 Slide 23, the parties dispute whether or not the '413 claims require that
18 certain steps be performed in a certain order. Now, Patent Owner takes the
19 position that "determine a portion" step must be performed after "obtain the
20 input image" step, but prior to "apply a transformation" step.

21 But if we could turn to Slide 24, which shows that Patent Owner's
22 construction would require Your Honors to improperly exclude embodiments
23 of the specification, such as the example shown on this slide, Slide 24.
24 Here, the vertical warp embodiment shown uses predetermined equations, or
25 in other words, the "determine" step is performed after -- sorry, is performed
26 before the "obtain" step.

1 Patent Owner's rebuttal in the surreply to this, at page 8, Paper 37, is
2 that these equations are part of the user selecting among different modes.
3 But, Your Honors, even if that were the case where we have different modes,
4 you would still have one mode where you're selecting these equations, at
5 which point Patent Owner does not dispute that these equations, in and of
6 itself, are predetermined. And whether the user selects different modes
7 involving different equations, or whether the equations change to follow a
8 moving object in the image, that does not change that these equations on
9 Slide 24 are still predetermined and still part of this '413 specification.

10 JUDGE RANGE: Counsel, this is Judge Range. Could it be that,
11 even if the equations are predetermined, that determining step in Claim 1
12 could mean applying those equations to determine a portion within the input
13 range?

14 MS. NGUYEN: That would be --

15 JUDGE RANGE: That's the way you're reading claim?

16 MS. NGUYEN: Yes, Your Honors. Going back to Patent Owner's
17 argument about having the user selecting different modes, let's say the first
18 mode is the predetermined equations and these predetermined equations
19 have an order that is opposite to what Patent Owner's arguing. Now, let's say
20 there's a second mode, right, that doesn't have these predetermined
21 equations. Regardless of whether the second mode follows the order that
22 Patent Owner argues, the first mode still follows -- or is still opposite to
23 Patent Owner's construction. So, as a result, if Your Honors adopt Patent
24 Owner's construction, we'd have to eliminate that first mode as being an
25 embodiment that's excluded from the '413 claims.

1 JUDGE RANGE: I was thinking about something different. So, if
2 they're -- let's say we were to adopt Patent Owner's construction, inasmuch
3 as it's on your Slide 23, but maybe determining a portion within the input
4 image doesn't require selecting the equation that's used. Maybe there could
5 be a predetermined equation, and just application of that predetermined
6 equation to an image is what that determining means when it says determine
7 a portion within the input image.

8 MS. NGUYEN: I see. I see. Your Honors, I think that's a reasonable
9 interpretation. One thing I do want to note is that, regardless of whether
10 Your Honors adopt Petitioner's construction or Patent Owner's construction,
11 we believe that all the prior art still teaches Patent Owner's narrower
12 construction. So, really, it doesn't make a difference which way you decide.

13 JUDGE RANGE: Okay, that makes sense. Thank you.

14 MS. NGUYEN: Okay. Any other questions on this? Otherwise, I'd
15 like to go to the prior art and the instituted grounds.

16 JUDGE KHAN: Go ahead.

17 MS. NGUYEN: Okay. Great. So, the instituted grounds and the
18 prior art are shown on Slide 28. Turning to Slide 29, I'd first like to talk
19 about Meulen and Chao. Providing a brief overview of Meulen on Slide 31,
20 Meulen teaches a wireless device 100, shown in Figure 1 on the left, that
21 applies image compression or scaling to an input image, also referred to as
22 media source content, having an aspect ratio that is different from the aspect
23 ratio of the display. For example, the media source content can have an
24 aspect ratio of 3:2, and the display can have an aspect ratio of 1:1.

25 Now, shown on the bottom passage of Slide 31, Meulen specifically
26 names the Palm Treo smartphones as examples of its wireless device.

1 Shown on Slide 32, Meulen's image compression or scaling applies different
2 amounts of compression or scaling to different portions of the image. Now,
3 this slide shows just one example, Table 1 example, where more
4 compression is applied to the display regions, shown in red, compared to the
5 display regions shown in purple, which are located closer to the center.

6 Okay. And just a brief overview of Chao in Slide 34. Like Meulen,
7 Chao teaches a method for resizing an original digital image having one
8 aspect ratio to an image having a different aspect ratio. Chao's method
9 scales the foreground elements, such as the orange ducks shown in Figure 14
10 on the left of the slide, while maintaining the original aspect ratio. It also
11 stretches or shrinks the background elements to fit the dimensions of the
12 resized image. And by maintaining the aspect ratio for the foreground
13 elements while changing the aspect ratio of the background elements, the
14 pixels of the foreground elements are shifted differently than the pixels of
15 the background elements.

16 So, please turn to Slide 35. This slide shows the recitations that are in
17 dispute between the parties for the Meulen-Chao ground. If I may, I'd like to
18 start with the first recitation, input image. But, before I do so, the key
19 takeaway is this, Your Honors: for Meulen and Chao, the combination
20 teaches each one of these recitations, even under Patent Owner's claim
21 construction.

22 Going to Slide 37, Meulen teaches both capturing and obtaining an
23 input image. Meulen teaches a frame buffer 506, shown in blue, that stores
24 media source content, such as the input image captured by its built-in
25 camera. The display controller 504 located under the frame buffer in Figure
26 5 retrieves, or, in other words, obtains the input image from the frame buffer.

1 And Dr. Katsaggelos explained because this frame buffer, in blue, is not
2 directly connected to the communications interface, in red, it would have
3 been obvious that the frame buffer stores content from internal media
4 sources. And this is his testimony, Exhibit 1015, paragraph 25.

5 Now, Meulen also discloses a camera application, as shown in the
6 yellow highlight on the slide, Slide 37. And both parties' experts agree that a
7 camera application on a wireless device is an application that allows
8 capturing an image, viewing it, and modifying it -- viewing and modifying
9 that same image captured by the built-in camera. Thus, Patent Owner is
10 incorrect. A POSITA would have understood from Meulen's disclosures that
11 the wireless device captures, processes, and views the input image captured
12 by its built-in camera, at the very least via its camera application.

13 And let's talk about Patent Owner's response to this. Patent Owner, in
14 its surreply, Paper 37, page 10, the only response it has is it basically ignores
15 Petitioner's arguments and merely asserts that Meulen does not expressly say
16 that the frame buffer stores image from its built-in camera. Further, Patent
17 Owner does not rebut Petitioner's arguments about Meulen's disclosures
18 about the camera application, highlighted in yellow, or how that shows that
19 Meulen's teaching a media source content that may be from an internal
20 media source.

21 Now, with respect to Patent Owner's other arguments about Meulen's
22 media source, this is captured on Petitioner's Slides 38, 39, and 40.

23 JUDGE KHAN: Counsel, just quickly, did you cite to this -- is that
24 column 12? -- in your petition?

25 MS. NGUYEN: Yes, Your Honor. I will look for that during rebuttal,
26 whether that's the typo.

1 JUDGE KHAN: Okay.

2 MS. NGUYEN: With respect to Slides 38, 39 and 40 of Petitioner's
3 demonstratives, these are all arguments that the reply, Paper 32, addressed at
4 pages 67. And, just like a lot of Patent Owner's arguments, Patent Owner, in
5 its surreply, repeats its POR arguments as rebuttal with respect to Meulen's
6 media source. You can find Patent Owner's repeated POR arguments in the
7 surreply, Paper 37, pages 9 to 10.

8 And then if we turn to Slide 41, in case there's any doubt, Your
9 Honors, whether Meulen processes its built-in camera images, Meulen does
10 disclose the Palm Treo being its wireless device, and the Palm Treos, at the
11 time of Meulen, displayed and processed images captured by its built-in
12 camera. For example, the Palm Treo 600 shows -- the user manual states, as
13 shown in yellow highlighting, that its built-in camera allows you to instantly
14 take and view the pictures captured by its built-in camera. And the Palm
15 Treos, as shown by the evidence, also had a need to perform an aspect ratio
16 conversion because the aspect ratio of the captured images did not match the
17 aspect ratio of the display. This is consistent with Meulen's disclosures.

18 And if Your Honors would like, Paper 32, which is the reply, at page
19 7, it describes the Palm Treos that were available at the time of Meulen that
20 captured the image with aspect ratios that did not match the aspect ratio of
21 the display.

22 And before I turn to the next topic, I just wanted to clarify that
23 Petitioner did not argue motivation to modify Meulen. This is an argument
24 Patent Owner makes in Slide 30 of its demonstratives, Paper 50. Meulen
25 discloses, as shown here on Slide 51, that its wireless device can be a Palm

1 Treo. And, as a result, Patent Owner's modification of Meulen is just not
2 necessary.

3 JUDGE KHAN: Counsel, let me ask you this. So, as you mentioned,
4 Patent Owner has a motion to strike on this particular argument based on the
5 Palm Treo. If we were to side with Patent Owner on that, do you feel you
6 have enough in your petition to make a prima facie case?

7 MS. NGUYEN: Yes, Your Honor, we believe that, putting aside the
8 Palm Treo, taking a look at Slide 37, the disclosures in Meulen suggest that
9 Meulen's media source content is an internal media source content.

10 JUDGE KHAN: Okay. And you'll get back to me about the column
11 12?

12 MS. NGUYEN: Yes, I will.

13 JUDGE KHAN: Okay, thank you.

14 MS. NGUYEN: Thank you. Okay. Your Honor, the site to column
15 12 is at page 97 of the petition.

16 JUDGE KHAN: Okay. Thank you.

17 MS. NGUYEN: Unless there are any other questions about input
18 image, I'd like to turn to "determine a portion." And for "determine a
19 portion" -- this is shown on Slide 44. And in the interest of time, I'll go
20 through this pretty quickly. Court Reporter, please let me know if I'm
21 talking too fast.

22 But Meulen discloses dividing the media source content into display
23 regions by applying the transformation to the input image. You can see here,
24 at the bottom of Slide 44, Your Honors got it right in the decision on
25 institution that Meulen teaches determining a portion.

1 And if we take a look at Slide 45, it's another example of Meulen
2 determining a portion. It's an example in Meulen that involves user control
3 where the user controls the center of linearity and/or center of compression.
4 And this user control is used to provide shifted or magnified effects, as Dr.
5 Katsaggelos explains in paragraph 47 of Exhibit 1014.

6 Now, Patent Owner, I just want to talk about their response and their
7 surreply. What they did was they took Table 2 and they took Table 4 and
8 alleged that the regions are predetermined because the allocation of source
9 pixels is the same. And this Table 2 and Table 4 is shown on Slide 45. But,
10 Your Honors, if you look at the comparison of Tables 2 and 4, it shows the
11 embodiment directed to the user controlling the center of linearity, which is
12 why Meulen used the term "asymmetrically" when describing the tables.

13 One thing you'll note, as shown in yellow, in comparing these tables,
14 is that these tables do not show the embodiment of Meulen where the user is
15 controlling the center of compression, right? So, for the center regions, in
16 both tables, the center of compression is still located in display region 5.
17 Thus, Patent Owner did not rebut Petitioner's argument regarding Meulen's
18 teachings of the user control shifting the center of compression as
19 determining a portion.

20 And, turning to Slide 46, as I mentioned earlier, even if Your Honors
21 adopt Patent Owner's construction, the prior arts still teaches the claims.
22 This is shown in 46 and described in more detail in the reply, Paper 32, page
23 9, where Figure 5 and the associated passages show that Meulen teaches first
24 obtaining the input image, shown in blue, then determining a region within
25 the input image, shown in green, followed by applying a transformation to
26 that input image.

1 One thing I want to note is the green-highlighted passage says that
2 Meulen expands one or more display regions. And by expanding the one or
3 more display regions, as Dr. Katsaggelos explains, that means the regions
4 are not predetermined.

5 Okay, let me stop there and see if Your Honors have any questions.
6 Otherwise, I'd like to turn to non-uniform.

7 JUDGE KHAN: Yeah, just a question about the expanding part.
8 What is it doing when it says "expand one or more display regions"?

9 MS. NGUYEN: Yes, so if Your Honors -- I'll refer you to Dr.
10 Katsaggelos. He talks about it in more detail in his reply declaration, slide --
11 or, sorry, Exhibit 1014, paragraph 49. But he talks about, when you expand
12 the display region, you're basically cheap changing the boundaries of where
13 the display regions are located, each one of them. And what you do is, when
14 you have a shifted -- or it's really a magnified effect, and you want to blow
15 something up, you're then making one region bigger, and as a result, because
16 the display is fixed in size, you have to make the other regions smaller. So
17 it's changing the sizes of the display regions. Therefore, they are not
18 predetermined.

19 Any other questions on "determine"? Okay. So, turning to the term
20 "non-uniform," Slide 49 provides the passage in Meulen where non-uniform
21 is discussed. And this information is also provided in several places: Dr.
22 Katsaggelos' opening declaration, Exhibit 1002, paragraphs 254 to 258; and
23 again he talks about it in his reply declaration, Exhibit 1014, paragraphs 51
24 to 52.

25 Now, if we turn to Slide 50, Patent Owner did make, and you probably
26 saw in the papers, this argument about piecewise linear, whether it's linear,

1 whether it's non-linear, Your Honors, even if Your Honors believe that Patent
2 Owner's piecewise linear arguments don't show non-linear and that non-
3 uniform must mean non-linear, Meulen still teaches non-linear.

4 And this is shown on Slide 50, where Meulen provides Figures 4A to
5 4C, and it shows these non-linear curves on the left and right sides. And
6 Meulen describes Figures 4A and 4C, as shown in the bottom-right yellow
7 highlight, employing significantly more display regions, e.g., greater than
8 30. And this is done by smoothing the visual transitions from one display
9 region to another.

10 And I know that Patent Owner argued in its surreply that this is still
11 piecewise linear, but, Your Honors, we respectfully disagree. Smoothing
12 visual transitions means that these are non-linear curves. There is a smooth
13 curve in between each region. And, as a result, they are not piecewise linear,
14 and they resemble Figures 2A to Figures 2C of the '413 Patent and satisfies
15 Patent Owner's construction of non-uniform.

16 Now, Chao, on Slide 51, also teaches non-uniform. I refer Your
17 Honors to page 16 of the reply, Paper 32. And Patent Owner, again, its
18 response is not a rebuttal. Instead, Patent Owner repeats the same arguments
19 it makes in its surreply. And this can be found on pages 20 to 21 of Paper
20 37.

21 I'd like to turn to shifting and Slide 54. So, Patent Owner argues that
22 Meulen does not teach shifting because its compression is performed by
23 polyphase filtering only. But this is incorrect, and supported by Meulen's
24 passage, shown at the top of Slide 54, where Meulen states that its
25 compression uses sample-rate conversions, such as polyphase filtering. And
26 the phrase "such as" means that polyphase filtering is one example, but not

1 the only example. And this slide, 54, also shows that Your Honors got it
2 right, that even Meulen teaches scaling, which shows that it also teaches
3 pixel shifting.

4 Now, if we could turn to Slide 55, Dr. Katsaggelos explained all of
5 this in his reply declaration in response to Patent Owner's arguments. This is
6 found in paragraphs 56 to 57 of Exhibit 1014, where he talks about a
7 POSITA would have known there are other types of techniques for sample-
8 rate conversion, such as subsampling, and he submitted evidence, Exhibit
9 1025. that explained this in detail. And he talks about how, for compression,
10 subsampling involves sampling less than all of the pixels, which results in
11 shifting the pixels, shown by the green arrow.

12 And I'd like to just note that Patent Owner's expert agreed that pixel
13 shifting of the '413 Patent may involve reducing the number of pixels in an
14 image.

15 And this can be found in Exhibit 2027, Dr. Foroosh's declaration, paragraph
16 79. In other words, subsampling meets the '413 claims.

17 Now, Patent Owner does not dispute that subsampling is one way to
18 perform sample-rate conversion or that subsampling involves pixel shifting.
19 Patent Owner's only rebuttal is that Meulen does not provide express
20 disclosures that sample-rate conversion may involve subsampling.
21 However, Your Honors, subsampling was known to a POSITA, and thus
22 express disclosure is not required.

23 Now, if I may turn to Slide 56, in the interest of time, I'll just go
24 through this pretty quickly, but, generally, I just wanted to point out that
25 Chao also discloses shifting. And Your Honors can find this disclosure and

1 discussion with respect to shifting in Dr. Katsaggelos' declaration, Exhibit
2 1002, paragraph 263.

3 Patent Owner's response, shown on Slide 57, is that it actually agrees
4 that Chao teaches shifting. That's found on pages 32 to 34 of its POR, Paper
5 25. But it makes this argument that Chao's shifting is of entire objects, not
6 pixels. But, as you can see here with the duck -- we're back to the duck --
7 Slide 57, shown in the top right, a POSITA would understand, in a digital
8 image, an image of an object comprises, collectively, pixels. And, therefore,
9 if you're shifting objects, you're shifting pixels.

10 Now, turning to the second-to-last disputed recitation, which is
11 elements 1[g] and 2[e], if I may turn to --

12 JUDGE SAINDON: Counsel?

13 MS. NGUYEN: Yes.

14 JUDGE SAINDON: Can you hear me? This is Judge Saindon. I have
15 a question, before we move on, with respect to transformation and shifting.
16 So, looking at the limitation altogether, we have -- I'm looking at Claim 1,
17 apply a transformation, and then later on we have, quote, the transformation
18 non-uniformly shifts the pixels from the input positions, the output positions,
19 end quote. So, there were two words that we were talking about,
20 transformation and shifting. And what I'm wondering is, does the non-
21 uniform modify the shift, and therefore the actual action has to be a non-
22 uniform action, as opposed to, perhaps, the result of shifting given overall
23 non-uniform result? Does that -- does my question make sense, the action
24 being non-uniform as opposed to the result being non-uniform?

1 MS. NGUYEN: Yes, Your Honor. I think, if I understand, it's a
2 matter of whether the transformations -- the steps of the transformation itself
3 applies non-uniformity. Is that correct?

4 JUDGE SAINDON: Yes.

5 MS. NGUYEN: Yes, Your Honor, I think the claim could be read
6 either way because it recites "apply a transformation," and it talks about the
7 transformation itself non-uniformly shifting the pixels.

8 JUDGE SAINDON: And so, in your position, the piecewise, that is
9 itself linear, but it gives a -- this is what I was hearing before -- it gives a
10 non-uniform impression overall, because there are those little linear bits that
11 add up to an overall non-linear impression. Is that correct?

12 MS. NGUYEN: That's correct. And, Your Honors, if I may refer you
13 to the last limitation of Claim 1, for example, which says the non -- sorry,
14 the transformation non-uniformly shifts the pixels, and then it talks about the
15 differences in the output positions. In our opinion, those output positions, it
16 refers to the output image. Right? So that would support a reading of the
17 transformation and its non-uniform shifting being as the result of the output
18 image.

19 And if you take a look at the specification, I can provide cites in the
20 rebuttal. There's discussion in the specification about the transformation
21 being applied as one step or two step. For example, Claim 3, it's two steps
22 where you could have a uniform stretch and a non-uniform warp. And
23 because of that, and the fact that it's narrower than Claim 2, I think you
24 would have to read it that not every action requires non-uniform shifting.
25 That it could be the result.

26 JUDGE SAINDON: Okay, thank you.

1 MS. NGUYEN: Yes, Your Honor. Okay, so, turning back to elements
2 1[g] and 2[e] and Slide 60, this slide shows that Meulen teaches image
3 compression or scaling applied in the horizontal direction and/or vertical
4 direction. Claim 8 recites something similar, at least one of a horizontal
5 direction and a vertical direction. This shows that Meulen teaches applying
6 the image compression scaling non-uniformly in both directions.

7 Let me pause there and see if Your Honors have any questions.
8 Otherwise, I'd like to quickly talk about motivation to combine.

9 (No audible response.)

10 MS. NGUYEN: So, Slide 63 shows Dr. Katsaggelos' declaration,
11 portions of it, in paragraphs 262, 263, and 271, how it would have been
12 obvious to combine Meulen and Chao. For example, Meulen does not
13 disclose the details of scaling, and, therefore, a POSITA would look to
14 another reference, such as Chao, for those details. And Patent Owner, its
15 arguments are really -- they try to separate and divorce Nguyen and Chao.
16 But, as explained in the reply, Paper 32, page 16 to 18, there's a lot of
17 similarities between Meulen and Chao. For example, both references
18 perform non-uniform shifting. Both involve aspect ratio conversion that
19 tries to minimize distortions where objects of interest are located.

20 And Patent Owner, in trying to rebut this, they really -- again, they
21 provide this rebuttal that they -- well, so, Patent Owner did not rebut this in
22 their POR, and Petitioner then pointed that out in their reply, page 17. It
23 wasn't until the surreply that Patent Owner then tries to create this rebuttal,
24 drawing this distinction, but, as you can see from Slide 64, Your Honors
25 found, in a decision on institution, that there is a lot of similarity between the
26 two, and that we've established a reasonable expectation of success.

1 Let me stop there and see if Your Honors have any questions about
2 Meulen and Chao. Otherwise, in the interest of time, I'm also -- I do not
3 plan to discuss Fleming or Obara, unless Your Honors have any specific
4 questions. I'd be happy to address them.

5 JUDGE KHAN: No. Thank you.

6 MS. NGUYEN: Thank you, Your Honor.

7 MR. GLASS: Oh, I'm already plugged in, so I may just -- I came
8 prepared this time. Okay, I just need one more moment.

9 Good afternoon, Your Honors. I will, optimistically, reserve 20
10 minutes of my time for rebuttal. I actually am going to -- give me a moment
11 to bring this into presentation mode. I am going to start off with Ground 1.
12 I will spend a few short minutes on Fleming, because I think the Fleming
13 ground is relevant.

14 Now, Your Honors correctly concluded in your institution decision
15 that the Petitioners did not establish that it would have been obvious to
16 implement Fleming and Obara on a camera. Now, in response, Petitioners
17 brought in I think it was over a dozen different references. That's all subject
18 to our motion to strike. That doesn't fundamentally change Your Honors'
19 position that they failed to meet their burden of proof on those grounds.

20 I'll jump to Slide 105. I think it's been -- I think, in the reply,
21 Petitioners took a step back from what their original position was on
22 Fleming and Obara. And I think it's important for us to just set the table and
23 just point out what they -- what their position is. And this is on Slide 105.
24 I'm reading from the petition, at page 28 through 29. I'm going to highlight
25 throughout the day, as I go through. I'll try and make it clear on the record
26 what I'm doing. I am highlighting the sentence where it starts with "it would

1 have been obvious." It would have been obvious for Fleming's data
2 processing system, including its CPU and GPU, to be put within a camera.

3 That's their starting point. Now, they stepped away from that in their
4 reply, and they pointed to -- I think it's the DIGIC processor in the Canon
5 G15. There's a few sentences where they started to argue that it was --
6 would have been obvious to implement the algorithms on that camera. This
7 is their position, that you take the GPU and CPU from Fleming and from
8 Obara and you put it on a camera. There is no discussion, no statement of
9 reasonable expectation of success. Their expert said exactly the same thing.
10 That's at paragraph 100 of his declaration.

11 I'll point out, too, because I think they put this very succinctly in their
12 -- in their opposition to our motion to strike. This was after their reply.
13 Their position is Fleming, quote, within a camera. This is hat page 4 of their
14 opposition. Their position is Obara, quote, within a camera.

15 So, that is their position: that you would take Obara, you would take
16 Fleming, you would put it in a camera. The problem is, if you look at -- let
17 me get back to my slides. If you go -- I'm on Slide 104. You look at
18 Fleming. Fleming is a desktop computer. It's an Apple patent. Reading
19 from column 3, 8 through 18. The computer of Fleming's system is an
20 Apple Macintosh computer. That is a desktop computer. Same thing with
21 Obara. Obara, on Slide 120, Obara is a laptop.

22 So they are suggesting that, in 2012, a person of ordinary skill in the
23 art would have taken desktop-class components, a CPU and GPU, with no
24 reference to the power requirements, space requirements, cooling
25 requirements, and shrunk that down to the size of a camera. We can't do that
26 today. They're suggesting that Fleming on a camera, Obara on a camera,

1 would have been obvious back in 2012. There's absolutely no evidence in
2 the record that there would be any reasonable expectation of success on that
3 point.

4 I'll also point out, I'll move on to Slide 106, Your Honors very
5 correctly, in the institution decision, found that Petitioner had failed to
6 establish that, back in 2012, cameras could take pictures in one orientation
7 and display them in another.

8 Your Honor specifically stated that there was a lack of proof on this issue.
9 And when considering Dr. Katsaggelos' testimony, that, like Petitioner, Dr.
10 Katsaggelos did not cite any evidence supporting his testimony. If you look
11 at his deposition transcript, I don't have the page number in front of me, he
12 said he took that as an invitation to find -- he took that as an invitation to add
13 new evidence in to the record.

14 On Slide 107, that's exactly what they did. They went out and they
15 found, for the most part, unauthenticated references on the Canon, the
16 Fujifilm. I think it's the Olympus camera. I'll go through them in a moment.
17 The one thing they do cite, they completely misconstrue. It does not show
18 displaying an image in one aspect ratio and taking it in another. I'll walk
19 through that in a moment. But, on this point, we asked -- we deposed their
20 expert. This is at page 47 of his testimony. And we asked them, when you
21 pulled these examples -- just for the record, this is page 47 of Exhibit 2042.
22 I'm reading from line 6.

23 We asked him, are these documents, these cameras that you found, are
24 they emblematic of the state of the art back in 2012? He said, "I cannot
25 define what the state of the art is." We asked him again, because it was kind
26 of an incredible statement to hear an expert say, "That's not something you

1 did as part of your expert analysis? No, it's not a straightforward task to
2 define what the state of the art in a camera, or any product, for that matter.

3 That's his job. That's part of the Graham factors. It's a very basic part
4 of an obviousness analysis. He didn't even define state of the art. He can't
5 define state of the art. Yet he dumped in these cameras in an attempt to
6 buttress his obviousness opinion. So Dr. Katsaggelos, I would suggest --
7 you're going to be hearing me saying this a few times today: Dr. Katsaggelos
8 is not a credible expert witness in this case. There's several instances where
9 he made statements very similar to that.

10 I'll get back to the Canon. Just on one last point on Fleming, I'm on
11 Slide 109. Now, Petitioners cite to Canon for the proposition that if you
12 look at -- it's at page 28. It states, change the aspect ratio. And when you
13 press a button -- and they hinge their entire analysis on this next statement
14 that the screen aspect ratio will be updated. Well, if you look at what Canon
15 actually says, it directs you, go to page 47, and when you go to page 47,
16 these are shooting options. These are options for you to take a picture in
17 various aspect ratios.

18 In that context, it makes very -- it makes sense what they're saying
19 here, that the screen aspect ratio will be updated. That's not changing the
20 aspect ratio of the screen. It's changing the indicator at the bottom of the
21 screen telling you what you're shooting in.

22 I'll also point out, I'm just going to bring up -- I inadvertently had cut
23 off the bottom of this page. This was also in the Petitioner slides. On the
24 same page, if you look at the bottom, the way Canon handles different aspect
25 ratios is it just leaves it up to the user to decide which aspect ratio to shoot it.

1 You'll see, for a 16:9 picture, you that's what you would use to display on an
2 HDTV.

3 You could connect these cameras to a TV. There's a cable where you could
4 do that. When you want to display this on the screen, you use a 4:3. That is
5 the native aspect ratio of the camera screen.

6 So there is no disclosure whatsoever in the Canon documentation.

7 Again, it's improper to begin with. And there's no disclosure in that
8 documentation of displaying a picture at a different aspect ratio.

9 Let me grab that off the screen. That's really all I wanted to say on
10 Fleming. I'm going to jump back to Slide 19, Your Honors. I'm not going to
11 walk through all the points Petitioners raised. I don't have time. I think
12 most of the points are well laid out in the briefs. I do want to focus on
13 Meulen, on Ground 4, points that Your Honors did not have the benefit of
14 pre-institution, and, importantly, were not at issue in the ITC. So, in the
15 ITC, we have a ruling that the ITC Board did not have the benefit of the
16 arguments I'm going to walk through today.

17 Specifically, I'll jump right to it. Go to Slide 20. The notion whether
18 Meulen discloses transforming an input image. Note there is no dispute on
19 Claim 1. No dispute -- just going to bring up my highlighter. No dispute
20 that we apply a transformation to the input image. That input image is
21 obtained from the processor. They don't dispute this. This is not a claim
22 construction issue. This is simply just reading the language of the claim.
23 They did not address this in their petition.

24 So, to your point, Your Honor, earlier, when you asked them if they
25 had addressed that column 12, I'm going to get to that, I'm going to march
26 through that. Yes, they cited to column 12 at page 97 for a completely

1 different purpose, just to establish that Meulen includes processors, not for
2 this notion that the image source is stored in a frame buffer. That's an
3 entirely new argument. They did not address in the petition that the claims
4 required transforming an image that's obtained by the internal camera. It
5 just was not addressed.

6 We have a dispute on Claim 20 -- excuse me, on Claim 6. I think
7 that's laid out in the briefs. Claim 6 requires that the physical processors be
8 included within a camera. I think it's very clear, based on the disclosure of
9 the '413 Patent. And if you look at the structure of Claim 2, it requires one
10 or more physical processors that obtain an image. If you look at the
11 specification, it is very clear that the image they're talking about, it's not
12 receiving it from a wireless transmission or a hard drive. It's receiving it by
13 taking the picture. So there is a dispute on that. I think our point is correct.
14 I'm not going to dive into too much on that because I would like to spend
15 time on Meulen's disclosure, because I think that's really where the issues on
16 this point lie.

17 On Slide 21, just to set the table for this issue, what does Meulen
18 disclose? No dispute on this particular point. Meulen's transformation is
19 applied to what it calls media source content. The question is, where does
20 media source content come from? On Slide 22, we have pointed this out in
21 our briefs, Meulen is consistent: every single time it describes media source
22 content being received by or transmitted to the device. It always says that it
23 is being sent to the device 100. It's always being described as -- I'm sorry,
24 sent to the device 100, that is in that top quote I have on Slide 22. That's in
25 the center quote, it states that it is delivered to the device. The device 100 is
26 not a part of the device. It's not a frame buffer. That device is described in

1 column 2, element -- I think it's element 100, that is a combination handheld
2 computer and mobile telephone or smartphone. It includes a housing, et
3 cetera.

4 So, Meulen expressly and consistently states it's delivered to the
5 wireless device. That is the entirety of the device. This is exactly -- I'm on
6 Slide 24. This is exactly what -- the conclusion Your Honors came to in the
7 institution decision. Your Honors stated that the decision display -- this is at
8 the ID at 10. The display may display media source content received by the
9 wireless device. And you cited the exact same portions. This was in your
10 summary of Meulen. You cited the exact same portions that I just walked
11 through.

12 Now, that's our proof. That is, it's clear and consistent. It's always
13 described as being an external source, never to the contrary. I'll walk
14 through their positions. Now, again, I'll unpack this, because I think Counsel
15 went through this in her presentation, but they raised this again for the first
16 time in reply. This was not in their petition.

17 They argue, if you look at Figure 5, Figure 5 has a frame buffer.
18 Meulen states that the image source content is stored in the frame buffer, but
19 there is no direct key connection from the external communications interface
20 to the frame buffer. Therefore, the information, the images, must have come
21 from the internal camera. That's not what Meulen says. I'll get to that on my
22 next slide. But that makes no sense at all. We're all technical people here.
23 We know what a frame buffer is. Meulen tells us it's a memory. To suggest
24 that you would put an external port, a communications port, directly to
25 memory defies logic. It is not a defensible position. You can't just put an
26 external Wi-Fi connection to memory. You need something like a processor

1 to mediate that, to process it, to understand where in memory to put that
2 information. That's exactly, on its face, what Figure 5 shows.

3 Meulen states this expressly, I'm on Slide 28, in various embodiments.
4 I'm reading from Meulen Exhibit 1007, 13:5 through 17. "In various
5 embodiments, the processor may be arranged to receive information, such as
6 media source content, through a communications interface." That's exactly
7 what happens. That's what you would expect from a technical perspective.
8 You wouldn't expect to connect an external communications port directly to
9 memory. You would expect to see a CPU in between there to arbitrate and
10 process those communications. And that is exactly what Meulen describes.

11 Their expert, Dr. Katsaggelos, did not even consider this portion of the
12 patent. He looked at the picture. That is an indefensible position for a
13 person of ordinary skill in the art to take.

14 Now, I'll move on to Slide 27. Actually, I'll move on to Slide 30. So,
15 that's it for that argument. There is no disclosure. No disclosure that the
16 frame buffer in Meulen receives information from the camera. That's their
17 expert telling you that's what happens. And it's based purely on his
18 misinterpretation of the specification.

19 Their next point, on the Treo, their argument goes like this, that --
20 there's no disclosure in Meulen as to what aspect ratio the camera takes
21 pictures in. None. There's no dispute on that. They didn't say it, but there is
22 no dispute on that point. Meulen just describes the camera in passing.

23 JUDGE KHAN: Counsel, let me just interrupt you there. This is
24 Judge Khan. Is it your position that -- you know, Patent Owners are arguing
25 that there's a camera on this device. Is it your position that images taken
26 from the camera do not end up in this memory 508 and frame buffer 506?

1 MR. GLASS: What I'm --

2 JUDGE KHAN: They certainly don't go through the communication
3 interface. I think I understand that. But are they just not going to this
4 memory/frame buffer?

5 MR. GLASS: I would -- there's no disclosure of that. There's
6 certainly no disclosure. The point is, there's no disclosure of Meulen's
7 piecewise linear transformation being applied to internal images. I'll get to
8 this in a moment. I think there's a real reason for that. If you look at the
9 documentation they provided, the Palm Treo already provides an
10 optimization for internal pictures, and they haven't explained that. I'll get to
11 that in a moment. I could jump to it right now if you'd like.

12 JUDGE KHAN: No, that's okay. I just wanted --

13 MR. GLASS: But that is the point. I don't know, because Meulen
14 doesn't tell you. We only have their expert's say-so on this. He's very
15 clearly not credible on this point. But the point is, there's no disclosure of
16 that transformation being applied to that internal picture.

17 JUDGE KHAN: Okay.

18 MR. GLASS: As I said, I'll jump to -- I'll go to Slide 31. Just, again,
19 to set the table -- my highlighter stopped working, so I'm just going to talk
20 through this. There are two passing references in Meulen to the internal
21 camera. This is at column 2:29 and column 1:6. It just says there's a
22 camera. The wireless device can include a camera. The wireless device can
23 include digital camera. There is no disclosure of the aspect ratios. And this
24 is the critical -- this is what they anchor their motivation to modify on, the
25 fact that there's disparate aspect ratios between the display and the camera.

1 There's no disclosure in Meulen as to what the aspect ratio is of the
2 camera, which is of no surprise, because Meulen doesn't care about the
3 internal camera. When it describes, at the bottom of Slide 31, external
4 sources, the HDTV, the DVD, it gives us significant detail, it tells us it could
5 be 4:3, 16:9, because that's what Meulen is concerned about, these external
6 sources.

7 Now, what do they rely on? They fill this gap. They do not have any
8 evidence. They had zero evidence. I want to stress that: there was zero
9 evidence in the petition that Meulen's camera and display were of disparate
10 aspect ratios. They had no evidence on the point, because Meulen's doesn't
11 tell us.

12 Meulen states, in passing, that its device could be -- the device could
13 be, for example, a Palm Treo. They dump in -- again, I think there's over
14 two dozen exhibits, or a dozen exhibits, on the Palm Treo 600, 650, and the
15 700. We can even -- and there's no discussion, no rationale, no explanation,
16 as to which of these was Meulen describing.

17 Well, you can look right at Figure 1, across the generations of these
18 Treos, they changed the button layout, they made -- we all know that. They
19 changed the how the devices look. The Palm Treo 600 looks nothing like
20 Figure 1. There's a very different button layout. It has a very different D-
21 pad. That is not -- if anything, that's not what's being shown in Meulen.
22 Same thing on the Palm Treo 650. It's a completely different device. They
23 relied heavily on documentation from the 650. It has nothing to do with --
24 whatever Meulen was talking about, it's not the 650.

25 Now, we pointed out in Meulen -- and I'm getting to the point I was
26 just raising earlier, Your Honor -- in Meulen, we point out that, well, Meulen

1 already takes care of pictures. It crops them. This is in page 118 of Exhibit
2 1021. This is exactly what the '413 says is the prior art. This was state of
3 the art back in 2012. So, no mystery that we get cropping and those
4 pillarboxes in the Palm Treo. And, again, this is not in Meulen. This is in
5 the evidence they provided in reply.

6 I'll point out, on Slide 240, unfortunately, I can't highlight it, but I will
7 talk through it. On Slide 240, the Palm Treo of 700 had the ability to play
8 slideshows with internal pictures. And it states at, point four, that during a
9 slideshow, you can optimize for viewing, and you can set whether pictures
10 are optimized for portrait or landscape. So we already have -- and there's a
11 little option you can pick there. It shows a screenshot. This is in their own
12 documentation that they provide.

13 So Meulen -- excuse me, the Treo, for internal pictures, already had an
14 optimization to take care of different aspect ratios of the pictures. We don't
15 know what that is, because they didn't provide information on that. But they
16 certainly didn't explain why one of ordinary skill in the art would have deep-
17 sixed that optimization in favor of Meulen's.

18 I would suggest that the reason that Meulen is unconcerned with
19 internal pictures is because the Treo already takes care of internal pictures.
20 These are very tightly interwoven hardware. It's the picture and the display
21 are made by this -- obviously made by the same manufacturer. So there is
22 already internal software to handle that optimization. They haven't
23 explained that.

24 Now, I'll drop back to Slide 35. Actually, that's really the last one I
25 have on the image processing. On processing on image, I'm going to jump
26 ahead now to Slide 53, image and I'm going to start with non-linear. So just

1 to -- again, just to set the table on this, we have provided -- Fisher [sic –
2 3:17:01] completely misses our position.

3 Our position, I think, it's -- hopefully, it's very clear in the briefs. We
4 are providing a plain and ordinary meaning of the term to one of skill in the
5 art. This is not a patent on, you know, putting gravel on your driveway and
6 determining whether that gravel is non-uniform or not. This is a patent
7 about math. It has math concepts, it has sixth order polynomials.

8 So when you look to try and define a term, you don't go -- and Phillips
9 and his progeny have told us you don't go to an ordinary English definition
10 for a technical term. Their term -- again, their definition, not the same in all
11 areas. That could apply to baking a cake, leveling your driveway. Our
12 definition is an attempt to get the ordinary meaning that complies with the
13 specification and complies with the technology.

14 Now, I'll point out on Slide 54, I think this is, this is instructive.
15 When you look at -- I'll just walk through very briefly Figure 2B. When you
16 look at what the '413 Patent is doing, we start off with an image and the top
17 Image at step 212, I think the patent states that that's a four by three aspect
18 ratio.

19 Step 214, we apply a transformation. It could be linear, it could be
20 non-linear, and that changes the scale of all the pixels. We go from a 4:3 to
21 16:9. Then we go to step 216, and we correct things. This is where Your
22 Honors are familiar with this, I'm sure. We squish the center so we get the
23 original aspect ratio back at the expense of the corners. We introduce that
24 distortion. Everything's connected. So we can't squish the center without
25 the expense of something else. In this case, it's our corners.

1 Now, their position is that, well, since step 214, I think -- I think
2 Counsel said it's -- they're not limiting it to linear, but their position is that
3 step 214 could be linear because we have a linear component to this
4 transformation; therefore, it has to be something other than non-linear. That
5 doesn't track the claims, it doesn't track the spec, but it doesn't make sense
6 from a mathematical perspective.

7 If you think about it, if I have a non-linear equation, I'll give you something
8 simple X-squared. If I just have a linear component to it times two or times
9 n, that doesn't change that non-linear equation into something different. It's
10 still a non-linear equation even though it has a linear aspect to it, a constant
11 to it.

12 That's what they're arguing. They're arguing that, well, since you have
13 something that is linear that potentially could be linear, that transformation,
14 that pixel shifting has to be something other than non-linear. That doesn't
15 make any sense from a math perspective.

16 From the claims -- I'll jump back to Slide 10. From the claims -- let
17 me see if I can get my laser pointer working. From the claims -- and I'm
18 reading from Claim 1. We have applying a transformation, the claims are
19 very specific about this. We start off with applying a transformation to the
20 input image to generate an output image having a different aspect ratio. That
21 tracks to that step 214 I just walked through. We're changing the aspect
22 ratio.

23 Notice what the claim doesn't say. It doesn't say that it's non-uniform.
24 This part of the claim is agnostic as to whether that aspect change, that step
25 214, is linear or non-linear. When we get down to the non-uniform part of it,

1 that's the correction. That's step 216. I believe I may be getting the numbers
2 wrong, but that's the correction. That's non-uniform.

3 So even the claims make a distinction that when you have the
4 transformation, you have an aspect that you're just -- that that could be. It's
5 agnostic as to whether the apply a transformation part of it is linear or non-
6 linear.

7 When you get down to this shifting the pixels, that's where you get non-
8 uniformity. That's where that comes in. And simply because you may have
9 a linear portion to it does not change the fact that that is a non-linear
10 transformation.

11 JUDGE KHAN: Let me ask you this. It's in the '413 Patent. It --
12 clearly, you know, if you go through the specification, it mentions non-linear
13 warping. It uses the phrase "non-linear" several times. Clearly, the claim
14 drafter was aware of that. But they chose to use the phrase non-uniform in
15 the claim. Doesn't that kind of indicate that perhaps the scope of the claim is
16 different than non-linear?

17 MR. GLASS: I would suggest, Your Honor, that the axiom that we
18 read the claims in concert with the specification applies here. I can't speak
19 to what the drafters -- why he chose or she chose a different word. But if
20 you look at the spec each and every time there is and Counsel said that well,
21 in Claim 3 there's a non-linear warping that has to somehow be a claim
22 differentiation. Warping is a type of non-linear transformation, but not all
23 non-linear transformations are warping.

24 So, in terms of the claims, we look at the specification and it is war
25 overwhelming that every time we're talking about either the warping or the

1 correction, it is non-linear. So, I would suggest these are synonymous terms.

2 It does not suggest a greater breadth. It suggests that they're synonymous.

3 And this is what I was just pointing to. I mean, I'm not going to walk
4 through this. Your Honors, obviously, you know this point. Every single
5 time I've just put some portions from the specification, each and every time
6 we talk about warping or we talk about the correction step, that 216 is
7 always described as being non-linear. Slide 57, as well. On Slide 59, this is
8 where it gets interesting.

9 Now, we asked their expert, Dr. Katsaggelos, we asked their expert in
10 his deposition. Now turning back to the non-uniform shifting, we asked him
11 that, in order to accomplish non-uniform shifting, you would need to apply
12 non-uniform transformation. No hesitation. He said, yeah, he agreed with
13 us, and he gave a further explanation: I think Petitioner is trying to argue that
14 the second part of that sentence somehow changes his very affirmative
15 agreeing with our question.

16 I'll get to that in a moment. It doesn't matter, but he very clearly
17 agreed.

18 You can also see to your point, Your Honor, Judge Kahn, that even their own
19 expert -- this is one example on the upper right hand side, transcripts 29 at 9
20 through 17, we asked him a question about non-uniformly, he answered with
21 non-linear. So even in his mind, he's using these terms synonymously. But
22 on Slide 60.

23 Now, Petitioner, we got that testimony, we got that admission from their
24 expert. They supplied a supplemental declaration with their reply where he
25 unequivocally retracted that testimony. That's not what I meant. He didn't

1 mean that. He meant something different. We deposed him again. And this.

2 I urge Your Honors to read this testimony.

3 This is at Exhibit 2042 at 11:22 and on. It is very clean testimony.

4 We asked him a very innocuous question. We were actually just trying to set

5 up a question we're going to ask. And we asked, do you agree that Figure

6 2B is an embodiment of a non-uniform transformation? His answer was, I'm

7 not sure if I know exactly what a non-uniform transformation is.

8 So we've gone from him agreeing with us to him supplying a

9 supplemental declaration saying no, that's not what I meant to announce.

10 Essentially -- not essentially, he's abdicated his role as an expert. Remember

11 when Fleming, he said he couldn't even determine what the state of the art

12 was. That was his words. Now he's saying I don't know what non-uniform

13 is. Other than their dictionary, their entire claim construction position rests

14 on Dr. Katsaggelos, and he doesn't know what non-uniform means. There

15 was no follow up, there was no clarification after that, there was no redirect.

16 They have no explanation for their expert abdicating his role here. So I

17 would suggest that their position based on their dictionary is simply not

18 compelling.

19 I'll point out just a few more points, Your Honors, and just a few more

20 points on this, on Slide 65. Petitioner argued, you heard argument on this in

21 the presentation that, well, the center of when you do this correcting step, the

22 center doesn't change when you do that non-uniform correction. Well, that

23 doesn't matter because that's not what the claims require. The claims require

24 that only a subset of the pixels -- I think I may -- I don't want to put words in

25 Counsel's mouth. I may have written this down wrong. I thought Counsel

26 said that we argue that not all the pixels have to shift. No, that's what the

1 claims say. The claims say, determine a portion within the input image.
2 That portion includes a subset of the pixels, and that you shift the pixels in
3 that subset. So you determine a portion, you shift a portion in that subset,
4 not the entire screen.

5 That wasn't our position and that wasn't something new we came up
6 with in our surreply, and that wasn't something new we came up with in our
7 certification. That's just what the claims require. I'll just one. I actually --
8 I'm just going to make one last point on this, Your Honor, with respect to
9 Yen's disclosure of non-uniform. We came -- I thought we came up with
10 something that was, I think, very analogous.

11 Again, we all have technical backgrounds. I kind of remember
12 calculus, some more than others. But you know, if we want to determine the
13 area under a curve, we take the function that describes that curve and we
14 take the integration of it. That is one way to calculate it. Another way to do
15 it is to put progressively smaller triangles -- excuse me, rectangles
16 underneath the curve, calculate their area, which is linear. It's a very easy
17 calculation to make, and you add them up.

18 That's very simple. The problem with that is that is an approximation
19 of the area under the curve. As you can see in that light blue, you're not
20 going to get all portions of that curve. That is exactly what Meulen is.
21 Meulen, there's no dispute on this point.

22 And I actually -- I want to underscore that. There is no dispute that
23 Meulen is a piecewise linear calculation. It sets up just like these rectangles.
24 It sets up display sections on the screen and performs linear calculations
25 inside those individual sections. But just like this, it's not integration, it's not
26 non-linear. No one would ever call putting rectangles underneath the curve

1 to be an integration. It approximates it. It may even come close if you put a
2 ton of rectangles in there, it may even come pretty close and it may have the
3 effect of a non-linear curve, but it's still not non-linear. It's still not non-
4 linear.

5 JUDGE RANGE: Counsel, this is Judge Range. So I understand you
6 explaining that this calculation's linear, not non-linear. I thought the claim
7 had to do with the movement of the pixels and whether the movement of the
8 pixels was linear or non-linear.

9 MR. GLASS: Well, this tracks exactly with what the claim said. The
10 claims require a transformation, right, and the transformation non-uniformly
11 shifts. So it's the application of a non-uniform transformation. So it's not
12 just looking at -- see, I think, Judge Range, you asked this question. It's not
13 just, we look at the picture and say, oh, that looks non-uniform, this is non-
14 uniform. The claims require that the transformation non-uniform normally
15 shifts. It requires that that transformation itself be non-uniform.

16 JUDGE RANGE: I see.

17 JUDGE KHAN: Yeah.

18 JUDGE RANGE: It was Judge Saindon who raised this issue.

19 JUDGE SAINDON: Right.

20 JUDGE RANGE: So you're saying it's the nature of the calculation
21 can't be a linear calculation?

22 MR. GLASS: Exactly. Did that answer your question? Your Honor?

23 JUDGE RANGE: I understand what you're saying.

24 MR. GLASS: On Slide 68, to the extent there. I don't think there is
25 any issues, any dispute on this. Again, Dr. Katsaggelos agreed with us. I
26 think we were. I don't have the question on the screen. I think we were

1 asking him, would one of ordinary skill in the art, when presented with
2 either a linear or non-linear equation, you go with the linear approach, if you
3 could.

4 And he said, well, from a calculation perspective, a piecewise linear
5 approach is indistinguishable from a linear approach. So again, there's no
6 dispute here that, that Meulen is -- what Meulen is describing is a linear
7 approach. And that's their expert's testimony on that slide.

8 JUDGE KHAN: Counsel, I wonder if you can address one other
9 point, and I'm not sure it's in either party's briefing, but you know, the claim
10 says. I'm not sure it's in either party's briefing, but you know, the claim says
11 -- I'm looking at the last limitation of the claim, essentially, Claim 1 here.
12 The transformation non-uniformly shifts the pixels such that the differences
13 between, you know, the subset of pixels is less than the differences between
14 others of the pixels.

15 In a way, isn't the claim itself defining what it means to non-uniformly
16 shift the pixels?

17 MR. GLASS: I think it's giving -- I wouldn't go so far as to say
18 define. I'm saying it is -- I would agree that it is a required characteristic. I
19 would agree that that non-uniform, non-linear transformation must
20 accomplish what's set forth in that last step.

21 JUDGE KHAN: Okay. And I don't know if you're going to get to
22 this, but just applying that to, to the Meulen reference, the piecewise linear
23 transformation that you were describing, why do, why wouldn't that satisfy
24 that, that requirement in the limitation.

25 MR. GLASS: Well, I think it's really the fact that the transformation
26 itself, it's the preceding -- it's the previous limitation, but that the

1 transformation itself is not non-uniform. It is a linear transformation. It's an
2 entirely different type of transformation.

3 JUDGE KHAN: Okay. So, that additional requirement and that last
4 limitation is not necessarily defining what it means to do a non-linear -- non-
5 uniform transformation. It's just an additional requirement.

6 MR. GLASS: That's -- I -- you said it better than I did. That's --

7 I would agree with that.

8 MR. GLASS: Okay. I'll make one last point, and then I think I'll
9 bank the rest of my time for rebuttal with -- and this all tracks, on Slide 71,
10 with Petitioner's arguments. Well, let's look at Figures 4A through 4C. That
11 looks non-linear. That must be a non-linear transformation.

12 Again, it's not what the claims require. They don't require looking at
13 the picture. And I'll point out, even if you look at the picture, I don't know if
14 this is from the -- since they're looking at the picture, if you zoom in, you see
15 that there's still a lot of jaggies in there. That's from that approximation that
16 you're not going to get that smoothness that you would get from a non-linear
17 equation.

18 I'll also point out to the extent -- I don't know if there's any dispute on
19 this, but this is still piecewise non-linear. It says right on the graph that it
20 has display regions. And if you look at Meulen's disclosure, Meulen states
21 in this embodiment, a panoramic display may be implemented by employing
22 significantly more regions greater than 30.

23 Two points on that. There is no evidence in this record that a screen
24 that is 320:320 pixels could be applied to greater than 30 display regions.
25 There's no evidence, not even Meulen says that. Because if you recall,
26 Figure 1 is described as display and Figure 2 is a panoramic display. So this

1 -- what he's saying here is this is a panoramic display, not the wireless
2 device. So there is no evidence that even if this was relevant, even if this
3 curve was non-linear, which it's not, it's still piecewise linear, there's no
4 evidence that the wireless device -- in the end that they point to the Treo --
5 could support more than 30 display regions in that tiny screen. That's
6 320:320 pixels.

7 JUDGE KHAN: And just for the record, you're on Slide 71?

8 MR. GLASS: That was on Slide 71. Just want to look through my
9 notes to see if there was anything else I wanted to walk through.

10 Your Honors, I will bank the rest of my time for rebuttal unless there's
11 any questions.

12 JUDGE KHAN: None from me.

13 MR. GLASS: Thank you, Your Honors.

14 JUDGE KHAN: Ready whenever you are.

15 MS. NGUYEN: Great. Thank you, Your Honors. So you heard
16 Patent Owner make several arguments today. I'll try to address each one of
17 them in the interest of time. There may be a few that I may end up not
18 addressing, not because we're agreeing, but because of the interest of time.

19 But if I may address Meulen first. So, you heard Patent Owner argue
20 that Meulen's wireless device is not a frame buffer. He was trying to argue
21 that the wireless device is basically separate from this frame buffer. And I
22 just wanted to refer -- Your Honors, that's, that's not true.

23 When he made this argument, he was pointing to Figure 5. And if you
24 take a look at column 10, lines 56 to 60 of Meulen, it states that Figure 5
25 shows the computing system which illustrates wireless device 100. So in
26 other words, Figure 5 of Meulen, which has the frame buffer shows the

1 frame buffer is included within the wireless device. Patent Owner also made
2 this argument about Figure 5 and Meulen's disclosures of a patent
3 application. All of this shows, and I mentioned this earlier in the opening,
4 Your Honors, that it is Meulen's own disclosures that show that its media
5 source content is internal media source content.

6 Keeping with the same theme of the internal media source arguments,
7 the between the parties. Now, Patent Owner keeps focusing on that
8 communications interface 5112. It was the red box that we had highlighted
9 in our slide. First off, a lot of the arguments that Patent Owner's Counsel
10 made today. Those are new arguments that we've heard for the first time
11 today. But Your Honors, I just wanted to note this is Patent Owner trying to
12 create a distraction.

13 The dispute between the parties is not whether Meulen's media source
14 content is an external media source content. The dispute is whether the
15 media source content is an internal media source content. We pointed to the
16 camera application. We pointed to Figure 5. P.O. -- Patent Owner's only
17 rebuttal is with respect to the external media source content, Patent Owner
18 does not talk about how the internal media source content from its built-in
19 camera could be stored in a frame buffer. And from what I understand
20 Patent Owner arguing today, Your Honors, you asked a question about
21 whether that frame buffer stores media content and why there's this
22 processor in between. But Your Honors, it's really hard to believe that you
23 would have a device take pictures with its built-in camera and that you
24 would not store it in memory. That just can't be right, Your Honors.

25 And then with respect to the same question about the frame buffer and
26 whether it stores images, if you take a look at Slide 46 of Petitioner's

1 Demonstratives, Paper 50, the top passage in blue column 1145 46, Exhibit
2 1007 of Meulen, it clearly states that the frame buffer may be arranged to
3 store media source content. So that frame buffer, Meulen literally says it
4 stores a media source.

5 Let me stop there and see if Your Honors have any questions about
6 Meulen. Otherwise, I'd like to quickly talk about the Palm Treo.

7 Turning to Slide 35 of Patent Owner Demonstrative. So Patent Owner
8 alleges that the Palm Treo performs cropping. And in doing this I note that
9 Patent Owner does not point to any evidence that says or suggests that the
10 Palm Treo performs cropping. And there is nothing to also support Patent
11 Owner's arguments that the Palm Treo does not perform aspect ratio
12 conversion. Of course Patent Owner had this opportunity to comb through
13 the evidence and cite where in the documentation it shows that Palm Treo
14 performs cropping or that it does not perform aspect ratio conversion, but it
15 failed to do so.

16 And I just want to note that on one hand it argues that Meulen doesn't
17 use the Palm Treo evidence that Petitioner submitted. But then on the other
18 hand, you heard today it states that the Palm Treo already takes care of
19 internal images, it's incompatible with Meulen, et cetera. These are just --
20 it's just Patent Owner trying to argue that Meulen does not disclose its
21 wireless device being a Palm Treo.

22 But that again, that can't be right. Meulen explicitly states it in column two
23 right around line 12. And Patent Owner, if you take a look at what Meulen
24 says, it says that wireless device is Palm products, such as Palm Treo
25 smartphones. Patent Owner tried to make these arguments that the Palm
26 Treo 600, the 750, 700W, that those are not covered by Meulen. But if

1 Meulen wanted to explicitly carve out those smartphones, Meulen would
2 have said so.

3 Instead, in column 12, Meulen's reference to the Palm Treos. It's
4 actually to Palm Treos -- or the Palm products more generally. And then it
5 names the Palm Treo smartphones more specifically as an example.

6 JUDGE RANGE: Counsel, do all those examples of Palm Treos, do
7 they all pre-exist Meulen?

8 MS. NGUYEN: Yes, they do, Your Honor. And we submitted a
9 declaration to show that they existed at the time of Meulen. And then with
10 respect to the aspect ratio of Meulen, you heard Patent Owner argue there's
11 no disclosure of Meulen disclosing the aspect ratio of its image sensor. But
12 Your Honors, just to give you an example at column 11, lines 56 to 60,
13 Meulen names one example, a 3:2 aspect ratio for the input image and a 1:1
14 aspect ratio for the display.

15 And finally, before I move on to Fleming, I just wanted to note that
16 the same Meulen and Chao reference, the same combination and the same
17 mapping, they were put in front of the ALJ and the ITC. And the ITC found
18 that the '413 patent was invalid based on Meulen and Chao. And I just want
19 to note that at the ITC the standard is much higher.

20 Lastly --

21 JUDGE KHAN: Counsel, have you put those materials from the ITC
22 in the record?

23 MS. NGUYEN: Yes, we have. Yesterday we submitted them. Okay.
24 And I can get you the exhibit number shortly.

25 JUDGE KHAN: We have a general order out that I don't know if you
26 saw it, but issued on September 20th about apprising us of matters such as

1 that within five days. I'm assuming those exhibits, which you submitted,
2 was after the five days -- after the five day period.

3 MS. NGUYEN: The full version was submitted yesterday.

4 JUDGE KHAN: Okay. Can you just.

5 MS. NGUYEN: I will -- I'll check on that, Your Honor, thank you.
6 One other thing I'd like to note is that Petitioner or sorry -- Patent Owner
7 attacked -- Your Honor earlier asking me about where we could find column
8 12 for Meulen. And I referred you to page 97 of the petition. And you heard
9 Patent Owner attack me for citing to column 12 in the petition and said that
10 the citation is complaint six. But one thing I wanted to note, Your Honors, is
11 this. Apply the transformation limitation in the '413 claims, that's supposed
12 to be performed by the processor and Claim 6 is directed to the processor.
13 So it's in our opinion, Your Honors, entirely appropriate and within very
14 relevant to cite Claim 12 within the framework of Claim 6 and its mapping.

15 Now turning to Fleming, Patent Owner got up here and he tried to
16 paint this picture. That Petitioner changed its obviousness argument, Your
17 Honors, it's always been the same obviousness argument. We made that
18 argument in the motion and petition also -- or Patent Owner also mentioned
19 this DVIC processor.

20 Again, that's just an example. This is just an example in response to Patent
21 Owner's arguments that processors at the time could not handle Fleming's or
22 Obara's methods. So this is entirely responsive. And in making these
23 arguments you saw Patent Owner say that, you know, you can't take the
24 entirety of Fleming's processors or the entirety of processors shove them into
25 a cameras because he couldn't do that today. This is creating a bodily
26 incorporation situation, Your Honors, a POSITA and Patent Owner said it

1 himself, a POSITA would not -- that's not what a POSITA would do. And it
2 definitely wouldn't do that now, definitely wouldn't do that in 2013.

3 With respect to Patent Owner's demonstrative Slide 108, Patent
4 Owner argues that the aspect ratio for the Canon manual, Exhibit 1028, page
5 80 that the aspect ratio conversion is all about shooting functions. But if
6 Your Honors get a chance to take a look at that figure or that page, you'll see
7 it actually states that the screen aspect ratio, in other words the aspect ratio
8 of the display, will be updated. So it's not just about what is being shot, it's
9 also about the aspect ratio shown on the display.

10 And then, finally, I'd like to talk about Dr. Katsaggelos, and I'll just
11 give you one example. So Slide 60 of Patent Owner's demonstratives, when
12 Patent Owner pointed to column -- sorry page 11, line 22 to page 12, line 2
13 of Dr. Katsaggelos' testimony, the question there was about and quote non-
14 uniform transformation. That's what Counsel -- that's how Counsel phrased
15 that question.

16 And Your Honors, the reason why Dr. Katsaggelos responded the way he
17 does is not because he knows what he -- sorry -- not because he doesn't
18 know what non-uniform means. We have to take the question in its entirety,
19 Your Honors. The phrase non-uniform transformation that doesn't show up
20 in the claims. So that's why Dr. Katsaggelos responded the way he did
21 because he was thrown off by this new phrase that he did not know what
22 Counsel meant when they said non-uniform transformation. He did not
23 know why Counsel was asking him a question involving a phrase in the
24 claims he was seeking clarification.

25 Okay. Your Honor, so going back to your question about the ITC
26 submission, we referenced the ITC decision in the '413, we actually also

1 submitted an excerpt of the case in the '832, the proceeding that will follow
2 today, in the reply. And then the parties submitted the ITC order in the other
3 proceedings. This was all in response to the September 20th order where we
4 worked with Patent Owner's Counsel to submit it, the commission notice.
5 And then yesterday we submitted the full ID as Exhibit 1042.

6 JUDGE KHAN: Okay, that was in the --

7 In the other proceeding, The '1052 proceeding.

8 MS. NGUYEN: Correct. Unless Your Honors have any questions --
9 sorry, Your Honors, if I may address one other issue.

10 So Your Honors, you'll notice throughout the slides, Patent Owner
11 slides. Maybe I can show --

12 (Off-microphone comments.)

13 MS. NGUYEN: Thank you so much. So taking a look at Slide 60 of
14 Patent Owner's demonstratives, if you could take a look at the left side, the
15 deposition testimony from Dr. Katsaggelos. And you'll see here the question
16 that Patent Owner asked was whether a non-uniform shifting requires non-
17 linear transformation. One thing I'd like to clarify for the record, Your
18 Honors, is that the answer that Dr. Katsaggelos gave for this question and
19 actually throughout the entire deposition, Exhibit 2026, is he had this
20 tendency to answer the questions with a filler word "yeah." And Patent
21 Owner is suggesting that Your Honors parse out this answer and take the
22 "yeah" as the response and ignore everything else. But you'll see here in the
23 response, the answer, Dr. Katsaggelos' actual answer is that the application
24 of a non-uniform transformation results in non- -- and he means
25 “-uniform” shifting of the pixels.

1 So, in other words, and he's explained this in paragraph 8 of his reply
2 declaration. In other words, non-uniform shifting includes non-linear. But
3 it's not limited to non-linear. So, I encourage Your Honors for these
4 mischaracterizations by Patent Owner to really take a look at Dr.
5 Katsaggelos' deposition transcript and understand and not parse out the
6 answers like Patent Owner.

7 MR. GLASS: Thank you. I just have a few points, You Honors.
8 Start where Counsel left off. Go Back to Slide 60. That's all great
9 explanations after the fact of Dr. Katsaggelos' testimony. One thing
10 Petitioner didn't touch was his abdication of his role. Maybe he meant –
11 maybe that's a filler word. They could have corrected that at the deposition.
12 That's why we allow redirect so that we don't come back at the hearing and
13 pontificate as to, well, what did he mean? Those are his words. That's what
14 the record is. That's what we have to deal with. He said, yeah, that's
15 possibly. That might be a filler. That's something Counsel should have
16 fixed at the time.

17 That's point one. Point two, he didn't say -- he didn't use a filler word
18 when he testified that, I'm not sure exactly what non-uniform transformation
19 is.

20 Counsel's after-the-fact explanation is: Well, he was confused because we
21 use different words. The claim talks about a non-uniform transformation.
22 He doesn't know what a non-uniform transformation is. If you look at -- I'll
23 bring up his paragraph 35. This is from his declaration. He used the exact
24 same words in his declaration. Was he confused then, too?

25 He said -- this is also paragraph 95, and paragraph 90 use the exact
26 same phraseology. Dr. Katsaggelos was not confused about what he was

1 saying. The only thing he was confused about was what the term non-
2 uniform means. And that is very, very clear from this record. There's no
3 filler words, there's no yeah, and there was no clarification after this. They
4 had all the time in the world when he was being deposed to fix that. They're
5 asking you to pontificate and figure out, well, that was a mistake. He was
6 unclear. He didn't understand.

7 There was no objection there. Where's the objection that the question
8 was ambiguous? None. There was no errata for that statement. This is a
9 very clear statement that he doesn't know what the term "non-uniform"
10 meant.

11 I'll go back to -- I'll also go back to -- with respect to Figure 5, Your
12 Honors, I'm not arguing that the frame buffer doesn't store media source
13 content. Meulen states that explicitly. That's in the record. That's in the
14 reference. The point is there is no disclosure whatsoever of Meulen
15 applying its transformation to that image that is taken from the camera.

16 The only thing that their experts -- this is at paragraphs 25. The only
17 thing he said -- I don't have -- my highlighter for whatever reason is not
18 working. This is the sum total of his testimony on page 12: because the
19 frame buffer is not directly communicated connected to the communications
20 interface, a POSITA would have understood the frame buffer stores content
21 from other sources. Maybe it does, maybe it doesn't. But that -- first off,
22 that's a nonsensical technical position that because there's not a wire between
23 the external communications with for it and the memory, that that means it
24 has to come from somewhere else.

25 That's his opinion, not mine. The point is, there's no disclosure in
26 Meulen that it, that it applies that transformation to the image taken by the

1 camera. Now, in the absolute epitome of irony, counsel criticized me for -- I
2 combed the references I found, we found that one statement is at page 240 of
3 the Canon reference where it says that the Treo optimizes images for
4 landscape or portrait.

5 We were on surrepy at that point. That's why we asked them. The rules
6 require, not ask, require Petitioners to put this evidence in the record at the
7 petition phase so that we have the opportunity for our experts to consider it,
8 that we have the opportunity to submit rebuttal evidence.

9 Counsel is criticizing us for following the rules when they just
10 completely ignore them. So we did, we walked through them. And that
11 wasn't an argument explaining what optimization is. I have absolutely no
12 idea what optimization is. The point is there is something going on in the
13 Treo. Even if Your Honors allow that in, there is something going on in the
14 Treo that is optimizing that internal picture and they didn't get the evidence.
15 They went out, they boiled the oceans to find whatever they could find on
16 Treos. They didn't get any information on what that optimization is and they
17 didn't even bother to explain it. And they blame me because I didn't come
18 up with additional evidence.

19 Now, one last point. I don't -- just one last point on, again, on Canon.
20 I know I'm jumping around a little bit. I pointed this out in the slides. If you
21 look at the Canon documentation, their interpretation of what's going on here
22 is just absolutely superficial. If you look at what it says, it's changing the
23 aspect ratio. Once the setup is complete, the screen aspect ratio will be
24 updated. It says words on the screen, still image aspect ratio. There's a
25 menu bar on the bottom where 4:3 is highlighted. That is not telling you that
26 the screen aspect ratio is changing. It's telling you, you just chose a different

1 aspect ratio to shoot a picture in and it's going to update that at the bottom of
2 the screen. That's what that is telling you. It's very clear from -- and they're
3 taking a completely superficial, forced interpretation of what this document
4 is saying. And again, submitted with the reply that we had no opportunity to
5 have our experts to analyze this we had no opportunity to submit rebuttal
6 evidence. They waited until reply to sandbag us with this evidence and to
7 complain now that we're not interpreting it. We're interpreting it incorrectly
8 is just hollow.

9 I think, Your Honors, unless there's any questions, I'll just -- I'll end
10 there and bank the remaining part of our time for the other proceedings.

11 JUDGE KHAN: That's fine. No questions.

12 MR. GLASS: Thank you, Your Honors.

13 JUDGE KHAN: Okay. Let's take a five-minute break. Judge
14 Saindon, is that okay with you? Okay, we'll go off the record for five
15 minutes.

16 (Whereupon, the above-entitled matter went off the record and
17 resumed following a brief recess.)

18 MS. LI: Good afternoon, Your Honors. My name is Lily Li, Counsel
19 for Petitioner, and today I'm going to present for the '832 Patent. I'm going
20 to reserve 20 minutes for rebuttal. Slide 2, this is the roadmap I'm going to
21 walk through today. But if Your Honors have any preference on going
22 through any particular modules first, please let me know. Otherwise, I'm
23 happy to go through the modules now. The '832 Patent, just a quick
24 overview. Imagine you are taking a video using a tilted camera. The video
25 will be tilted. So the '832 solves this problem by using a viewing window,
26 which is highlighted in blue in this Figure 5B on Slide 4 and --

1 (Off-microphone comment.)

2 MS. LI: So this view window in blue rotates relative to the camera to
3 compensate the rotation of the camera, and it crops out a horizon leveled
4 visual content from a tilted scene.

5 Now, Your Honor, Slide 6, I want to quickly talk about claim
6 construction. The institution decision construed the claim term "determine"
7 a viewing window for the visual content as a function of progress through
8 the progress length to mean determining a viewing window for different
9 times of the video. Neither party disputes this preliminary construction, and
10 the Board in making this construction, rejected Patent Owner's argument that
11 this limitation somehow is limited to a smooth zoom curve and the Board
12 correctly recognize that this smooth zoom curve is merely an example
13 described in a specification, and it's improper to import non limiting
14 examples or embodiments into the claim limitation.

15 And throughout this proceedings, Patent Owner has attempted
16 repeatedly trying to import non limiting embodiments into the claim
17 language, which I will address later. Slide 9, just a quick overview of the
18 four grounds. Now Slide 90, before I dive into the particular grounds for
19 this proceeding, I do want to highlight ITC invalidity findings that under the
20 clear, convincing evidence, Claims 1, 7, and 8 are anticipated by Thomason.
21 In addition, Claims 3 and 4 are obvious over Thomason and Watanabe, and
22 the Commission also has declined to review the ALJ's initial determination
23 of invalidity.

24 Slide 11, Thomason discloses Horizon Leveling. It is important to
25 note that Thomason discloses a video as including a sequence of items of
26 image data representing sequential frames of the moving image. So in other

1 words, Thomason discloses that a video includes multiple image frames.
2 And on the left hand side of Slide 11, it shows part of the leveling system
3 that uses a rotation sensor 14 to obtain rotation information for respective
4 image frames.

5 Now, Slide 12, Horizon Leveling in Thomason is on a frame by frame
6 basis. Thomason discloses Horizon Leveling for frames based on their
7 corresponding rotation information. And Figure 3 on the right hand side
8 shows an example of leveling a frame. So 3a shows in a perfect world, you
9 have a perfectly leveled image. 3b shows that there's an image taken by a
10 tilted camera so it is not horizon leveled. 3c shows that you're rotating the
11 image to compensate the camera motion based on the corresponding rotation
12 data for that particular frame. And in 3d Thomason determines a viewing
13 window highlighted in blue to crop out horizon-leveled visual content.

14 And how do we get to 3e is you stretch the image in 3d so that the size
15 of the final image frame in 3e is the same size as the original image frame.
16 Slide 13. Wanted to highlight that Patent Owner has made several
17 mischaracterizations of Thomason.

18 First, in order to argue that Thomason somehow is limited to a one
19 time correction as opposed to frame-by-frame Horizon Leveling, Patent
20 Owner equates image data with a video, and we know that is improper
21 because Thomason expressly stated in paragraph 27 that a video includes a
22 sequence of images of -- sorry.

23 A video includes a sequence of items of image data representing
24 sequential frames of images. And Thomason also makes clear in paragraph
25 32 that there is this one-to-one correspondence between the image frame and
26 associated rotation data. Slide 14, GoPro also asserts that Thomason's

1 camera is not intended to be handheld, which is in direct contradiction to the
2 express disclosure of Thomason, which says the camera can be used in a
3 mobile telephone.

4 In addition, GoPro also argues that Thomason only discloses the use
5 of a single accelerometer. Again, we know this is incorrect. Thomason
6 explicitly discloses in paragraphs 15 and 41 that it can include a plurality of
7 accelerometers, and if we look at its own expert testimony, Exhibit 1018 at
8 page 116, its own expert didn't even consider Thomas' display exposure
9 about multiple accelerometers in his declaration.

10 Now, moving on to Pacurariu on Slide 17. Pacurariu also discloses
11 Horizon Leveling of video on a frame by frame basis, and it discloses more
12 specifically how you're going to use the rotation data, how you save the
13 rotation data as metadata so later for easier retrieval to do the Horizon
14 Leveling on a frame by frame basis.

15 Slide 18, Figure 7 shows a flowchart of Pacurariu shows how it does a frame
16 by frame processing until all the frames are done. It goes through this
17 iteration by frame conduct Horizon Leveling until all the frames have been
18 processed. Also, it is important to note that the Patent Owner does not
19 dispute that Pacurariu discloses Horizon Leveling on a frame by frame basis.

20 So now we have Claim 1. We have Thomason on one hand that
21 discloses Horizon Leveling on a frame-by-frame basis, but even if the Board
22 finds that Thomason doesn't disclose -- sorry, even if the Board finds that
23 Thomason doesn't disclose Horizon Leveling on a frame-by-frame basis,
24 Pacurariu discloses Horizon Leveling frame-by-frame. Again, this
25 disclosure by Pacurariu is never disputed by GoPro.

1 Slide 21, it is undisputed that both Thomason and Pacurariu are in the
2 field of Horizon Leveling videos. Patent Owner trying to attack the
3 motivation to combine by again relying on this mischaracterization that
4 Thomason only discloses a single accelerometer and is not capable of
5 generating a rotated image for each video frame.

6 Again, this is in direct contradiction to the express disclosure in
7 Thomason and specifically Thomason discloses multiple accelerometers to
8 allow for image correction in a number of planes. Now moving on to
9 dependent Claim 7 and 17, which recites determination of a size of the
10 viewing window as the function of progress through the progress length.

11 Now, GoPro does not dispute that Thomason determines a size of the
12 viewing window. It argues that, however, Thomason discloses this one time
13 correction and does not determine the size on the frame-by-frame basis. But
14 as we already explained, Thomason performs Horizon Leveling including
15 determining viewing window and its size on a frame-by-frame basis.

16 JUDGE SAINDON: Counsel, if I could jump in here for a second.
17 This is Judge Saindon. I may have missed it, but when you were walking
18 through the rationale there -- but what exactly is missing in Thompson and
19 being added by Pacurariu. What exactly was missing there and what was
20 being added again?

21 MS. LI: Thank you, Your Honor. Our position is Thomason discloses
22 everything. But to the extent that the Board finds that Thomason doesn't
23 disclose its frame-by-frame Horizon Leveling processing, then Pacurariu
24 discloses it and in particular a skill in the art reading both Thomason and
25 Pacurariu will realize, oh, Pacurariu discloses a more specific way of doing
26 Horizon Leveling frame-by-frame in particular is using this metadata to save

1 the rotation data for each frame so that later when you try to do horizontal
2 Horizon Leveling, you can easily retrieve that metadata to retrieve the
3 rotation information to perform Horizon Leveling.

4 So, in sum, Pacurariu discloses a more specific way of how you do
5 Horizon Leveling on a frame-by-frame basis, and by using this metadata.
6 All right, going back to Slide 22, GoPro also argues that the size of the
7 viewing window in Thomason does not change. But Your Honors, I would
8 like to make the record clear. Claim 7 and 17 do not require the size to
9 change, they only require the size of the viewing window to be determining
10 four different times of video based on the Board's preliminary construction
11 in the DI. But regardless, Thomason does disclose that the viewing window
12 size change dynamically from frame to frame.

13 And as Petitioner's expert has explained in his declaration Exhibit
14 1002 at Page 75, a skill in the art would have understood that based on the
15 degree of rotation, more or less of the image would need to be cropped to
16 obtain the viewing window showing horizon-leveled visual content.

17 In other words, a more tilted camera angle may result in a smaller
18 viewing window because there's just less visual content in the image that can
19 be horizon-leveled. And, Your Honors, you'll hear from GoPro, the Patent
20 Owner asserting that Thomason discloses fixed view window size in Figure
21 5. This is showing Exhibit 1004, page 4, but this is just one embodiment.

22 The fact that Thomason discloses an embodiment with a fixed size
23 does not show that it doesn't disclose the embodiment of varying size as
24 shown in Figure 3. Again, going back to the point that even if the Board
25 finds that Thomason -- somehow does not disclose the determining size
26 frame by frame, it is undisputed that Pacurariu discloses frame-by-frame

1 processing. Remember the Figure 7 flowchart in Pacurariu that clearly
2 shows frame-by-frame processing until all the frames are being horizon
3 leveled.

4 Moving on to Slide 24, dependent Claims 8 and 18, which requires the
5 size of the viewing window changes to simulate changes in zoom. As I
6 already gave a quick overview of what Figure 3 shows here, you can see the
7 final horizon level image in Figure 3e is a more smooth -- sorry -- is a more
8 zoomed in version of the input image in 3b.

9 But the Patent Owner attempts to dispute this limitation by arguing
10 that simulate means something more. On Slide 26, Patent Owner attempts to
11 limit simulate to a smoothed zoom curve. It is in its POR at page 33 to 34.
12 But as Your Honors already recognized in your institution decision, the '832
13 Patent discloses simulating different types of zoom. Whether that's constant
14 zoom, that's jittery zoom, that's smooth zoom, there's no limitation requiring
15 the simulate to be performed on any particular zoom, including smooth
16 zoom curve.

17 Slide 27, and this is also one example to showing GoPro's shifting
18 positions, in its surreply, which is Paper 39, it argues that, oh, Patent Owner
19 is not asserting that the claims are limited to a specific smooth zoom curve
20 embodiment. Instead, any one of the various artificial zoom effects
21 described by the patent would satisfy Claim 8. But what does that mean?
22 How does a patent actually use the word "artificial"? Let's go to Slide 28.
23 Well, it turns out the only two places where the patent mentions artificial are
24 both described in connection with Figure 6c, which is an example of a
25 smooth zoom curve.

1 And this is shown in the '832 Patent Exhibit 1001, column 19, line 27
2 to 42. So regardless of how Patent Owner attempts to recast its argument,
3 ultimately it attempts to limit the scope of the claim and particularly the
4 word "simulate" to a non-limiting example, which is improper.

5 Slide 29, let's look at how the '832 Patent describes simulate. So
6 instead of requiring a user to press a button or switch to zoom in or zoom
7 out, the patent describes that the rotation of the image capture device itself
8 may cause -- excuse me. The rotation of the image capture device may
9 cause the zoom level of the image device to be increased based on the tilting
10 or rotation of that device.

11 So in other words, simulate does not require any zoom curve. Let alone the
12 smooth zoom curve as Patent Owner asserts. Slide 30, nor does the extrinsic
13 evidence, the dictionary meaning of simulate, support Patent Owner's
14 position.

15 JUDGE RANGE: This is Judge Range. Going back to, I guess, Slide
16 29, is this essentially Petitioner's view of what simulate means? It'd just be --
17 the image is some image is closer in after the processing. Something along
18 those lines?

19 MS. LI: Yeah, Petitioner's view is the patent does not limit simulate
20 to any particular zoom curve. And based on the description of the
21 specification in a patent, simulate just means instead of you requiring user to
22 do some action basically by rotating the image device itself will cause the
23 zoom in or zoom out effect.

24 JUDGE RANGE: Thank you.

25 JUDGE SAINDON: Counsel, before you move on -- this is Judge
26 Saindon again. So I'm wondering if your position is that Claim 8 simulates

1 changes in zoom just means that whatever you're looking at in the image,
2 maybe that bridge gets bigger or smaller. If that's what simulate changes in
3 zoom means, then what does that add to Claim 7 and what does Claim 7 add
4 to Claim 1? Because they all seem to be talking about similar things but they
5 use different words. So I'm wondering if you could piece that out. What's
6 the difference between all of those?

7 MS. LI: Yes, Your Honor, so let's start with independent Claim 1.
8 Claim 1 recites -- let me make sure I have the claim language. Claim 1
9 requires determining a view window for the visual content as a function of
10 progress through the progress length. And as I previously flagged, the
11 institution decision construes this term to mean determining for different
12 times of the video. There's no mention of the size or simulate in this
13 independent Claim 1.

14 But if we go to Claim 7, which depends from Claim 1, it more
15 specifically recites that wherein the determination of the viewing window
16 further includes determination of a size of the viewing window as the
17 function of progress through the progress length. So again, Claim 7 is a
18 little bit narrower.

19 JUDGE RANGE: This is Judge Range. I don't understand how you
20 can determine a viewing window without determining the size of the
21 viewing window.

22 MS. LI: Correct, there are different aspects of the viewing window.
23 So Claim 1 is broad in that sense. And Claim 7 more specifically pointing
24 out that the determination of the viewing window includes determining a
25 size.

1 JUDGE RANGE: But seems like if you determine the viewing
2 window, it will have a size. I don't understand how can -- how it can be
3 determined and not have a size, I guess.

4 MS. LI: Determination of the viewing window can include, for
5 example, the rotation of the viewing window, the shape of the viewing
6 window.

7 JUDGE RANGE: Okay. So you're saying it's just determining --

8 MS. LI: Some aspects.

9 JUDGE RANGE: Some aspects of the viewing window, not
10 necessarily the size.

11 MS. LI: Correct. But Claim 7, and we can walk to like Claim 10 if
12 helpful because it -- claims determine a location for the viewing window. So
13 the dependent claims basically make some more specific limitation about
14 what aspects you are determining.

15 And okay, going back to Claim 7, it requires determination, including
16 determination of a size of the viewing window. So again, you're just
17 determining the size for different times of the video. And I wanted to flag
18 that for Claim 7. There's no mention of changing the size. You could
19 determine the size for different times of the video, but that does not require
20 you to actually change size.

21 And Claim 8, which depends from Claim 7 explicitly says, well, the
22 size of the viewing window changes and in addition it simulate changes by
23 changing the size as a functional progress through the progress length it
24 simulates changes in zoom.

1 JUDGE RANGE: So in your view of simulating change in zoom,
2 how can Claim -- how could Claim 7 determine different sizes without also
3 be simulating changes in zoom?

4 MS. LI: So you're not -- just to clarify, Claim 7 does not requiring
5 size to change. If you could have the same size, but they're just determined
6 for different times of the video. Claim 8 says, you change the size, and as a
7 result, because you change the size, you simulate the effect in zoom.

8 JUDGE RANGE: Okay. So I understand that sometimes maybe, say,
9 it's Claim 7 could do a determination and it determines it once and says it's,
10 this determines it again and says, well, it's the same thing. See the
11 determination size was the same twice. I get that. It seems like at least
12 sometimes it might do determinations, and it would be different than Claim
13 7 otherwise, what's the point of doing the determination over and over?

14 MS. LI: Your Honor, you could, but I think the point I'm trying to
15 make is that Claim 7 does not -- require the size to change. Yes, you could
16 have the same size. You could have different sizes, but Claim 8 is the one
17 that requires the size to actually change, which results in the simulation in
18 zoom.

19 JUDGE RANGE: Would you say Claim 8 also requires that the size to
20 change not based on user input, but based on orientation of the camera?

21 MS. LI: I would say it encompass that scenario. So, you're not --
22 could you repeat your --

23 JUDGE RANGE: Well, I'm trying to give some meaning to the word
24 simulate. Right? So would you say that "simulating changes." It would not
25 encompass a situation where the size of the window changes based on a user
26 manually changing the zoom.

1 MS. LI: Like pressing a button.

2 JUDGE RANGE: Right, pressing a button.

3 MS. LI: I would say that based on the description of the patent on
4 Slide 29, it does seem to say you don't require the user to press a button
5 because just by rotating the camera itself will change the view window size
6 and cause the simulation effect.

7 JUDGE RANGE: Okay.

8 MS. LI: Yeah.

9 JUDGE RANGE: Thank you.

10 MS. LI: Okay. Slide 31. So even if somehow assuming that the
11 Board finds that similar changes in zoom requires that the change has to be
12 smooth as patent owner says, which we disagree, the secondary reference
13 Pacurariu actually discloses smoothing out the rotation data, which as
14 Petitioner's expert has explained, would result in a smooth zoom effect.

15 Now, Slide 32, let's move on to Claims 10 and 20. This claim
16 limitation, which I included the entire claim language here, requires
17 determination of a location of the viewing window. And what does the
18 location mean? As the claim language makes it clear, the location of the
19 viewing window determines framing of the visual content.

20 So in other words, location here as recited in Claim 10, it's not a point,
21 it's not a X, Y coordinate. In addition, I wanted to just call out this Claim 10
22 that it does not mention the location changes frame by frame. And I know
23 we just walked through Claim 8, which mentions the size change, but here it
24 does not mention that the location of the viewing window has to change.
25 And also it does not include the function progress through the progress
26 length language as we saw in Claim 7.

1 So let's talk about GoPro's argument. They made a bunch of narrow
2 interpretation about determination of a location. First, they say somehow
3 this location refers to X, Y coordinates. And second, they say the center of
4 the viewing window must correspond with the center of the element of
5 interest.

6 And finally, they say the claim requires a process that allows for the
7 location to change. So this is on Slide 34 -- and I'm going to explain why
8 GoPro is wrong. Slide 35, we just walked through the claim language. It
9 says, location determines framing of the visual content.

10 What does the specification say about framing? Here in column 20
11 and 24 of the Patent describes that framing means portion of the visual
12 content or an outline of the viewing window. So, again, this shows that
13 location is not about a point or X, Y coordinate. It is about a portion of the
14 video coordinate. It's about outline of the viewing window. Slide 36, the
15 location of the viewing window also is not limited to content detection or
16 panning. The specification here on Slide 36 merely says some aspects of the
17 viewing window, whether that's location, shape, size or other characteristics
18 may be based on content detection. It never requires anything to require
19 content detection, let alone requiring the location to be based on content
20 detection. And same is true for panning.

21 Slide 37. This is yet another example of GoPro's inconsistent
22 positions. Look at their POR. They argue that the viewing window cannot
23 have the same location throughout the video. A couple months later, in their
24 surreply, they say there might be circumstances where location is determined
25 to be the same across planes. Slide 38, their own expert, Dr. Foroosh

1 conceded that Claim 10 does not require change of location. He says
2 whether the location change or not, it meets Claim 10.

3 Now, going back to the specification of the Patent. Slide 39, all these
4 figures, Figure 5a, 5b, 5c all shows the viewing window are at centered
5 locations. So the patent itself contemplates you could have the same
6 location. You could have the same -- even if you construed the location to
7 the center point, you could have the same center location across different
8 frames.

9 If Your Honors do not have any questions, I can move on to Ground
10 two.

11 All right. So Ground 2, Thomason-Pacurariu, including in combination with
12 Watanabe. Slide 42. Watanabe discloses image motion correction, including
13 image shake correction, in connection with a distorted image. Watanabe
14 also recognized that it is well-known that lens aberration could cause image
15 distortion, which can be barrel distortion or pincushion distortion. And that's
16 something GoPro does not dispute.

17 Slide 44, using this combination, including Watanabe, this ground
18 discloses dependent Claims 3, 4, 5 and 6. I wanted to quickly mention that
19 in its surreply at page 13, GoPro concedes that both Thomason and
20 Pacurariu discloses off-axis horizon, and this is one of the limitations recited
21 in dependent Claims 3.

22 And GoPro's argument is that Thomason and Pacurariu do not
23 disclose distortion. But again, that is disclosed by Watanabe. And GoPro
24 does not really dispute that if a distortion exists, that existence of the
25 distortion would make the off-axis horizon less noticeable.

1 JUDGE SAINDON: Counsel, if I could jump in here. This is Judge
2 Saindon. What is the reason to add Watanabe in the first place?

3 MS. LI: Because the dependent claims -- some dependent claims
4 require some distortion to be present in the visual content. And Watanabe,
5 that reference discloses motion correction in connection with a distorted
6 image. So, the reason of adding Watanabe is to the extent the Board finds
7 that Thomason and Pacurariu do not explicitly disclose processing Horizon
8 Leveling on a distorted image. We combine that with Watanabe.

9 JUDGE SAINDON: So my understanding of Watanabe is it distorts
10 the image from the optics, the glass as it's coming in and then it wants to
11 process it on flat -- a flat grid and then it needs to re-warp it so that it looks
12 like what it originally was. So I'm wondering why would you go through all
13 that bother in the Thomason and Pacurariu combination? Why would you --
14 I don't think Thomason and Pacurariu have a distorted image to start with.
15 Right?

16 MS. LI: Yeah. Your Honor, so -- just to make it clear, even though
17 Thomason and Pacurariu did not explicitly mention the word "distortion." It
18 never excludes Horizon Leveling in connection with a distorted image. In
19 fact, Thomason discloses an amateur camera, and as GoPro's own expert
20 conceded, amateur cameras can include a wide angle lens, and a skilled in
21 the art would understand that a wide angle lens would introduce distortion.

22 So, yes, we may not even necessarily to rely on Watanabe because a
23 skilled in the art reading Thomason and Pacurariu would understand, oh, that
24 Horizon Leveling process can be applied to a wide angle camera, which
25 would have generated a distorted image. But in addition, we're saying that
26 to the extent that combination doesn't explicitly disclose Horizon Leveling

1 on distorted image, then Watanabe makes clear that wide angle lens would
2 introduce distortion. So you can just take Watanabe and processing a
3 distorted image generated by a wide angle lens into the Thomason and
4 Pacurariu system.

5 JUDGE SAINDON: I was just going to ask. You don't need to give it
6 to us now, but maybe later, could you give us where in the petition this
7 rationale we could find.

8 MS. LI: Will do.

9 JUDGE RANGE: I had a slightly different question. What's your
10 evidence or argument that the distortion Watanabe creates, the visual content
11 will reduce impact of the off-axis horizon as Claim 3 recites?

12 MS. LI: Your Honors, so as Petitioner's expert has explained, a
13 skilled in the art would understand that existence of distortion would reduce
14 the impact of axis horizon. And in addition, I wanted to highlight that in the
15 patent itself, it mentions that the existence of distortion would reduce the
16 impact of off horizon access. And I can come back with a citation –

17 JUDGE RANGE: In which patent?

18 MS. LI: In the '832 Patent, the patent itself, mentioned that the mere
19 existence of distortion would reduce off access horizon.

20 JUDGE RANGE: And you're reading that as meaning that any
21 distortion would reduce that impact? It seems to me, like, surely that it has
22 to be a certain kind of distortion.

23 MS. LI: Right, the patent mentions, like, barrel distortion, for
24 example.

25 JUDGE RANGE: Right. But how do I know Watanabe is doing that
26 same kind of distortion that would have that effect?

1 MS. LI: Watanabe also discloses barrel distortion or pincushion
2 distortion.

3 And if I could give you a cite, for example Watanabe Exhibit 1006, column
4 1, lines 13 to 21, it mentions both barrel and pincushion distortions.

5 JUDGE RANGE: And then that's also -- and you're saying that the
6 '832 Penn also refers to barrel distortions as achieving this reducing impact
7 of off-axis horizon?

8 MS. LI: Yes, Your Honor, I believe so. We'll double check and give
9 you the precise citation.

10 JUDGE RANGE: That'd be great. Thanks.

11 MS. LI: Okay, so Slide 47 is just one example because the petition
12 relies on two examples from Watanabe. The first example is just based on
13 Watanabe's recognition that a skilled in the art would know that a wide angle
14 lens will produce a distorted image, including barrel distortion. So, in that
15 sense, a skilled in the art could just take that distorted image, feed into
16 Thomason and Pacurariu's Horizon Leveling system and to do Horizon
17 Leveling.

18 Slide 48, Dr. Foroosh conceded that wide angle lens would introduce
19 distortions, I think I already mentioned. And this first example that
20 Petitioners relies on discloses Claims 3, 4 and 5. Now, I want to talk a little
21 bit about the second example in our petition, which goes back to Watanabe
22 doing motion correction by receiving a distorted image, but before its
23 motion correction it removes the distortion and then conducts distortion --
24 sorry, and then conducts motion correction on the undistorted image and
25 after the motion correction is completed it will add back the distortion so the
26 image looks more natural.

1 Now, Patent Owner tries to argue that no, no, no, no, no, the claims do not
2 accommodate a removal of the original distortion prior to processing step --
3 and this is in their POR, Paper 24.

4 But let's look at what the '832 Patent discloses. Slide 52, this
5 specification contemplates removing existing distortion from the original
6 video content and then applying the desired distortion.

7 So the second example discloses claims, not only 3, 4, 5, but also
8 Claim 6. GoPro, Slide 54, attempts to make this narrow argument that the
9 term visual content refers to the original visual content before Horizon
10 Leveling even happened. And that is just incorrect because -- and we can
11 look at their POR at page 17, which is Paper 24, GoPro argues that Claim 3
12 requires that the original visual content upon which Horizon Leveling is
13 performed contain a distortion and that distortion remain in the horizon level
14 visual content.

15 But -- and then also wanted to flag their inconsistent arguments is that
16 for the first time in their demonstratives they make the argument that Claims
17 3 somehow requires a direct transformation that changes the existing
18 distortion to the desired distortion.

19 And now let's look at Slide 55. The plain claim language shows that
20 visual content cannot only be part of the visual video content but also can be
21 part of the horizon-leveled visual content. Because look at all these claim
22 limitations that says, visual content should be included within horizon level
23 visual content. And as another example the horizon level -- the visual
24 content, including a punch-out of the extent of the visual content. So it uses
25 a word basically saying that the horizon level of the visual content also
26 includes the visual contents.

1 And even if the Board finds that somehow or adopts Patent Owner's
2 interpretation that this distortion in the original visual content has to remain
3 the same in the final horizon level visual content. Watanabe still discloses,
4 Slide 56, Watanabe discloses that the distortion -- excuse me, sorry -- Slide
5 58, Watanabe discloses that the distortion in the horizon level content not
6 exceeding the original distortion. So this means that the distortion can be
7 the same. Finally, I wanted to raise that GoPro's surrely no longer disputes
8 motivation to combine Watanabe with Thomason and Pacurariu.

9 And again, all three references are directed to motion correction. So a
10 skilled in the art would understand that Horizon Leveling entails
11 compensating for the tilt of the video or image. And Watanabe expressly
12 discloses that shake correction can also include the correction of the tilt
13 components of the shake. And this is on Slide 60.

14 For the Ground 3 and 4, unless Your Honors have any questions, I'm
15 happy -- which I'm happy to address, but we'd like to reserve some time for
16 rebuttal and also for the confidential session.

17 JUDGE KHAN: No questions for me.

18 MS. LI: Thank you.

19 MR. SCHMIDT: One moment, please, Your Honors. Your Honors,
20 may I proceed?

21 Good afternoon. My name is Patrick Schmidt, and I'm appearing on
22 behalf of GoPro, and I'll be addressing the Patent Owner's response to the
23 '832 Patent issues. I'm not going to address everything that Ms. Li addressed
24 in her presentation, and maybe not everything even in our papers. I would
25 rest on the briefing for those things. I'm going to try to streamline my
26 presentation to what I think is really important.

1 So I want to jump right to -- sorry. I want to jump right to Ground 1,
2 and specifically Claim 7. So I want to discuss Claim 7, Petitioner's
3 challenge of Claim 7 under Ground 1, which is the Thomason-Pacurariu
4 combination. And before I get started, I think it's important to frame exactly
5 what the Petitioner's theory is with respect to Claim 7.

6 So in the petition, the Petitioner argued that Thomason expressed
7 expressly discloses the additional limitation of Claim 7. The Petitioner
8 didn't argue that this feature would be inherent in Thomason. The Petitioner
9 didn't argue that it would be obvious to a person of ordinary skill in the art to
10 modify Thomason's existing disclosures to arrive at the claim limitation. And
11 the Petitioner didn't rely on Pacurariu for Claim 7 or Claim 8 for that matter,
12 at all. It's not in the petition and it's not in the reply. I'm going to address
13 that a little bit later because we heard an argument today with Petitioner's
14 Slide 23, that the Pacurariu-Thomason combination would render Claim 7
15 and 8 obvious. It's simply not in the petition. And it's not in the reply either.

16 I want to address the discussion about Claim 7 that took place during
17 Petitioner's argument. I thought I heard the statement that Claim 7 and 17
18 did not require the viewing window size to actually change as a function of
19 progress through the progress link. And I think I agree with that. I think my
20 colleague and I are in agreement.

21 The point, however, Your Honors, is that the claim requires a
22 configuration of the system that allows for change of the viewing window
23 size. That's the difference between Claim 7 and Claim 1. Claim 7 --
24 because after all, these are configured to claims, these are processors
25 configured to perform the functionality. Claim 7 requires, the configuration
26 that allows for a change in the viewing window size.

1 Okay. And I thought I heard my colleague on the other side say that
2 Claim 8 then would be actual viewing window size, the actual change of
3 viewing window size and I thought I heard my colleague on the other side
4 say that Claim 8 then would be the actual viewing window size, the actual
5 change of viewing window size, which would simulate the zoom. Your
6 Honors, that can't be the case. That can't be the case because Claim 8 is still
7 a configure 2 claim. Claim 8 is requiring a configuration that allows for a
8 simulated zoom.

9 There has to be a difference between Claim 7 and 8 under the doctrine
10 of claim differentiation. There's a distinction between those two claims, yet
11 Petitioner has not articulated any persuasive distinction between them. And
12 I'm going to get to those issues a little bit later in my presentation. But I
13 want to start with Petitioner's argument for Claim 7 in the petition. And I've
14 excerpted these pages.

15 This is Slide 33. I've excerpted pages 37 through 38 of the petition. And our
16 point, Your Honors, is when the Petitioner focuses on a configuration that
17 allows the viewing window to change as a function of progress through the
18 progress link, they point entirely to Figure 3 of Thomason. Figure 3 of
19 Thomason simply does not show anything more than a one-time correction
20 to a frame.

21 It doesn't show it. It doesn't describe it. Much less does it describe
22 any sort of capability or configuration to allow for the viewing window to
23 change. It's simply not there. And if you look at the argument they made in
24 the petition, if you go to the heart of their analysis, which I've highlighted
25 here, they write: in Thomason, the size of the viewing window may be
26 dependent on the rotational position of the camera. A more tilted camera

1 angle may result in a smaller viewing window because there is less visual
2 content in the image than maybe horizon level.

3 They cite to nothing from the reference itself. They cite to nothing
4 more than their expert declaration at paragraphs 120 through 122. And if we
5 go to the expert declaration, this is Slide 34 and I'm pulling out paragraph
6 121 of Dr. Katsaggelos' declaration, he writes: in the first sentence for each
7 image in the video - we're referring to Thomason - the size of the viewing
8 window is determined based on the corresponding rotational position of the
9 camera.

10 He cites nothing, nothing from Thomason. Neither the Petitioner nor
11 its expert has cited anything from the reference that supports the idea that
12 Thomason does anything more than a one-time correction to a frame. And
13 they've cited nothing for the notion that Thomason teaches that the viewing
14 window size may change from frame to frame, or that it may change even at
15 all.

16 And if we turn to Thomason Figure 3, that Figure 3 is describing from
17 the reference itself; that Figure 3 describes a correction to a single frame.
18 And Your Honors, I'm not even sure that that point is disputed anymore
19 because I thought I heard in Petitioner's argument that this is an example of a
20 correction to a single frame. And if that's Petitioner's point, we are in
21 vehement agreement with that that Figure 3 is disclosing an example of a
22 single correction to a single frame.

23 The point, Your Honors, is that there's no disclosure of anything other than
24 that there's no disclosure of a correction to multiple frames in the video.

25 There's no disclosure of a change in the viewing window size.

1 JUDGE RANGE: So what about -- I guess, they cite paragraph -- at
2 least in their demonstratives, they cite paragraph 27 of Thomason.

3 MR. SCHMIDT: Sorry, Your Honor?

4 JUDGE RANGE: So this is Slide 11 of their demonstratives, but also
5 paragraph 27 of Thomason, where Thomason says the camera may record
6 either still images or moving images in the later case by capturing a
7 sequence of Items in image data 8 representing sequential frames of the
8 moving image. So it seems like Thomason is teaching capturing sequential
9 frames. And then at least arguably Figure 3, as you say, is teaching how to
10 deal with a frame.

11 MR. SCHMIDT: Right, Your Honor. There's no question that
12 Thomason discloses an embodiment where videos can be captured. But
13 none of that is inconsistent with a one-time correction. So what our expert
14 opined on in his declaration was the best way to interpret the embodiment in
15 Thomason, the video embodiment, and reconcile that with Figure 3 is that
16 what Thomason is teaching is a one-time correction to a video.

17 In other words, if you set up a fixed video, and it's like if you set up
18 the camera in a fixed orientation and it's slightly misaligned, that single
19 accelerometer in Thomason may take a one-time tilt reading. And then that
20 correct -- that one time correction factor is applied to all the subsequent
21 frames of the video. That's the way that Thomason should be interpreted.
22 And there's no other disclosure in Thomason that would support that this tilt
23 angle is continuously being updated frame-by-frame in order to apply a new
24 correction to each frame.

25 And Your Honors, that interpretation of Thomason -- let me just skip ahead
26 here. That support supported by the configuration of Thomason itself. So if

1 you look at paragraph 29 of Thomason, the disclosure of the rotation sensor
2 that has to do with this frame correction is described as an accurate
3 accelerometer, a single accelerometer. And our expert said in paragraph and
4 by the way, Your Honors, I'm on Slide 39, and I just referred to paragraph 29
5 of Thomason.

6 In our expert's declaration at paragraph 89, Exhibit 2, Dr. Foroosh
7 opined that a single accelerometer is not suitable for capturing rotational
8 information and determining viewing windows for multiple frames in a
9 video. And we asked Dr. Katsaggelos the same question at his deposition,
10 whether or not a single accelerometer would be suitable for doing this sort of
11 frame by frame correction. And his answer was that he didn't consider this
12 question in his analysis.

13 Now, they criticize us because on reply for the first time in response to
14 this they cited a new argument. And what I've done here on Slide 41 is I've
15 excerpted their argument in the petition where they identify a rotation sensor
16 14 and they cite to paragraph 29 which I pointed you to before. This is the
17 petition and below the line is their new argument in the reply. And now
18 they're pointing to a new embodiment in Thomason, they're pointing to
19 paragraph 41 that refers to a plurality of sensors that are capable of doing
20 image correction in a number of planes.

21 This is a new argument that shouldn't be given any weight. We didn't
22 have a chance to respond. But in any event, if you read further in the
23 embodiment, the embodiment they're pointing to doesn't even have to do
24 with Figure 3 or an orientation correction. It has to do with creating a
25 panoramic image, in other words, stitching together different images. That's
26 the example that this plurality of sensors embodiment is directed to. And in

1 any event, Your Honors, they haven't provided any motivation to combine
2 the plurality of sensors embodiment with the other embodiment in the patent
3 that has to do with Figure 3. And they're criticizing our expert for not
4 considering this plurality of sensors embodiment. He didn't have a chance to
5 address this embodiment because they didn't raise the argument until reply.

6 In case it's still in dispute, Your Honor, on Slide 36, I'm just pointing
7 out that we asked Petitioners expert about Figure 3B and its accompanying
8 disclosure and what it was disclosing. And he confirmed in this extended
9 answer that what's being shown in Figure 3, the various instantiations of
10 Figure 3. is a correction to one frame of a video. That's all that is expressly
11 disclosed in Thomason. Now, what Petitioner is really doing in their theory
12 in the petition is that they're extrapolating from the actual disclosures in
13 Figure 3 and they're surmising that because Thomason teaches a video, then
14 there must be the capability to correct the frames of every single frame in
15 that sequence of videos. But that's simply not disclosed by Thomason and
16 it's not necessarily required because of the one-time measurement and
17 correction across all subsequent frames of the video possibility that I
18 mentioned before, which our expert says is the best reading for the
19 reference.

20 JUDGE RANGE: I have the impression the ITC looked at Thomason
21 the way that Petitioner's arguing. Do you have comments on where the ITC
22 got it wrong?

23 MR. SCHMIDT: I do, Your Honor. So in the ITC, the Petitioner
24 made a very similar argument with a different expert. They pointed to
25 Figure 3, and again they relied entirely on their expert, Mr. Gooden in that
26 case, his say-so, that based on Figure 3 and the disclosure of a video, a

1 person of ordinary skill in the art would understand a correction to multiple
2 frames. And the ITC accepted that argument. But as I mentioned before,
3 there's a new fact in this proceeding. We asked Dr. Katsaggelos to confirm
4 that Figure 3B is only disclosing a correction to a single frame. This is
5 testimony that the ITC did not have available to them. And this panel now
6 has the benefit of the Petitioner's concession in their argument and their
7 expert's admission that what is actually disclosed in Thomason is only
8 correction to the single frame.

9 I want to move now to Claim 8 of Ground 1. And I alluded to this
10 before. Claim 8 is adding to Claim 7. It's dependent on Claim 7, and it's
11 adding the requirement that the system be configured to simulate a zoom.
12 And under the doctrine of claim differentiation, we must presume that Claim
13 8 has a narrower scope, that Claim 8 is adding something to Claim 7. It can't
14 be just that Claim 8 requires actual change to the viewing window, whereas
15 Claim 7 requires configuration to change. Because ultimately they're both
16 dependent on Claim 1. They're both configuration claims. There must be
17 some difference that explains Claim 8.

18 I'm sorry, Your Honor. Got lost my deck.

19 Petitioner pointed to this portion of their -- I'm on Slide 51. Petitioner
20 pointed to this portion of their Expert Declaration, paragraph 24, where they
21 cite to the dictionary definition of simulate. And they made the point that
22 simulate means to make something seem -- I'm paraphrasing. Make
23 something seem real that's not real. And we don't disagree with that.

24 That's actually a pretty good understanding of what the word simulate
25 might mean in this context. Where the disagreement, I think, is where is
26 how that gets actually applied in the context of the patent disclosures in the

1 claim. Now, the Petitioner argued that in this context, simulate means
2 creating a zooming effect without user interface controls like dials or
3 switches. But that can't be the case because that wouldn't give us any
4 distinction over Claim 7. That would collapse the scope of Claim 8 into
5 Claim 7, because in that case, the simulated zoom under Petitioner's view
6 would be the effect of the capability to change the viewing window size
7 itself.

8 So what does simulate mean? What we pointed you to in the Patent
9 Owner response, Your Honors, is this part portion of the patent specification.
10 I'm on Slide 47, and we cited to column 19, lines 27 through 42. And to
11 understand this, we need to start with Figure 6A. So what the patent
12 describes is in a baseline case, the viewing window will be sized to the
13 maximum size that the dimension will allow based on the orientation of the
14 device. That's shown in Figure 6A. In other words, you're maximizing the
15 field of view as the device rotates, and that results in the jittery, pronounced
16 zoom curve that's shown in 6A. It could be disorienting, it could be
17 distracting to the users.

18 So the patent goes on and teaches other embodiments in order to
19 address this problem. This is a problem that the inventors discovered when
20 they sought out changing the viewing window size. And this is the solution
21 to the problem. The patent came up with the idea of changing the viewing
22 window size for reasons other than accommodating the dimension of the
23 device based on the rotation. And that additional change in viewing window
24 size other than what is required by the rotation of the device, that is a
25 simulated zoom. It's a changing of the viewing window size for reasons

1 other than what the rotation of the device would otherwise imply. And one
2 embodiment of that is Figure 6B, which is a constant zoom embodiment.

3 This is described in the patent as the minimum of all maximum
4 viewing window sizes. So in other words, if you have a capture duration
5 and you take into account the maximum viewing window size in that
6 duration, you take the smallest one in that entire set, and you don't get any
7 zoom at all. It's a constant zoom. That would be a simulated zoom because
8 you're changing the viewing window size for reasons other than what the
9 device would otherwise require.

10 Figure 6c is another example. In Figure 6c, the viewing window may
11 be artificially made smaller or larger, e.g., artificially zoom in and zoom out
12 during moments that do not require the change in viewing window size to
13 ramp up and or ramp down to needed viewing window size. And there was
14 the argument by the Petitioner that we're trying to limit the claim, Claim 8,
15 to this embodiment. That's not true, Your Honor, if you go on to read the
16 specification in column 19, column 19 flowing over into column 20 -- I don't
17 have a slide for it. But it goes on to describe multiple different zoom styles
18 and curves that could be possible.

19 So the patent itself recognizes that besides these three zoom curves,
20 there are other zoom curves also, and any of those zoom curves that are
21 changing the viewing window size for reasons unrelated to what is required
22 based on the dimension of the device is going to be a simulated zoom.
23 That's what Claim 8 requires.

24 JUDGE RANGE: Did the ITC address this combination against
25 Claim 8?

1 MR. SCHMIDT: They did, Your Honor, and the ITC found that just
2 the change in the viewing window size as a result of the rotation of the
3 device satisfied Claim 8, and we disagree with that.

4 Petitioner pointed you to this passage in the patent. This passage in
5 the patent actually supports our interpretation, I believe, and the reason why
6 is because in the first clause with this -- and I'm on Slide 48, pointing to
7 column 19, lines 12 through 15 of the '832 Patent. In the first clause of this
8 passage, the patent is contrasting between two different scenarios. One is
9 simulating a constant zoom, that's the Figure 6B embodiment; and two is a
10 zoom with pronounced rapid or jittery changes, that's the 6A embodiment.
11 And notice the first one is prefaced with simulating and the second one is
12 not. So 6B is a simulated zoom. 6A is not, and then -- and then the passage
13 goes on to contrast both of those with another approach where the smoothing
14 of the changes in the maximum sizes may simulate smooth, gradual changes
15 in zoom. That's the Figure 6C embodiment.

16 So, what this passage is describing is three possible approaches to two
17 of which is a simulated zoom, Figure 6B and 6C, and one of which is not,
18 Figure 6A. And that is the only reasonable explanation for Claim 8 for
19 Claim 8's dependency on Claim 7, Your Honors.

20 Turning to Thomason and Petitioner's argument for why Thomason
21 discloses a simulated zoom. In the petition, the Petitioner pointed to Figure
22 3D of Thomason. I'm on Slide 52, and I've pulled out page 39 of the
23 petition. But this clearly can't be right because what Figure 3D is showing is
24 a zoom effect as a result of a single correction to a single frame. That
25 doesn't satisfy Claim 8 because there's no consideration of how that viewing

1 window size might change in order to accomplish a controlled or simulated
2 zoom effect.

3 In the reply, the Petitioner changed their theory. I'm on Slide 53 and
4 I'm pulling out page 13 of the reply brief. In their reply, the Petitioner
5 acknowledged that Claim 8 should have a different scope than Claim 7 and it
6 should be mapped differently. And now they pointed to Figure 3E for Claim
7 8. The problem with Figure 3 is that's not showing a zoom at all.

8 So if you consider the progression from Figure 3D to 3E, all that's
9 happened between those two images is a scaling up of the image that's
10 already been zoomed in. Figure 3E isn't showing anything other than what
11 already happened in 3D. So I think it's really illustrative, the fact that the
12 Petitioner is struggling to -- first of all, that they're admitting that Claim 8
13 has to have a different mapping than Claim 7;
14 and second of all, that they're struggling, struggling to map it in a different
15 way between the petition and the reply is really telling as to the deficiency in
16 Thomason.

17 Petitioner pointed you to this paragraph, paragraph 66 in Pacurariu.
18 First of all, Pacurariu was not cited against Claim 7 or Claim 8 in the
19 petition. So this is a new argument on reply, so it should be disregarded at
20 the outset. But even if it is considered, it fails on its merits. The reason
21 being that in paragraph 66 of Pacurariu Exhibit 1005 at paragraph 66, what's
22 being described is the tilt angle data may be filtered or smoothed.

23 So this isn't a smoothing of the visual zoom effect that the user's going
24 to see. This is a filtering of data in order to reduce noise or eliminate error.
25 That's something completely different. And when I deposed Dr.
26 Katsaggelos, I pointed him to this paragraph and I asked him, hey, can you

1 think of any reasons why a person of ordinary skill in the art would want to
2 filter data like what's being described in paragraph 66? And he said: I don't
3 see a reason why this data may be filtered or smooth. Just -- yeah, I want to
4 have a smoother signal. That's all.

5 He didn't say anything about achieving a visual zoom effect or a
6 controlled zoom effect or simulated zoom effect. And Your Honors, this is
7 Slide 55. I'm citing to the Deposition Exhibit 2041 at page 96-8 through 96-
8 18.

9 Unless Your Honors have any question on Thomas, and I'm just going
10 to move to the Voss grounds.

11 JUDGE SAINDON: Counsel, real quick. Before we move on, this is
12 Judge Saindon. Let's go back to your '832 Patent, column 19, where we
13 were talking about zoom. The last sentence of the column -- or of the
14 paragraph that's bridging from column 18, the "rather than simulating a
15 constant zoom or a zoom with pronounced jittery changes, the smoothing of
16 the changes in the maximum size may simulate smooth/gradual changes in
17 zoom.

18 So my question is, you were talking about this before, and I
19 want to make sure I heard you correctly, rather than simulating a constant
20 zoom or a zoom with jittery changes, we may simulate smooth or gradual
21 changes in zoom. So are you saying that in here the only thing that is
22 simulated is the smooth, the third thing, or are we actually talking about all
23 three things being simulated? You simulate a constant zoom. We don't want
24 to do that, or you could simulate a zoom with a bunch of jittery changes. We
25 don't want that either. Instead, what we want is smoothing of the changes

1 that may simulate smooth change in zoom. Anyway, could you speak to that
2 a little bit more, please?

3 MR. SCHMIDT: Yes, Your Honor, my interpretation, which I think is
4 the best interpretation, is that the first and the third are simulated zooms, and
5 the second is not for the simple fact that simulated appears in front of the
6 first and it appears in front of the third, and it doesn't appear in front of the
7 second. So when the writers of this patent wanted to refer to a simulated
8 zoom, they said simulated zoom. And when they said zoom without the
9 simulated modifier, they didn't intend to refer to a simulated zoom.

10 Now, I'll admit to Your Honors that the passage is not the model of
11 clarity. What I would say, at least, though, is this is not clear enough in the
12 specification to overcome the presumption of claim differentiation at a
13 minimum. I think the best reading supports our interpretation of Claim 8.
14 But at a minimum, the doctrine of claim differentiation controls.

15 JUDGE SAINDON: I suppose my question is: If we can simulate a
16 constant zoom or we can simulate a smooth zoom, both of them are
17 simulated zooms. A constant zoom doesn't change anything, does -- are you
18 telling me that Claim 8 is requiring the third option there -- the smooth zoom
19 as opposed to the constant zoom?

20 MR. SCHMIDT: I would say that Claim 8 could be satisfied by the
21 constant zoom, Your Honor, with the following caveat. So long as the
22 viewing window size is being determined as a function of progress through
23 the progress length, and the viewing window size is being changed during
24 the progress length to offset changes in the change that would be required
25 from the rotation of the device, so long as that sort of computation is being
26 carried out, the fact that the user sees a constant zoom doesn't change the

1 fact that it's still a simulated zoom. It's just that the simulated zoom is
2 undone, the zoom that was required as a result of the device rotation.

3 JUDGE SAINDON: So a constant zoom is, we'll say 2x, I don't
4 know, some value of how much the image is being magnified. And a
5 constant zoom means that is not changing. Is that correct?

6 MR. SCHMIDT: Well, Your Honor, it depends on how it's
7 implemented. So in the implementation in Figure 6B, what's going on is as
8 the device rotates, there's a determination of the viewing window size to
9 accommodate that rotation. Then there's a further determination of what
10 additional zoom you need to offset that change in size in order to maintain
11 the zoom constant. If that's the implementation that results in the constant
12 zoom, then that would satisfy Claim 8.

13 Now, if you just applied a two times zoom to a video right at the front
14 and just apply that to every frame, that wouldn't be. It would look the same
15 visually to the user, but it wouldn't be an implementation that would satisfy
16 these configurative claims.

17 JUDGE SAINDON: So if we had a image and then we tilt and to the
18 user's perspective, the, you know, maybe there's a size of something, a
19 window. That window doesn't get smaller or bigger, but the rest of the
20 screen fades in or out as we're losing the field of view because of the tilt, and
21 we're correcting for that, that's the simulated constant zoom? Am I
22 understanding that correctly?

23 MR. SCHMIDT: So if you've sized -- if you've determined what
24 viewing window would be the maximum viewing window to accommodate
25 that rotation, and then you've further taken the step of reducing the viewing

1 window size in an offsetting amount in order to keep the viewing window
2 the same size. Then I would say that you're simulating a zoom.

3 You're determining the viewing window size to satisfy Claim 7, and
4 then you're applying an offsetting viewing window size adjustment to
5 simulate a zoom. And I could give you a concrete example of what a
6 different implementation would look like.

7 It's Pacurariu in paragraph 42 and 44. Pacurariu teaches at the very
8 beginning of the video, it intentionally undersizes the viewing window in
9 order to accommodate all possible rotations. That's not a determination of a
10 viewing window at all.

11 That's just the conventional state of the art. That's wasting field of
12 view by just applying a minimum size viewing window. So you don't even
13 have to worry about the issue. That's what we see in Thomason, that's what
14 we see in Pacurariu. But what this patent is directed to is an appropriate
15 approach that dynamically changes. It changes has the capability and
16 configuration to change the viewing window size frame to frame, and then
17 further has the capability of adjusting that viewing window size to simulate a
18 desired zoom effect.

19 And if the desired zoom effect is a constant zoom, then it may look
20 visually the same to the user. But the implementation counts for these types
21 of claims. JUDGE SAINDON: Okay, thank you.

22 MR. SCHMIDT: Okay. So I'm going to move on to Ground 3, which
23 is the Voss-Derbanne claim and the Petitioner's theory for the Voss ground
24 fails at Claim 1. And in order to understand why that is, we need to
25 understand some of the requirements of the viewing window that Claim 1
26 lays out.

1 So Claim 1 lays out three very require three very important
2 requirements of the viewing window. Number 1, the viewing window must
3 define extents of the visual content to be included within horizon level visual
4 content. That's claim limitation 1[d][ii]. Number 2, the horizon level visual
5 content including a punch-out of the extent of the visual content defined by
6 the viewing window. Whatever is punched out must include the visual
7 content that was defined by the viewing window. That's claim limitation
8 1[e][i]. and then finally, I don't have it underlined, but inclusion of the
9 extents of the visual content defined by the viewing window within the
10 horizon-leveled visual content effectuates Horizon Leveling of the visual
11 content.

12 So what Claim 1 is doing is, it's tying the definition of the viewing
13 window and what the viewing window encloses inextricably to the very
14 approach of horizon level. So this is fundamental to the way that the patent
15 actually achieves its result. And there's really no dispute in this case that this
16 is what Claim 1 requires. We ought -- I'm on Slide 62.

17 We asked Dr. Katsaggelos, you know, isn't it true that whatever
18 appears within the viewing window at a particular moment in time has to be
19 horizon-leveled, right? And he agreed with that notion.

20 JUDGE RANGE: This is Judge Range. Can you back up to Slide 62
21 for a little bit.

22 MR. SCHMIDT: Yes, Your Honor.

23 JUDGE RANGE: So, I've had a little bit of trouble understanding.
24 Like what does it mean for the viewing window to define the extents of the
25 visual content to be included? Does that just mean that -- I guess we're
26 talking -- I don't remember if it was you or the other Counsel. I was talking

1 about what it means to define the viewing window. I think they were saying
2 it just means to define some characteristic of it. It sounds like this is further
3 saying one characteristic that needs to be defined is to what extent it's
4 included in the visual content.

5 MR. SCHMIDT: Yes, Your Honor, so the viewing window can have
6 multiple characteristics. I think the patent describes shape, size, rotation,
7 placement, and these are all addressed by various dependent claims. But
8 what Claim 1 is referring to here is based on those characteristics of the
9 viewing window, it needs to enclose a portion of the visual content, the
10 original image content that is going to be horizon-leveled.

11 JUDGE RANGE: How is that different than size?

12 MR. SCHMIDT: Because, Your Honor, there are prior art
13 implementations where what's included in the purported viewing window is
14 not included in the horizon-leveled visual content at all. So simply having a
15 rectangle and sampling a rectangle and Horizon Leveling a portion of that
16 doesn't satisfy the claim. The claim is directed to a Horizon Leveling
17 approach that is based on Horizon Leveling everything that is bounded by
18 that viewing window. And that's what we're going to get into with Voss.
19 That's exactly how Voss operates. It doesn't horizon level everything within
20 the extents of the viewing window. It doesn't include it all in order to
21 effectuate Horizon Leveling.

22 I covered this slide. Petitioner's expert agreed with our interpretation
23 of the claim. Turning to Voss itself, it's important to understand at the outset
24 that Voss is directed to a fundamentally different goal than the '832 Patent.

25 What Voss is really primarily concerned with is shooting a video with
26 a phone camera and the problem of potentially switching between different

1 orientations between portrait and landscape. And the goal of Voss, if you
2 read the reference closely, is to create an output video that's not only
3 horizon-leveled, but also reflects the potential switch between aspect ratios
4 that happen when the phone is shifted from a horizontal to a portrait
5 configuration. And in order to accomplish this, Voss adds an additional step.

6 Voss takes whatever's enclosed in its sampling rectangle or in a
7 rectangle, and it projects it into a completely separate rectangle that it calls
8 an output rectangle, which potentially has an arbitrary aspect ratio and an
9 arbitrary shape. And it crops data as necessary based on the device rotation.
10 And because of that fundamental difference in Voss and what Voss is looking
11 to do, it doesn't have a viewing window that define the extents of the visual
12 content to be horizon leveled in a way that's required by the claim.

13 JUDGE RANGE: Sorry to harp on this. Go back to Claim 1 again.
14 So –

15 MR. SCHMIDT: Let me see if I can find Claim 1.

16 JUDGE RANGE: Yeah. Okay, so claim -- there's one of the
17 dependent claims required the size. Okay. So Claim 7 determines the size,
18 right?

19 MR. SCHMIDT: That's right, Your Honor.

20 JUDGE RANGE: So in Claim 1 says the viewing windows defining
21 the extents of the visual content to be included. Like, I guess I don't
22 understand why, like, once you -- once the viewing window defines the
23 extents of the visual content to be included within horizon-leveled visual
24 content as in Claim 1. I don't understand why that wouldn't already define a
25 size.

1 MR. SCHMIDT: It defines a size. The point of Claim 7, Your Honor,
2 is that there needs to be a further determination of the size as a function of
3 progress through the progress length. And let me pause there. I know you
4 have something else to say.

5 JUDGE RANGE: But the defining of the extents to be included is
6 also as a function of progress through the progress length in Claim 1.

7 MR. SCHMIDT: You're referring to --

8 JUDGE RANGE: Yeah, if you go back to Claim 1 when it says the
9 viewing window defining extents of the visual content to be included.

10 MR. SCHMIDT: Right, Your Honor, but Claim 1 can be satisfied by
11 an implementation where the system is only configured to define the extents
12 one time and maintain those same extents throughout a video.

13 JUDGE RANGE: But it says as a function of progress through the
14 progress length in lines 50 to 51 column 28.

15 MR. SCHMIDT: But it could be -- the function of progress through
16 progress length could be satisfied by determining other aspects of the
17 viewing window. So if you have a viewing window that's defined in a
18 certain fixed extents, and then that viewing window rotates as a function of
19 progress through progress length, you're still determining and defining
20 different extents, but you haven't changed the size of the viewing window.

21 JUDGE RANGE: Okay. So some other aspect of the extents could
22 change rather than size in theory, like the rotation.

23 MR. SCHMIDT: Rotation. That's -- that's

24 JUDGE RANGE: That would be it.

25 MR. SCHMIDT: Claim 9.

26 JUDGE RANGE: Okay, got it. That makes sense. Thank you.

1 MR. SCHMIDT: Okay. Just turning quickly to Voss because I'm
2 getting short on time. For the viewing window, the Petitioner is relying on
3 this blue inner rectangle, 225. It's called the inner rectangle, inset rectangle,
4 inscribed rectangle uses various terminology.

5 The point however is that what is enclosed in this inner rectangle is
6 not the visual content that's included within the horizon-leveled visual
7 content. As I mentioned before, Voss teaches that the contents of that blue
8 rectangle are sampled and then its contents are transformed into an optimal
9 output dimension. And the way that Voss describes this happening is that the
10 contents of the inner rectangle are projected into a separate output rectangle
11 which is showing here in 250 or 260 has a completely different and arbitrary
12 set of dimensions and aspect ratio.

13 And as the contents of the inner rectangle are projected into the output
14 rectangle based on the orientation of the device, content will be cropped.

15 And what I've done on this slide is try -- I've created a demonstrative. This
16 is something I created for the arguments, although I think that it fairly tracks
17 the arguments we made in the Patent Owner response at pages 51 and 59
18 through 60.

19 But I've created a demonstrative to try to illustrate what Voss'
20 projection of the rectangle is going to look like into the output rectangle at
21 various orientations. So what I've shown in blue is the inner rectangle. This
22 would be what Petitioner claims is the viewing window. And when the
23 device is in a portrait orientation, Voss teaches that that inner rectangle is
24 sized and optically fitted within this 16:9 aspect ratio pillarboxing on the
25 sides, that's these black bars.

1 But in the other orientation where the device is in a landscape view as
2 here, Voss teaches that the inner rectangle contents will be optically filled,
3 cropping data as necessary. So in other words, the contents are scaled up so
4 that the output rectangle is completely filled by a portion of the inner
5 rectangle. And what's left in the cross hatched areas will be cropped out of
6 the image. And as the device rotates between the portrait and the landscape
7 orientation, you're going to -- the projection into the output rectangle is
8 going to be interpolated as I'm showing in the middle figure. This is
9 something about halfway in between. So based on the rotation of Voss's
10 device, you're going to be cropping more or less of the contents of the inner
11 rectangle in order to fit into this output rectangle aspect ratio which, by the
12 way Your Honors, the output rectangle in Voss is selected completely
13 independently of the inner rectangle. And because Voss is not Horizon
14 Leveling the contents of the visual content defined by the viewing window,
15 it's performing a fundamentally different approach to Horizon Leveling.

16 JUDGE RANGE: Okay. Let me see if I'm following this, but I've had
17 kind of a hard time following this argument down in the briefing, but kind of
18 a high level gist of it is you're saying that Voss is essentially determining the
19 extents based on the orientation of the phone rather than based on Horizon
20 Leveling. Is that it in a nutshell?

21 MR. SCHMIDT: That's right, Your Honor. It's not taking into
22 account that whatever it's going to bound in the viewing window is going to
23 be horizon leveled. It's not taking into account that additional consideration.
24 The claimed approach requires defining a viewing window with size, shape,
25 rotation, placement, with the understanding that you're going to have to

1 account for aspect ratio, you know, anything else about the output display
2 that you want, but whatever's in there is going to be horizon leveled.

3 That's how the claim technique achieves Horizon Leveling. Voss
4 eliminates that consideration from drawing the inner rectangle because Voss
5 is projecting into this different aspect ratio and it's just going to crop data to
6 the extent that it goes outside the boundaries that it eventually wants to
7 display to the user.

8 JUDGE RANGE: Okay. So it's just not paying attention to the
9 Horizon Leveling when it's defines the extents, that's what you're saying?

10 MR. SCHMIDT: I want to be accurate, Your Honor. It's -- it is
11 Horizon Leveling because it's applying a rotation in order to correct the
12 horizon, but it's not going to display to the user everything that's bounded
13 within that rectangle. So there are two aspects of the claim. The claim is
14 requiring a viewing window that corrects the horizon, but also the viewing
15 window is going to define what the user ultimately sees. That's an additional
16 consideration that the patent has to take into account when it's defined in the
17 viewing window. Voss is free from that constraint because of what I'm
18 showing you here.

19 JUDGE RANGE: Okay. I think I follow. Thank you.

20 MR. SCHMIDT: Okay. I'm running short on time, so I want to -- I'm
21 going to skip Claim 7 and Claim 8 for the Voss ground. I just wanted to
22 discuss the Pacurariu. I'm sorry -- the Watanabe ground. This is Grounds 2
23 and 4, and this relates to Claims 3, 4, 5 and 6. There's a claim construction
24 issue at the outset that I want to address.

25 There's an issue of what does Claim 3 mean where it recites wherein
26 the visual content includes a distortion? And I think it's very clear, this is

1 laid out in the brief, but it's very clear that Claim 1 is drawing a clear
2 distinction between the visual content that's obtained in the video and the
3 horizon-leveled video content which is processed.

4 Where the claim means post processing data, it's referring to horizon-
5 leveled visual content. So when Claim 3 recites the visual content includes a
6 distortion, it's clearly referring to the original content that's captured by the
7 video camera. And the reason why that's important is because when we get
8 to the Watanabe ground, as Your Honor saw before, Watanabe obviously
9 removes that distortion and applies a different distortion.

10 So it's not the distortion of the visual content in Watanabe that results
11 in a more natural look, it's the new distortion that's applied after the fact,
12 which could vary significantly. The other point I want to make about
13 Watanabe is in all of Petitioner's prior art of record, there is not a single
14 reference which discloses the crux of this limitation.

15 So what this limitation requires is the use of distortion in the visual
16 content to reduce the impact of an off-axis horizon. And not a single one of
17 these references teach that. So Thomason, Pacurariu, and Voss all disclose
18 Horizon Leveling, but there's no disclosure of distortion. There's certainly
19 no disclosure of using distortion to reduce the impact of an off-axis horizon.

20 Watanabe discloses distortion, but it uses it for a completely different
21 reason. It uses it in an anti-shake correction method. And Watanabe
22 actually talks about how the distortion is not preferred. Watanabe would
23 prefer that the distortion not be there. The only reason why it's adding it
24 back in after the fact is because of a specific problem that occurs at the
25 periphery of the image after the specific anti-shake correction is applied.

1 Watanabe says nothing about Horizon Leveling. It's completely
2 inapposite to the field of improvement that these claims are involved in.
3 And the case law, Your Honor from the Federal Circuit instructs that it's
4 error for the Board to find obviousness where a claim limitation is expressly
5 missing from the claim limitation.

6 And I'm citing the *In re: Guard Products* and the *University of*
7 *Strathclyde* case on page 92 of our demonstratives. And that's exactly the
8 case here. I'm not going to get into the details of Watanabe. Two things I do
9 want to show Your Honors, however, is -- this is the petition, and I wanted to
10 make one point.

11 When the Petitioner articulates this combination of Thomason and Pacurariu
12 and Watanabe, they say that the combination would remove the image
13 distortions from a captured image, e.g., caused by characteristics of the
14 image sensor as taught by Watanabe, obtain horizon-leveled visual content
15 as taught by Thomason and Pacurariu and intentionally add certain
16 distortions such that the resulting image appear more natural looking as
17 taught by Watanabe.

18 Now, there's a lot of issues with that, but the most fundamental issue
19 is that this combination as articulated by Petitioner doesn't meet the
20 limitations of Claim 3. Because Claim 3 requires that the distortion be in the
21 visual content and the distortion of the visual content, the original distortion
22 be what reduces the impact of the off-axis horizon.

23 So the very articulation of the combination by Petitioner doesn't even
24 satisfy the claims. And I want to point one last thing out to you. This
25 missing limitation, the crux of Claim 3, which is that the distortion reduced

1 the off-axis, the impact of the off-axis distortion. I made the point that no
2 prior art of record discloses that.

3 And just to drive that home, you could take a look at paragraph 153 of
4 Petitioner's Expert Declaration -- this is Exhibit 1002 -- you can see that the
5 entire notion that the distortion or any distortion would reduce the impact of
6 an off-axis horizon is entirely based on this conclusory opinion in paragraph
7 153.

8 Dr. Katsaggelos cites absolutely nothing. And the Board has recently
9 received some guidance about how expert testimony can't fill in gaps of
10 things that are expressly missing from the reference. And this is a poster
11 child for that situation here. So with that, Your Honor, I'll reserve the rest of
12 my time for rebuttal and for addressing the secondary considerations. Unless
13 there are any questions?

14 JUDGE KHAN: None from me.

15 MS. LI: Your Honors, I can start?

16 JUDGE KHAN: Go ahead. We're ready.

17 MS. LI: First of all, I'd like to give Your Honors the citations
18 regarding the rationale for combining Watanabe. It is Paper 2 at page 49,
19 251 and reply paper 31 at pages 22 to 24. In addition, I want to point Your
20 Honors to Watanabe, exhibit 1006 at column 22, line 15 to 18, Figure 7 and
21 column 21, line 62, column 22, line 25 about the barrel distortion.

22 Okay. I want to quickly address counsel's arguments. First of all,
23 counsel argues that Thomason does not disclose frame by frame Horizon
24 Leveling. But counsel concedes that Thomason captures frames, multiple
25 frames of the video. If Thomason is only intended to do one-time
26 correction, there's no point for Thomason to disclose how to horizon level a

1 frame. The whole point about Thomason is Horizon Leveling a video, and it
2 repeats a process for each frame, and using that one frame as an example. In
3 addition, the ITC has found Thomason discloses frame by frame for the
4 leveling and rejected counsel's argument about this one time correction.

5 Moving on to counsel's argument regarding single accelerometer
6 disclosed by Thomason. Again, it is incorrect that they argue that our expert
7 did not consider how Thomason can achieve this using a single
8 accelerometer. Dr. Katsaggelos considered the disclosure of Thomason,
9 including the disclosure of using multiple accelerometer to obtain rotation
10 data for multiple frames.

11 Again, this is not a new argument. That was only in response to
12 Patent Owner's incorrect assumption that Thomason somehow is limited to a
13 single accelerometer. In addition, Patent Owner is wrong that
14 accelerometers, multiple accelerometers are only used to generate a
15 panoramic image.

16 If you look at Thomason's disclosure, which is also shown on Slide 14
17 of Petitioner's demonstratives, Thomason uses the word maybe. Multiple
18 accelerometers may be used through panoramic image. It's not only used for
19 panoramic image. Again, the ITC rejected patent owner's argument that
20 Thomason is about a single accelerometer. Next, I want to quickly talk
21 about the distinction between dependent Claim 7 and 8. Again, Claim 7, you
22 can have the same size or you can have different size of the viewing
23 window. Claim 8 requires the size of the viewing window to change. The
24 ITC has also rejected GoPro's argument that Thomason does not change the
25 size of the viewing window.

1 And if you look at Petitioner's Slide 22, paragraph 36, Thomason
2 discloses that after you apply the view window, the image is cropped to
3 eliminate blank space as shown in Figure 3d. In other words, the more tilted
4 the camera is, the more blank space you'll have to crop out, causing a
5 smaller size viewing window. So again, the size of the viewing window as
6 explained by Petitioner's expert and as disclosed by Thomason, changes
7 based on the rotation of the camera.

8 I want to briefly address simulate in Claim 8. Counsel has conceded
9 that Figure 6c, which is about the smooth zoom curve, is just an example, so
10 the claim shouldn't be limited to smooth zoom curve. And counsel also
11 concedes that the '832 Patent discloses different zoom curves that includes
12 jittered zoom curve and constant zoom curve.

13 And Patent Owner's Slide 48 raises a new argument that for the first
14 time on its demonstratives at today's hearing, it now argues that this sentence
15 that show on Patent Owner's Slide 48 the simulate word does not modify the
16 pronounced jittery zoom change, which makes no sense. If you look at --
17 read the sentence based on simple grammar you can see that there's it makes
18 no sense that the simulate does not modify the pronounced zoom change.

19 I also want to briefly address that Patent Owner somehow argues that
20 the petition did not rely on Figure 3e for the Claim 8 limitation, that is
21 incorrect. I point Your Honors to petition at page 39 which explicitly refers
22 to figure 3e by saying, compared to Figure 3a, the scene in Figure 3e appears
23 more zoomed in because the object appears larger. And that is on page 39 of
24 the petition.

25 Now, I want to quickly switch to Voss. So Patent Owner's argument is
26 because Voss somehow applies an additional step after the viewing window

1 is generated, it argues that Voss performs a further cropping of the visual
2 content within the inset rectangle, which is the viewing window, so that it
3 does not generate horizon-leveled visual content that includes the entirety of
4 the visual content in the viewing window. That argument has a number of
5 issues. First of all, after Patent Owner made that argument saying that oh,
6 because Voss requires cropping, so it removes certain data from the viewing
7 window, that is incorrect. And then Petitioner pointed out on its reply that
8 Voss also discloses pillarboxing, which means padding. You're not cropping
9 anything out, you're just padding with a blackout.

10 And then on surreply, Patent Owner again changes position by
11 arguing, Voss is all about oscillating between this cropping and pillarboxing.
12 But even by that statement, Your Honors, if you look at Petitioner surreply --
13 sorry, Patent Owner's surreply, Paper 40 at page 19, Patent Owner concedes
14 that Voss's system may in some instances result in an output rectangle that
15 includes the entire inset rectangle. The inset rectangle is the viewing
16 window here. That concession is fatal because GoPro essentially admits that
17 Voss meets the limitation of viewing window, which defines the extent of the
18 visual content to be included within the horizon-leveled content.

19 Its argument is, oh, because sometimes it doesn't do that because
20 sometimes it does a cropping, it doesn't meet the limitation. Well, that's not
21 what the law says. The law requires that product -- prior art product that
22 sometimes but not always embodies claimed methods, nonetheless teaches
23 that aspect of the invention. But ultimately, none of that matters because this
24 oscillating between the cropping and padding is just one specific example of
25 Voss, and that is shown on Slide 73. If you look at on the right hand side,
26 Voss explicitly teaches other embodiments that does not involve this

1 oscillating at all. For example, Voss teaches that if a user records a video
2 that is mostly landscape with a minority of portrait content, the output
3 format will be a landscape aspect ratio. That is pillarboxing the portrait
4 segments.

5 Nowhere does this embodiment or example requires any toggling
6 between cropping or padding, pillarboxing. And then there's another
7 example says optionally a user may indicate at the beginning or ending
8 orientation determines the final ratio of the video. Again, it's up to the user.
9 User controls whether I just want a cropping, whether I just want a padding
10 or I want to toggle between.

11 Again, these quotes show that Voss' system actually can be configured to do
12 pillarboxing or padding only without oscillating between cropping and
13 pillarboxing.

14 (Off-microphone comment.)

15 MS. LI: Yes, Your Honor. So talk about Watanabe, the prior
16 reference. First of all, Patent Owner concedes that both Thomason and
17 Pacurariu disclose off access horizon, and second, they don't dispute that the
18 existence of that distortion -- of a distortion would produce off access
19 horizon including whether barrel or pincushion distortion. And they're also
20 wrong that by saying Watanabe does not prefer distortion. If you look at
21 Watanabe Exhibit 1106 at column 9, line 40 to 44, Watanabe explicitly says
22 that it is actually natural that a certain degree of image distortion caused by
23 aberration exists.

24 (Off-microphone comment.)

25 MS. LI: To be more precise, they don't quite dispute that the mere
26 existence of distortion would reduce off access horizon.

1 (Off-microphone comment.)

2 MS. LI: I don't think they specified what type of distortion, but here
3 for example, it would be barrel or pincushion distortion.

4 (Off-microphone comment.)

5 MS. LI: Just, Your Honor, could you please repeat your question
6 again?

7 (Off-microphone comment.)

8 MS. LI: Yeah.

9 JUDGE RANGE: And so last part of it, the distortion of the visual
10 content reducing impact of an off-axis horizon level visual –

11 (Off-microphone comment.)

12 So I take it your position is that why can I be –

13 (Off-microphone comment.)

14 MS. LI: Barrel or pincushion one is. They're kind of like the
15 opposite.

16 JUDGE RANGE: So what evidence do we have that barrel or
17 pincushion distortions –

18 (Off-microphone comment.)

19 MS. LI: Watanabe mentions that you have distortion that will make
20 the image appearing more natural. And that's what Watanabe discloses --
21 and I wanted to also point Your Honors to the disclosure in the '832 Patent
22 where it says here in column 2, starting line 50 that existence of such
23 distortions within an image may cause curves within the image which may
24 make an off-axis horizon less noticeable than an image without distortion.

25 So the patent itself admits that the mere existence of a curved
26 distortion such as barrel distortion would make the off-axis horizon less

1 noticeable and as Dr. Katsaggelos explains in his declaration, this is
2 understood by those skilled in the arts.

3 JUDGE RANGE: Okay, yeah, I'd probably. I mean -- maybe
4 someone could read that column two, line 15 as meaning that the particular
5 kind of distortion the '413 patent's teaching will have that effect rather than
6 any distortion.

7 MS. LI: Yeah, Your Honors, yes. This column is talking about
8 pincushioning or barrel distortion as you can see from column 22. But as
9 Watanabe has made clear, it is well known that a --

10 JUDGE RANGE: There's no column 22 in the '413 patent.

11 MS. LI: Sorry. '832.

12 JUDGE RANGE: I'm sorry?

13 MS. LI: '832 Patent at column 22.

14 JUDGE RANGE: Oh, okay.

15 MS. LI: No, not what. Yeah, so what I was making the point is the
16 Patent Owner itself admits in the patent that existence of barrel or
17 pincushion distortion would make an off-axis horizon less noticeable. And
18 Watanabe makes clear that it is well known that a wide angle lens would
19 produce distortions such as barrel or pincushion distortions.

20 JUDGE RANGE: Okay. Thank you.

21 MS. LI: Thank you, Your Honors. That's all from me. I will reserve
22 the time for the confidential session.

23 JUDGE KHAN: Okay. Thank you.

24 JUDGE RANGE: And just for the record, I think I was looking at the
25 -- I was looking at the wrong cases, so that's why there was confusion.
26 Sorry about that.

1 MS. LI: Oh, no problem.

2 MR. SCHMIDT: I just have a couple really quick points, Your Honor.

3 And I'm not going to use slides because I think I could do it without them.

4 So first of all, the page ranges and the petition and the reply that were cited
5 to you don't disclose the motivation to combine of the specific thing that was
6 called for by the question. That's just the motivation to combine that was
7 argued in the petition.

8 The Petitioners haven't identified anywhere in the petition or the reply that
9 indicates that a person of ordinary skill in the art would have found it
10 obvious to add distortion to a reference like Thomason or Pacurariu or Voss
11 in order to reduce an off impact horizon. What they're doing is they're
12 introducing something that was recognized as a problem into references that
13 don't teach it in order to achieve a result that's taught nowhere in the prior
14 art. That's the first point.

15 The second point is there was a representation that I had conceded that
16 Claim 8 covers a jittery zoom as shown in Figure 6A. If I said that I didn't
17 mean to, that was not my argument. Our argument is that Figure 6A does
18 not -- is not covered by Claim 8. The jittery zoom, 6A, embodiment is not.
19 Turning to Voss. I want to make sure, this is laid out in our opposition to the
20 motion to strike, but I want to make sure that the Board understands how all
21 of this came out. So when the Petitioner cited their theory for Voss against
22 Claim 1, Claim 7, and Claim 8, it didn't address this issue of the output
23 rectangle at all.

24 It pointed to the inner rectangle and it just made -- the petition made
25 the conclusory argument that because Voss draws a rectangle, it must be a
26 viewing window. That was the tone and tenor of the argument in the

1 petition. This whole idea that the claim is sometimes satisfied by the
2 pillarboxing possibility didn't come until reply in response to that argument.

3 So the notion that then we made a new argument by arguing that the
4 claim is a configured to claim on surreply really falls on deaf ears because
5 we're really just responding to something that they should have raised in the
6 petition to begin with.

7 Counsel argued that in some instances in Voss, the entire contents of
8 the inner rectangle may be in the output box. And I just want to make clear
9 that the panel understands these certain instances are just particular and
10 specialized device orientations of a specific configuration. There's nothing
11 in Voss that teaches that the output rectangle is not going to involve some
12 degree of cropping as the device rotates. It's only one specific and
13 specialized orientation that's going to allow the portrait's orientation to fit
14 completely into that output rectangle.

15 So frankly, Your Honors, the citation of the cases, that prior art, that
16 sometimes but not always, discloses a reference can render the claim
17 obvious. It has no application to this case, the reason why is because, again
18 -- I'll say it again. This is a configured to claim that requires a device that's
19 configured to perform the functionality in the claim. And one of those
20 functionalities is defining -- is determining a viewing window that defines
21 the extents of visual content to be horizon leveled. That is a configuration of
22 the device that has to be present in the prior art for it to be invalidated. And
23 Voss simply is not that because Voss teaches that as the device rotates, the
24 contents of that inner rectangle are not going to be part of the horizon-
25 leveled visual content.

1 Petitioner raised a new argument that's not even raised in the reply
2 right here on rebuttal. The citation to the mostly landscape embodiment in
3 Voss at page 13. Even in an embodiment with mostly landscape, it's going
4 to involve some degree of cropping. That was the third image that I showed.
5 The point about Voss, Your Honors, if I could just kind of zoom out, at a
6 high level this is the deficiency.

7 In the claimed approach, the viewing window is determined such that
8 it's going to enclose the content that results in the Horizon Leveling visual
9 content. That is what effectuates the Horizon Leveling. In Voss, there is a
10 separation between the determination of the viewing window and what is
11 actually presented to the user as a horizon-leveled visual content. There's no
12 connection between the aspect ratio of the output rectangle and the inner
13 rectangle. The two are determined completely independently.

14 And that frees Voss from the constraint of having to determine a
15 viewing window that's going to result in the horizon-leveled visual content.
16 That's the distinction. That's why the cropping is so important.

17 I'd just point out, Your Honors, that in the brief we have arguments for
18 Claims 7 and 8 on Voss as well. The Petitioner's arguments don't even come
19 close to showing that Claims 7 and 8 are satisfied by Voss.

20 Turning to Watanabe, there is a representation that we don't dispute that any
21 barrel distortion would reduce the impact of an off-axis horizon. Of course
22 we dispute that. That's the whole point of our argument. That's why we
23 raised in the Patent Owner response and in the surreply that Petitioners
24 haven't identified anything in the prior art that shows this part of the claim
25 limitation. What Petitioners are really asking you to do is read that
26 requirement completely out of the claim. What they want to say is that if

1 you have a camera that includes a distortion and you're necessarily going to
2 satisfy Claim 3 so long as Claim 1 is satisfied, that -- that absolutely can't be
3 right. The claim language has to be given effect, all words of the claim
4 language, and we've consistently argued that they need to show a prior art
5 reference that discloses a distortion that's used to reduce an off-axis horizon,
6 and they haven't done it.

7 Counsel argued that this could be found in Watanabe's teaching of the
8 distortion making the image appear more natural. The more natural
9 disclosure in Watanabe is addressed to a completely different situation. I
10 mentioned this before. What Watanabe does is it removes the distortion,
11 performs anti-shake correction, and then there's actually a decision block in
12 the flowchart where Watanabe determines if the-- if the distortion -- if the
13 original distortion was low enough, it won't even add the new distortion
14 back in. But if the distortion that was originally in the image reaches a
15 certain threshold, Watanabe adds a certain amount of that distortion back in
16 because of a specific problem that arises in the anti-shake algorithm. And
17 what Watanabe says is that there are aberrations at the periphery of the
18 image that occur if you don't add that distortion back in.

19 So this is a -- this is a problem that's specific to Watanabe and its anti-
20 shake correction technology. It has nothing to do with correcting or
21 reducing the impact of an off-axis horizon --

22 (Simultaneous speaking.)

23 JUDGE RANGE: So maybe I'm going to present you a certain way of
24 thinking about it and see what your response is. Okay?

25 MR. SCHMIDT: Yes, Your Honor.

1 JUDGE RANGE: What if Watanabe is adding distortion, a barrel
2 distortion, for its reasons, and, well, let's assume there's reason to combine. I
3 know that's a different issue. And it just, it just happens to be the case that
4 when you add that barrel distortion it will make off-axis horizon less
5 noticeable. And I -- I guess they're -- they're essentially relying on the '832
6 Patent, now that I'm looking at the right column. Column 22 at line 4, right
7 where it says, existence of just such distortions within image may make that
8 less noticeable. So what's your response to that kind of thinking?

9 MR. SCHMIDT: My argument, Your Honor, is that not all barrel
10 distortion is going to reduce the impact of an off-axis horizon. And the
11 Patent certainly doesn't say that. The patent says, inclusion of a barrel
12 distortion may reduce the impact of an off-axis horizon. It doesn't suggest
13 that this is an inherent feature of barrel distortion. It's not. It's something
14 that has to actually be shown, just like any other limitation in the patent -- in
15 the claim. And I'd also note, Your Honor, pointing to the patent as evidence
16 to invalidate the patent itself is entirely improper. You can't use the
17 disclosures of the patent or the insights of the patent.

18 JUDGE RANGE: Well, it has to do with how you read the claim,
19 right? So the -- the claim has to introduce a distortion and then the question
20 left is whether the distortion will have this characteristic of making the --
21 horizon axis less noticeable, right? So the prior art could in theory
22 accidentally create a distortion that would have that characteristic. And if
23 the, you know, if your patent was teaching that yeah, this kind of distortion
24 has that characteristic, then that -- that could fit together, right?

25 MR. SCHMIDT: Fair enough, Your Honor. But there's been
26 absolutely no showing in the prior art that that's the case.

1 JUDGE RANGE: Because you'd say that Watanabe's distortions are
2 not necessarily the same as the ones in the patent that create that benefit.

3 MR. SCHMIDT: That's right.

4 JUDGE RANGE: Right.

5 MR. SCHMIDT: Right. There's been no showing that every single
6 type of barrel distortion is going to reduce the impact of an off-axis horizon.

7 One point I want to address is in their -- it must have been the reply,
8 but it was somewhere. It was either in the petition or the -- I think it was the
9 reply.

10 They argued that we didn't address this limitation in the ITC; therefore, we
11 must have conceded that all barrel distortions will reduce the impact of an
12 off-axis horizon.

13 What they didn't tell Your Honors when they made that argument is
14 that that part of the limitation was undisputed in the ITC. So if you read the
15 transcript cite that they actually cite during our expert direct, our expert will
16 note that the limitation was undisputed. He points to the barrel distortion in
17 the accused devices, and he says that they infringe. So the second part of the
18 limitation about reducing the off-axis horizon was undisputed in the ITC.

19 JUDGE RANGE: It was undisputed in the infringement case, you're
20 saying?

21 MR. SCHMIDT: Yes, Your Honor.

22 JUDGE RANGE: Okay.

23 MR. SCHMIDT: And their argument, as I understand it, is because
24 our expert in the ITC, during his direct examination didn't testify about that
25 limitation, that we admitted that barrel distortion inherently discloses. That's
26 not true.

1 JUDGE RANGE: You're saying he didn't have to address it because it
2 wasn't disputed.

3 MR. SCHMIDT: Exactly.

4 JUDGE RANGE: Got it.

5 MR. SCHMIDT: So I want to make sure you understand that. And
6 then one thing, Your -- Judge Range, you mentioned, maybe I'm quibbling.
7 You said that the claim requires introducing distortion. I just want to make
8 sure that I'm clear that what the claim requires is that the distortion in the
9 visual content, the original distortion, is what reduces the impact of the off-
10 axis horizon.

11 Now, the specification discloses indirect embodiments and direct
12 embodiments. There's no requirement that the claim cover every
13 embodiment. And if you look at the structure of the claim, Claim 3 as
14 compared to Claim 1, it's very clear that there's a distinction between visual
15 content and horizon level visual content. Claim 3 is talking about distortion
16 in visual content. So it's not addressed to the embodiment and the
17 specification that they pointed you to.

18 If there are any other questions, I'm happy to --

19 JUDGE SAINDON: Yes, Counsel, this is Judge Saindon. Just one,
20 one real quick question for you. Looking at the 82 -- '832 Patent at around
21 column 22, line, let's say, 63 through 67 or so, I'm wondering if this is
22 talking about your earlier point. It says, the distortion with the image may
23 be changed to include a desired distortion that reduces the impact of an off-
24 axis horizon, et cetera, et cetera, to show that not all distortion is sufficient
25 distortion. Is that what that is talking about there?

1 MR. SCHMIDT: It could be read that way, Your Honor. So I guess,
2 to Your Honor's point, if all distortion inherently reduced the impact of an
3 off-axis horizon, there would be no need for a potential embodiment that
4 would add a new distortion or change the distortion because the --

5 (Simultaneous speaking.)

6 MR. SCHMIDT: -- already reduced the off-axis horizon. So I think
7 that's a good point.

8 With respect to this passage, I think our -- the last point I said was just
9 that there are two embodiments that are listed here in column 23, 22 spilling
10 over to column 23. And our position is that Claim 3 is addressed with just
11 one of them.

12 JUDGE SAINDON: Okay.

13 MR. SCHMIDT: Okay, thank you, Your Honors.

14 (Off-microphone comment.)

15 JUDGE KHAN: Yes. We're going to take a five-minute break. And
16 before we -- yeah, we're going to go off the record now.

17 (Whereupon, the above-entitled matter went off the record.)

Case IPR2024-00984 (Patent 10,015,413 B1)

Case IPR2024-01052 (Patent 11,336,832 B1)

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