

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MERCEDES-BENZ USA, LLC,
Petitioner,

v.

YECHEZKAL EVAN SPERO,
Patent Owner.

IPR2023-01026 (Patent 10,894,503 B2)
IPR2023-01027 (Patent 10,894,503 B2)

Record of Oral Hearing
Held: October 16, 2024

Before JASON W. MELVIN, AARON W. MOORE, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

IPR2023-01026 (Patent 10,894,503 B2)
IPR2023-01027 (Patent 10,894,503 B2)

APPEARANCES:

ON BEHALF OF THE PETITIONER:

SCOTT A. HUGHES, ESQ.
Hogan Lovells US LLP
555 Thirteenth Street NW
Washington, DC 20004
(202) 637-3659
scott.hughes@hoganlovells.com

ON BEHALF OF THE PATENT OWNER:

SANGEETA SHAH, ESQ.
ANDREW TURNER, ESQ.
Brooks Kushman P.C.
150 West Second Street
Suite 400N
Royal Oak, Michigan 48067
(248) 226-2740 (Shah)
(248) 226-2707 (Turner
sshah@brookskushman.com
aturner@brookskushman.com

The above-entitled matter came on for hearing on Wednesday,
October 16, 2024, commencing at 1:00 p.m. EDT, via video-conference.

P R O C E E D I N G S

- - - - -

1:00 p.m.

JUDGE MOORE: All right, good day everyone. Welcome to the PTAB. We're here for a hearing in our matters, IPR 2023-01026 and 01027. The cases are captioned, Mercedes-Benz USA, et al. v. Spero et al. And the patent at issue in both cases is US 10,394,503.

I'm APJ Moore. APJs Melvin and Cygan are also present by video. Can we have appearances for the Petitioner please?

MR. HUGHES: This is Scott Hughes from Hogan Lovells on behalf of Petitioner Mercedes-Benz USA.

JUDGE MOORE: Okay. Is anybody else online with you?

MR. HUGHES: I have with me in the room Jake Felicetty, who is going to be helping run the computer for our slides. And then we have Sally Zhang, who's online, as well.

JUDGE MOORE: Okay. And for Patent Owner?

MS. SHAH: For Patent Owner, Evan Spero and Sangeeta Shah.

JUDGE MOORE: And is there anyone else on with you?

MS. SHAH: Yes, there is.

MR. TURNER: And I'm Andrew Turner.

JUDGE MOORE: Got it. All right, thank you all. I'll ask that you identify yourself for the court reporter each time you begin speaking. I'll ask that you be sure, when you're referring to demonstratives, papers or exhibits, that you identify the item for the record.

I'll also note that this hearing is open to the public. Our hearing order granted each side 90 minutes, and we have a LEAP request from the Patent

1 Owner. So, the Patent Owner is entitled to an additional 15 minutes of time,
2 and I will keep the time.

3 And unless there are any questions, Petitioner, you can begin when
4 you're ready.

5 MR. HUGHES: All right. Thank you. And this is Scott Hughes for
6 Petitioner. And I'd like to reserve 15 minutes for rebuttal time, please.
7 Okay, and we're going to bring up our slides. Okay. Now, we're here for a
8 consolidated proceeding for US Patent 10,894,503, and I may refer to that
9 throughout as the 503 patent.

10 Good afternoon, Your Honors, and thank you for having us here
11 today. So first, we're going to go through an overview of the 503 patent and
12 the main base reference at issue in these proceedings, which is Alden.

13 And then we're going to go through some of the disputes between the
14 parties. The first one is whether Alden is operative and does not require
15 modification. The second is whether Alden discloses [unintelligible] light
16 modifying elements from certain dependent claims.

17 The third is whether Alden's system can determine and identify where
18 vehicles are and are not. The fourth is whether Alden's system can
19 illuminate above and below a predefined threshold or illuminance. The fifth
20 is whether Alden detects upcoming road curves and increases illumination at
21 those curves.

22 And then there are a few other disputes that we'll get to as well. So
23 first, we're going to look at the claims of the 503 patent. Now, the 503
24 patent has six independent claims, and we've generally put these into two
25 different groups.

1 The first group is Claims 1, 20, and 26, and Claim 1 is representative
2 of these. As you can see, Claim 1 on the left here requires light sources that
3 are arranged to project light into subsections of a field of view.

4 It requires control circuitry to control these light sources, sensors to
5 obtain information about the field of view in front of the vehicle, and a
6 processor to control the light sources to reduce illumination towards another
7 vehicle to reduce glare to that driver.

8 Now, the second set of independent claims are Claims 37, 59, and 65,
9 and again, Claim 37 is representative of these. And we see that on the left-
10 hand side, and this contains very similar limitations to those we just talked
11 about for the other claims.

12 It also requires the light sources to project light into subsections of a
13 field of view, the control circuitry to control those light sources, the same
14 sensors to obtain information about the field of view, and a processor to
15 control those light sources.

16 And these claims introduce a limitation that that control is going to
17 illuminate a first subsection with illuminance below a threshold or
18 illuminance level and illuminate a second subsection with illuminance above
19 the threshold value.

20 Now, as we'll see, the Alden reference discloses all of these claim
21 limitations, and Alden is US Patent Publication Number 2003-0137849, and
22 Alden's system is directed towards exactly what we just saw on those claims.

23 Alden discusses a vehicle employing an automatic segmented
24 illumination means or headlights. And the purpose of its system, as we can
25 see here on Slide 6 in Paragraph 25 of Alden, is to have low beam
26 illumination emitted in response to detection of an oncoming vehicle while

1 concurrently providing a second intensity, which would be high beam of
2 illumination where no vehicle is detected.

3 And as we see at the bottom of Slide 6, in Paragraph 27, Alden
4 indicates that the result of this is that the driver of 41, the vehicle equipped
5 with its system, or sorry, the detected vehicle has minimum glare, while the
6 driver of 47, the vehicle equipped with its system, is going to have
7 maximum light, and we can see this in Figure 1 of Alden on Slide 7 in the
8 top left.

9 And that's in Figure 1 showing beam 35 directed at the detected
10 vehicle 33, which would be the low beam or dimmed light. We can also see
11 in this figure other beams, 37, that are directed at areas where there is no
12 other detected vehicle, and these would be the different high beam light.

13 Now, that's not all that Alden's system can do. Its same segmented
14 headlights that are described in Alden can perform other functionalities. As
15 we see in Figure 11 in the bottom left here of Slide 7, it can also detect road
16 curves and direct the light to illuminate those road curves.

17 And in Figures 12 and 13, it can also be configured to look uphill or
18 look downhill. Now going back to the claim elements we have here, we can
19 see that Alden discloses all of them. First, Alden discloses the claimed
20 controllable directional light sources.

21 Looking at Figure 5 on the left-hand side of Slide 8, we can see that
22 Alden has angled directional light sources, 119, located around a curve that
23 are each directing light into the segments of the headlight distribution area
24 that we can see on the right of the figure.

25 Now Alden explains, looking at the right-hand side in Paragraph 29,
26 that it has an array of individual lighting elements, which can be LEDs, and

1 that these are independently controlled. What Alden explains is that the
2 light from these LEDs is going to, or the light from each lighting element,
3 the LEDs, goes into a specified portion or portions of the headlight
4 distribution area.

5 Next, Alden discloses the claimed circuitry to control these directional
6 light sources. As we see in Figure 3 on the left of Slide 9 here, it includes
7 control circuitry 55a for the left headlight and control circuitry 55b for the
8 right headlight.

9 And we see Alden Paragraph 27 explains this, noting the left light
10 control circuit 55a and right light control circuit 55b. And Alden further
11 states, as we can see in that same paragraph, that these control circuits
12 control the power flow from a Power Source 73 to the segmented headlights.

13 Moving on to Slide 10, Alden also discloses the claimed sensors that
14 obtain information about the field of view. And Alden, at Paragraph 8,
15 specifically notes, as we see on the right-hand side of Slide 10, that Alden's
16 system is going to automatically control each illumination sector in response
17 to sensed environmental conditions.

18 And it does this with a left sensor, 51a, like we can see in Paragraph
19 27, and a right sensor, 51b, and those are shown in Figure 3 on the left of
20 this slide, where we can see at the top that left and right sensor.

21 Now, when Alden's system is being used to detect oncoming vehicles,
22 as it says in Paragraph 27, what these sensors can do is detect the two dots,
23 like we see on the dark spots in this figure, of the headlights of an oncoming
24 vehicle.

25 Alden also discloses the claimed processor that is then going to
26 control these light sources. As we see in Figure 3, again, on the left of Slide

1 11, Alden includes a Processor 71, which is a CPU with logic. And Alden
2 explains, like we can see at Paragraph 29, that each CPU or each switch in
3 the switch array for the LEDs of Figure 5 is controlled by this CPU and
4 logic.

5 And what happens is this CPU and logic controls the LEDs in
6 response to those sensed environmental conditions. Now, Figure 4 of Alden
7 explains what this controlling logic is for its system. And that Figure 4 is on
8 the left here of Slide 12, and as we can see, Alden's CPU checks each sector
9 of the left and right lens light sensors that we just talked about.

10 And what it does, as we can see in the first couple steps on this figure,
11 is it's looking for whether there's threshold light present at each sensor
12 position. Now using the sensed light sensor data, it's CPU then compiles a
13 left and right sensor map that show where objects were detected light have
14 been located within that overall field of view from those sensors.

15 These maps are then used to determine which zones need dimmed
16 illumination and which zones need high beam illumination. Then, finally,
17 the LEDs and the headlights are switched to high beam or they're switched
18 to dim to create the desired illumination pattern. Now, the first dispute
19 here is whether Alden is operative and does not require modification.
20 Clearly it does not. As we've just seen, Alden very clearly discloses all of
21 the elements of these claims. Now, what Patent Owner argues is that Figure
22 5 in Alden, the LED, what they call the LED first embodiment, merely
23 describes a row of LEDs positioned along the focal point of a lens, and when
24 they say a row, they mean one single row here.

25 Now, this argument is incorrect. Figure 5 is not limited to a single
26 row of LEDs as the Board correctly found at institution. And we can see

1 this on Slide 15. Instead, moving to Slide 16, what's happening is Patent
2 Owner is reading Figure 5 in isolation.

3 But, in discussing Figure 5, Alden explains that each LED is
4 controlled by a switch in a switch array, and that each switch is itself
5 controlled by the CPU and logic previously described, and Alden states that
6 in Paragraph 29.

7 Now that CPU and logic previously described, refers to Figures 3 and
8 4 and their corresponding descriptions. So Alden's Figure 5 cannot be
9 viewed in isolation. It must be read in connection with Figures 3 and 4.

10 Now Patent Owner's expert agreed with this at his deposition, as we
11 can see on the right-hand side of Slide 16. When he was asked whether the
12 only CPU and logic previously described is Paragraphs 28 and 27, he said, I
13 believe that's the only previously described CPU and logic.

14 Paragraphs 28 and 27 refer to Figures 4 and 3, respectively. Now,
15 how do we know that Figure 5 is two-dimensional? Well, looking at Figure
16 3 like we just talked about, that shows differing illumination across a two-
17 dimensional plane.

18 As shown in Figure 3, which we can see on the top right of Slide 17,
19 Alden discloses that there's a shaded circuit area, which indicates portions of
20 the headlight to be dim, while a non-shaded circuit area represents the
21 portions which will be on high beam, and Alden states that at Paragraph 27.

22 Alden continues in Paragraph 27 that its system distributes high
23 beams throughout its distribution areas except in a box in the direction of the
24 detected vehicle. And we can see that, again, looking at Figure 3, we have a
25 smaller two-dimensional box around the detected headlights and a larger

1 two-dimensional box for the larger area of the control circuits for all the
2 LEDs.

3 And looking at Figure 1 on the right-hand side, we can also see that
4 this headlight is directing light in the two-dimensional area in front of the
5 vehicle. Moving onto Slide --

6 JUDGE CYGAN: Counsel, this is Judge Cygan. Is that actually
7 Figure 1 of Alden or Figure 2?

8 MR. HUGHES: That may be Figure 2, Your Honor. I'm sorry.

9 JUDGE CYGAN: Can we take a look at Figure 1 of Alden?

10 MR. HUGHES: We can.

11 JUDGE CYGAN: Now, Figure 1 of Alden describes headlight
12 distribution sectors. So now those sectors, you know, are you reading those
13 as being horizontally divided sectors, or is there some vertical division that's
14 not particularly being shown in Figure 1?

15 MR. HUGHES: So what Figure 1 is showing, generally, the idea of
16 having Beams 35 directed at the other detected Vehicle 33. and then other
17 Beams 37. Now, Alden's not showing every light beam coming out of this
18 because then presumably you would just have a maze of lines that would be
19 difficult to understand or see what's going on.

20 But again, as we talked about, when we see in Figure 3 of Alden,
21 which is the logic and CPU being used, we can see that we've got the two-
22 dimensional box here for the sensor arrays. And then looking down the
23 figure, as we see as 77 and 79 there, you can see the other boxes, and those
24 are the control circuits that are being used, as Alden says, for the Figure 5
25 embodiment.

1 And these are clearly two-dimensional, and we even have the dimmed
2 two-dimensional box that is just around the headlights and a little bit more
3 for the position of the driver. In order to do this, when you read Figures 3
4 and 4 with Figure 5, it's clear Figure 5 would be directing, you know, not
5 just in one flat horizontal plane or one small vertical slice.

6 The illumination is going over a two-dimensional area in front of the
7 vehicle. You wouldn't, you know, have, for example, just a very thin,
8 narrow horizontal beam coming out of your headlights.

9 JUDGE CYGAN: Now, are you contending that Alden would only
10 work if it was two-dimensional?

11 MR. HUGHES: Well, the way Alden's system works and with respect
12 to these claims is that its detecting where other vehicles are and projecting
13 dim light into those regions. Now whether it splits that up into, you know,
14 25 different regions in a two-dimensional plane, or if it would split those up
15 into ten regions of a one-dimensional plane just going straight across, its
16 system would still work.

17 And in fact, what Alden says, if you look at Paragraph 29, is there is
18 one switch or corresponding switch for each LED in your array. So if you
19 had a single row of LEDs, for example, you could still perform the exact
20 same method as discussed in the claims and disclosed in Alden. You would
21 have one switch for each LED.

22 If you had more rows, you have a two-dimensional LED. Again, you
23 have one switch for each LED. You can control light under the two-
24 dimensional area.

25 JUDGE CYGAN: So Counsel, even if Alden's output was limited to
26 what is shown in Figure 1 and not counting on any unshown lines, that

1 would still be operable and therefore, Patent Owner's argument would not
2 carry the day because it's an operative system. Correct?

3 MR. HUGHES: That's correct. And we'll get to their arguments that
4 Alden is allegedly an operative or needs to be modified later. But that is
5 correct. Even if Alden were limited to just horizontal distribution in a single
6 row, it would still invalidate the claims of the 503 patent.

7 JUDGE CYGAN: Thank you, Counsel.

8 MR. HUGHES: So, moving on in this, like I said, when we read this
9 in combination, as I was talking about, Figure 5 with Figures 3 and 4, we
10 can see that the case is it is two-dimensional. As again, we see the box
11 specifically two-dimensional around where the other vehicle is with a
12 broader two-dimensional illumination around that.

13 Now, in Figure 4 of Alden, we can see that it's clearly discussing
14 everything in the context of an XY, or two-dimensional space. Look, on
15 Slide 18, looking at Figure 4 on the right, we have A1L sensor positions to
16 XYL sensor positions, and the same for the right sector.

17 As Petitioner's expert, Dr. Papanikolopoulos explained in his second
18 declaration, including at Paragraph 8 on the right-hand side of the slide here,
19 Alden's compiling two-dimensional sensor maps. And as we see on the
20 bottom box, if the LED array were one-dimensional as Patent Owner alleges,
21 then it can only correspond to X locations and not these plurality of XY
22 locations.

23 Now, there's additional evidence here that Alden should not be
24 interpreted as being limited to a single row. Figure 5 shows a sectional
25 view to illustrate the segmented lighting, and it would be understood, like

1 we saw, see with Figure 6 and 7, that if you showed the array on the front on
2 view, it would be two-dimensional.

3 As another point, Alden discloses that Figure 5 illustrates an array of
4 lighting elements, not a row of lighting elements. And for Alden's Figure 5
5 to direct light uphill and downhill, for example, like we saw with Figures 12
6 and 13, there must be multiple rows of LEDs with some angled and
7 positioned on the curved surface to direct light upwards and others to direct
8 light downwards.

9 Now, based on its argument that there's allegedly only a single row,
10 Alden -- Patent Owner argues that Alden's Figures 3 and 5 would somehow
11 be incompatible or inoperative. And one of their arguments on this is that
12 there's allegedly 576 switches in the Figure 3 switch array and nine LEDs in
13 the Figure 5 LED array.

14 And so, absent some modification, we would rely -- there would be an
15 inoperative headlamp in Alden. That is, you can't use 576 switches with 9
16 LEDs, but this is incorrect. And a POSITA would know, as Alden clearly
17 discloses in Paragraph 29, and we're on Slide 20 now, each lighting element
18 or each LED in that Figure 5 array is independently controlled by a
19 corresponding switch.

20 Even Patent Owner's expert admits that this is how Alden works. We
21 can see from his deposition, Dr. Turk at the bottom of Slide 20 was asked, if
22 there were nine LEDs, you have nine switches, right? And he said I believe
23 so. And asked if there were 27 LEDs, there would be 27 switches, right?
24 And again, he said, there should be, yes.

25 Now, Patent Owner also argues that because there's allegedly a single
26 row of LEDs, unless Alden is somehow modified, it couldn't reach a

1 required lumen output. But Figure 5 of Alden is not limited to a single row
2 of LEDs, as we've discussed.

3 In addition, the claims do not require any particular lumen output.
4 The claims are directed toward a headlight system for a vehicle generally
5 and do not require compliance with standards or regulations for automobiles
6 or otherwise.

7 That is, they don't say it's a specific type of vehicle that would need a
8 certain lumen requirement and it doesn't say it has to comply with, for
9 example, a government standard on a minimum lumen output for a vehicle.

10 Now, the next dispute is whether Alden discloses claimed light
11 modifying elements, and this is in Claims 2, 3, 42, and 43. Now, first, Alden
12 discloses this in several ways. Alden clearly has the lens in Figure 5 that
13 we've seen, which is used to focus or direct light into the different specific
14 illumination sectors.

15 And in addition, as we explained in the petition, Alden also has other
16 embodiments, including using variable refractor elements that can also
17 change and direct the light in different sectors so you can vary the
18 illuminance as you want.

19 And so Alden's lens alone discloses these. And as we've explained, in
20 addition, it would have at least been obvious to use those other variable
21 refractive elements to also meet these claim elements. Now Claim 2c
22 requires, and we're on Slide 23 now, claim 2c requires a light modifying
23 element in the path of the light from the light sources to further control light
24 source characteristics.

25 And Claim 4, as we can see on the left-hand side of the slide, provides
26 some examples of what this could be, and one of the first ones recited there

1 is a lens. Now, Alden discloses exactly this. It discloses a light modifying
2 element, as recited in Claim 2, in Lens 121, that we can see here on the
3 right-hand side of Slide 24 in Figure 5 of Alden.

4 And this Lens 121 is in the path of light emitted from those LEDs, and
5 it controls light source characteristics, including direction and intensity by
6 causing the light from each lighting element to go into a specified portion or
7 portions of the headlight distribution area.

8 Now Patent Owner argues that these light modifying elements and
9 Claim 2c have to control a light source characteristic that is dependent on
10 power, i.e., intensity. And they argue that Alden discloses that the Lens 121
11 adjusts the direction of light, but not the intensity.

12 This is incorrect. Alden's lens elements control both direction and
13 intensity. In Alden, the intensity of the light measured at a particular sector
14 with no lens would be different than the intensity measured in the same
15 sector with the lens present.

16 And this is because, as Alden explains, that lens is focusing the light
17 from a certain LED into a particular sector. So, even assuming the claims
18 require the light modifying element control the light source characteristic
19 dependent on power, such as intensity, Alden's lens does this.

20 Patent Owner's expert even agreed. As we see on Slide 26 on the
21 right-hand side, from his deposition, Patent Owner's expert was asked if we
22 remove the lens, we would get a different intensity measure in, for example,
23 some of the segments than we do with the lens present, and he said, yes.

24 And we asked, including measurements for intensity? Again, he said,
25 yes.

1 JUDGE MOORE: Counsel, this is Judge Moore. Why does it matter
2 if it controls intensity or not?

3 MR. HUGHES: So I'll get to that right now, Your Honor, on this
4 slide. What Patent Owner's argument is based on is a reading of Claim 2c,
5 where which, as you can see on this slide here, recites that the light
6 modifying elements further control light source characteristics, plural.

7 And Patent Owner argues, looking at Claim 2b, which is discussing a
8 separate element of control sources here, that the light source characteristics
9 in 2c must be these variable light source characteristic, singular, that's
10 dependent on power.

11 And Patent Owner says the only thing in Alden that could be
12 dependent on power is intensity, not direction. Does that answer your
13 question, Your Honor?

14 JUDGE MOORE: Sort of. Is there, I mean, the lens does control the
15 direction, right? I mean, it changes the direction of the light, so why is that
16 not sufficient itself? Because the idea is that control has to be active
17 somehow?

18 MR. HUGHES: No, it's not that control has to be active, that's a
19 separate argument. But this argument is that the light source characteristics
20 we see in 2c have to be the variable light source characteristic dependent on
21 power in 2b.

22 That is, as we see on the left-hand side of Slide 27 here, the argument
23 is that the singular variable light source characteristic dependent on power
24 would provide the antecedent basis for 2c. It does not. 2c doesn't say
25 variable light source characteristic.

1 It doesn't say characteristic singular, and it doesn't say characteristic
2 dependent on power. It just says more generally light source characteristics,
3 which, as you noted, could be the direction, the intensity, or, you know, the
4 beam spread or anything else.

5 JUDGE MOORE: In other words, the characteristics of 2c do not
6 need to include the characteristic of 2b?

7 MR. HUGHES: That's correct. Yes, light source characteristics in 2c,
8 a POSITA reading this claim would understand, you know, this doesn't use
9 variable light source characteristics, doesn't say dependent on power.

10 A POSITA would have understood this to be, you know, referring to
11 how the light modifying elements can further control light source
12 characteristics to get the desired result. And that would be in addition to the
13 control circuitry, which is going to control or alter the characteristic
14 dependent on power from 2b.

15 And like I said, if we look at 2d, we're now on Slide 28 at the bottom,
16 2d gives examples of what these characteristics can be that are controlled
17 here by the structure, by the light emitting sources, and the control circuitry
18 dependent on power, and the separate light modifying elements, and these
19 can be things including direction and intensity.

20 And another way we know that the light source characteristics that
21 these light modifying elements are acting upon do not themselves need to be,
22 or that they don't need to be dependent on power is that Claim 4 that gives us
23 examples of these light modifying elements includes things such as a light
24 guide, which could be static.

25 And a static light guide is going to control the direction of light
26 regardless of any power. Now I think this is what you were referring to

1 earlier, Your Honor. Patent owner additionally raises that allegedly the light
2 modifying elements in Claim 2 and also in Claim 42 must be controllable.

3 And they argue that the lens in Alden cannot be this light modifying
4 element because it is itself not controllable. And we see here on Slide 29 on
5 the right, we have the language of Claim 2d, which recites that it's the
6 structure combined with control of the light sources and then separately light
7 modifying elements that results in this overall light characteristic. And we
8 can see something similar for 42c down below, but --

9 JUDGE MOORE: Counsel? Sorry, this is Judge Moore. Is there a
10 claim construction issue here? I mean, do we need to decide in that phrase
11 of that last limitation, what control modifies? I mean, does control apply to
12 both the light sources and the elements, or is control just the light sources?

13 MR. HUGHES: I think a POSITA reading this claim in its entirety
14 would readily understand that that control is just of the light sources. And if
15 I go back here, we can see, looking at Claim 2 in its entirety, first we have a
16 structure in 2a.

17 Second, we have light sources with the variable characteristic and that
18 is control to depend on power. And we see the control right there in 2b. In
19 2c, we don't have any control, we just have the light modifying element.

20 So in Claim 2a, we have the structure, in 2b, we have control based on
21 power or control of the light sources, and in 2c, we have separately just a
22 light modifying element. So when we get to this claim here, we can see the
23 same thing if we look at Claim 2d at the top.

24 First, we have the structure of Claim 2a, second, control of the light
25 sources from Claim 2b, and third, separately, the light modifying elements

1 from Claim 2c. So it's clear when you look at the claim in its entirety that
2 that control refers just to the light sources.

3 And again, this is further supported by Claim 4, and we're back on
4 Slide 29 now, 4 and 44, which depend from these claims. For example, they
5 recite that light modifying element could be something like an optical
6 coating, and an optical coating, clearly, is not controllable.

7 Now, in addition, we have Claim 3 and Alden's lens by itself
8 anticipates this claim as well. So Alden's lens, on Slide 30 we can see this,
9 is a static light modifier. Looking at the right-hand side, Claim 3 recites that
10 the light modifying element is at least one of a static light modifier or a
11 variable light modifier. And the claim --

12 JUDGE CYGAN: Can I interject a question?

13 MR. HUGHES: Yes.

14 JUDGE CYGAN: You just stated that a coating is not controllable.
15 Isn't Alden teaching a liquid crystal material that's individually controllable
16 in this?

17 MR. HUGHES: That is correct. And a liquid crystal is not itself a
18 coating. A liquid crystal is an opto electric component that when you have a
19 voltage applied across it is going to change its refractive state. But if --

20 JUDGE CYGAN: Can it be both?

21 MR. HUGHES: I'm sorry, I missed your question.

22 JUDGE CYGAN: Can it be both a coating and defined as you
23 described?

24 MR. HUGHES: It could be, but where Claim 4 recites coatings
25 generally, there are many coatings which are not controllable. You can
26 think of, for example, just a coating, you know, that may be a different color

1 or something else that is not going to change any properties or be controlled
2 in any way once it's been applied.

3 JUDGE CYGAN: So what you were intending to say was that some
4 coatings are not controllable, not that all coatings are not controllable?

5 MR. HUGHES: That's correct, Your Honor. And Claims 4 and 44
6 are broad and generally recite any coating.

7 JUDGE CYGAN: So it's not the case that just because it's a coating
8 that we have to construe the claim as, as that being not controllable.

9 Correct? Because some coatings could be controllable. MR. HUGHES:
10 That's correct. And I think that's, you know, that's another point. And if we
11 go back to Slide 29, you know, clearly like we said when you look at these
12 claims and you read it in its entirety.

13 It's clear like we see in Claim 2d, we have the structure from Claim
14 2a, combined with control of the light sources from Claim 2b, and then
15 separately, you know, the light modifying elements from Claim 2c.

16 And Your Honors may remember the same issue came up in, I think,
17 the VW proceedings on these same patents.

18 JUDGE CYGAN: And so your proposed construction here, at least
19 with respect to control, is based solely on the structure of the claim itself and
20 of the dependent claims. Correct? You're not pointing to anything in the
21 specification or outside and any extrinsic evidence to enlighten this. Is that
22 correct?

23 MR. HUGHES: In this situation, I don't think any extrinsic evidence
24 is needed. Like I said, when you look at 2b, we see right here, control
25 circuitry we've got, and that's in the context of control of the light sources
26 and that's 2b and we're on Slide 28.

1 And then in 2c, we've got separately the light modifying elements
2 with no control of those listed. And, you know, Your Honor asked about the
3 specification. You know, I don't have all the sites with me, but again,
4 reading the specification in context also supports the point that, you know,
5 when we get to this claim, the control is of the light sources themselves.

6 JUDGE CYGAN: And, and that's in your briefing then? We can
7 refer to that?

8 MR. HUGHES: That point, I'm not sure if we have in the briefing.
9 We do refer to you know, as we can see here, the petition at 43 for the 1026
10 proceeding and the reply at 12 to 14. We've discussed the different elements
11 of the claims and like we said a POSITA reading these claims in context in
12 their entirety would readily understand that this control is of the light
13 sources and not the light modifying elements.

14 JUDGE CYGAN: Thanks, Counsel.

15 MR. HUGHES: So, going back to Claim 3, and we are on Slide 30,
16 as I discussed we have either a static light modifier or a variable light
17 modifier. And then the claim goes on to recite variable light modifier
18 control circuitry that alters those light modifying elements.

19 Now, this variable light modifier circuitry recited in Claim 3 is only
20 limiting with respect to the variable light modifier recited earlier in the
21 claim. And Your Honors may recall at institution, the Board had indicated
22 there may be some question as to whether variable light modifier control
23 circuitry is a separate requirement, but it should not be read that way.

24 Clearly, if you have a static light modifier by definition, that static
25 light modifying element is not alterable during operation. And thus, variable
26 light modifier circuitry would not be required. So in context, the variable

1 light modifier control circuitry is only a limitation if you have the optional
2 variable light modifier and not the static light modifier.

3 And Petitioner's expert explained this in his second declaration, which
4 is Exhibit 1011 at Paragraph 35, which we see here on Slide 31. And you
5 can see, starting about the third line down, he indicates that when the light
6 modifying element is a static light modifier like a lens, variable light
7 modifier circuitry is neither required nor of use.

8 By definition, a static light modifier is a light modifying element that
9 is not alterable during operation. As such, there cannot be a control circuitry
10 that alters the light modifying element. If there were, the light modifying
11 element would be variable and not static.

12 Now we've just talked about how the lens in Alden meets all of these
13 claim elements on these light modifying elements. Now, as the petition
14 explained, in addition to that lens, these claims are at least further obvious
15 over Alden in view of its disclosure of being able to also use the liquid
16 crystal variable refractive elements.

17 And we see here on Figure 10 on Slide 32 at the top, we can see
18 another headlight with these variable refractive elements, 147 included, that
19 also can be used to vary the illumination in specific segments or sectors of
20 the headlight distribution area.

21 And as Alden explains in Paragraph 61, which we can see on the
22 bottom of the slide here, one or more methods employed herein may be used
23 in combination to vary illumination in a segmented system.

24 So Alden is suggesting to use, for example, this method of varying the
25 illumination with its other methods, including the LEDs of Figure 5. And a

1 POSITA would have known how and why to include these liquid crystal
2 refractive elements.

3 You know, Alden explains that the liquid crystal element, you know,
4 has a first refractive state, as we can see in Paragraph 33 here on Slide 33,
5 that in a first refractive state is going to let light pass straight through.

6 But, when you apply a current, it's going to have a second refractive
7 state, which is going to cause the light to bend. And implementing this kind
8 of liquid crystal refractor would have been the use of a known optical
9 element in a system with different light distribution sectors that Alden
10 describes these liquid crystals acting upon.

11 And if we go to Slide 34, adding this liquid crystal refractor provides
12 an additional means of modifying the direction or intensity of those
13 individual light sectors. And a POSITA would have known to use these
14 variable refractive elements to bend light, for example, towards upcoming
15 road curves to help Alden perform its road curve function.

16 And as we see on the right-hand side of Slide 34, Petitioner's expert,
17 Dr. Papanikolopoulos explained this in Exhibit 1011 at Paragraph 33 from
18 the -- and this is from the 1026 proceeding. And you can see partway down
19 in about the fourth line, he says Alden is concerned not only with dimming
20 light when other vehicles are detected, but also illuminating curves in the
21 road.

22 To achieve this additional control of intensity and direction of light at
23 a curve, Alden's Figure 5 headlight could include a light source with a
24 variable refractive element at either end so as to be able to bend the light
25 towards the sides of the road and thus any upcoming curves.

1 JUDGE CYGAN: Counsel, one question here. Is this statement
2 indicating that in Mr. Papanikolopoulos's view, Figure 5 by itself doesn't
3 have the ability to control intensity, and direction of light at a curve?

4 MR. HUGHES: No, Your Honor. As I indicated, this is an additional
5 rationale of obviousness for these claim elements here. You know, Alden's
6 system with its lens alone can perform all the functionality in the figures,
7 including dimming to reduce glare directing illumination around a curve,
8 looking uphill and downhill, that can all be achieved as Alden discloses,
9 with the segmented headlight of Figure 5.

10 Now in the petition for completeness, it would have also been obvious
11 to do some of those functionalities by including the additional liquid crystal
12 variable refractive elements that Alden also discloses.

13 JUDGE CYGAN: I guess my question is, if it can be done already
14 with the Figure 5 setup, why would additional structure be added to it to do
15 the same thing?

16 MR. HUGHES: So as explained here, for example, Your Honor, you
17 know, when you want to look around a curve, Alden's Figure 5 LEDs, each
18 are directed into a specific sector and control of them is going to change or
19 direct light into those different segments.

20 Now if you wanted to move the light further to the side, for example,
21 you could have LEDs as Dr. Papanikolopoulos has explained, you could
22 have LEDs at the top that can be turned on and off. But if you don't have an
23 LED far enough up, and you still wanted to direct light, for example, further
24 off the road, adding in this variable refractive element would be a way in
25 order to do that.

1 Like he says here, you could bend light towards the sides of the road,
2 and thus on the upcoming curves we can see that at the bottom of his
3 declaration here on Slide 34.

4 JUDGE CYGAN: And Counsel, would that give you something more
5 than just if you would have added additional LEDs?

6 MR. HUGHES: It could, because with the ability to bend the light,
7 you can control, for example, whether you're going to have the light going
8 straight forward with the first refractive state and into that segment, but then
9 also the ability to bend or vary where that segment goes.

10 So by adding in the variable refractive element, you're getting an
11 additional level of control with those two refractive states to allow the light
12 to go straight or to choose to bend it.

13 JUDGE CYGAN: And just to be clear, why would you modify
14 Figure 5 with the refractive element of the other embodiment as opposed to
15 simply using the other embodiment itself in Alden?

16 MR. HUGHES: Well in Alden with the Figure 5 embodiment you're
17 getting the benefit of having those LEDs be directed at, you know, certain
18 areas of the road and there are benefits to using LEDs in these vehicle
19 systems.

20 So if someone wanted to use the LEDs, they may be using what's
21 shown in Figure 5. So, you know, you may not want to switch entirely over
22 to this if you want to have that control with the lens and knowing your
23 specific areas going into based on the focal point.

24 But to get that additional ability to also bend light in certain sectors,
25 including at the ends, you could add in these variable refractive elements.

26 JUDGE CYGAN: Thank you, Counsel.

1 MR. HUGHES: The next dispute here is whether Alden can
2 determine and identify where vehicles are and are not, and this applies to
3 Claims 11, 20, 26, 38, and 50. Now Alden clearly does this. And first you
4 can see these claims recite, for example Claim 11, identify vehicles.

5 Claim 20 determined the first subsection including a detected vehicle
6 and a second subsection not including the detected vehicle, and Claims 26,
7 38, and 50 have similar limitations. As I said, Alden does this.

8 On Slide 37, if we look at Paragraph 6 of Alden in the top left, Alden
9 specifically says its system has means for sensing the locations of other
10 vehicles and means for dividing the exterior space into sectors and
11 determining if an automobile is present in each respective sector.

12 Looking at Paragraph 25, Alden expressly says that it provides a first
13 intensity of illumination in the sector where the 33 or other vehicle is
14 detected and providing a second intensity where no vehicle is detected. And
15 this is what Alden's system is set up to do.

16 As we can see in one embodiment to reduce glare, it's specifically set
17 up to determine where there's headlights of another vehicle, identify that as
18 another vehicle, and reduce glare in that sector.

19 Looking at Slide 38 on the left-hand side, we see Figure 4, and it's
20 checking, is there light above a certain threshold at each location of the
21 sensor array, and those were the sensor arrays, 51, we talked about earlier.

22 And when it detects those, that light, it could be, for example, like we
23 see in Paragraph 27, the two headlights or those two dots of an oncoming
24 vehicle. And what does it do? It's CPU, like we see in Paragraph 28, is
25 checking each respective sector.

1 When we determine there's headlights there, it's identified that as a
2 vehicle and it's going to reduce glare. Now, Patent Owner makes some
3 arguments that Alden detects just light or objects. It doesn't actually identify
4 anything as a vehicle.

5 But, one, this is incorrect because as we just saw, Alden expressly
6 says it's detecting the headlights of other vehicles. And, two, as we can see
7 here in the Fitbit case, you know, identifying vehicles with perfect accuracy
8 is not required by the claims or legally required.

9 So, if there may be an instance where, for example, two people are
10 walking down the road with high-powered flashlights and Alden's system
11 identifies that as an oncoming vehicle, the claims are still met nonetheless
12 because there's numerous other instances where you have another vehicle
13 coming towards you, its headlights are detected and identified and
14 determined to be a vehicle.

15 As Fitbit says, and we can see this on Slide 39, prior art that
16 sometimes explicitly meets the claim elements is sufficient to show
17 unpatentability just as a device or process that sometimes infringes
18 nonetheless infringes.

19 Now, this is going on, now on Slide 40. We're going to move to the
20 next set of independent claims. This was 37, 59, and 65, which require
21 illuminating above or below a threshold level. And we can see this here on
22 Slide 41, Claim 37 talks about luminance below a predefined threshold level
23 and above, and 59 and 65 are above and below a predefined luminance.

24 Now, Alden discloses this, as we can see on Slide 42, Paragraph 28 of
25 Alden at the top clearly indicates that what it's doing is sending light to areas
26 with a sensed vehicle that's dimmer than the light to other sections.

1 And we can see in Paragraph 27, if we look at the last sentence there,
2 the point of Alden is that the driver of 41 has minimum glare, while the
3 driver of 47 has maximum light. So Alden has a predefined illuminance, or
4 threshold, of what may cause glare.

5 Then it goes below that level for the areas where it detects other
6 vehicles, and it goes above that level of what may cause glare to give
7 maximum light in other sectors. And we can see this, as Dr.
8 Papanikolopoulos explained, which we have here on Slide 43, that a
9 POSITA reading from the middle would have understood that Alden
10 contemplated a certain threshold light intensity that the dim low beam is
11 lower than to ensure that it does not cause glare.

12 And then the high beam light would similarly be above this to provide
13 maximum visibility. Now, even if Alden alone does not disclose this as
14 presented in the petition, this is at least obvious over Alden in view of Stam
15 as we show here on Slide 44.

16 Now, Stam discloses a system that's also headlights for a vehicle and
17 is similarly concerned with reducing glare. And as we can see on the right-
18 hand side of the slide here, Stam specifically says to avoid an illuminance of
19 0.1-foot candles on other vehicles. So at the very least, it would have been
20 obvious to a POSITA to use this value as a predefined threshold in Alden to
21 not cause glare.

22 The next issue in Alden is, as we see on Slide 45, whether Alden can
23 detect and reduce upcoming curves and increase illumination, and this is in
24 Claims 15, 21, 32, 33, 54, 60, and 70.

25 As you can see, each of these claims, each of these require, you know,
26 determining an upcoming growth curve, and Alden does this. If we go on to

1 Slide 47, Paragraph 36 of Alden shown on the left, clearly indicates that
2 Alden can be used to concentrate light to look around corners, and we can
3 see how it does this looking at Figure 11 on the right.

4 There can be reflectors along the roadside, 157. And Paragraph 36 of
5 Alden indicates that it's equipped vehicle senses that the road turns by
6 receiving light from these reflectors. And then the responding headlights
7 direct light to maximize the driver's visibility to see there.

8 Now, Patent Owner argues that Alden's system couldn't do both that
9 without knowing the difference between vehicles and reflectors and absent
10 of teaching to help differentiate, Alden has no way of determining whether it
11 should dim light in response to detected light or, Figure 5, being used to
12 reduce glare or perform some curve accommodation function.

13 But Alden clearly discloses that its system can both diminish glare
14 and accommodate a road curve. This is on Slide 48 now. In describing
15 Figure 11, Alden says that its system is used to concentrate light to look
16 around corners. It discloses that this can be achieved with the segmented
17 sensing elements and segmented light distribution elements described herein.

18 It doesn't limit it to any particular embodiment. That includes,
19 though, the segmented light distribution elements described herein includes
20 those of Figure 5. And again, at Paragraph 61, like we see at the bottom,
21 Alden discloses that the methods may be used in combination. So, Alden's
22 system could both reduce glare and accommodate curves.

23 And in any event, Alden can distinguish between headlights and
24 reflectors, as we see here on Slide 49. A POSITA would understand that the
25 logic of Figure 4 would just apply to detecting those roadside reflectors.

1 If we look at the right hand side, we can see again Dr.
2 Papanikolopoulos's declaration, and he explains that to distinguish these
3 objects, such as reflectors or vehicles, POSITA would have understood that
4 the threshold intensity or distance of the process in Figures 3 and 4 would
5 simply be adjusted for the type of object.

6 And in addition, Alden's system evaluates the location distance or
7 distance of detected lights in determining the headlight distribution pattern,
8 which could also be used to differentiate between objects. So, for example,
9 as we see at the bottom here, oncoming vehicle lights are continuously
10 moving, roadside reflectors are usually fixed, and you would see numerous
11 ones of those.

12 So, using the location of them, again, Alden's system, like Dr.
13 Papanikolopoulos says, can identify different objects, not only based on light
14 intensities, but also based on their locations. Now, the next part of these
15 claims require not just detecting the curves, but increasing the illumination,
16 and Alden, again, does this.

17 Now, Patent Owner, we just saw, Alden directs light into the corners
18 to illuminate them better. Patent Owner argues that Alden cannot increase
19 illumination because the lamps already emit high beams everywhere there is
20 not glare reduction.

21 Now, this is based on a reading of Alden's only glare functionality, but
22 as we saw, Alden can be used for many applications as we say on Slide 51,
23 including dimming where other vehicles are sensed and directing light into
24 the area of road curves, and the road curve accommodation functionality
25 does not default all LEDs to high beam.

1 Instead, as explained by Dr. Papanikolopoulos, the system would
2 selectively switch certain LEDs to high beam. For example, those on the
3 end of the headlight curve, such that they would direct the high beam light
4 into the area of the road curve.

5 So, Figure 4 is not saying that the LEDs are all on high beam, instead
6 it says that Alden must switch them to high beam. And like I said, here on
7 Slide 52, we have Dr. Papanikolopoulos again stating this is achieved with
8 that logic of Figure 4.

9 And as we can see at the bottom here in the highlight, there's a step of
10 actively switching segments to high beam. Now, there are a few other
11 disputes that are raised in this, and I'll get into a few of those now.

12 The first is whether Alden can determine illumination for a
13 subsection, and this applies to Claims 1, 26, 38, 59, and 65, as we can see
14 here on Slide 55. Each of these requires determining an illumination.

15 Now Alden, on Slide 56 here, expressly does this, you know, it clearly
16 discloses using those left and right sensor maps to determine whether and
17 how the different subject sections should be illuminated. And in fact, in
18 Paragraph 27 that we can see here, Alden first senses the objects where
19 there's detected light from those sensor maps, then determines the distance
20 from them.

21 And then as it says, this distance information is used to determine the
22 intensity of light that will be produced by the vehicle in the corresponding
23 headlight sectors. And if we go to Slide 57, we look at Figure 4, we can see
24 this process in Alden through the controlling logic.

25 We're detecting the light at the sensor positions, as we see on the left
26 here, determining the sectors where we have the threshold light, compiling

1 the maps, calculating the distance, and then as we saw, that distance is then
2 used to determine the intensity of light that will be produced in that sector,
3 and finally, we switch the sectors to the appropriate illumination level.

4 Now, finally, the petition includes some grounds where Alden is
5 combined with other references to render certain claims obvious. And the
6 first one of those is Alden combined with a reference to Harbers, and this
7 was with respect to claims 5, 28, 29, 45, 68, and 69.

8 Now these claims recite illuminating subsections of the field of view
9 with different colors. As we can see here on Slide 59, Harbers discloses
10 vehicle headlights with LEDs, like those of Alden, that can be controlled to
11 change color of different headlight beam segments, just like the light beam
12 segments in Alden.

13 And if we look at the top of Slide 59, we can see part of Page 6 of
14 Harbers here. And that indicates that you might want at the top of first beam
15 segment with spectral characteristics rich in green, yellow light, which
16 would be on axis or along the road.

17 And then other off axis parts of the light may be presented, as we see
18 at the last sentence there, in blue, green light and harbors indicates this may
19 be towards the side of the road where there may be pedestrians you don't
20 want to blind, but you still want the driver to see them, so you use the blue
21 light there and the yellow light along the road.

22 Now, in addition, Harbers discloses using different colors under
23 different weather conditions, and in particular, fog or snow. As it indicates,
24 and we see here on the bottom of the slide here at Page 10, Harbers indicates
25 that when you have fog or snow, you can change the illumination so that it is
26 substantially composed of yellow light.

1 We see that in the third to last line, and the reason it does this, it says
2 that there's backscattering caused by the fog or snow with respect to the blue
3 component. So you'd want to remove the blue component and just use
4 yellow to reduce or eliminate that effect of backscattering.

5 And it would have been obvious to apply these teachings to Alden to
6 further improve the driver's vision. For example, Alden's system with its
7 light sensors detecting light in the environment around the vehicle, could
8 detect, for example, the other vehicles or, you know, the backscattering.

9 And as Harbers indicates here, when you've got those unfavorable
10 weather conditions, and you may have that backscattering of light. You
11 would want to then reduce it. And so what you would do, like Harbers says,
12 is switch to yellow light.

13 The next combination here is for Claims 6 and 46, and this was Alden
14 in view of a reference to Bergkvist. And these claims introduced the idea of
15 also including a UV light within the headlight. And as explained in
16 Bergkvist, this is something that was well known and it would have been
17 obvious to apply this to Alden in order to better illuminate roadside objects,
18 such as road signs or pedestrians that may have the reflective material on
19 them that would glow when they're illuminated with the UV light.

20 Claims 8 and 48, we see here on Slide 61 now, these recite that the
21 sensors image lights indicative of preceding vehicles. So in addition to
22 dimming for the oncoming vehicles, you're going to dim for preceding
23 vehicles as well.

24 And this is expressly recited in Beam. We see on the right-hand side
25 of the slide; Beam in Column 2 specifically says we're detecting the

1 presence of headlights and taillights and its system, similar to Alden, you
2 know, dims in the areas where those lights are detected.

3 So a POSITA would have, you know, found it obvious to apply these
4 teachings of Beam to use both detected headlights and taillights as
5 something where you would want to reduce glare.

6 For Claims 9 and 49, as we see here on Slide 62, these recite that one
7 of the sensors in the system is a GPS sensor. And Kobayashi discloses such
8 a GPS sensor that's going to gather information about a road and similar to
9 Alden control the headlights.

10 And as we explained in the petition, and we can see here on Slide 62,
11 POSITA would have been motivated to add Kobayashi's GPS sensor to
12 Alden's system to, for example, have multiple different sensors to assist in
13 detecting road curves in different environments and making sure that the
14 system is operating appropriately to direct light into those curves.

15 And finally, we have Alden in view of Braun, and this is for Claims
16 66 and 67 that we see on Slide 63. And these claims introduce the concept
17 of determining illumination indicating, using data that indicates a road sign
18 or a pedestrian.

19 And as we explained in the petition, this is disclosed in Braun, and it
20 would have been obvious to a POSITA to apply Braun's pattern recognition
21 to detect objects in the roadway, such as road signs and people, with Alden's
22 ability to adjust the light in response to those types of sensed environmental
23 conditions.

24 And I'll stop there, and if the Board has any further questions?

25 JUDGE MOORE: Seeing none, you have about 35 minutes left of
26 your time.

1 MR. HUGHES: We'll reserve that for rebuttal. Thank you, Your
2 Honor.

3 JUDGE MOORE: All right. Patent Owner, whenever you're ready.

4 MS. SHAH: This is Sangeets Shah, on behalf of Patent Owner, Evan
5 Spero. First, I'd like to go through Slide 2, please. So we have here eight
6 different disputed issues that we intend to discuss today. We'll be
7 addressing a total of all of these eight issues.

8 I will be addressing Topics 1 through 4, and my co-counsel, Andy
9 Turner, who will be participating today as a LEAP practitioner, will be
10 addressing Topics 5 through 8.

11 MR. TURNER: I'm sharing my screen.

12 MS. SHAH: We can turn to Slide 3, please.

13 MR. TURNER: All right. It's not shifting. Okay.

14 MS. SHAH: Okay. So in Slide 3 here, we are essentially just
15 establishing that, though Petitioner made an obviousness ground in reference
16 to Claim 1, the Board concluded that the obviousness proofs were
17 insufficient and thus, for all independent claims in IPR 1026, Petitioner's
18 proofs are limited to the anticipation proof based on Alden alone.

19 Slide 4, the same applies in IPR 1027, where once again the Board
20 found that all obviousness arguments based on Alden alone are per se
21 insufficient.

22 Slide 5, please. Next, we'd like to get into a little bit of background
23 about Alden. Although we've actually heard a lot about Alden already,
24 there's a few different areas that we kind of want to underscore.

25 The first is that Alden includes three distinct embodiments shown on
26 the right-hand side in Figure 5, which is the LED embodiment, Figure 6,

1 which is the single lamp electrochromatic material embodiment, and Figure
2 10 here, which is the refractive material embodiment, which is the only
3 embodiment that includes the ability to redirect light.

4 Each of these embodiments, given the unique structural material
5 properties of each of the embodiments, is distinct. And hence, the teachings
6 are not interchangeable. We have a fair amount of briefing on this point,
7 based on the law, and as well as what a person of skill in the art would
8 understand reading the Alden Reference in totality. So that's the first part
9 that we'd like to specifically underscore.

10 And then secondly, that, per the figure descriptions for Figures 3 and
11 4, Figure 3 is an illustration of the information flow, processes, and
12 architecture of the elements of a segmented distribution illumination
13 process. And Figure 4 illustrates the controlling logic flow of the process
14 that's shown in Figure 3. Next slide, please.

15 So as we see in Slide 6, Alden operates in two modes, low and high
16 beam, and this is specifically referenced here and admitted by petition in the
17 1026 petition where Petitioner states:

18 Where Alden wants a sector of the headlight beam to be low or high, a
19 determination is made to power the lighting elements of those sectors to
20 quote, produce lower high beam intensity light, as opposed to light at an
21 intensity in the range between low and high.

22 And so once again Petitioner is making it clear that, for purposes of
23 the headlight's functionality that is relevant to its proper proofs, Alden is
24 functioning in two modes, low and high. We can turn to the next slide,
25 please.

1 I did want to say one other thing. That last point is further reinforced
2 by Petitioner's Slide 12, where they once again reiterate that the LEDs are
3 switched to high beam or dimmed. So again, one of two operating modes,
4 high and low.

5 If you could just, I just wanted to confirm that the screen you are now
6 seeing is Slide 7, to the Board. Is that correct? Sorry, is everyone seeing the
7 same, is seeing Slide 7?

8 MS. SHAH: All right. Great. Thank you. So next I wanted to turn
9 to providing a little bit of legal context for the anticipation proofs that
10 Petitioner has proffered. We can turn to Slide 8 please. Here we take a look
11 at the Colas federal circuit case which lays out Petitioner's burden at the
12 outset.

13 Colas specifically provides here, it is of the utmost importance
14 that Petitioners in the IPR proceedings adhere to the requirement that the
15 initial Petition identify with particularity the evidence that supports the
16 grounds for the challenge to each claim.

17 A reply, they only respond to arguments raised in the
18 corresponding opposition or Patent Owner response. Next slide please.
19 Turning to the specific issue of Petitioner's burden with respect to its
20 anticipation proofs, the law makes it clear that Petitioner has the burden of
21 establishing first that each and every element is present expressly or
22 inherently.

23 That the proofs must be in the four corners of Alden. Second,
24 that Alden can't be modified to anticipate the claim. And third, the existence
25 of multiple distinct teachings that "might somehow combine" is per se
26 insufficient to establish anticipation.

1 Because the Petition here never made an inherency argument,
2 Petitioner is limited to the arguments related to the express teachings of
3 Alden and specifically the teachings related to Figure 5 which is the only
4 embodiment relied on in the Petition. Next slide.

5 Next we would like to look at the law with respect to
6 ambiguous references. This law has been clear for over 50 years since the
7 1962 CCPA Turlay decision and its progeny. It is a matter of law
8 ambiguous references to not anticipate a claim.

9 This law was also reinforced more recently in the Wasica case
10 that the federal circuit decided in 2017. Next slide please. Finally, we look
11 at the law with respect to anticipation and the rule of a person of ordinary
12 skill.

13 With respect to this issue, the law is again clear that a person of
14 ordinary skill in the art in the context of an anticipation ground cannot "fill
15 in missing limitations." Prior art, this is quoting from the Nidec case, prior
16 art must be viewed as it is written and as it would be understood by persons
17 in the field of the invention, not as it might have been written to describe the
18 different development.

19 This, of course, precedent quote does not permit the Board to
20 fill in missing limitations even if a skilled artisan would immediately
21 envision them. This holding was also further confirmed a few years later in
22 the 2020 federal circuit case Galderma Laboratories vs. Teva where the
23 federal circuit stated the district court was not permitted to fill in missing
24 limitations simply because the skilled artisan would immediately envision
25 them. Next slide.

1 So now we're about to get to the disputed issue of the proof
2 failures associated with Figure 5. And specifically clarify what the basis for
3 Patent Owner's arguments are here. As Patent Owner briefed, our argument
4 is two-fold. First, Petitioner's proofs impermissibly rely on an inoperative
5 combination.

6 The combination of a 1D LED array from Figure 5 with the 2D
7 switch array from Figure 3. And that second, in our attempt to try to address
8 the inoperability issue which Patent Owner identified in the preliminary
9 Patent Owner response, Petitioner injected a new theory on reply
10 impermissibly arguing for the first time that Figure 5 should be interpreted
11 as a 2D LED array creating a fatal ambiguity as to how Figure 5 should be
12 interpreted.

13 So in Slide 13 of Petitioner's deck, Petitioner frames the dispute
14 as whether Alden is operative. That's incorrect. The inoperability issue
15 arises because of Petitioner's proofs and not from something within the
16 Alden reference itself. Next slide.

17 So turning to Slide 13, as we can see from the excerpt on the
18 left, the Petition consistently refers to and applies Figure 5 as a 1D array.
19 First, it states the LEDs are "on a curve along the focal point of a headlight
20 lens 121."

21 And second, different groups project lights into different areas
22 in front of the vehicle, left, center, right with no mention of light being
23 projected above or below. Third, looking at the top right except regarding
24 Claim 59, the Petition reproduces Figure 5 and states each element is
25 directed at a different angle or direction relative to the front of the vehicle

1 which confirms that the Petition considered Figure 5 to disclose a single line
2 of LEDs.

3 If the arrays were stacked as Petitioner now contents, the
4 verdict of stacked lighting elements would share a common angle. And
5 fourth, with respect to the bottom right excerpt, even on reply, Petitioner
6 points to a Figure 5 configuration it would only apply to a 1D array that is to
7 achieve this additional control of intensity and direction of light at a curve.

8 Alden's Figure 5 headlight could include a light source with a
9 variable reflective element at either end. Finally, in --

10 JUDGE CYGAN: Counsel?

11 MS. SHAH: -- IPR 20 -- oh, I'm sorry. You have a --

12 JUDGE CYGAN: This is Judge Cygan.

13 MS. SHAH: -- question? Yes.

14 JUDGE CYGAN: Is your inoperability argument that Alden doesn't
15 explain how the 2D arrays are mapped to the 1D LEDs if it is a 1D LED? Is
16 it a problem, is your problem that Alden doesn't explain it or that it could not
17 be done to go from a two-dimensional array to a 1 dimensional LED?

18 MS. SHAH: Yes, so our argument is not that Alden has an
19 inoperability issue. Figure 5 has a complete teaching which includes a
20 power supply. It includes the switch array. It includes the specific switch
21 array configuration.

22 And it also includes the row of LEDs. Our, I guess the
23 interoperability issue arises because of Petitioner's chosen proofs which was
24 to combine, you know, on its own, the Figure 3 2D switch array
25 configuration with the 1D LED array from Figure 5 without ever explaining

1 how it is you would put those two kind of incongruous teachings together
2 absent some modification by a POSA.

3 I understand that subsequently they're arguing that a POSA
4 could readily, you know, make this adjustment, but none of that was
5 addressed in their Petition and based on the law, they should not have an
6 opportunity to fix that subsequently, the underlying error that existed in their
7 Petition.

8 JUDGE CYGAN: So does Alden not itself indicate that the Figure 5
9 embodiment is based upon I guess the logic set up in Figures 3 and 4?

10 MS. SHAH: It does. So let's see, let's turn to that. What it does is it
11 looks at let's turn to Slide 15. So here Petitioner is, if this hopefully answers
12 your question, it does, Figure 5 does state that it's relying on the CPU and
13 logic previously described in Figures 3 and 4.

14 So once again, if you take a look at that, there's two things that
15 are sort of imported over to help us understand Figure 5. And that is limited
16 to the CPU of Figure 3 and the logic of Figure 4. When we look at the CPU
17 of Figure 3, that doesn't include the architecture of the control switch array.

18 Again, as the Figure 3 specifically described, it includes
19 multiple different things, the architecture of the elements, the logic and the
20 CPU. When the description was specifically identified of what's being
21 imported over to help understand Figure 5, it is not the architecture of the
22 control switch of the switch array.

23 It is simply the CPU itself and the logic of Figure 4. There isn't
24 anything about the CPU as it functions and how the sensor functions plus the
25 controlling logic of Figure 4 that requires necessarily that Figure 5 be
26 interpreted to be a 2D LED array.

1 As I mentioned, Figure 5 on its own is complete. It has a power
2 supply, 113. It has a switch array, nine switches that map to each of the nine
3 LEDs that are shown here. The nine-switch array configuration is 115, and
4 the nine LED arrays are shown in the Roman Numeral 119. That is
5 complete.

6 Figure 5 is complete onto itself. Effectively what Petitioner is
7 trying to do is modify Figure 5, you know, because it recognized after we
8 briefed this issue in our Patent Owner response if there was an issue that the
9 combination that they actually put together which is not one that Alden
10 actually puts together has this sort of 2D, 1D disconnect.

11 And so when trying to fix that, they reinterpreted Figure 5 to
12 now be a 2D LED array. In so doing, like I said, they inject a whole level of
13 ambiguity as to is Figure 5 actually 1D? And should Figure 5 actually be a
14 1D LED array or is it a 2D LED array? If that's the case, what does that
15 look like? From the --

16 JUDGE CYGAN: So, Counsel?

17 MS. SHAH: Yes.

18 JUDGE CYGAN: If we can focus on just an interpretation of where
19 Figure 5 is a 1D array. Your response building off of Mr. Turk's declaration,
20 you know, had a problem with the operability of that. If we're going, if you
21 can confine your answer to just a 1D interpretation of Figure 5, what is the
22 inoperability problem in Alden?

23 MS. SHAH: There is not an inoperability problem in Alden. The
24 inoperability problem, again, lies in Petitioner's proofs.

1 JUDGE CYGAN: So if Alden is being applied to Claim 1 and
2 Alden's Figure 5 represents a 1D headlight illumination pattern, what is the
3 flaw in the proofs?

4 MS. SHAH: So let's take a look at what Petitioner's proofs are.
5 Because that's not what Petitioner chose as part of its proofs. Let's look at
6 Slide 22 please. So this is what Petitioner chose for its proofs. It chose here
7 you can see with the Limitation 1B, it chose to rely on the 1D LED array
8 from Figure 5 referring to the lighting elements on a curve along the focal
9 point of headlight lens 121.

10 So it relied on, again, for purposes of the light cluster limitation
11 of 1B, it pointed to the and specifically throughout the lighting elements, the
12 9 LED light elements in Figure 5. Then when it moved forward into
13 Limitation 1D, it added in the control switch array 55A and 55B which as
14 they pointed out is a 2D switch array.

15 That's where the proofs become inoperative. It was the chosen
16 combination that Petitioner sited to combine which leads to the inoperability
17 problems with their proofs. That is not a problem that is inherent to Alden.
18 It is a problem that was created by Petitioner's proofs.

19 JUDGE CYGAN: And what would be the problem with a 2D control
20 circuit sending signals to a 1 dimensional display? Why would that be
21 inoperable?

22 MS. SHAH: So essentially, there would have to be something that
23 would be modified to translate from the 2D switch array to the 1D LED
24 array. And it's not that it's not possible, the point is that's not something that
25 they identified as a problem.

1 As on its face it's inoperative without some form of a
2 modification that a person of skill in the art would have to make. It is
3 Petitioner's burden to establish its proofs at the outset and they should have
4 explained the modification that a person of skill in the art would have to
5 make to this combination that they were putting forward which was the 2D
6 switch array with the 1D LED array.

7 They did not do that. Like I said, impermissibly on reply, they
8 then sort of doubled down and re-interpreted Figure 5 as a 2D LED array
9 without, again, adding a whole series of different levels of ambiguity as to
10 how you actually interpret Figure 5.

11 And so turning, if that answers your question, then I wanted to
12 turn to how Petitioner's expert actually addressed some of these issues.

13 JUDGE CYGAN: Thank you, Counsel.

14 JUDGE MOORE: Counsel, this is Judge Moore.

15 MS. SHAH: Yes.

16 JUDGE MOORE: I do have one question. If there is one
17 interpretation of Figure 5 that renders it inoperative and there's another
18 interpretation of it that renders it operative, why wouldn't we choose the one
19 that renders it operative?

20 MS. SHAH: So the issue here is that there's two different
21 interpretations. It's sort of, per se, ambiguous. You know, just by virtue of
22 having these alternative interpretations which, again, were kind of inserted
23 into this dispute on reply, it creates an ambiguity on its face as to what the
24 proper interpretation of Figure 5 is.

25 And in so doing, according to the law that we set forward as a
26 matter of law, a reference that is ambiguous cannot anticipate. And so that

1 really becomes the issue is that in search of this additional argument is not
2 only improper as being new, but it also created this impermissible ambiguity
3 as to how to actually properly read Figure 5 and is it a 2D array?

4 If it's a 2D array, again as you know Petitioner's expert points
5 out, it's unclear as to how many rows are there, how do they function?
6 What's the emission pattern? There's a whole series of questions that arise
7 that even Petitioner's own expert in deposition testimony was unable to
8 answer.

9 JUDGE MOORE: Well is it ambiguous or it a single line of LEDs?

10 MS. SHAH: It's our contention that Figure 5 is a single line of LEDs.
11 That's what Alden teaches. That's the only thing that Alden teaches
12 expressly. Everything else requires impermissible modification either
13 borrowing from the other embodiments which as we contend is not
14 something a POSA would do in this case because those other embodiments
15 are absolutely distinct by their material composition, by the structural
16 capabilities and the ultimate functions of those embodiments.

17 So we do not think it is appropriate to modify Figure 5 based on
18 the other embodiments. So clearly it's our contention that Figure 5 is, as
19 shown, complete and the only proper analysis in Figure 5 is that it's a 1 row
20 LED teaching.

21 JUDGE MOORE: Would you agree with me that you need a 2
22 dimensional array to produce a lighting pattern that looks like that shown in
23 the control circuitry of Figure 3 where there's a dimmed segment in the
24 center?

25 MS. SHAH: I'm sorry. Just give me one second. Figure 3, I'm sorry,
26 your question is with respect to Figure 3?

1 JUDGE MOORE: Yes.

2 MS. SHAH: Yes, we can just go to that right here. Yes, so again, it is
3 our contention that while Figure 3 shows you this box, it's a 2D box, that
4 box does not -- a person of skill in the art reading the totality of Alden would
5 recognize that Figure 5 has its own express switch array configuration.

6 That again, as we were pointing out earlier, the only thing that
7 is sort of borrowed or kind of what we are to infer from Figure 3 into Figure
8 5 is the basic CPU function and the control logic of Figure 4.

9 Not the switch array configuration which is 55a and 55b.
10 Again, there's a different series that there's a different depiction of the switch
11 array in Figure 5, there's a different reference numeral which is 115. There's
12 a different power supply which is 113.

13 All of this makes it clear that Figure 5 is completely complete
14 which is distinct I should say compared to the second and third
15 embodiments. So if we look at the Figure 6 embodiment, you'll notice it
16 does not have a switch array nor does it show a power supply.

17 That's the same thing for the Figure 10 embodiment. Both of
18 which are lacking specific call out for a power supply or a switch array. So
19 in those instances, for the Figure 6 and the Figure 10 embodiment, you
20 would go back and take a look at the Figure 3, you know, switch array and
21 use that to explain the 2D, the kind of 2D to 2D embodiments that are taking
22 place.

23 And describe with respect to Figure 6 and Figure 10. That is
24 not the case with Figure 5. Again, Figure 5 is --

25 JUDGE MOORE: But my specific question is if you wanted to
26 produce a lighting pattern that looks like what's shown in Figure 3 in 55A

1 and 55B, where you have an area that's high illumination and then within
2 that you have an area of low illumination with high area, high illumination
3 areas all around it, would you need a 2D array to do that?

4 MS. SHAH: Yes.

5 JUDGE MOORE: Thank you.

6 JUDGE CYGAN: Counsel, can I ask a clarifying question?

7 MS. SHAH: Yes.

8 JUDGE CYGAN: Am I understanding you correctly to say that
9 Figure 5's switches are 115 and they're an alternative to the control circuit 77
10 and 79 in Figure 3?

11 MS. SHAH: Yes, that's right. It's not, I mean, it's the express
12 teaching of Figure 5. So as much as Figure 3, you know, the CPU and sort
13 of basic layout of sensors gives you some indication of how Figure 3
14 functions, Figure 5 has its own express switch array and that governs how
15 the switch array works in conjunction with the 9 LEDs in Figure 5.

16 JUDGE CYGAN: So if Figure 5 is using its own switches, it's logic
17 from Figure 4, and the logic and CPU from Figure 3, which sensors is it
18 using?

19 MS. SHAH: As per Figure 4, it is using the left and right sensors so
20 just as shown in Figure 3, it is using the left and right sensors. The only
21 difference is, you know, instead of having a 2D XY sensor positions that are
22 being mapped, it would simply have, you know, Y would be 1, and so it
23 would be a single line of sensor positions that it would be mapping as
24 against.

25 So there isn't anything incongruous about having, you know, an
26 array can be 2 x 1 array. There isn't anything incongruous about having a

1 batch form of an array. There isn't anything about the usage of XY sensor
2 positions that requires necessarily that it is a 2D, that it generates a 2D map.

3 Those are all things that, again, Petitioner is trying to use to
4 express to modify the express teachings of Figure 5 in a way that is
5 disconnected with the express illustration of Figure 5 as well as the, well in
6 addition to all the various ways the Petitioner actually in its Petition
7 described Figure 5.

8 And so if -- I'd like to also get to that at some point if there, are
9 there any other questions on this point or if not, I'd like to kind of cover all
10 the different ways that Petitioner itself repeatedly referred to Figure 5 as a
11 1D array.

12 So were there any other questions on this point? Okay so with
13 respect to that, if we can turn to Slide 13. So I think we covered this. I just
14 wanted to sort of reiterate some of this. Right? These are all the different
15 instances where in the Petition, all that the Petitioner referred to consistently
16 in the original Petition was usages and representations of Figure 5 as a 1D
17 array. Right?

18 They're talking about the lighting elements on a curve along the
19 focal point. They're talking about groups of light that project, you know,
20 different groups that protect light, left center and right. Again, never above,
21 below, any other direction.

22 If you look here on the right top, you'll see they're talking about
23 there being each element operating at a different angle. We talked about
24 this. Right? If it was actually multiple rows then there would be at least a
25 handful of them would be elements would be directed at the same angle. So
26 you have a pattern here.

1 Not to mention the fact that there's a separate IPR where they
2 specifically refer to it's the IPR 1023 1040 where Petitioner makes its
3 understanding absolutely clear that each element in Alden is directed into a
4 15 degree section on the same plane next to one another.

5 So this new argument that Figure 5 should be interpreted as a
6 2D LED array is a departure from the arguments that they make in their
7 Petition and once again in our view impermissible based on the SAS case
8 which clearly indicates that the Petition guides the trial all the way through
9 from the Petition through, you know, institution and through the trial
10 proceedings.

11 We also would cite the Wasica case which has actually similar
12 facts here which is where a defect is identified at the Patent Owner response
13 that does not provide an opening for the Petitioner to then try to rectify and
14 to fix the defect through its reply through a new argument that's presented on
15 reply.

16 I would like to turn to Slide 19. So here we can, this is a short
17 excerpt that shows that Petitioner's expert makes it clear that he, it's unclear
18 to him as to how the switch array of Figure 3 would work in conjunction
19 with Figure 5.

20 He's in this excerpt talking about the fact that this is a concept
21 drawing. He has no idea, it's unclear to him how many rows would be here.
22 He cannot count. It doesn't give him the Figure 5 drawing in reference to
23 Figure 3, doesn't give them any information of how many rows, how many
24 columns.

25 It's a concept drawing, there's no dimensions, no scale. So this
26 was all, you know, these questions were asked in the context of what the

1 hypothetical structure would be if Figure 5 and as Petitioner's expert
2 indicates here, it's unclear based on this new argument that Figure 5 should
3 be interpreted as a 2D LED array, what the structure intermission pattern in
4 Figure 5 would actually be.

5 That is ambiguous for Petitioner's expert. We can turn to Slide
6 20. So as I just mentioned, the Wasica case makes it clear that when you
7 have ambiguities that exist, the Petitioners failed to meet its proofs, the
8 specific facts of Wasica are quite similar to the facts we have at hand. And
9 then finally, I would like to turn to Slide 21.

10 We are in the Institution Decision. The Board recognized that
11 there could be alternative interpretations. One is that Figure 5 would be a
12 schematic sectional type of drawing and the second is that if it is a single
13 line of LEDs that perhaps a POSA could do something to rectify the
14 disconnect between the 1D, 2D configuration.

15 The fact of the alternative interpretations gives rise to an
16 ambiguity that was never addressed in the Petition and has failed as such.
17 Turning to the next issue, if we can turn to Slide 24 please. So next we'd
18 like to talk about the determining limitations.

19 Specifically the determining limitations relate to claims 120,
20 26, 38 to 39 and 65-77. Slide 25 please. First, we'd like to point out that
21 Claims 120 and 26 use different determining limitations. They include
22 different language and hence they have different determining limitations.

23 As you can see here, 20E, there's the first thing to note is there
24 is multiple different determining aspects to this claim. It starts off with
25 configure 2 so where the processor is configured to process the sensor data

1 to determine within a field of view at least for a subsection including a
2 detected vehicle.

3 And then it goes on to have a second determination by the
4 processor which is the processor determining optimal use of the differential
5 and directional light sources. Then if we look over to the right-hand side
6 and we look at Claim 26, you see here that in Claim 26, they're talking about
7 determining illumination requirements for the field of view.

8 And then again, separately the processor determining
9 illumination for at least a -- for subsection and then again determining
10 illumination for a second subsection. Those limitations are fundamentally,
11 the language is different and under kind of basic black-letter principles of
12 plain differentiation which is well settled, the different claim terms are
13 presumed to have different meanings.

14 We've provided the law in our briefings. While that
15 presumption could have been rebutted by Petitioner, Petitioner did not
16 choose to do so. Instead, it decided to conflate different claim language
17 without providing any explanation as to why that was appropriate in this
18 case.

19 So by way of example, just to sort of articulate the potential, the
20 practical implications of these different, this different language under the
21 different, under determining illuminations requirement for Claim 26, you
22 could have a situation where there would be a second subsection that would
23 be different than it is in the context of the determining optimal use.

24 The 503 Spero patent explains in great detail how different
25 objects and pedestrians can optimally be illuminated in terms of spectral
26 characteristics, angles and intensity. For example, in Column 49, this is

1 distinct from the determining illumination requirements for a second
2 subsection which could be a simpler set of illumination requirements.

3 For example, modifying intensity, but not spectral
4 characteristics. Again, as Petitioner's proofs conflate these two sets of
5 different language and different claim limitations, it really only points to the
6 single simply binary high/low beam strategy in Alden.

7 This is an impermissible reading of these claims without any
8 explanation, once again, as to explaining why this difference in claim
9 language should not be treated as different. Next slide please.

10 JUDGE MELVIN: I'm not sure I understand your point here. Are
11 you saying that, for example, Claims 20 and 26, in fact, have different
12 requirements? What are the constructions that you're urging us to adopt for
13 these claims?

14 MS. SHAH: We're urging a plain meaning construction, but one that
15 would recognize the differences in language between Claim 26 and Claim 20
16 that Claim 26 --

17 JUDGE MELVIN: Okay how would that construction recognize
18 those differences?

19 MS. SHAH: I'm sorry, how would a plain meaning recognize the
20 differences? Is that your questions?

21 JUDGE MELVIN: Exactly.

22 MS. SHAH: So for example, determining illumination requirements
23 is different than a processor determining the optimal use depending like, for
24 example, as I was mentioning. Right? You could have a system that
25 chooses where your determination, the processor determining illumination
26 requirements is limited to a subset of what it's capable of doing.

1 Let's say it's focused on determining illumination requirements
2 in the context of simply intensity. That would be a determination that the
3 processor would make under 26B. Looking at it in the context of 20E, if you
4 had that same issue, you would still, you may have a completely different set
5 of, the processor may determine a completely different sort of optimal use
6 configuration for the LEDs because it may determine that it wants to include
7 spectral characteristics.

8 It may include that it wants to differently illuminate intensity of
9 the different LEDs and so --

10 JUDGE MELVIN: Okay so --

11 MS. SHAH: -- this language has -- yes.

12 JUDGE MELVIN: -- in Claim 26, you're saying that the processor
13 could not determine a different spectral, let's say color temperature.

14 MS. SHAH: I'm saying that there's an active processor step that's
15 required which requires the processor to determine the illumination
16 requirements and that is different than the processor going through the active
17 step of determining the optimal use of those LEDs. That they don't always,
18 they're not always the same.

19 There are scenarios under which those could be different and
20 Petitioner never explained why these words should be treated the same. Is
21 that what --

22 JUDGE MELVIN: But that's just an argument that both of these
23 claim terms have a fairly broad scope. That neither one requires a very
24 specific determination that it could include spectral characteristics. It could
25 include intensity.

1 I mean, I think that's true for both determining illumination
2 requirements and determining optimal use. So it's not clear to me how
3 you're restricting either one of these claim limitations.

4 MS. SHAH: We're not trying to restrict the claims as such. We're
5 just trying to give the claims the full scope of the meaning that each
6 limitation has. And on its face, those, the language is different. It has
7 potentially different application. It's not required to have different
8 application, but it could. And as such --

9 (Simultaneous speaking)

10 JUDGE MELVIN: Yes, but that doesn't impact the Petitioner's proof
11 at all. All you're saying is that these could have different claim scopes, but
12 if Petitioner has offered an example or a teaching in the prior art that falls
13 within both of these claim scopes, that's good enough.

14 MS. SHAH: It would be if it had started off with a -- again, it's our
15 contention that black-letter law requires that they start off with explaining
16 why these different terms should be treated the same. They failed to do that
17 and that's sort of the first step of our analysis.

18 JUDGE MELVIN: Oh, so you think that it's not good enough for
19 Petitioner to say, here's a teaching in the prior art. This teaching is within
20 the scope of both Claims 20 and 26. You think that they have to expressly
21 construe the claim terms in those two claims?

22 MS. SHAH: No, let me move to the second point. No, it's fine. I
23 guess if there happens to be a single mapping that applies to both, that would
24 be fine. Here what I think our core argument is number one that, you know,
25 the claim language is different, but most importantly, it is that each one of
26 these limitations, let's focus in on 20E actually since we have that slide up.

1 20E has a second processor determination requirement. The
2 second processor, again, if we take a look at what Petitioner is mapping to,
3 Petitioner is really mapping to the first processor quote determination which
4 is the processor configured the process the center data to determine a first
5 subsection.

6 At best, what it's pointing to which is all the different steps that
7 lead to step 107 which is calculating the head light dim zones for each
8 threshold object, everything in Figure 4 and everything that Petitioner points
9 to in Figure 4, again, leading from 89 all the way down to step 107, all of
10 that falls generally within the processor configure to determine at least the
11 first subsection "including its detected vehicle."

12 At best, that's the determination step that it maps to. There is
13 nothing that Petitioner points to in Alden that points to a second separate
14 processor determination step which is then separately determining optimal
15 use of the differently aimed directional light sources.

16 What it does is it simply points to Step 109 which is the sending
17 a signal to effectively switch the requisite headlight segments to dim. That
18 is not the, that is not the same as having the processor separately determine
19 optimal use.

20 That is simply sending a signal to effectuate a predefined binary
21 low/high beam configuration. If we can turn to the next slide please.

22 JUDGE MELVIN: So your claim or that Claim 20 doesn't read on
23 simply switching between two levels. Is that what you're saying?

24 MS. SHAH: I'm sorry, can you, could you ask the question again?

25 JUDGE MELVIN: I think you're saying that Claim 20 does not read
26 on a system that switches between two illumination models.

1 MS. SHAH: No, that's, I'm not talking about what it reads. I am just
2 talking about the fact that Alden's, the proofs that Petitioner pointed out,
3 they did not, they didn't point to anything that separately addresses the
4 determining optimal use step that the processor is required to separately
5 engage in. That's a separate step, that processor has to do two things. It has
6 to process --

7 (Simultaneous speaking)

8 JUDGE MELVIN: Well you do agree that Alden switches between
9 two illumination levels. Right?

10 MS. SHAH: What we agree is that it determines these headlight
11 zones and then it sends a signal. There is no separate step that the processor
12 engages in to determine the optimal use. So if we can point to this in the
13 context of the next slide, it may be a little bit easier to see the next context
14 slide.

15 So if you look at the bottom here left of Slide 26, this is
16 Petitioner's teaching here. You'll see that they point to the location of
17 objects is used to calculate which zones of the headlights need to be
18 dimmed. That, again, is 107 which is the first determination aspect of Claim
19 20.

20 Then immediately after that, signals are sent to each of the
21 headlight control circuit zones that need to be dimmed to restrict the amount
22 of current. That step is not the same as determining a separate second
23 determination to determine the optimal use of the LEDs.

24 Seated differently, the Alden processor doesn't determine how
25 or whether to send the signals to dim. It happens automatically according to
26 Step 109. This is distinct from the Spero patent which uses the second

1 processor determination to determine optimal use of the differently aimed
2 directional light sources in the second subsection. So in contrast to Alden,
3 this Spero patent doesn't automatically operate second subsections in hiding
4 as we see here in Step 109.

5 Instead, it engages in an active second processor determination
6 where it determines how the LEDs should optimally be illuminated in the
7 non-glaring second subsection which could include, for example, factoring
8 in the presence of objects or pedestrians within that second subsection that
9 could impact how to optimally illuminate the LEDs that are aimed at the
10 second subsection.

11 This second step is entirely missing from Petitioner's proofs and
12 from the Alden reference. Next slide please. As we point here again, Alden
13 and Petitioner confirm that it operates in one of two modes, binary, a low
14 mode and a high mode.

15 Again, this is from the Petition where Petitioner explicitly states
16 that when Alden wants a sector of the headlight beam to be low or high, a
17 determination is made to power the lighting elements for those sectors to
18 produce lower high beam intensity light as opposed to light in an intensity in
19 the range between low and high.

20 So once again, Alden is limited to this binary function. Next
21 Slide 28 please. So here, again, Petitioner's proofs failed to establish that
22 Alden's processor determines illumination for both the first and second
23 subsection.

24 Instead, as explained regarding Figure 4, once the processor
25 determines the zones that need to be dimmed, it then jumps to step 109 and
26 sends signals. Signals are sent to each of the headlight control circuit zones

1 that need to be dimmed. Such that they are dimmed to the dimming process
2 109.

3 So notably, Alden not only failed to teach a separate processor
4 step to determine illumination, it's actually incapable of doing so because
5 Alden lacks image processing capability. It lacks the ability to discern the
6 contours of the detected vehicle and is less incapable of determining the
7 second subsection.

8 A prerequisite for determining illumination for the second
9 subsection per Claim 26. Next slide please. Here we would like to point out
10 that once again Claims 37 of 59, you have different determining, have
11 different language.

12 And in particular, if we can turn to Slide 30, this language is
13 quite a bit different than the language of Claim 65 though Petitioner
14 referentially attempted to prove Claim 65 in reference to Claim 37.

15 Claim 37 requires determining a light's distribution pattern and
16 Claim 59 requires that there be a determined output and that the output
17 create a pre-defined level of illuminance in the specified sections.

18 Claim 65, again, is worded differently as you can see here. It
19 requires determination of the illumination. And hence, proof of determining
20 illumination is not the same as there being determined output or defining
21 illuminus.

22 Because the Petition proof for Claim 65 merely referred to the
23 Claim 37D/E and 59D proofs provided no explanation for why the
24 presumption of claim differentiation shouldn't apply. These proofs are
25 incomplete.

1 And there should not be, and Petitioner should not have an
2 opportunity to address them which is effectively what they attempted to do
3 on the fly. Focusing on Claim 37, Claim 37 calls for determining a pattern --
4 actually if we could go back to Claim, I'm sorry, Slide 29.

5 Claim 37 calls for determining a pattern such that a certain
6 outcome results. Petitioner's proof for Claim 37E states Alden's adaptive
7 headlight beam provides different illumination levels and different sectors
8 which fails to establish that Alden "determines illumination for Claim 65."

9 Applying a pre-defined fixed value of illumination either low or
10 high by a power control is not evidence of a processor "determining
11 illumination" for Claim 65. Thus, Petitioner's referential proof for Claim 65
12 is, per se, insufficient.

13 If we can turn to Slide 31 next. As a result of this insufficiency
14 in their proofs on reply, Petitioner attempted to fix these defects for Claims
15 37 and 59 inserting a new impermissible threshold theory argument.

16 As you can see here on the left, the Petition argues that it takes
17 a very specific definition of the predefined threshold value as being
18 intensities in between the high beam and low beam and so, again, it defines
19 the pre-defined threshold value as something, you know, the entire value is
20 being between the high beam and low beam where the low beam would be
21 below and the high beam would be above that.

22 Then on reply, it changes course. It introduces a new threshold
23 theory arguing that Alden's head lights can operate at a range between high
24 and low. That there is some value within this such as medium intensity that
25 the low beam is set below and the high beam is set above.

1 Clearly, this is a change of position that has been permissible
2 from the original Petition proofs.

3 JUDGE MOORE: There's a -- sorry, I was pushing the wrong button.
4 Would you agree that, assuming the high and low light levels don't overlap,
5 there is a value between them which is above the low one and below the
6 high one?

7 MS. SHAH: So it is our position that there would always be an
8 impacted of additive illumination, but yes, in that hypothetical, if there was
9 no additive illumination, then perhaps there would be, this could be met. It's
10 just again, Petitioner sort of changed their position as to what the
11 predetermined threshold value would be from Petitioner reply. So again, --

12 JUDGE MOORE: I think I guess in addition they say the intensity is
13 in between and in the reply they say there is some value within this that is --

14 MS. SHAH: Correct. Yes. And so, again, in the Petitioner they're
15 arguing that, you know, the entire like everything in between high and low is
16 the predefined threshold value and then on reply they're stating that it could
17 be something in between. Which is a fundamentally different position.

18 Our position is number one, that the, what the argument in the
19 Petition should be that, you know, they should be limited to that and that
20 defines, you know, as per their own definition of predefined threshold value,
21 many of the proofs wouldn't be met because of the impact of additive light.

22 JUDGE MOORE: But if there's a whole bunch of values in between,
23 doesn't at least one of them meet the claim language?

24 MS. SHAH: No, because again, they have defined the entire
25 threshold value as everything in between high beam and low beam. So that's

1 the threshold value and so low is, you know, low beam is below that, high is
2 above that and the threshold value is everything that's in between that.

3 Kind of in totality, they're now arguing that it would be just any
4 one of those values which is different than what they argued before.

5 JUDGE MOORE: Okay.

6 MS. SHAH: Now if we can turn to Slide 32. Here if we point to
7 Claim 39, which has, again, different claim language, it specifically requires
8 that their, that the processor determines specific different illumination
9 characteristics for each of the at least two subsections.

10 Petitioner's argument lacks the mapping to a second specific
11 processor determination as shown in the left excerpt on Slide 32. The
12 Petitioner points to the in output and states Alden's light clusters "can
13 illuminate" different subsections of the headlight distribution area with
14 different illumination characteristics which has no bearing on whether
15 Alden's processor determines specific different illumination characteristics
16 for the two subsections.

17 For our briefing, Petitioner's proofs for Claim 40 is at odds with
18 Petitioner's proofs for Claim 39. Neither of which established the claim's
19 second processor determination limitation is met. Next slide please.

20 We would next like to turn to the disputed issue of whether
21 Alden discloses the "identifying" vehicle's limitations in Claims 11 and 50.
22 Slide 34 please. So here Petitioner points to the same proofs for dependent
23 Claim 11 as independent Claim 1 pointing to the CPU 71 and control
24 circuitry 55 as establishing a computer vision processing unit that is
25 configured to identify a vehicle.

1 But in doing that, Petitioner ignores basic claim construction
2 principles which is recognizing that identifying a vehicle was explicitly
3 called out separately in Claim 11. And if we can turn to Slide 35, we'll get
4 into the construction that was proffered.

5 In the Patent Owner response, Patent Owner explicitly
6 identified a plain meaning construction for the term identify as being "to
7 show to be a certain person or thing to fix the identity of." That construction
8 was never refuted by, sorry, by Petitioner.

9 Instead, Petitioner repeatedly conflates the meaning of detect
10 and identify despite the fact that the claims, you know, but in spite of the
11 fact that is not the verbiage that's used in the claim limitations.

12 The claim limitation is expressly using the term identify a
13 vehicle and that once again, the plain meaning of that term is fixing the
14 identity of the detected light in this case as a vehicle. We also wanted to
15 point out that post-briefing, the federal circuit specifically addressed a very
16 similar set of issues regarding the meaning of identifying versus the meaning
17 of detecting.

18 This is in the Apple vs. Omni MedSci case. In that case, the
19 term "identify" was held, the federal circuit held that identify must be given
20 the full scope of its plain and ordinary meaning absent special like
21 lexicography or a disclaimer neither of which Petitioner alleged which is the
22 same thing we have here.

23 Once again, Petitioner never refuted this plain meaning
24 construction and never provided any other form of a special meaning that
25 should apply. Instead, in its reply, Petitioner improperly argues, once again,
26 for the first time that Alden "assesses the intensity of the detected light" such

1 that it establishes that the light originates from a vehicle. Alden makes no
2 such determination.

3 Instead, in Alden, the system determines the location of sensed
4 light and it determines all sensed threshold light to be vehicles responding to
5 all sensed threshold light in the same manner. Slide 36 please. Here you
6 can see in the reply Petitioner is conflating sensed light with identifying a
7 vehicle.

8 This is, again, Petitioner's reply. A key purpose of Alden is to
9 "sense the location of other vehicles." This is, again, sensing location. In
10 controlling the headlights in response to the "sensed vehicles," Alden's CPU
11 checks the status of each perspective sector 89 of the light sensors assessing
12 whether detected light is above a threshold intensity or distance.

13 Again, really what Alden teaches repeatedly is sensing light and
14 detecting light. That is not the same as identifying a vehicle for the plain
15 meaning of that term.

16 JUDGE CYGAN: Counsel, this is Judge Cygan. It almost --

17 MS. SHAH: Yes.

18 JUDGE CYGAN: -- seems like you're saying that Alden identifies
19 everything as a vehicle.

20 MS. SHAH: It identifies, well it's not capable of "identifying"
21 anything. What it does is it assumes and we'll look at this in the language
22 involved itself, but it detects light and if that light is above a threshold
23 intensity, then it "assumes" that for its purpose, that is a vehicle.

24 And it's, you know, that it's going to create glare and then it
25 operates as it operates. For Alden, it doesn't have the specificity to
26 determine one source of detected light from another source of detected light

1 to be able to identify, you know, something as a vehicle in this instance to
2 fix the identity of its accepted light as a vehicle.

3 JUDGE CYGAN: It seems more like your issue is that it can't
4 identify anything as being not a vehicle, but it seems pretty clear that it's
5 identifying things as a vehicle.

6 MS. SHAH: It's, again, so maybe if we can turn to the next slide, this
7 may be a little bit clearer from the language of Alden itself.

8 JUDGE CYGAN: I think that the next slide may be even worse for
9 you because you're stating there that the CPU has made assumptions about
10 the space that may be potentially occupied by the driver of the sensed
11 vehicle.

12 MS. SHAH: Right. But the point is, is that Alden itself -- I'm sorry, I
13 don't think this is the, we can go to the next slide. Yes. So if we look at the
14 next slide here it's again the CPU is "made assumptions." Right? Alden is
15 making it clear that it doesn't actually, it's not capable of fixing the identity
16 of the detected light as a vehicle.

17 It's assuming that if there's threshold intensity, if there's
18 intensity above a certain threshold, that for its purposes, it's going to assume
19 that that's a light. Right? If you look at the top series of all the language at
20 the top, it's repeatedly talking about sensing an object.

21 Not even in the context of a vehicle because that's really what
22 goes on in Alden. It's repeatedly sensing objects. It's doing various things to
23 take a look at, you know, what's going on with respect to that object, sensing
24 the light, seeing if it's above a threshold.

25 And then, you know, drawing conclusions as to what zones it
26 should dim based on the assumption that if it's above a certain threshold it's

1 good enough for Alden and it's going to treat it as if it's creating glare. It
2 sends and operates in a certain way. So again, this Alden repeatedly is
3 talking about sensing light using that as a proxy for, you know, making
4 assumptions about the space as hypothetically being attributable to a driver
5 of a vehicle when it doesn't have any --

6 JUDGE CYGAN: That assumption -- sorry, Counsel. That
7 assumption is really indistinguishable from an identification.

8 MS. SHAH: So again, it's our contention that the definition of
9 identifying requires in this case, Alden, to be able to fix the identity of
10 detected light as originating from a vehicle. And that Alden is incapable of
11 doing that. Alden is capable of identifying that there is detected light.

12 That it is above a given threshold, it has no way of
13 differentiating whether that detected light is coming from a vehicle or a
14 reflector or a sign or, you know, as long as it meets the threshold intensity
15 level, it has no idea what the source of that light is. And that's a predicate
16 for the identify, the plain meaning of identify.

17 JUDGE CYGAN: Well in paragraph 28 which you have there, it just
18 says it always assumes it's a vehicle. So I don't see your point in this. But
19 you can -- if anyone else has a question, I'll stop there.

20 MS. SHAH: Yes, I mean again, we would point to the Federal
21 Circuit's language in Omni MedSci which basically has the same sort of
22 issue which is what the difference is between identify and detect. And once
23 again, that there's a plain meaning of identify that requires the fixing of the
24 identity of that which is detected which is different than detect. They are
25 two different words.

1 They have different meaning and again, here our claim
2 language is different than detecting or sensing. It is identifying a vehicle.
3 And we have further points too that this sanction being supported, this, you
4 know, kind of construction being supported by the 503 patent itself which
5 both in terms of figures specifically Figure 23 as well as various examples
6 that are provided in Column 45 of the Alden reference make it clear that
7 identifying is something different than detecting.

8 So that both the plain meaning of identify as well as the
9 intrinsic evidence within the Alden reference itself establish that identifies
10 something different than simply detecting or sensing. And then we would
11 like to point to the next slide which is Slide 38.

12 So here we have Petitioner's expert confirming that Alden
13 cannot identify a vehicle. That there's only one logic that exists within
14 Alden that applies across the board and hence, for Alden's purposes, the
15 same appearance would, whether it's head lights, whether it's reflector,
16 there's going to be the exact same appearance that exists.

17 The same logic is going to apply and it doesn't have any
18 meanings for differentiating to "identify" a vehicle because unlike the 503
19 patent, it has no ability to, it doesn't use image processing to be able to
20 determine one source of light from another source of light.

21 And so that's fundamentally the difference because of the lack
22 of image processing capability. Within Alden, it doesn't have the ability to
23 identify a vehicle. And with that, I will --

24 JUDGE MOORE: I just --

25 MS. SHAH: Yes?

1 JUDGE MOORE: -- so just to be clear, you're saying these claims do
2 not cover a system that identifies two spots of light and assumes that it's a
3 vehicle. Is that right?

4 MS. SHAH: It covers a system that detects two spots of light above a
5 threshold intensity and then proceeds to dim glaring zones. It does do that.
6 It doesn't have the ability -- if there's exactly what is on Slide 38, if there is
7 different forms of light that need a threshold intensity, it cannot identify that
8 light is a vehicle versus a reflector versus a sign.

9 It doesn't have that ability and that in our view, the plain
10 meaning of the term identify in this context identify a vehicle requires the
11 ability to, again, fix the identity of the detected light as actually coming from
12 a vehicle as opposed to the other forms that detect the light.

13 JUDGE MOORE: So what in the 503 patent is described as doing
14 that identifying?

15 MS. SHAH: That would be the camera. We have, the 503 patent has
16 a whole series of very specific teachings about the camera and image
17 processing that allow you to be able to differentiate using image processing
18 to, again, even in Figure 23, it talks about identifying furnishings from
19 appliances from objects from persons.

20 So it's not just, you know, identifying as between sources of
21 light. It has the ability to identify as between non-sources of light, again,
22 using image processing and that camera functionality which Alden does not
23 have image processing capability.

24 Moreover, the, again, the Alden -- I'm sorry, the 503 patent has
25 a variety of different examples including in Column 45 where it is
26 specifically talking about identify a speaker on a stage, tracking that speaker

1 and then effectively using pano recognition to an image processing
2 associated with that to be able to identify that speaker as it's moving along
3 the stage.

4 That's just one of many examples of how 503 patent uses the
5 term identify.

6 JUDGE MOORE: So are you saying the claims require this image
7 processing?

8 MS. SHAH: I'm saying, yes, it requires the use of a camera to be able
9 to -- effectively, yes. It requires some form of image processing to be able
10 to differentiate between sources of detected light.

11 JUDGE MOORE: And you're not asking for a claim construction that
12 would include that. Right?

13 MS. SHAH: We're asking for the plain meaning of the term identify
14 which, in our view, however, you achieve that. It's our view that identify
15 has a plain meaning. And that the plain meaning to fix the identity of in this
16 case a vehicle would require something more than Alden is capable of doing.

17 We point to that as being image processing, but again, the plain
18 meaning requires something more, something that Alden can't achieve.

19 JUDGE MOORE: Okay.

20 MS. SHAH: And so then with that, we would like to move to the, to
21 Slide 39 and the disputed issue. And with that, I'll turn it over to my co-
22 counsel, Andy Turner.

23 JUDGE CYGAN: Counsel, before we let you go.

24 MS. SHAH: Yes.

25 JUDGE CYGAN: Can you go back to Slide 5 for a second. And we
26 really want to make sure I understand your point there.

1 MS. SHAH: Yes, I'm sorry, which slide?

2 JUDGE CYGAN: Slide 5.

3 MS. SHAH: Five, yes.

4 JUDGE CYGAN: So I understood you to say that it's not Alden itself
5 that's inoperative. Figure 5 of Alden is fine. It's Petitioner's, the Petitioner's
6 problem is that they try to rely on Control Circuit 77 and 79 in informing
7 their assertions. Is that correct?

8 MS. SHAH: That's correct. They specifically tried to combine 55a
9 and 55b in lieu of switch array 115. And, yes, that creates all the issues that
10 --.

11 JUDGE CYGAN: Okay. So if Petitioner had relied on 115 instead,
12 for example, at Page 20 of their Petition, that wouldn't have been a problem.
13 Correct?

14 MS. SHAH: It would not have created an inoperability issue. That's
15 right.

16 JUDGE CYGAN: Okay. Thank you very much.

17 JUDGE MOORE: I've just got, I have one more question while we
18 have that slide up.

19 MS. SHAH: Yes.

20 JUDGE MOORE: If you look at Figure 5 that's up there in the right
21 corner, there's an Item 121. Do you see that?

22 MS. SHAH: Yes. I think that's the --

23 JUDGE MOORE: The lens?

24 MS. SHAH: The lens, yes.

25 JUDGE MOORE: Yes, right there. So is that, is the shape of that 121
26 as identified, is that a section of the lens?

1 MS. SHAH: I think this is going to come up in actually when we talk
2 about the lenses so I don't know actually, Andy, if you want to take this one
3 because this comes up in the context of the two different kinds of lenses that
4 exist and between the Figure 5 embodiment and the, I guess Figure 10
5 embodiment.

6 MR. TURNER: All right so your question was is this a section view
7 in Figure 5. Is that correct?

8 JUDGE MOORE: Yes. Well, no, it was more specific. I want to
9 know is 121, is the shape that 121 is identifying that kind of oval shape, is
10 that, is it fair to say that is a section of the lens?

11 MR. TURNER: I mean it's a, it's like a top view of the lens. I'm not
12 sure it's, Alden does not describe that as being a section view of the lens.

13 JUDGE MOORE: Well there was a top view to the edge. Right?

14 MS. SHAH: I'm sorry, I didn't hear the last part of your question.
15 Did you say you could see the edge?

16 JUDGE MOORE: If it was a top view, you would see the edge
17 between the two faces of the lens. Right?

18 MS. SHAH: Yes.

19 MR. TURNER: Correct.

20 JUDGE MOORE: All right and then for 123, that you see that on the
21 bottom there? Is that 123 pointing to a section of the housing?

22 MS. SHAH: That also, that does look accurate, yes.

23 JUDGE MOORE: Okay.

24 MR. TURNER: The other thing we would note is if this was a section
25 view, for example, like if it was a section view of the LED array, depending
26 on the shape, you would see the lower portion of the LED array. So if this,

1 for example, was a semi-spherical type LED array, you would see the lower
2 portion of that in the view.

3 JUDGE MOORE: Why would you see the lower portion? If this is a
4 section view. Right? A view through a section? Why would you see
5 anything other than the section of those LEDs?

6 MR. TURNER: Well if there's other LEDs that are formed in a
7 different shape, so for example, if this LED array was formed in a kind of
8 like a semi-cylindrical shape, then you wouldn't see any lower LEDs, but if
9 it was formed in more of a semi-spherical shape, you would see the lower
10 LEDs because they're -- it's more of a spherical shape. So it depends on --

11 JUDGE MOORE: So is the lower --

12 MR. TURNER: If this is a true section view, it's like if you cut it in a
13 section, you would see, you know, what was cut and everything below it.

14 MS. SHAH: Almost --

15 (Simultaneous speaking)

16 JUDGE MELVIN: Do you see that type of thing in Figure 6?

17 MR. TURNER: Pardon me?

18 JUDGE MELVIN: Do you see the remainder outside of the section in
19 Figure 6?

20 MS. SHAH: I'm sorry, we couldn't hear your question. Could you
21 repeat it again?

22 JUDGE MELVIN: Okay. Do you see the remainder beyond simply a
23 section in Figure 6?

24 MS. SHAH: Again, for us, Figure 6 is a completely different
25 embodiment. There's nothing in --

1 JUDGE MELVIN: I understand. Figure 6 illustrates an embodiment.
2 I think we agree on that. But the right side of Figure 6 shows what may be
3 a section view of that embodiment. Do you agree with that?

4 MR. TURNER: Figure 6 could potentially be a section view. As far
5 as the LED, the light source in the Figure 6 embodiment is just a single light
6 source so if there was --

7 JUDGE MELVIN: Does Figure 6 illustrate anything besides a plane
8 or a section?

9 MR. TURNER: I don't, I don't see any lower section in Figure 6.

10 JUDGE MELVIN: Okay. What about Figure 10 which is also on
11 Slide 5? Is Figure 10 an image of a one-dimensional array?

12 MS. SHAH: Figure 10 is directed to a single light source like Figure
13 6. Neither of those are relevant with respect to an interpretation of Figure 5
14 which is the only embodiment --

15 (Simultaneous speaking)

16 JUDGE MELVIN: Well, counsel, you did put Figure 10 on your
17 slide. Did you not?

18 MS. SHAH: We did. We put it there explicitly to make it clear that
19 those are three distinct embodiments that are not interchangeable because
20 they have different materials, they have different --

21 JUDGE MELVIN: So I'm asking about the depiction that Alden has
22 of the embodiment shown in Figure 10. Is that --

23 MS. SHAH: Yes, sir.

24 JUDGE MELVIN: -- a two-dimensional array or is that a one-
25 dimensional array?

26 MS. SHAH: In Figure 10, you're asking?

1 JUDGE MELVIN: Correct.

2 MS. SHAH: What Figure 10 is showing is the two-dimensional array.

3 JUDGE MELVIN: Okay. Thank you.

4 MS. SHAH: But again, it's our position that, again if anything, the
5 fact that Figure 6 and Figure 10 show a two-dimensional array, it establishes
6 and when Alden wanted to show a two-dimensional array, it knew how to do
7 that.

8 And it did not do that with respect to Figure 5 so there's nothing
9 with respect to, within the Alden reference itself was the modification of
10 Figure 5 except if you wanted to do that through a person of skill in the art.

11 And again, the proofs are not there that a person of skill in the
12 art would necessarily interpret Figure 5 to be, to require it to be a 2D array.
13 So then if we want to turn to the disputed Point 5, which is Slide 39.

14 MR. TURNER: And, I'm sorry, just to clarify, as far as our timing,
15 where are we on the clock please?

16 JUDGE MOORE: You have 34:22 left.

17 MR. TURNER: Okay. Thank you. All right so if we go to Slide 39.
18 So now we're going to talk about that Alden does not teach a disclosed
19 control of the light modifying elements. And this is with reference to
20 Claims 2 through 4 and 42 through 43. Next slide.

21 This is Slide 40. Here we have representative Claim 42.
22 Which is representative of Claim 2. And we see Claim 42 requires one or
23 more light sources each having a variable light source, light characteristic
24 that's dependent on power, one or more light modifying elements and that
25 further controlling at least one light characteristic of the light source and
26 then we have this wherein clause.

1 Wherein, control of the light source in light modifying elements
2 results in a specified emitted light source like characteristic. Now here there
3 are some questions before as far as the control and whether it's active or
4 passive control.

5 And it's our position that these claims under their plain and
6 ordinary meaning require control of the light sources and control of the light
7 modifying elements. And this control is active control. Now on Claim 42, it
8 doesn't recite the actor who is what is performing the control itself.

9 However Claim 42 depends from independent Claim 37 which
10 introduces a processor in Figure 2 to take certain steps including instruct
11 operation. So it's our position that Claim 42 when read in light of Claim 37
12 does require active optics or active light modifying elements.

13 Now Claim 43 which depends from 42 and 43 is representative
14 of Claim 2. Excuse me. This expressly identifies the actor wherein at least
15 one of the at least one processors is configured to obstruct control of at least
16 one light modifying unit resulting in a change to the light source
17 characteristic.

18 So our position is this is expressly active control. We have a
19 processor. It's instructed to control of the at least one light modifying
20 elements.

21 JUDGE MOORE: Counsel, this is Judge Moore. Do you know if the
22 patent, the 503 patent, describes active controlling light modifying elements?

23 MR. TURNER: It does describe active optics. I'm not, off the top of
24 my head, I'm not sure if it uses that exact terminology here, but with respect
25 to some of the embodiments, it does describe different types of optics
26 including active controllable optics.

1 JUDGE MOORE: Does it describe that in the context of the headlight
2 system?

3 MR. TURNER: I'm not sure off the top of my head.

4 JUDGE MOORE: Okay.

5 MR. TURNER: All right, if we go to Slide 41, now Petitioner argued
6 that Alden anticipates or renders obvious these claims. Now Petitioner relies
7 on if we look at patent, or I'm sorry, Petitioner's expert's testimony on the
8 left side of the screen, Petitioner is relying on lighting elements 119.

9 The LEDs of Figure 5 for the light source limitations, intensity,
10 or the light source characteristic limitation and lens 121 of the Figure 5
11 embodiment for the light modifying elements. Now as explained by Dr.
12 Turk which is Patent Owner's expert on the right side of the screen, this lens
13 adjusts the direction of light, but it does not control intensity.

14 But, therefore, we're -- Petitioner's anticipation proves Alden
15 does not disclose control of the light modifying elements. On Slide 41 --

16 JUDGE MOORE: This is Judge Moore again. Just a quick question.
17 Do we need to do any claim construction on Claim 2 to determine whether
18 or not it requires active control?

19 MR. TURNER: Our position is under the plain and ordinary meaning
20 of these claims if we just look at Claim 42, including the limitations of base
21 Claim 37, it lays out a processor. And the processor is the actor that is
22 performing these control operations.

23 And similarly, you know, we mentioned Claims 2 and 3. They
24 depend from a dependent Claim 1 and that also has similar limitations. It
25 requires a logical controller with a process server in control circuitry. So a
26 control circuitry is what is in the controller or what are the actors if you will.

1 So it's our position, construction is not necessary in light of the
2 claims we read including the base claims.

3 JUDGE MOORE: Well, but we see this sort of thing a lot right there.
4 There's a dispute. They say it doesn't require active and you say it is active.
5 I don't see how it's not claim construction for us to pick one side or the
6 other. Right? I mean --.

7 MR. TURNER: Okay, well it's, the parties didn't present this as an
8 express claim construction in our briefing, but based on our arguments, it
9 does sound like a claim construction position so we'll agree with you --

10 JUDGE MOORE: Okay.

11 MR. TURNER: -- that based on the argument, it would be a --

12 JUDGE MOORE: Would you like claim construction on that issue?

13 MR. TURNER: Yes.

14 JUDGE MOORE: You would like to brief that?

15 MR. TURNER: A separate briefing? Post-argument, is that --?

16 JUDGE MOORE: Yes.

17 MS. SHAH: Yes, that's fine.

18 MR. TURNER: Sure.

19 JUDGE MOORE: Okay.

20 MR. TURNER: Okay. All right, so if we go to Slide 42, so Slide 42
21 Petitioner argues that the lens controls intensity. And Alden's, then again as
22 we just discussed, the lens is a passive lens and it does not actively control
23 intensity.

24 So we go to Slide 43. So here Petitioner and with reference to
25 Petitioner's Slide 26, Petitioner argued that Dr. Turk stated that removing the

1 lens would change in intensity measurement. But Dr. Turk did not state that
2 the lens controls intensity, only that it affects the light measurement.

3 So again, the term as we discussed, the control as used in these
4 claims, it's our position that requires active control. I'm going to pull up, I'm
5 just going to pull up Petitioner's slides so with reference to Slide 27,
6 Petitioner argues that the singular light source characteristic of Element 2B
7 does not provide antecedent basis for the plural light source characteristic of
8 2C

9 Now if we look at 2B, again, we have one or more light
10 emitting sources each having a variable light source characteristic that's
11 dependent on power. This each modifies the one or more light emitting
12 sources.

13 Element 2C one or more light modifying elements providing
14 the path of a light emitted from the at least one sources further controlling
15 the light source characteristics. Now this characteristics is plural and it
16 refers back to the light source characteristic of a plurality of light sources.

17 So as indicated by the "the" before the light source
18 characteristic that's referring back to the light source characteristic so
19 therefore the light source characteristic of 2B does provide antecedent basis
20 for the light source characteristic of 2C. Now if we look at their slide --

21 JUDGE MOORE: Can you stop before you go on there?

22 MR. TURNER: Sure.

23 JUDGE MOORE: Though? It said the, the first raise was variable
24 light source characteristics. Right? And the more general notion is just light
25 source characteristic.

26 MR. TURNER: Right.

1 JUDGE MOORE: So they aren't necessarily the same are they?

2 MR. TURNER: Well it's our position that they are. It's referring back
3 to the light source characteristic. I don't think the claim requires any
4 separate light source characteristic. So by the inclusion of the word the,
5 that's like said, it's referring back to a prior limitation. All right, if we go to
6 their Slide 29, --

7 JUDGE MOORE: Counsel? Counsel, sorry. In general, are there
8 light source characteristics that are not dependent on power?

9 MR. TURNER: Yes, I believe there are.

10 JUDGE MOORE: Okay.

11 MR. TURNER: Now with the reference to Petitioner's Slide 29,
12 Petitioner argued that the light modifying element does not need to be
13 controllable because Claims 4 and 44 recite codings and lenses that are non-
14 controllable. And based on Your Honor's questioning of Petitioner, I think
15 there was the discussion that coatings can be controllable.

16 But if we go back to Slide 23 of Petitioner's demonstratives,
17 that includes Claim 4. Now if we look at Claim 4, again, Claim 4 is
18 representative 44 depends from Claim 2, but it recites that the light
19 modifying element further comprises at least one of and then it -- this whole
20 list of elements.

21 Now the phrase "further comprises at least one of" is open-
22 ended and indicates that the light modifying element includes at least one of
23 these recited components, but it may include other components.

24 Petitioner's argument indicates that they are rewriting or
25 interpreting the phrase "further comprises at least one of" as a close-ended
26 term such as consisting of. The distinction --

1 JUDGE MOORE: Why is that? I'm sorry, I didn't follow that. Why
2 do you say that?

3 MR. TURNER: Because their argument was because Claim 4 recites
4 some passive components or some potentially passive components, then that
5 broadens the base Claim 2 when we're talking about light modifying element
6 that it could be passive and active components.

7 So again, so the distinctions between transitional phrases
8 comprising and consisting of well-established principles of claim
9 construction under the proper construction of comprises at least one of,
10 Claim 44 here, also 44, includes base Claims 2 and 42 which is our position
11 requires control of the light modifying elements.

12 And comprises or includes, for example, even passive
13 components such as maybe a lens combined with active components. So we
14 don't see any inconsistency with Claim 4 here. So now if we go back to
15 Patent Owner's Slide 43, so here it --

16 JUDGE MOORE: Counsel?

17 MR. TURNER: -- looks like 43 --

18 JUDGE MOORE: Can the light modifying element in these claims be
19 more than one thing?

20 MR. TURNER: Well it's light modifying element in Claim 4
21 comprises and then there's a whole list. So if the light modifying element
22 comprises a whole list of things, it could include one, it could include more
23 than one. It could include those elements combined with something else.

24 So, for example, it could you know, there could be an active
25 optic that includes lenses plus some more controllable optic element that
26 would be an active object. So that is --

1 JUDGE MOORE: It would be, in the claim light modifying element,
2 can that include multiple light modifying elements? Or is it one thing?

3 MR. TURNER: I mean it could be, it could be a system, if you will.
4 So if it comprises -- it's open-ended so it could comprise an element that also
5 includes a lens. Depending on how a lens is defined for that optic. It could
6 be a lens that's coated.

7 It could be a refracted element that's coated. It could be a
8 variety of different things under the Claim 4. But based on its dependency
9 from the other claims that required a controllable aspect of the light-
10 modifying element, then it's our position that it could be, it's not inconsistent
11 with the base claim.

12 JUDGE MOORE: Okay.

13 MR. TURNER: All right, so if we look at Patent Owner's Slide 43.
14 Here, Petitioner argues that Alden's first embodiment which is in Figure 5
15 can include the variable refractive element involved in its third embodiment.
16 Figures 8 through 10.

17 As co-counsel previously explained, Alden discloses three
18 distinctive embodiments and for some of these arguments, Petitioner cites to
19 Alden's kind of boilerplate paragraph in paragraph 61 where it includes
20 language like many other variations are possible which is vague and does
21 not support the specific combination here.

22 And also like what's included on the slide, it's many
23 applications. So the sentence in Alden is the segmented distribution light
24 can be used for many applications other than motor vehicles. And here our
25 discussion today is about headlights for motor vehicles so that sentence is
26 not relevant.

1 So if we go to the next Slide 44, the Petition does not explain
2 how a POSA would have combined Alden's distinct embodiments. So here
3 in his deposition, Patent Owner's expert introduced adding a refractor and a
4 lamp near one of the LEDs.

5 And he also clarified that with his proposed combination, you
6 would keep the lens. Meaning you would keep the specific lens that's in the
7 Figure 5 embodiment. So now if we go to Slide 45, Petitioner argues this
8 reasonable expectation of success because this refractor of the Figure 10
9 embodiment would perform the same function when implemented in the
10 Figure 5 embodiment.

11 Now first, this refractor is part of an optical system in Figure
12 10. You see the refractor is used with a single light source and a double
13 concave lens which is 1, I think it's 133. So it can't be added to Alden's
14 Figure 5 embodiment without other modifications that are not addressed by
15 Petitioner.

16 So again, if we look at the, again, Figure 10 illustrates
17 refractors that are designed to receive collimated light from a single light
18 source that's reflected off of a rear portion of the housing. Collimated light
19 passes through the electrooptic refractor and then there's a double concave
20 lens 133.

21 Now Alden's first embodiment in Figure 5 includes dual convex
22 lens. The LEDs do not provide collimated light. And as explained by Dr.
23 Turk, these bio refrigerant crystals with Figure 5 lens 121 would scatter the
24 light and it would not work.

25 Therefore, there's no reasonable expectation of success of
26 Petitioner's proposed combination of simply taking this refractor out the

1 Figure 10 embodiment and inserting it into Figure 5. Now in the institution
2 decision, the Board identified some of these questions.

3 They noted many of the differences between Alden's
4 embodiments and invited the parties to address these. And that's, you know
5 for example, that was in the 1026 IPR of the Institution's Decision at Page
6 14. Similar in the 1027 IPR Institution Decision at Page 15.

7 And specifically, so this is in the 1026 decision, the Board,
8 Your Honors, you noted that it's not clear in the current record how or why
9 one might use Figure 10's variable refractive elements in a headlight like that
10 of Figure 5.

11 Later on, nor is it clear how Figure 10's variable refractive
12 elements might be used as in Figure 5, the light rays are not collimated. As
13 explained by our, by Dr. Turk in his declaration, it would not work.

14 Now we cited the Virtek case in our, in the briefing in our
15 Patent Owner response. And here the federal circuit recently clarified that
16 the mere fact that these possible arrangements existed in the prior art does
17 not provide a reason that a skilled artisan would have made the substitution.
18 So this Virtek conclusion holds more strongly here because Alden's distinct
19 embodiments cannot clearly be combined.

20 As briefed, Petitioner failed to explain how and why a person of
21 ordinary skill in the art would have combined Alden's distinct embodiments.

22 So we go to Slide 46. Now on reply, Petitioner proposes a new combination
23 that Alden's Figure 5 embodiment could include a variable refractive
24 element at either end of the light source.

25 That's highlighted on Slide 46. Petitioner does not in its reply,
26 Petitioner did not address the deficiencies with respect to collimated light in

1 this combination. All right. And also, just like -- we'll repeat, we'll move
2 on. All right so Slide 47 now we're going to discuss the, what we refer to as
3 the predictive curve limitations.

4 JUDGE MOORE: Counsel, just so you know, you're 15 minutes total
5 time left.

6 MR. TURNER: Okay. Thank you. Okay, so Claim 15 is
7 representative of Claims 21, 54 and 60 and requires a controller configure to
8 determine at least a road curvature indicated by the sensor data ahead of the
9 vehicle.

10 In Claim 54 here, it has similar limitations. Now Petitioner
11 relies on Alden alone for satisfying these limitations. We'll go to Slide 49.
12 Again, Alden discloses in equipped vehicle senses that the road turns by
13 receiving light from the reflectors with reference to Figure 11.

14 In Slide 50, Patent Owner is an expert as shown here on the
15 right. And during deposition, describes Alden as having two main use cases,
16 layer prevention and curve accommodation. Both use the same logic.
17 Patent Owner's expert further states that the reflectors will have the same
18 appearance on the image like the headlights.

19 So if Alden's sensors detect headlights and reflectors as having
20 the same appearance, then Alden's controls cannot tell the difference
21 between a vehicle and a curve and will use the same logic to respond to both
22 conditions.

23 Therefore, Alden does not disclose determining any road
24 curvature as claimed. Now Petitioner argued with reference to their Slide 49
25 and also here, Petitioner argues that Alden can distinguish between reflectors

1 and headlights by adjusting the threshold. Now Alden does not disclose
2 adjusting the thresholds.

3 And Petitioner did not make this adjustable threshold argument
4 in its Petition so this is a new argument on reply. But even if Alden
5 disclosed adjustable thresholds, Petitioner's argument is refuted by its own
6 expert's statement that headlights and reflectors have the same appearance to
7 Alden's controls.

8 Now Petitioner argued on their Slide 48 that Alden can both
9 diminish glare and accommodate a curve citing Alden's disclosure in
10 paragraph 61 that methods may be combined. However, for these claims,
11 Petitioner's challenge to these claims with Alden alone and as co-counsel
12 described and referenced, the grounds beginning and Alden alone in
13 anticipation grounds as we describe a reference to our Slides 3 and 4.

14 So a combination of different Alden embodiments is improper
15 for anticipation and as I mentioned before, this was a new argument that's
16 not provided in the Petition. However, even if Alden's embodiments could
17 be combined for anticipation, Alden's control still can't tell the difference
18 between vehicles and upcoming curves.

19 So the combination would not be able to determine an
20 upcoming road curvature. Now if we look at Slide 51, Petitioner relies on,
21 excuse me, again the claims required determining a road curvature ahead of
22 the vehicle.

23 Petitioner argues that Alden discloses that its system can
24 include a steering wheel rotation sensor that detects when a vehicle is
25 planning to turn. Now this is wrong. Alden discloses that the system

1 calculates the new direction of the vehicle, not a future direction of the
2 vehicle. Drivers don't turn the steering wheel before turning.

3 For example, in Figure 11, once the driver starts turning the
4 wheel, the vehicle starts turning. Patent Owner's expert mentioned turning
5 the wheel when stopped at an intersection while waiting for oncoming traffic
6 to pass.

7 For example, that was in his first declaration in the 1026 IPR
8 paragraph 114. Now a person of ordinary skill in the art would understand
9 that a driver would not turn the wheel at an intersection while waiting for
10 oncoming vehicles to pass.

11 They would run the risk of getting rearended and pushed into
12 this oncoming traffic which is basically taught in driver's ed. So in
13 conclusion, Alden does not disclose determining road curvature ahead of the
14 vehicle. Claims 15 and 54 also require increasing illumination in a direction
15 of the road curvature.

16 And here, there's a number of cites that co-counsel mentioned
17 previously where Alden expressly discloses that the high beams are the, for
18 example, if we look on the right here, zones which are not dimmed remain
19 on high beam.

20 Also, not shown here is the abstract of Alden where Alden
21 discloses that all embodiments maximize the area of receiving high beams
22 for the benefit of the equipped driver. Slide 54, as co-counsel explained,
23 Alden discloses two light modes, high beam and low beam.

24 And, again, Petitioner argues for this many applications in this
25 when we look at the full sentence in the Alden's paragraph 61 this is
26 referring to other than motor vehicles. All right. On Slide 55 Patent

1 Owner's expert admitted that Alden's Figure 5 embodiment would illuminate
2 the full pattern shown in Figure 5 under normal driving conditions which is
3 in his top quote here from his deposition.

4 And he also explained that he is not proposing adding LEDs to
5 the Figure 5 embodiment to provide curve illumination. So since Alden's
6 Figure 5 embodiment illuminates the full light pattern during normal driving
7 conditions, Petitioner is not proposing adding LEDs for curve illumination,
8 Alden cannot increase illumination because there are no additional LEDs to
9 illuminate. We can skip that one.

10 So next, we're going to talk about curve versus turn. So here,
11 we have Claim 32 and 33 on the screen which are similar in scope or similar
12 language. Claim 32 is representative of Claim 70. It requires determining
13 illumination for upcoming curve.

14 Claim 33 which depends from 32, requires determining
15 illumination for an upcoming turn. And that's representative of a number of
16 claims which is described in our briefing. As explained in the Patent Owner
17 responses, Petitioner's proof for method Claims 32 and 34 conflates curves
18 and turns.

19 Even though both claim terms have different plain meanings
20 and the doctrine of claim differentiation notates against such a conflated
21 construction. Further, we see here --

22 JUDGE MOORE: Counsel?

23 MR. TURNER: -- Claim 33 depends from 32.

24 JUDGE MOORE: What exactly is the difference between turn and
25 curve?

1 MR. TURNER: Well, turn and a curve, so in our briefing we
2 provided definitions, proposed definitions to explain these different
3 meanings, and noted by their plain meanings alone, a curve lacks the angle
4 that facilitates the change of direction required for a turn. So a turn includes
5 an angle, and actually as it's described in our specification, we use the term
6 'turn' to refer to cornering lighting. So for example, in the specification at
7 column 54 lines one through eight, we're describing the situation to further
8 illustrate the innovative DLF headlamp device, a cluster 281 would be used
9 to illuminate around a corner. And at the end of this paragraph, this section
10 here, refer to a driver can't make a 90 degree turn traveling 90 kilometers
11 per hour, but from a stop a turn may be around a corner.

12 So the difference between a turn and a curve is turn includes an angle
13 component like you would see at an intersection, and this is described in the
14 specification. We have cornering lighting functionality and curve
15 illumination, and those are different lighting applications, if you will. And
16 also in the specification there's a section in Exhibit 1001, column 50 lines 52
17 through 58 where we describe curves and corners as different lighting
18 functionality.

19 So the illumination requirements that need to be determined in claim
20 33 for a turn are different from the illumination requirements for a curve.
21 And on reply, Petitioner failed to explain how Alden discloses --

22 JUDGE MELVIN: Wait, can we stop for a sec?

23 MR. TURNER: Sure.

24 JUDGE MELVIN: So an upcoming turn is how many degrees the
25 vehicle is going to change its heading, is that right?

1 MR. TURNER: Our position, it's not a specific angle, if you will, but
2 it's a change in direction. So for example, if we read from the spec, it could
3 be an angle like as you encounter at an intersection, or a change in direction
4 could be, for example, north to west at an intersection. So it's more of a
5 change in direction --

6 JUDGE MELVIN: So does that mean if you drive a vehicle around a
7 curve then you have also turned?

8 MR. TURNER: Not necessarily, as used in the specification there's
9 different applications. So a curve might be -- the controller is able to
10 distinguish these different applications and control the lighting accordingly.

11 JUDGE MELVIN: Yeah, but I don't understand what you're trying to
12 say.

13 JUDGE MOORE: Could a really tight curve be a turn?

14 MR. TURNER: It could potentially be interpreted as a turn.

15 JUDGE MELVIN: Wait, then how are they different?

16 MR. TURNER: Depends on the angle and the --

17 JUDGE MELVIN: You said there's no specific angle.

18 MR. TURNER: The claims do not require a specific angle.

19 JUDGE MELVIN: Right, so then what is the difference between the
20 claim terms? Is an upcoming turn, does that mean like a 90 degree turn? I
21 understand it doesn't have to mean 90, but do you have to know what the
22 angle is?

23 MR. TURNER: I think the vehicle would need to know what the
24 angle is to apply different applications to it. So as we described --

1 JUDGE MELVIN: For claim 33 you're saying that the vehicle or the
2 lighting controller would have to know what change in direction the vehicle
3 will be making beforehand?

4 MR. TURNER: Correct.

5 JUDGE MELVIN: But for claim 32, the lighting controller just has to
6 know that the vehicle will be following the road?

7 MR. TURNER: Based on different inputs, it could determine whether
8 you're making a turn or if there's just a curve ahead in the road.

9 JUDGE MELVIN: Well if you follow the curve, why is that not a
10 turn? Because if you know the shape of the road, then you have to turn to
11 get around the curve, right?

12 MR. TURNER: I think it's based on the different inputs that the
13 controller would receive and how it responds.

14 JUDGE MELVIN: Okay, what are those inputs?

15 MR. TURNER: So these inputs here indicated by the sensor data. So
16 this does not specify in this claim what that sensor data is.

17 JUDGE MELVIN: Okay, so these two claims receive the same
18 inputs?

19 MR. TURNER: Potentially. I mean in the specification we describe,
20 for example, with a turn, if it's a turn at an intersection you might have
21 different inputs, such as a turn signal. You know, and we also describe the
22 GPS input that would maybe be indicative of both curves and turns, a GPS
23 combined with other input, such as, for example, a turn signal, then the
24 controller would interpret that as an upcoming turn.

25 JUDGE MOORE: Do we need to construe turn and curve to reach a
26 decision on this?

1 MR. TURNER: I think -- I mean if it's unclear, then a claim
2 construction probably would be appropriate. We proposed definitions in our
3 briefing, but we can elaborate on that with a supplemental briefing if that
4 would be helpful to the Board.

5 JUDGE MOORE: Okay, you've got about a minute and a half left on
6 your time.

7 MR. TURNER: All right. So this, for the ground that combines
8 Alden and Harbers, it's Patent Owner's position that there's insufficient
9 rationale to combine these references. So here in Harbers, Harbers describes
10 a specific arrangement of the LEDs, of the different colors, and as shown in
11 the excerpt on the top of the screen, by ordering the LEDs in the manner
12 indicated in Figure 2, a substantial reduction of possible color effects is
13 achieved.

14 So we see these colors where the yellow is in the center and the other
15 colors are on the outside, and in this proposed combination, as we described
16 previously, Alden discloses a single row of LEDs. So it's unclear which of
17 these rows of Harbers would be implemented in the Alden combination, and
18 for example, if you take some of these, where in the 503 Patent itself it
19 describes its concern with different colored light. For example, blue light
20 might present a safety concern to the driver, so that's why we would switch
21 to yellow light. Whereas here, if you had, for example if we took the first
22 row of Harbers and implemented that into the Alden combination, then the
23 driver could potentially see different color light from an oncoming vehicle
24 and that could present certain safety concerns. So it's our position that
25 Petitioner does not explain how a person of ordinary skill in the art would

1 have combined these two references. I guess with that we'll turn it over to
2 opposing counsel.

3 JUDGE MOORE: All right, now you're out of time. So, thank you
4 very much. Petitioner, you have 35 minutes left. Whenever you're ready.

5 MR. HUGHES: Thank you, Your Honor. Thank you, there's just a
6 few points we would like to rebut, and I think first, you know, you heard a
7 lot of their argument here is really focused a lot on a very narrow, almost
8 inconsistent reading of the claims that take it out of the context of how a
9 POSITA would understand it. And we think, you know, when you read
10 these in the proper context, as a POSITA would, it's clear that this is all
11 disclosed in Alden. And in addition, to begin with, we heard a lot of
12 arguments from them not that the disclosures in Alden don't disclose the
13 claim language, not that it's, for example, nearly identical to the claim
14 language, but rather they're making arguments that either we changed our
15 position, that Alden needs modification, or that somehow Alden would be
16 inoperable, but none of this is the case.

17 We've been consistent since the petition that it's the combinations in
18 Alden, for example the combination of what it teaches in Figure 5 in
19 connection with Figure 4 and in connection with Figure 3, that is what
20 discloses how Alden's system would work and how it meets these claims.
21 Now they're raised arguments that for example Figure 5 doesn't show the
22 sensor array of Figure 3. In fact, Figure 5 just shows the box that it labels
23 sensor array, and why does it do that? If we look back at paragraphs 27, 28,
24 and 29 of Alden, the linkage between Figures 3, 4, and 5 becomes very
25 clear. In paragraph 27, describing Figure 3, for example, Alden says, talking
26 about the sensors, that this information from the sensors around the middle

1 of the paragraph is stored in memory as previously described and further
2 detailed in Figure 4. Again, those sensors are linked to what's in Figure 4.

3 A little bit further down, still on page two of Alden, in that same
4 paragraph, it now talks about information from the 72 and 71, which is that
5 CPU logic is sent to control the power flow from a power source 73 via a
6 left control circuit 55a and a right control circuit 55b. So again, Figure 3 is
7 linking what is shown to the logic of Figure 4. And when we go to page
8 three, also in column 27, it then says with respect to these circuits that the
9 CPU logic flow is described in Figure 4. Paragraph 28 again lays out the
10 logic of Figure 4, and then Figure 5 is very clear that it's the same CPU and
11 logic previously described, linked to Figures 3 and 4 which is going to be
12 operating the configuration of Figure 5. Petitioner has been consistent with
13 this from the petition and never changed any positions at all.

14 So also their argument that Alden is somehow ambiguous. This
15 further fails for those same reasons, Alden is very clear that Figure 5 is
16 controlled using the detailed steps that it's shown in Figure 4. There's
17 nothing ambiguous about how this would work, and with respect to the
18 switches, Alden gives us the answer there as well. There's one
19 corresponding switch for whatever number of LEDs you're going to use.

20 JUDGE CYGAN: And Counsel, just to be clear, is that, the switch is
21 115 or is it the two dimensional switch arrays?

22 MR. HUGHES: So it's both. If you see, and we have this, I know
23 that there's a reference to page 20 of our petition, and in fact on page 20 of
24 the petition, and this is in the 1026 proceeding, page 20 discussing this does
25 in fact mention those switches 115 right on page 20 there. Now again, that
26 box in Figure 5 is just a box. We're not seeing the front view of the switch

1 array in the two dimensional space like we do in Figure 3. And why is that?
2 Because Alden tells us that Figure 5 is building upon what it's already told
3 us with respect to Figures 3 and 4. So when we have the generic switch
4 array box in Figure 5, we've already been told the details of that, that's the
5 details of the switch arrays that were shown in Figure 3 and discussed with
6 respect to the exact logic that's controlling Figure 5.

7 JUDGE CYGAN: Is there anything to be understood by the fact that
8 Alden points only to the CPU and the processor, as opposed to those arrays?

9 MR. HUGHES: Well like I said, when we look at Alden saying we're
10 using that CPU and processor previously described, we need to take that in
11 context. And so when we go back to paragraphs 27 and 28, which is the
12 previous description of that CPU and logic, we can see it's very clear that
13 it's only discussing that in the context of the light detectors 51a and b, which
14 as was admitted, you know, there's no light detector shown in Figure 5, it's
15 got to be those same ones that are shown in Figure 3, and additionally, when
16 we're looking paragraph 27, we see specifically mentioned those left and
17 right control circuits, 55a and b. and again, that's telling us right in 27 that
18 that logic flow, even for those, is going to be what's described in Figure 4.

19 JUDGE CYGAN: The logic is, but not particularly the two
20 dimensional controls, is that correct?

21 MR. HUGHES: Well, the logic flow is operating on those two
22 dimensional controls, you can't separate one from the other. For the logic
23 flow of Figure 4 to make sense, including, as we noted, its reference to that
24 same XY space in front of the vehicle, you've got to interpret that in that XY
25 space using what's shown in Figure 3. If you take it out of that context then
26 the logic flow no longer makes any sense.

1 JUDGE CYGAN: Does Figure 4 talk only about the sensors, which
2 are the 51a and b, or does it actually address 55a and b, the control circuits?

3 MR. HUGHES: So 55a and b, where it's calculating the dim zones,
4 and then if we see in step 109 we have to switch the requisite segments, that
5 switching is through the control circuits.

6 JUDGE CYGAN: And how do we know that's through the control
7 circuits that are set forth in Figure 3?

8 MR. HUGHES: So when we look again at Figure 4, the very
9 beginning of it says that this is a flow chart describing logic of the process
10 described in Figure 3 as a whole. So when we read these paragraphs in
11 context, and as a POSITA would, it's clear that Alden is teaching you that
12 you're combining the entirety of what's disclosed in Figure 3, Figure 4 is
13 now the flow chart describing the logic of that Figure 3 in its entirety, and
14 then we get to Figure 5, and in context there we're seeing that Figure 5 is
15 now using that same logic flow that we've just talked about. And if we look
16 in paragraph 28 as well, we can see here that it's talking about signals sent to
17 the control circuits, which are again, what we just talked about from Figure
18 3.

19 JUDGE CYGAN: So your argument is that it's paragraph 29 that
20 says signals are sent to each of the headlight control circuit zones, that's
21 referring back to --

22 MR. HUGHES: That's the circuit zones as depicted in Figure 3 and
23 discussed in Figure 4, where for example in Figure 3 we can see that we're
24 going to have some circuit zones that would be set to low, that's indicated by
25 the shaded area box, for example, that would be an example of one zone,
26 that zone is going to be set to low. Now, we see in that same control circuit

1 in Figure 3, the broader area where we have some zones that are not shaded,
2 those zones would be the switch zones that are for example switched over to
3 high beam.

4 JUDGE CYGAN: So it's not at that section, in Figure 4, referring to
5 the prior sentence, it's referring to some mention of zones in paragraph 27?

6 MR. HUGHES: Well the circuit zones are the areas within the switch
7 array. So when it talks about circuit zones here, like I said, that would be for
8 example the different boxes, whatever the switches are within that box or
9 that zone, those need to be dim.

10 JUDGE CYGAN: Is there a mention of the zones in paragraph 27?

11 MR. HUGHES: Paragraph 27, for example, mentions the left shaded
12 circuit area, I can look and see if it uses the exact term 'zone,' but again, it's
13 talking about areas of the switch array, which is similar and a POSITA
14 would understand, you know, when we talk about zones later on, it would be
15 those areas of the switch array. And I will note also in 28 where it talks
16 about headlight zones, it's now talking about the area in front of the
17 vehicles, where if you control a certain switch, we know that that's going to
18 correspond to light in a certain zone in front of the vehicle also being
19 switched over or changed.

20 JUDGE CYGAN: So you're reading the description of Figure 5 as
21 each switch being controlled by the CPU and logic previously described,
22 those switches 115, you're reading those as I guess receiving information
23 from the previous set of switches?

24 MR. HUGHES: No, what we're saying is, when Figure 5 shows the
25 generic box 115 of a switch array, a POSITA would understand that that
26 box, like Alden discloses because it's building from Figures 3 to 4 to Figure

1 5, that that switch array would be the array like is shown in Figure 3. Now,
2 again these are not schematic drawings to go out and build it, so depending
3 on the number of switches you would have, you would build an array like is
4 shown in Figure 3 to do this.

5 JUDGE CYGAN: Thank you, Counsel.

6 MR. HUGHES: Thank you, Your Honor. Any other questions on
7 that point? If not, I'll move on. Alden, you know you heard Patent Owner
8 talk about Alden confirming it's just binary high or low, what I'd like to
9 point out here is that Alden in fact, as we pointed out in paragraph 61,
10 indicates that its LEDs or its light sources can operate in a range of
11 intensities. And so it's clearly that it's not just high low, and paragraph 27
12 specifically states that it does in fact determine the intensity that there's
13 going to be.

14 I just wanted to touch on and just give an example, you know we
15 heard a lot of changing theories or introducing theory changes, and one
16 example was on slide 31 from Patent Owner's presentation, and it's
17 interesting on that one, you know, they alleged that we have a theory change
18 because they say that we changed our position to say that -- and this is with
19 respect to a threshold intensity, and Patent Owner said that we've changed
20 our position to have a new theory where a value of medium intensity would
21 now be our threshold.

22 But if you look on that same slide, it's interesting to note that in the
23 excerpt from our petition 25, they have highlighting there. There's one word
24 they don't highlight and it's 'medium.' What we actually said in the petition
25 was that these intensities, between high beam and low beam, e.g. medium,
26 again specifically identifying medium, could be that pre-defined threshold.

1 In our reply we point this exact same medium value as again being that
2 threshold. There's been no change of position, again, we've been consistent
3 throughout.

4 And my final point, what I'd like to talk about is on the control of the
5 light modifying elements. Now, we heard a little bit here and we had on
6 their slide 40, for example, they brought up claim 43. And now we do
7 acknowledge that claim 43, for the first time actually introduces a
8 requirement that there is a processor configured to construct control of at
9 least one light modifying element, resulting in a change to the light source
10 characteristic. Now, just to make clear, as set forth in our petition, this is at
11 least obvious in view of Alden's combination based on its disclosures of
12 using the variable refractive elements which are in fact controlled, with the
13 Figure 5 embodiment. So just to be clear on that one, we do have set forth in
14 our reason how you would have that control where it's required. Again, our
15 position is that in the others, that act of control is not required, but even if it
16 is, and as it's required in claim 43, that's at least obvious in view of Alden.
17 I'll stop there unless Your Honors have any further questions.

18 JUDGE MOORE: Seeing none, we thank both sides for their very
19 thorough presentations, and I suspect we'll be issuing an order on claim
20 construction on at least Claim 2 and possibly curve turn, and if there's
21 anything else that the parties think we need to construe to reach our final
22 written decision, please let us know, but other than that, the case is
23 submitted, and we are adjourned.

24 (Whereupon, the above-entitled matter went off the record at
25 3:58 p.m.)

IPR2023-01026 (Patent 10,894,503 B2)
IPR2023-01027 (Patent 10,894,503 B2)

PETITIONER:

Celine Crowson
Joe Raffetto
Scott Hughes
Ryan Stephenson
HOGAN LOVELLS US LLP
celine.crowson@hoganlovells.com
joseph.raffetto@hoganlovells.com
scott.hughes@hoganlovells.com
ryan.stephenson@hoganlovells.com

PATENT OWNER:

Sangeeta Shah
David Bir
Bernard Tomsa
BROOKS KUSHMAN P.C.
sshah@brookskushman.com
dbir@brookskushman.com
btomsa@brookskushman.com