

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VOLKSWAGEN GROUP OF AMERICA, INC.
and PORSCHE CARS NORTH AMERICA, INC.,
Petitioner,

v.

YECHEZKAL EVAN SPERO,
Patent Owner.

IPR2023-00315 (Patent 9,955,551 B2)
IPR2023-00318 (Patent 9,955,551 B2)

Record of Oral Hearing
Held: March 20, 2024

Before JON M. JURGOVAN, JASON W. MELVIN, and AARON W.
MOORE, *Administrative Patent Judges*.

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The above-entitled matter came on for hearing Wednesday, March 20, 2024, commencing at 1:00 p.m. EDT, at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.

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

(1:00 p.m.)

JUDGE MELVIN: Please be seated. Okay, good afternoon. So, this is a hearing for IPR2023-00315 with joined case -1225 and IPR2023-00318 with joined case -1296. These proceedings are reviewing patent number 9,955,551. Could counsel for Petitioner make your appearance please?

MR. FITZSIMMONS: Jason Fitzsimmons on behalf of Petitioner, Volkswagen Group of America.

JUDGE MELVIN: Thank you, and counsel for Patent Owner?

MS. SHAH: Sangeeta Shah on behalf of Patent Owner, Y. Evan Spero.

JUDGE MELVIN: Okay, thank you. So, as I understand it, we gave the parties 75 minutes each and you both have LEAP practitioners, so you've got 90 minutes total, you may reserve up to half for rebuttal or sur-rebuttal. Petitioner, how much time would you like to reserve?

MR. FITZSIMMONS: 30 minutes, please, for rebuttal.

JUDGE MELVIN: Got it, and Patent Owner?

MS. SHAH: We'll reserve 15 minutes for rebuttal.

JUDGE MELVIN: Okay, and the time reservation is just when the timer will turn yellow. So, with that, we have your demonstratives, you may share your screen. As always, try to be clear when you refer to slides or demonstratives or evidence, and the time is yours.

MR. FITZSIMMONS: Good afternoon, Your Honors, and may it please the Board, I'm Jason Fitzsimmons, from Stern, Kessler, Goldstein & Fox, on behalf of Petitioner, Volkswagen Group of America, and joining me today from Stern Kessler are Michael Specht, lead counsel for Petitioner, Ian

1 Soule, here with me at counsel's table, and also Trevor O'Neill. First, I'd
2 like to thank the Board for allowing Mr. Soule to argue under the Legal
3 Experience and Advancement Program, we appreciate the Board's support
4 of the program.

5 Turning to slide two, general agenda for today's discussion. I'll first
6 provide some very brief technical background and then discuss why the
7 Karlsson grounds and the Beam grounds both render all of the challenged
8 claims obvious. After that, I'll turn things over to Mr. Soule to discuss
9 secondary considerations and the Petitioner's motion to exclude Dr. Turk's
10 testimony.

11 Next, on slide three, there are a lot of claims here for the '551 Patent,
12 including eight independent claims, but the majority of the claim elements
13 are the same or patent-ably indistinct between the independent claims, and
14 many of the dependent claims are redundant across those independent
15 claims, and so the Petition's group elements and claims together, for the
16 Board's convenience, and given the number of claims, today we'll mostly be
17 discussing representative claims, with a few exceptions that I will make
18 clear.

19 So similar to the '029 Patent IPR that we recently discussed, the
20 obviousness combinations here are straightforward. As you'll recognize,
21 there's some familiar references, Beam, Karlsson, Kobayashi and Gotou,
22 and in fact many of the dependent road curvature claims, those are in
23 grounds 2 and ground 4 of each of the petitions are very similar to the
24 combinations in the '029 Patent IPR and un-patentable for the same reasons
25 we discuss there. And so our primary focus today will be on grounds 1 and
26 3.

1 Now, in grounds 1 and 3, the primary references, Beam and Karlsson,
2 each disclose nearly all of the claim elements in their respective ground, and
3 the Satonaka and Nakamura references are combined with Beam and
4 Karlsson respectively for well-known features, which are even suggested in
5 the primary references of using coordinate information in order to determine
6 and track the location of a vehicle within the camera's field of view. And as
7 explained in our briefs and supported by our expert Dr. Jiao's declarations
8 under both combinations all of the challenged claims of the '551 Patent are
9 unpatentable.

10 Next, on slide four, very briefly, as we were discussing with the '029
11 patent, this slide just orients us to what the person skilled in the art would
12 have known and been considering back in the early 2000s, and this is the
13 lens through which the person skilled in the art would view the claims and
14 the prior art. So we know the concept of adaptively lighting roads goes back
15 to at least the 1940s and '50s, but generally what we think of as the push
16 towards this adaptive headlamps came in the 1990s, and this famous project
17 by a global group of headlamp and auto manufacturers called the EUREKA
18 Project, which was an inflection point in adaptive front lighting systems.
19 And the middle quote here on slide four, we see that the EUREKA Project, it
20 investigated, it studied and recommended AFS functions, including dynamic
21 illumination and glare control, which is a focus of the '551 Patent.

22 Turning to slide five, again we see these figures that we saw in the
23 '029 Patent, showing the types of amorphous beam patterns from adaptive
24 front lighting head lamps here, to light city intersections at high speeds,
25 along curves, and so adapting head lamp beam pattern to reduce glare was
26 part of this and well-known in the art. Just by way of example, from Dr.

1 Jiao's declaration in the -315 proceeding, his declaration there is Exhibit
2 1003, paragraphs 56-57. He quotes the Westermann reference, a
3 background reference, saying AFS systems could use existing sensor signals
4 on the vehicle to measure and collect ambient conditions and then to modify
5 the lighting performance to the traffic conditions and to prevent deteriorating
6 glare effects for other road users.

7 Next, on slide six, is Claim 24, which is representative of the
8 independent claims, and the independent claims are all structured very
9 similarly. There's an illuminating device, which is an adaptive LED
10 headlamp for a motor vehicle, and the claims have nearly identical structural
11 elements, and those structural elements we're calling 24.P through 24.7.
12 And so, we have a head lamp, has a plurality of LEDs, of course they have a
13 power source, there's a camera sensor, and there's a controller that uses
14 information from the camera to control the LEDs according to instructions
15 that are stored in memory.

16 Now, where the independent claims differ slightly is in their
17 instruction elements, and here for Claim 24, that would be elements 24.8
18 through 24.10, but the claims are all directed to the same concept, a
19 headlamp device that selects and controls the appropriate LED clusters in
20 order to reduce glare to other drivers. And this is exactly what the prior art
21 teaches.

22 So we know what the '551 Patent purports to invent, but now on slide
23 seven, what the '551 Patent does not purport to invent. The '551 expressly
24 states that the invention is not a new lamp technology, so we know the LEDs
25 of the '551 Patent claims are not the point of patentability. The '551 Patent,
26 this is in column 52, lines 28 through 30, it discusses that it was also known

1 in the prior art to continuously control a variable headlamp system based on
2 an imaging system, and in the '551 Patent, it also describes that dynamically
3 adapting the beam pattern to avoid glare was known. That's at column 50,
4 lines 59 through 62. And so there's nothing new physically or conceptually
5 about the '551 Patent claims.

6 So as a result, here the Patent Owner is forced to take unreasonable
7 claim construction positions and strained theories about the prior art that are
8 supported only by their declarant Dr. Turk, who repeatedly showed
9 throughout this proceeding that he does not understand pertinent technical
10 issues.

11 So, starting with the Karlsson grounds on slide eight. Now, since the
12 Patent Owner only has a couple of arguments against the Karlsson
13 combinations, we'll start with those, then I'll turn to the Beam grounds,
14 where the Patent Owner takes a more scatter-shot approach to the claims.
15 And we may adapt the order of the slides as we go here, for Your Honor's
16 efficiency. Now, a reminder that Karlsson discloses an adaptable head
17 lamp, uses LEDs to form patterns based on sensor input, such as from a
18 counter sensor. Karlsson's sensors, they're designed to precisely determine
19 the direction and the intensity of detected lights for vehicles, and Karlsson
20 processes that to determine which area of the image contains a vehicle in
21 order to appropriately adapt its headlights to prevent glare to other drivers.

22 Now, what Karlsson does not expressly disclose is how the direction
23 of the target light sources is stored and processed, but that back-end
24 technique was well known, and Nakamura is an example of that, which
25 discloses an automatic headlight system that detects vehicles by processing
26 an image obtained by its camera and arranges the pixels into XY

1 coordinates. And so this coordinate system discloses the remaining
2 coordinate-specific information elements that are recited in the claims, those
3 are 24.5 and 24.8, for example, in independent claim 24 in this combination.

4 Next, on slide nine, we see Figure 3 from Karlsson, and we see that
5 Karlsson discloses a light source, which it says can be LEDs, it can have a
6 spatial light modulator and a camera sensor, the camera there in blue,
7 highlighted number three. Now, the Patent Owner's primary argument
8 against the Karlsson grounds is that Karlsson doesn't disclose a camera and
9 a sensor, but that's just false. So we see on the left, the quote there at the
10 top, this is Patent Owner's declarant, Dr. Turk. His declaration, paragraph
11 176 in the 318 proceeding, he states that the sensor 23 in Figure 3 is a
12 camera. Again, this annotated drawing on the left is from Patent Owner's
13 Dr. Turk, so there's no dispute that Karlsson discloses a camera sensor, and
14 we know that that light source in Karlsson can be LEDs. So, in Figure 3,
15 what we have is a camera and LEDs, they are both connected to the control
16 mains, 14 there at the bottom of Figure 3.

17 Now on slide ten, on the left, we still have Patent Owner's Dr. Turk's
18 annotated Figure 3, and on the right a nearly identical annotated Figure 3
19 taken right from the Petition. Both the petitions and both of Dr. Jiao's
20 expert declarations applied Figure 3, pointing to sensor 23 as the camera.
21 Patent Owner's Dr. Turk, Petitioner's Dr. Jiao both agree that sensor 23 is a
22 camera.

23 Now the Patent Owner is going to come up here and their arguments
24 are going to try to make it seem as if Karlsson's Figure 14, the LED matrix
25 that we saw previously on slide eight, is being applied for the structural
26 elements of the claims. And they'll allege that there isn't a camera in Figure

1 14, but that's a complete mischaracterization of the petitions. The petitions
2 applied Figure 3 and camera 23 for the physical structure elements of the
3 independent claims. The petitions do show an annotated version of Figure
4 14, but that's for the instructional or control elements, for example 24.9 to
5 24.10 to illustrate how Karlsson selects its clusters from LEDs from that
6 array and how it can manipulate those clusters to reduce glare, for example
7 in the -315 petition at pages 67 to 69. And Figure 14 does nicely show the
8 matrices of LEDs, but Figure 14 is not applied at all for the structural
9 elements in the Petition. So, all of Patent Owner's arguments about Figure
10 14 are based on a false premise.

11 We'll turn now, we'll jump ahead a couple of slides to slide 13, and
12 I'll give Your Honors a moment to get there. And so, on slide 13 we have
13 independent claims 72 and 80, and these are only in the 318 IPR, and here,
14 the Patent Owner argues that Karlsson doesn't disclose data from the camera
15 or sensor, it indicates a change in position of the target, that's in claim 72.12,
16 or identify a plurality of positions associated with the target, that's in claim
17 element 80.8.

18 Now, in the Patent Owner's response in the -318 proceeding, this is at
19 page 52, they admit that the functioning of Karlsson may generally result in
20 a darkened area that changes position over time due to the movement of the
21 vehicle. What Patent Owner argues is that Karlsson never associates the
22 detected light with a particular target, and Patent Owner refers to this as
23 tracking a target. But Karlsson clearly does disclose this. It uses an iterative
24 process that detects and tracks a vehicle as the vehicle moves, that's the
25 Patent Owner's admission from what I just read, that Karlsson's darkened
26 area changes position over time due to the movement of vehicles. It's not

1 surprising that the '551 Patent acknowledges, and this is in column 45, lines
2 48 to 50, that pattern recognition programs, to initially lock on and recognize
3 a target attribute is known in the art of object tracking.

4 And the Petition, at page 74, cites Karlsson at the top right quote here,
5 this is Karlsson column two, lines 36 through column three line seven,
6 where Karlsson discloses intermittently and repeatedly controlling the
7 intensity of the admitted light. The middle quote here on the right-hand side
8 is Karlsson, column five, lines 29 to 32, Karlsson determines the precise
9 location, excuse me, determines precisely the direction from which the light
10 is being detected, and subsequently, a precise adjustment to the pattern of
11 the light beam can be carried out. And so Karlsson's system is repeating this
12 process, which is to identify the change in the positions of the target
13 vehicles. If it didn't, it wouldn't achieve its purpose of reducing glare to
14 other drivers.

15 The next point on slide 14 now is what I mean by the Patent Owner's
16 unreasonable claim construction type argument. Now the Patent Owner's
17 argument here, in their response in the -318 proceeding, pages 49 to 53, they
18 try to impart something more to the claim language to require some sort of
19 storing or memory of the positions, and this is simply not the case. It's not
20 required by the claim language, it's not suggested in the '551 Patent
21 specification. We see on the right-hand side of slide 14, Dr. Jiao in his
22 declaration, paragraph 143, explained that the plain language of both of
23 these claims requires only that the system identify changes in position of a
24 target for modifying the lighting.

25 Perhaps most tellingly, the '551 Patent described detecting vehicles
26 via their headlights using a sensor, just like Karlsson and just like Beam that

1 we'll discuss later. The '551 Patent, this is at column 52, lines 62 through
2 65, says that analysis by a detector or imaging system of the oncoming
3 vehicle's position, using its headlights for example, can be used to determine
4 the exact aiming of the lights. This is the same thing that Karlsson is doing.

5 I'll turn back now to slide 11. I'll give Your Honors a moment
6 to reach that slide. So, on slide 11, we have independent claim 64, and so,
7 returning to this, the Patent Owner argues that Claim 64 does the same thing
8 as Claims 72 and 80 that we just discussed, and that's track a single vehicle
9 and adjust the light and the LEDs accordingly. This is in the Patent Owner's
10 response, pages 48 to 49. As I just explained, the independent claim 72 and
11 80 are rendered obvious by the Karlsson ground. If Claims 72 and 80 are
12 obvious, so is Claim 64.

13 Now, the -318 Petition's example for Claim 64 actually showed how
14 Karlsson teaches a more sophisticated scenario of accommodating two
15 vehicles. When the Patent Owner argued in its response that Claim 64 only
16 requires one vehicle, we explained in our Petitioner reply that Claim 64 is
17 then obvious for at least the same reasons as 72 and 80, that's our
18 Petitioner's reply, pages eight and nine. Now regardless, the Petition's
19 example still discloses the elements of Claim 64.

20 So, to start, the clusters in the '551 Patent claims are broadly defined.
21 The '551 Patent states, at column 52, lines 28 through 34, that a cluster can
22 be used to describe a control function and is not necessarily related to
23 continuous placement. In general, a cluster may be deemed a separate
24 grouping due to a function it performs, either exclusively or in conjunction
25 with other clusters or sub-clusters. So cluster is broad, it can be defined by
26 its function, cluster can be discontinuous. The clusters in the LEDs of Claim

1 64, they function to diminish glare to a driver of the other vehicle, that's
2 language from Claim 64.

3 So, in the -318 Petition, page 70, we discuss element 64.8 to start, and
4 this is the first cluster of LEDs, and that first cluster is a group of LEDs that
5 are dimmed to reduce glare at the other vehicle. The first cluster has the
6 function here of reducing glare at that target vehicle. The petition explains
7 that this claim element is patentably indistinct from previously discussed
8 claim elements 56.8 and 56.9, and that it's disclosed by Karlsson for the
9 same reasons. Now, the Patent Owner does not challenge those elements of
10 Claims 56 or the first cluster element here of Claim 64.

11 What the Patent Owner challenges is 64.10, which is discussed in the -
12 318 petition at page 71, and now both the petition and Dr. Jiao, and this is in
13 his declaration at paragraph 298, explain that Karlsson's system
14 automatically functions to detect and reduce illumination on any number of
15 target vehicles, and that's citing Karlsson at nine, 18 through 26. The
16 petition then says that when there's a second vehicle, it would require a
17 second cluster as claimed to execute Karlsson's glare reduction process --
18 that is tracking and dimming LEDs to reduce glares to the other vehicle. So,
19 when a second vehicle is detected, the first cluster has to be updated to
20 accommodate vehicles so that a new second cluster of LEDs is defined,
21 otherwise it wouldn't be executing Karlsson's glare reduction process.

22 So this, when the second vehicle is in the field of view, there's a
23 second, different, cluster of LEDs, all of which are dimmed, that now
24 includes both the dimmed LEDs pointed at the first vehicle and dimmed
25 LEDs pointed at the second vehicle. These two groups of LEDs are a
26 cluster, a second cluster, with the function of reducing glare to other drivers.

1 The second cluster still has dimmed light directed towards the other vehicle,
2 the first vehicle, it doesn't matter that there's LEDs with dimmed light that
3 are also directed toward the second vehicle, it still meets the claim element.
4 Because Karlsson continues tracking and adjusting light for the first vehicle,
5 it also needs claim element 64.11, which is the subsequent claim element of
6 adjusting the light, and so it controls a second subsequent change of the light
7 that's directed toward the other vehicle.

8 On slide 12 -- excuse me. Slide 13. Slide 12. The -318 Petition,
9 Petitioner's reply, page 19, and Dr. Jiao, his declaration, Exhibit 1052,
10 paragraph 138, Dr. Jiao says that "my explanation remains correct, because
11 this language," referring to the language of Claim 64, "does not restrict the
12 second cluster to a single vehicle, and a second vehicle would have a
13 different spatial position, thus requiring different LEDs to be selected for the
14 second cluster."

15 So, the second cluster, according to the claims, needs to have LEDs
16 having light associated their width that is directed toward the other vehicle.
17 The two-vehicle example has that. The claim language does not restrict that
18 second cluster from also having other LEDs that have light directed towards
19 a second or different vehicle. The second vehicle would have obviously a
20 different spatial position than the first vehicle, thus requiring a second,
21 different cluster of LEDs. Claim 64 is met.

22 JUDGE MELVIN: Is your point just that whether or not the system
23 tracks two cars, two other vehicles, it always updates the cluster for the
24 position of the first vehicle?

25 MR. FITZSIMMONS: Yes, Your Honor, it's not going to stop
26 updating the cluster for the first vehicle just because a second vehicle comes

1 into view. The whole purpose of Karlsson is to prevent glare, to traffic, and
2 traffic, as we all know, can have one oncoming vehicle, two oncoming
3 vehicles, a leading vehicle, and so there will be multiple areas that Karlsson
4 is dimming the LEDs in order to accommodate those drivers.

5 JUDGE MELVIN: But the change, the second subsequent data in
6 Claim 64, should relate to the first vehicle.

7 MR. FITZSIMMONS: Right, and it does, when there are two
8 vehicles.

9 JUDGE MELVIN: Thank you.

10 MR. FITZSIMMONS: It relates to both groupings, but that's a
11 second cluster, the cluster now has dimmed LEDs pointed in the direction of
12 the first vehicle and dimmed LEDs pointed at the direction of the second
13 vehicle. The '551 Patent says we can have discontinuous LEDs in a cluster,
14 and so it is still having the data for that first vehicle, it's continuously
15 updating as Karlsson says it does.

16 So now we'll turn ahead a couple slides because we already addressed
17 72 and 80. And we'll go to slide, I believe 14. 15, I'm sorry. And so, the
18 last main topic for the Karlsson grounds here, a number of dependent claims
19 require image data to be produced from the camera, and so, for example,
20 Claim 32 says follow, based at least in part on data from one or more of the
21 cameras, the at least one target with the diminished illumination, as the at
22 least one target changes location relative to the motor vehicle.

23 And then Claim 33 after that depends on it and says that the data
24 includes image data from a camera. As discussed earlier, Karlsson has a
25 camera. Patent Owner's Dr. Turk confirmed that in his declaration, as a
26 reminder, Exhibit 2024, paragraph 176. The data that goes from Karlsson's

1 camera 23 to its control means 14 is image data. The bottom left here, on
2 slide 15, Patent Owner's Dr. Turk in his deposition acknowledged that
3 image data, as recited in Claim 33, is just data coming from the camera that
4 creates images, meaning the camera creates images.

5 I'll note that Karlsson, column 17, line 21, says that the external light
6 sources that it detects are imaged on the light sensors 23. On the right, here
7 on slide 15, Dr. Jiao in his declaration says Karlsson's control means 14,
8 which includes the processor is in communication with the sensor camera to
9 receive the control signal. Control means is receiving the image data control
10 signals from the camera. There's really no debate that there is image data
11 coming from Karlsson's camera to its control means.

12 JUDGE MELVIN: I mean, this dispute is sort of the same as whether
13 or not Karlsson includes a camera in the embodiment that you're relying on,
14 right? And I know you touched on that dispute, but isn't the idea there that,
15 to the extent Karlsson is dimming individual LEDs, it does so not in the
16 embodiments with the light modulator? It does so in the embodiments that
17 don't use a light modulator?

18 MR. FITZSIMMONS: Karlsson is going to do that in any of the
19 embodiments, and if we go back to that figure, there is a light modulator in
20 Figure 3 as well, and Figure 3, we can go back to that slide. Right here,
21 right, on Figure 3, on the bottom left of slide eight, there's the light source,
22 which Karlsson says can be LEDs. There's a sensor 23 --

23 JUDGE MELVIN: But the question isn't whether the light source can
24 be LEDs but rather when Karlsson implements its control strategy, it
25 individually dims those LEDs versus uses the light modulator to modulate
26 the overall beam.

1 MR. FITZSIMMONS: So, of course it does. Karlsson discloses that
2 it can adjust its LEDs, it doesn't just have them on and off, it can change the
3 intensity of its LEDs. So it's not just necessarily using that light modulator,
4 if I understand your --

5 JUDGE MELVIN: It does so in the context of embodiments with the
6 light modulator. I mean, you do agree that individually dimming LEDs and
7 using a light modulator is somewhat redundant?

8 MR. FITZSIMMONS: No, I don't think it's redundant. I mean,
9 Karlsson itself has them in the same embodiment, so I don't see why that
10 would be --

11 JUDGE MELVIN: Well, Karlsson, in the embodiment -- okay,
12 maybe that's what I'm asking, can you point out where Karlsson discusses
13 individually dimming LEDs?

14 MR. FITZSIMMONS: So, Karlsson discloses, this is Exhibit 1010,
15 page 14, starting at line 22, Karlsson discloses that control means 14 are
16 arranged to selectively switch the individual small light sources, the LEDs,
17 or a group of individual small light sources, on and off, in response to
18 control signals from sensor means 24. That's one example of Karlsson
19 disclosing controlling individual LEDs.

20 JUDGE MELVIN: Right, okay, that's exactly what I was asking for;
21 thank you. And it's the next paragraph, if I'm correct, where Karlsson says,
22 okay, instead of individually switching LEDs, you can use the light
23 modulator.

24 MR. FITZSIMMONS: Yes.

25 JUDGE MELVIN: So it seems to me that they're somewhat
26 redundant, but Karlsson is disclosing either possibility.

1 MR. FITZSIMMONS: Discloses either possibility that can be used.

2 JUDGE MELVIN: Okay. Thank you.

3 MR. FITZSIMMONS: So, turning now to slide 16, is where we left
4 off, and just very briefly here, this is now Karlsson and Satonaka, in addition
5 to Gotou, render these dependent road curvature claims obvious. The
6 Karlsson and Gotou references were both applied against the road curvature
7 claims in the '029 Patent IPR in a very similar manner. The Patent Owner
8 doesn't make any new arguments here that their combination, with the
9 addition of, excuse me, with Nakamura, in this case, presents any other
10 issues, and so unless there are any questions on that, I'll move to the next
11 topic.

12 And that next topic we'll go to slide 18. And so, now we're turning to
13 the Beam and Satonaka grounds. And so, Beam and Satonaka form the basis
14 for another set of grounds. Patent Owner does not dispute that the structural
15 elements are disclosed in Beam. Beam is similar to Karlsson in that it has
16 this adaptive head lamp with LEDs, Beam uses image data from the camera
17 to individually control the LEDs in order to reduce glare, and similar to the
18 Karlsson Nakamura ground, here Satonaka, this reference is combined with
19 Beam in order to provide the coordinate specific information elements of the
20 claims.

21 Now, Beam itself suggests these coordinate specific information
22 elements in multiple places. Just for example, Beam, column six, starting at
23 line 14, discloses that a controller module uses the sensor spatial data video
24 to determine whether there are illumination sources, headlights or taillights,
25 present in the camera's field of view and determines their location. It goes
26 on in column eight, line 26, to discuss determining the coordinates of the

1 oncoming/followed vehicles. Now, Satonaka provides some more details on
2 an algorithm that processes each pixel in the image from its camera,
3 determining the coordinates of the oncoming target, then activating the
4 appropriate lighting in order to prevent glare to the other traffic.

5 We'll turn then to slide 19. Now, because Beam discloses all the
6 physical components, the Patent Owner again here is forced to make more
7 unsupported claim construction type arguments for certain instruction
8 elements of the claims, like change emission in Claim 24, and reduce
9 intensity of illumination in Claim 56. So, starting on the right hand side of
10 slide 19, Dr. Jiao, in paragraph 70 of his reply declaration, says that the plain
11 and ordinary meaning, for example of Claim 24, requires only a change in
12 emission relative to another emission. That's what the claim says.

13 Now, the Patent Owner's argument in their reply at pages 15 to 16 is
14 that the claims require some amount of what they call positive light to be
15 emitted from the LED cluster as a result of this change or reduction in
16 intensity. But the very next claim, Claim 25, the bottom left here on slide
17 19, says that the changed emission can include a change of at least one LED
18 of the cluster to a non-emitting state. The Patent Owner's arguments here
19 are not credible, and we could stop there, for completeness, though we'll
20 turn to slide 20. Even under the Patent Owner's incorrect interpretation, the
21 Patent Owner's argument still fails because they're unquestionably wrong
22 about how Beam operates. Now, the Patent Owner argues in their response
23 at page 16 that Beam's LEDs are binary, they're either on or they're off.
24 Again, this isn't credible, we just need to look at slide 20, and what does
25 Beam say? The Patent Owner's argument directly contradicts Beam's
26 disclosure.

1 It's even acknowledged by their own declarant, Dr. Turk. On the left
2 hand side, this is from page seven of our reply, we had multiple quotes from
3 Beam, disclosing that its LEDs are not just on or off. For example, Beam,
4 column four, 16 to 19, Beam discloses that it determines which microbeams
5 or LEDs must be reduced in intensity to protect the other drivers. Column
6 four, lines 21 to 25, illumination in the shaded areas, this is in Figures 1C
7 and 1D, is reduced significantly to protect the oncoming drivers. In column
8 five, lines 15 through 16, data from the sensors is used to determine the size
9 and position of the light emitters to be dimmed. Beam uses the same
10 language in the '551 claims, and it's applied in the petitions from Beam in
11 the same way. One more point, at the top right here of slide 20, Beam also
12 uses the term "attenuation." Dr. Turk, Patent Owner's declarant, said that
13 means decreased, it's not off.

14 We'll go now to slide 21, and this is Claim 48 of the '551 Patent, and
15 now this is only in the -315 proceeding, and this argument is only with
16 respect to Beam and not Karlsson. So, Claim 48, element 8A, so 48.8A in
17 the petitions, says that the first light, it says -- excuse me, the first light
18 determined based at least in part on classifying the object based at least in
19 part on the data. So this classifying element that's only in Claim 48 here is
20 what we're discussing.

21 So to start, on the left, in the '551 patent, column 44, line 67, going on
22 to column 45. The '551 Patent admits that classifying was known in the art.
23 On the right, Dr. Turk admits that too. He says, the classifying techniques in
24 the '551 patent were known in the art. Also, as we'll see on the next slides,
25 even under the Patent Owner's narrow definition that we'll go, in their

1 unsupported interpretation, Beam discloses the classifying element of Claim
2 48.

3 So next, we'll turn to slide 22, and on the left hand side here, we have
4 the relevant portion of Claim 48, it's 48.8A, and the Patent Owner's
5 argument here is based on an interpretation of classifying that isn't
6 supported by the '551 Patent. The '551 Patent does not define classifying,
7 the claim does not require specific objects to be classified, and as we see on
8 the top right, what the Patent Owner's arguing is that classifying requires the
9 ability to distinguish between types of light sources. The bottom right,
10 Patent Owner's Dr. Turk had a different interpretation of classifying, trying
11 to salvage this claim, saying that Claim 48, what classifying means, is multi-
12 class classification, or determining the identity of an object. But none of
13 these definitions are in or supported by the '551 Patent, which says very little
14 about classifying.

15 As we go to the next slide, slide 23. Now, on the top left we have Dr.
16 Jiao, in his expert declaration, at paragraph 96, says that a person skilled in
17 the art, want to understand the plain language merely requires placing the
18 detected objects into categories or classes. This is in Petitioner's reply at
19 page eight. On the bottom left, as the petition explained, for example pages
20 45 and 33 to 34, while citing Beam at column six, lines 14 through 19, in
21 Beam, the controller module uses the sensor spatial data video, the imaging
22 sensor, to determine whether there are illumination sources, headlights or
23 taillights, present in the headlights' field of view and determines their
24 location. That satisfies the classifying element of Claim 48.

25 Now, regardless, as we look at the right-hand side now of slide 23, as
26 Dr. Jiao explained in his declaration, even under the Patent Owner's

1 proposed definition in their Patent Owner response, Beam still discloses
2 classifying based on its thresholding feature which eliminates weaker signals
3 of detected light. Beam, at column five, line 34, says that the spatial scene
4 data from the sensor is thresholded to eliminate weak signals and becomes
5 the input to the processor. It also discloses that the cameras -- excuse me, in
6 our Petition, page 29, we explain that the cameras for detecting the
7 coordinate specific information about the illuminated area, that's classifying.
8 So this thresholding differentiates between dim objects, like a street light,
9 and brighter objects, like vehicle headlights, thus classifying them.

10 Now on the right hand side, here again Dr. Jiao, this is actually not
11 highlighted here, sort of the first portion in between those, he says that
12 objects detected by the sensor are separated into two classes, those that
13 reflect or emit light above the threshold and those that do not reflect or emit
14 sufficient light. He continues, this is in paragraph 99 of his reply
15 declaration, regarding this multi-class classification that Dr. Turk provided
16 for the first time in his deposition, and Dr. Jiao responds that when Beam
17 performs its thresholding function, it's separating objects into different
18 classes above and below the threshold, and would have the effect of
19 separating or distinguishing, for example, sign lighting, roadway lighting
20 from vehicle headlights or taillights, because the other non-vehicle lighting
21 will not be as bright, and that this is an example of multi-class classification,
22 even as Dr. Turk proposed it.

23 So, turning to slide 24, the next few slides here, the reason that Beam
24 discloses the disputed elements are very similar to the reasons that Patent
25 Owner is wrong with respect to its arguments regarding Karlsson, but I still
26 want to briefly go through these.

1 JUDGE MELVIN: Just before you do, on Claim 48, in classifying, it
2 may be a slightly separate argument, but Patent Owner asserts that you just
3 failed to address that in the Petition, right?

4 MR. FITZSIMMONS: That's their argument, Your Honor, it's not
5 correct. If we look into the Petition, at page 29, for element 48.5, we talk
6 about the cameras detecting coordinate specific information about the
7 illuminated area, which goes to the classifying element. In the petition --

8 JUDGE MELVIN: But that's not the classifying element, right?

9 MR. FITZSIMMONS: Sure, it's in Claim 48, and goes to this point.
10 That's 48.5, in the Petition, page 45, also pages 33 and 34, claim element
11 48.8A references element 24.8, citing Beam for the purpose of determining
12 whether an illumination source, headlights or taillights is present in the
13 headlights' field of view and determines their location. Again, this satisfies
14 the classifying element, so those are areas in Claim 48 and also where Claim
15 48 references an additional portion of the petition as well.

16 JUDGE MELVIN: Okay. Thank you.

17 MR. FITZSIMMONS: So now back on slide 24, and this is now
18 Claim 64 again, but for Beam. Again, we know how Beam works. On the
19 right-hand side, excerpt from Beam, the blanked area tracks the oncoming
20 vehicle dynamically varying in position and size. Beam also discloses at
21 column 5, line 67, continuing into column 6, that selection of the particular
22 microbeams that form the dimmed area is performed continuously and
23 dynamically. So, with respect to Claim 64, Beam, like Karlsson, is going to
24 modify its first cluster to second, new cluster. A similar argument applies,
25 and that's what we explained in both the petition and the Petitioner replies.

1 Since that argument is very similar, I want to turn next to the two
2 independent claims on slide 25. Again, Patent Owner's arguments here
3 against independent claims 72 and 80 mirror their arguments for these same
4 claims in the Karlsson ground. Here, the Patent Owner admits, in the -318
5 POR, at page 19, that Beam produces a darkened area that changes position
6 in response to detected light changing -- excuse me, in response to detected
7 light changing position dissatisfies these claims. Now, on the right-hand
8 side, again like Karlsson, Beam tracks its target. Along with doing that, it
9 has a change for a plurality of positions. We see on the bottom right, Beam
10 specifically says track the location of oncoming vehicles, and again the top
11 right quote here says that Beam performs this continuously and dynamically.
12 Nothing more is required. This is also supported by Dr. Jiao's expert
13 declarations as well, and cited in our petition and Petitioner's reply.

14 I'll skip now to slide 27. Again, this is the dependent claims that have
15 image data, and Beam also unsurprisingly discloses image data. Like
16 Karlsson, it has its camera that produces image data. As we can see on the
17 left-hand side from Beam on slide 27, Beam discloses that its rays are
18 reflected by Beam splitter 201 to sensor 107, they are imaged by the sensor,
19 and are converted to video or other electrical signals. On the right-hand
20 side, in his deposition, the Patent Owner's Dr. Turk unsurprisingly agreed
21 that Beam's video or other electrical signals from its camera are image data.
22 So, again, there's really no debate that Beam discloses the image data claim
23 elements here.

24 Now the last topic, before I'll turn things over to my colleague, on
25 slide 28, are the non-contiguous elements of a number of dependent claims,
26 and these require that the LED cluster, or at least one of a first or second

1 LED cluster includes non-contiguous LEDs. And again, the arguments, with
2 respect to Beam and Karlsson, are essentially the same, so Beam is used here
3 as the example. On the right-hand side, the Patent Owner, and this is the
4 bottom quote, the Patent Owner does not dispute Petitioner's technical
5 reasoning in the Petition, for example with respect to Claim 25, and Beam,
6 that's in the Petition, pages 26 to 38, and for Karlsson, pages 69 to 71.
7 Patent Owner doesn't dispute that two spatially separated vehicles would
8 have non-contiguous LEDs associated with them. On the left, again, Patent
9 Owner's Dr. Turk also expressly agreed that the LEDs selected for the
10 dimmed areas in Beam's Figure 1 and then the breakout figures, Figure 1C
11 and 1D, would be non-contiguous. So these elements are again met.

12 On slide 29, Patent Owner's argument with respect to this, the gist of
13 it is that the claimed LEDs are limited to a single vehicle, but again this
14 claim construction type argument is clearly wrong. As we explained in our
15 Petitioner's reply and supported by Dr. Jiao, the plain language only requires
16 that the cluster includes LEDs that emit light towards at least a portion of the
17 other vehicle, there's no restriction on the cluster having additional LEDs
18 pointed at a second vehicle. On the right, this is also supported by the '551
19 Patent itself. So, if you're on slide 29, the excerpt from column 53 of the
20 '551 Patent, which again defines clusters very broadly, states that a cluster
21 may be deemed a separate grouping due to a function it performs, and that
22 clusters may overlap and be discontinuous.

23 So, here, glare reduction is certainly a control function, so the cluster
24 of LEDs is adapted to reduce glare for multiple vehicles presents a non-
25 contiguous cluster as recited in the claims. And now we'll jump to slide 31,
26 just to point out again the dependent road curvature claims. The same

1 arguments apply, if we go to the next slide, slide 32, the Patent Owner is
2 wrong about Beam, in this case, and for all the reasons that we explained in
3 our brief and as we discussed previously with the '029 Patent, the Beam
4 combination along with Kobayashi in there discloses all of the dependent
5 road curvatures claim elements with the GPS and mapping and adapting the
6 headlights in advance of the curve.

7 So with that, I'll turn things, unless there are any further questions, I'll
8 turn things over to Mr. Soule to discuss secondary considerations, and our
9 motion to exclude, Your Honors.

10 JUDGE MELVIN: Thank you.

11 MR. FITZSIMMONS: Thank you.

12 MR. SOULE: Good afternoon, Your Honors, Ian Soule on behalf of
13 Petitioner, and may it please the Board. Thank you for the opportunity to
14 argue today under the LEAP program for a second time. I'd like to begin
15 with slide 33, and very briefly discuss a few reasons why the arguments
16 related to secondary considerations presented by Patent Owner, solely in its
17 Patent Owner response, that is, they're not in the preliminary response, and
18 they have been dropped in the sur-reply, do not support non-obviousness.

19 First, unlike the vast majority of cases where a Patent Owner invokes
20 evidence of secondary considerations, here there is no product, and Patent
21 Owner cannot attempt to show a presumption of nexus, for example, based
22 on commercial success. Now, that's not dispositive, and Patent Owner
23 agrees in such a case like this, in order for it to prove nexus, it must be such
24 that the evidence is the direct result of unique characteristics of the claimed
25 invention, and Patent Owner cannot meet this part.

1 Second, the evidence relied upon here is in a third-party declaration
2 by Mr. Stam, submitted in the '551 Patent reexam proceeding. The central
3 reexam unit did not address secondary considerations presented, and Mr.
4 Stam is not available in these IPRs for deposition. Instead, Dr. Turk
5 allegedly adopts Mr. Stam's portion of his declaration, but could not further
6 opine on Mr. Stam's opinions during his deposition here. This is reflected at
7 the deposition transcript, Exhibit 1053, pages 124 through 137. There, Dr.
8 Turk was not able to answer what he thought was meant by "unique
9 characteristics." He also acknowledged that he did not review several
10 underlying documents that the Stam declaration relies upon, and perhaps
11 most notably, he did acknowledge that he did not "independently verify"
12 positions taken in the declaration, for example whether ADB technology
13 falls within the scope of the '551 Patent claims.

14 And then, as I mentioned, Patent Owner has not responded to these
15 Petitioner's reply arguments and did not attempt to cure these deficiencies in
16 their sur-reply.

17 JUDGE MELVIN: I just have a question. When you said Mr. Stam
18 was not available, did you seek a deposition?

19 MR. SOULE: We did not. We did a deposition of Dr. Turk because
20 that is what Patent Owner submitted. And that is what was relied upon by
21 Patent Owner.

22 If we could move to slide 35. Again, there is no nexus here. And the
23 -- Patent Owner has agreed that in principle, in this case, it must show that
24 the evidence is the "direct result of the unique characteristics of the claimed
25 invention." But it is not the case here. Rather, the three features that Patent
26 Owner paraphrases are simply not unique.

1 And as Mr. Fitzsimmons just went through, as characterized by Patent
2 Owner, predictive curve illumination was well known and taught at least
3 through Kobayashi and Gotou. Classification is another kind of summary
4 feature that Patent Owner identifies that is taught both by Beam and
5 Karlsson and is acknowledged by the '551 patent as not contributing to the
6 “uniqueness of the alleged invention.”

7 And then finally, the so called “light in-between feature,” there, Patent
8 Owner has not really put forth an explanation as to what it means in relations
9 to the claims, but to the extent that it would literally mean higher
10 illumination between dimmed areas, as discussed earlier, both Beam and
11 Karlsson teach that. That’s one of the main points of glare control, being
12 able to dim in response to traffic, multiple leading or trailing vehicles.

13 If we move to slide 36. Again, setting aside the fact that there are not
14 unique features, and that Mr. Stam is not available for deposition, the
15 evidence presented by Patent Owner does not correspond, at all, with the
16 claims, and is certainly not a direct result of the alleged unique features.

17 The evidence that they point to for the “predictive curve illumination”
18 discusses, and this is a quote, “providing visibility for upcoming curves,”
19 which is a broad statement that does not match the language in the claims of
20 the '551 patent. The classifying evidence that they point to discusses
21 “intelligent lighting,” which again, does not align with the claim language
22 classified. So there is no connection between the claims and the alleged
23 evidence.

24 Briefly, to close this section out I’ll turn to slide 37. And this slide
25 shows that Patent Owner only alleges a smattering of claims fall into this

1 category in the -315 IPR. And identifies no claims that it thinks applies to
2 these arguments in the -318 IPR.

3 Again, since Patent Owner did not attempt to address or cure its
4 deficiencies in its sur-reply, if there are no other questions, I'd like to turn to
5 the pending motions to exclude Dr. Turk's testimony.

6 And if we could go to slide 38. To begin, and I believe we said this in
7 the '029 argument, we recognize that the Board is loath to exclude evidence,
8 particularly declaration testimony. And so we generally don't move forward
9 with any motion.

10 Counsel presenting today cannot recall a case that they've been
11 involved in, which one was filed. Here the facts, again, align very closely
12 with the Federal Circuit's *Kyocera* precedent that compelled Petitioner's
13 motion to exclude in this case.

14 Dr. Turks' lack of industry experience, at least two years in the area of
15 automotive lighting, lighting control systems, which is expressly required by
16 the POSA definition in the petition, and with which both Dr. Turk and Patent
17 Owner agreed, dictate the finding that Dr. Turk is not a POSA and so under
18 the law his testimony must be excluded.

19 As with the '029 patent, the POSA requirement in this proceeding,
20 having at least two years of industry experience in automotive lighting,
21 lighting control systems, is not solely proffered by Petitioner. In its
22 institution decisions the Board here explained that to the extent either party
23 believes that level of ordinary skill affects this proceeding, that party should
24 explain how in the instituted trial. That quote is, for example, at the -315
25 institution decision at page 7.

1 In the next brief Patent Owner had the opportunity to contest the
2 POSA definition but chose not to and instead it said, it does not dispute
3 Petitioner's deposition. Instead, it waited until sur-reply to make two main
4 arguments, which I'll address in turn.

5 We turn to slide 39. In the '029 argument my partner, Mr.
6 Fitzsimmons, provided a litany of reasons why Dr. Turk fails to meet this
7 level of skill. In this proceeding Dr. Jiao included many of these reasons in
8 his declaration, Exhibit 1052, at paragraph 27.

9 Most notably Dr. Turk was not aware of the EUREKA project, one of
10 the most well-known major projects in the field of adaptive front lighting
11 systems. It was a true inflection point in the industry, and Dr. Turk was just
12 not aware of it.

13 He's never worked for a vehicle headlamp company. He never
14 worked for a general lighting company. He's never worked for an LED
15 company, another lighting element company. He has no patents, no awards,
16 no papers on vehicle forward lighting. He did not know how to, for
17 example, quantify light intensity. He did not know what units intensity were
18 measured in, and has continuously conflated brightness with intensity.

19 Now, these are not strict requirements for qualifying of a person of
20 ordinary skill, but this evidence certainly reflects Dr. Turk's lack of basic
21 qualifications to opine on his understanding of the art. And it's not just the
22 '029 patent where Petitioner questioned Dr. Turk in this material. Specific to
23 the '551 patent, when asked whether a headlamp needs directional light
24 sources to provide "adaptive headlamp functionally," which is a term that
25 Dr. Turk used in his second declaration, Exhibit 2006, paragraph 35, Dr.
26 Turk responded, I'm not sure if I've thought about this as a general question.

1 Dr. Turk was also asked if an LED die is a directional light source, to
2 which he responded, "I hadn't really thought about that." Instead of
3 personally conducting a test that he described, the work was outsourced to
4 an unknown person. Dr. Turk acknowledged that he was not at the location
5 of the supposed test that he purportedly supervised, and he also
6 acknowledged that he did not believe he even spoke with the person who
7 executed the test.

8 Dr. Turk also had difficulty understanding the technical claim
9 language of the '551 patent. When asked regarding Claim 40 whether the
10 phrase, decreased intensity excludes zero intensity, which Dr. Turk discusses
11 in his declaration, Exhibit 2006 at paragraph 109, Dr. Turk responded "I'm
12 not sure I really thought that through" and was unable to definitively answer
13 the question.

14 Petitioner made these points in the motions to exclude in both the -315
15 and the -318 proceedings. Patent Owner declined to respond in their
16 opposition on specific elements related to the '551 patent.

17 Turning to slide 40, Patent Owner attempts to save Dr. Turk's
18 testimony, two main points. First, Patent Owner tries to claw back its earlier
19 preliminary response definition, which is abandoned in its POR, and argues
20 that Dr. Turk's general experience with optics, sensors, cameras, coupled
21 with his educational level, qualify him in this case.

22 And nine times out of ten that may have been true. However, in this
23 case, since Dr. Turk could not even answer basic questions about the
24 relevant technology of automotive lighting and lighting control, he does not
25 qualify under the agreed upon definition.

1 Second, Patent Owner argues that there is a piece of Dr. Turk's CV
2 that does have experience in automotive lighting and lighting control. This
3 best evidence that Patent Owner can point to is a brief stint 40 years ago at
4 Martin Marietta where Dr. Turk's CV, here on the right-hand side of slide
5 40, states that he was working in vision algorithm development and
6 implementation for mobile robot navigation under DARPA's Autonomous
7 Land Vehicle program. And to be sure, when asked about this in deposition
8 Dr. Turk did state that he at times personally worked on what he called "the
9 illumination portion" of that project.

10 Now --

11 JUDGE JURGOVAN: Counsel, can I interrupt for a second? A
12 couple of questions here about Dr. Turk's CV. One, it says he's an expert
13 witness for patent litigation, 2014 to 2016, in cases involving automobile
14 imaging technologies. Wouldn't that experience qualify as the two years
15 that you say is missing?

16 MR. SOULE: If automotive vehicle technologies -- certain
17 automotive vision technologies could be relevant if they were coupled with
18 any lighting control or automotive light system control or lighting control
19 systems, as in the agreed upon POSA definition. And Patent Owner has not
20 suggested that those cases relate at all to the level of POSA standard agreed
21 upon in this case.

22 JUDGE JURGOVAN: Are those cases related to this one?

23 MR. SOULE: Not -- no. No, they are not.

24 JUDGE JURGOVAN: Okay. And down at the bottom of the CV,
25 page 2 of professional experience it's talking about, it says he's worked at

1 Toyota Technological Institute of Chicago. And as far as you know, none of
2 that work concerned automotive headlamp technology?

3 MR. SOULE: Correct. And he did not explain any of that during
4 deposition.

5 JUDGE JURGOVAN: Thank you, Counsel.

6 MR. SOULE: Thank you. And again, on slide 40 this Martin
7 Marietta experience could be relevant, if only Dr. Turk could remember
8 anything about the project.

9 If we could turn to slide 41, Petitioner looked for public documents
10 related to this DARPA project and submitted Exhibits 1063 and 1064. On
11 slide 41, at the top left you'll see the excerpt that Patent Owner relies on
12 from Dr. Turk's CV. And then below that is an excerpt from Exhibit 1064.
13 Now recognizing the text is a little small there, but that is what's referred to
14 as the system architecture for the Martin Marietta project.

15 Nowhere in the system architecture schematic there is anything about
16 lighting or lighting control, or any other lighting considerations. And then
17 on the right-hand side, on the right-hand side is a snapshot of the tank-like
18 vehicle in a paper that was actually co-authored by Dr. Turk that details that
19 the vehicle is a standard drive chassis supplied by standard manufacturing
20 and notes that the physical platform was considered to be sufficient to
21 support the electronics for all projected demonstration experiments.

22 Again, nothing in that document details at all any "demonstrations or
23 experiments related to the agreed upon area of automotive lighting and
24 lighting control systems."

25 Now to close, I'd be remiss to acknowledge, the purpose here is not to
26 disparage Dr. Turk personally, but we need to be mindful about the integrity

1 of the process. The credibility of experts must turn on the plausibility of
2 their theories. And as reflected throughout the record here, Dr. Turk's
3 unfamiliarity with basic terms of art show that he cannot offer reliably
4 plausible theories.

5 Again, Petitioner acknowledges that the Board may be reluctant to
6 exclude Dr. Turk's testimony in its entirety, however, here Petitioner
7 submits that the case is overwhelming. If however the Board decides to let
8 the testimony in nonetheless, it should be given very little, if any, weight.
9 Unless there are further questions I'll reserve the remainder of our time for
10 rebuttal.

11 JUDGE MELVIN: Okay, thank you.

12 MR. SOULE: Thank you.

13 MS. SHAH: Good afternoon, Your Honors. This is Sangeeta Shah
14 on behalf of Y. Evan Spero from Brooks Kushman. And with me on
15 counsel table are Bernard Tomsa. We also appreciate the opportunity for
16 Mr. Tomsa, who is a LEAP practitioner, to have the opportunity to present
17 oral arguments today. And we also have with us Andrew Turner, who is
18 part of our team for this case.

19 And now I'd like to turn to slide 2 please. So we've distilled down
20 what we think are the six core issues associated with these two IPRs.

21 With respect to the Beam reference, we will establish that Beam
22 blanks light aimed at other vehicles, notwithstanding Petitioner's current
23 position, as Petitioner's expert previously admitted, Beam's blanking control
24 means that LEDs would be terminated/turned off to prevent illumination per
25 the field of invention in the Beam reference. Petitioner's arguments, as
26 we'll detail, further rely on an improper attempt to import the non-admitting

1 limitation from dependent claims into the independent claim to try to re-
2 characterize the independent claims.

3 Second, we will establish, with respect to the Karlsson reference, that
4 Karlsson's Figure 14 LED embodiment does not use a camera and that it
5 instead relies on photodiode sensors. Indeed, Petitioner's evidence
6 repeatedly points to Karlsson's Figure 3 lamp plus SLM embodiment. I
7 think there is no dispute there, as they indicated today, that they're only
8 relying on the Figure 3 embodiment for their camera support.

9 However, there is no proof, absolutely zero proof, as to why or how a
10 POSA would insert the camera of Figure 3 into the Figure 14 embodiment.
11 This very critical aspect is completely missing from their proofs.

12 Specifically, and as Your Honor noted, Petitioner relies exclusively on
13 Figure 14 for its controller proofs. So the argument that was lodged today
14 about all structure limitations coming from Figure 3 and all controller
15 limitations coming from Figure 14, it was never advanced that cleanly in the
16 petition and is sort of a recast of a new argument today. Most importantly,
17 the most telling proof of that is they never advanced an explanation as to
18 how or why a person of skill in the art would exchange those embodiments
19 to create this new kind of Frankenstein embodiment that is a mix of Figure 3
20 and Figure 14.

21 Third, we will establish that Karlsson lacks a control function. It
22 absolutely lacks a control function associated with glare reduction, which is
23 the point of the claims that we're talking about today. It lacks any
24 mechanism for determining anything, other than the location of detected
25 light. As we'll establish, that's a critical distinction.

1 Fourth, we will establish that Beam and Karlsson, in their base
2 operational states, use their full arrays. Again, critical with respect to certain
3 of the limitations here.

4 Fifth, we will establish that by choosing to make arguments
5 repeatedly by analogy to independent claims, representative claims,
6 Petitioner failed to meet their proofs. They failed to meet their proofs with
7 respect to the classifying element in independent Claim 48, they failed to
8 meet their proofs with respect to the single vehicle element in independent
9 Claim 64 and those dependents. And all dependent claims that require the
10 use of image data.

11 Their reply arguments are new, a belated effort to fix the errors that
12 they had in their petition, and statutorily impermissible. Even if considered,
13 we will establish these arguments lack merit.

14 Sixth, we will establish that Petitioner's narrow and new interpretation
15 of their original POSA standard disregards the breadth of the scope of the
16 POSA standard that they originally crafted. The new interpretation is
17 unfounded with respect to the facts and the Federal Circuit precedent on
18 these issues.

19 In sum, Petitioner's decision to present its claim challenges by
20 analogy, and then bolster their proofs on reply through a mix of new
21 arguments presented in the form of the allegedly inherent knowledge of a
22 person of skill in the art or by stringing together unrelated sentences from
23 different claim elements is not only contrary to 37 CFR 41.104(b)(4), but
24 raises significant procedural issues. Here Petitioner advanced at least four
25 completely new arguments in their reply: a new interpretation of their POSA
26 standard, the argument that the LED embodiment and Beam must include an

1 SLM, and third, new arguments to support the classifying element in Claim
2 48, and the single vehicle proofs in Claim 64. In doing so Patent Owner was
3 forced in its sur-replies, for the first time, to establish not only why each
4 argument was new, but then to try to address, again on sur-reply, why the
5 merits of these belated arguments were not meritorious.

6 This was done in one month, with limited page count and no expert
7 testimony to provide technical context. In these IPRs Petitioner repeatedly
8 sidestepped the statutory guardrails that are created to define the IPR
9 process, leading to significant procedural unfairness.

10 I'd like to turn to slide 3 please. The '551 patent is about -- is directed
11 to an adaptive glare-free LED headlight system with finely controlled light
12 delivery. The '551 patent is not about merely replacing conventional light
13 sources with LEDs, rather it is about the ability to precisely control
14 specifically aimable and dimmable LEDs to achieve a very narrow flashlight
15 type of beam which can then be used in conjunction with camera data to
16 provide the correct glare-free lighting solution for whatever situation occurs
17 at hand.

18 As the patent outlines in the context of road signs, which you can see
19 in the quote in the box on the right of slide 3, such a beam at the correct
20 narrow aiming can continue to illuminate far ahead without blinding
21 oncoming traffic. Using pattern recognition technics from the imaging
22 system, it is possible to determine what is assigned, and then to provide the
23 equivalent of task lighting and use the controller and properly aimed SLS to
24 follow and illuminate distant overhead and roadside signs for a longer time,
25 yet not blind oncoming traffic due to the narrow beam. In sum, the '551

1 patent, and the claims, cover a series of specific road scenarios providing
2 precise glare-free task lighting for each scenario.

3 Slide 4 please. Turning to the issue of the impact of the blanking
4 feature, we'd like to specifically look at Claims 32, 56 and 72.

5 What's most relevant here is these claims, contrary to Petitioner's
6 opening arguments, they are not redundant, they are not patentably
7 indistinct, they are not the same. The language of the claims speak for
8 themselves. We will go through what will appear to be excruciating detail,
9 through each one of these claims, to show that this language is in fact
10 different and that those differences actually matter when it comes to the
11 issue of, do these claims require positive illumination.

12 So again, Petitioner relies in its briefing, in particular in the petition,
13 exclusively on the arguments presented for Claim 24. It argues, by analogy,
14 that all independent claims have patentably distinct language, ignoring
15 material claim differences for its proofs. Thus Petitioner's arguments
16 completely gloss over the clear recitations of positive illumination in Claims
17 32, 56, 72, plus other independent claims.

18 And as you can see from slide 4, in each case these claims require
19 changing LED controls to create, reduce, or vary a beam of illumination to
20 illuminate a portion of an area or target, thus these claims require the actual
21 production of light, and thus controls that terminate illumination simply do
22 not suffice.

23 Claim 24 is not the same as Claims 32, 56 and 72, yet in the petition,
24 and even now, Petitioner does not provide specific proofs for the other
25 independent claims, they merely argue by analogy to Claim 24 and pretend
26 as if all of these claims have the same claim scope.

1 Slide 5 please. As Beam's field of the invention expressly makes it
2 clear, the present invention relates to a method and apparatus for
3 automatically reformatting the pattern of a beam from a light source to
4 prevent it from illuminating certain areas, thus the field of invention
5 expressly specifies that the invention relates to reformatting the beam to stop
6 illumination in certain areas. This is in the field of the invention and
7 applicable to the entire present invention disclosed in Beam.

8 The field of invention then goes on to state that this is done by
9 darkening those microbeams that would otherwise illuminate. So once
10 again, the Beam reference in the field of the invention makes it clear, all
11 microbeams are used for illumination, with the exception of the ones that are
12 darkened to stop illumination in certain areas.

13 The Beam prior reference uses the term darken synonymously with
14 blanking or preventing illumination. This is from the Beam reference itself,
15 not from an expert, not from Dr. Jiao, squarely from the words of the Beam
16 reference.

17 The specification goes on to explain Beam's control strategy, which
18 you can see here. In Beam, the area that would dazzle the driver is
19 determined and controlled to be darkened while the remainder is maintained
20 at full intensity. This statement, as we can see on the left by Dr. Jiao's
21 admission, at one point even Dr. Jiao agreed with this analysis of how Beam
22 functions.

23 Dr. Jiao admits that this is how Beam's control strategy functions.
24 Beam uses an algorithm on the incoming data to determine the locations to
25 be blanked, which he then defines using a parenthetical as
26 (terminated/turned off).

1 He goes on to confirm that when LEDs are used as the microbeam
2 source the LEDs would be turned off, as the equivalent to being absorbed by
3 the special light modulator. Dr. Jiao's admission is unequivocal. Blanking
4 means termination/turned off.

5 If we can turn to slide 7 please. Sorry, slide 6. Here we will take a
6 look specifically at the language of Claim 32. The language of Claim 32
7 requires two things, the creation of a beam of diminished illumination
8 illuminating at least a portion of a target with non-glaring illumination.

9 And second, that the beam is created by changes to the cluster
10 providing light directed at the portion of the target. Because Beam discloses
11 darkening/blanking the cluster of LEDs providing the first light, the Beam
12 reference cannot meet the illumination element of Claim 32.

13 If you can turn to slide 7, please. Looking at the quotes on the left-
14 hand side of slide 7 you'll see that Petitioner argues that the plain language
15 does not mention any specific illumination level or emission level. And then
16 it goes on to argue that a POSA would not understand emission or
17 illumination to prohibit zero light. That is not the case.

18 As you can see from the language of Claim 32, Claim 32 expressly
19 requires non-zero illumination. It requires the creation of a beam of
20 diminished illumination illuminating at least a portion of at least one target,
21 with non-glaring illumination.

22 If you can turn to slide 8 please. We would next like to look at Claim
23 56, which required illumination of a first area. Once again, looking at the
24 claim language of Claim 56, which is on the left side of slide 8, you can see
25 that Claim 56 requires non-glaring illumination of a first area by control of
26 emission from the first cluster.

1 For this claim Petitioner relies on Beam's disclosure that the area of
2 the beam that would dazzle the driver will be darkened. But as we discussed
3 with respect to slide 5, Beam's field of invention makes it clear that the use
4 of the term darken per the Beam reference is synonymous with preventing
5 illumination.

6 Slide 9 please. With respect to Claim 56, ignoring Beam's clear and
7 consistent explanation that the LEDs are controlled to be blanked, Petitioner
8 improperly relies on Beam's teaching that's quoted in the right-hand box,
9 that illumination in the shading areas is reduced significantly to protect the
10 vision of oncoming drivers.

11 What Petitioner fails to acknowledge is preventing illumination of the
12 shaded area, per the field of the invention, still achieves the goal of
13 significantly reducing glare and illumination. Any reduced illumination in
14 the shaded area is the result of spillover light from the surrounding LEDs
15 that remain active.

16 When Beam prevents illumination to a certain area by blanking LEDs
17 in that area, associated with that area, the surrounding LEDs will still remain
18 at max intensity, thus resulting in spillover light to the shaded area. That is
19 thus consistent with our interpretation of -- that spillover illumination is
20 what is explained in the context of reducing illumination in Beam.

21 If we could turn to slide, actually, I'm sorry, give me one second.
22 This is further supported by Beam's description of the glare-free view from
23 the perspective of the oncoming driver that the controlled headlights, again,
24 from the perspective of the oncoming driver, would show at an angle far off
25 the center ray, which means that the shaded area -- that in the shaded area,
26 and the location of the oncoming driver, those -- that shaded area would be

1 blanked. That's yet another indication that Beam contemplates terminating
2 the light in the shaded area as opposed to reducing intensity, as Petitioner is
3 arguing.

4 JUDGE MOORE: Counsel, this is Judge Moore. Would you agree
5 with me that in the case where the -- excuse me, I need a drink.

6 MS. SHAH: That's okay, I completely understand.

7 JUDGE MOORE: Okay. In the case where it's reduced or eliminated
8 would the driver of the oncoming vehicle still see some light emitted from
9 the headlights of the first vehicle?

10 MS. SHAH: So what the, I'm sorry, could you repeat which driver?
11 You're referring to the oncoming driver or the --

12 JUDGE MOORE: The driver, yes, the driver of the oncoming
13 vehicle, right?

14 MS. SHAH: Yes. Yes, so the driver of the oncoming vehicle --
15 (Simultaneous speaking.)

16 MS. SHAH: I'm sorry, go ahead.

17 JUDGE MOORE: Go ahead. I think you were answering the
18 question.

19 MS. SHAH: Okay. So if -- from Beam itself it explains what the
20 viewpoint is for the driver of the oncoming vehicle, and it explains that from
21 that perspective the controlled headlights would show at an angle far off the
22 center ray, which means at the center ray there is nothing there. What
23 you're seeing is, you know, light effectively that's been pushed off to the
24 side and/or any residual spillover light. So that's the extent of what you see.

25 And that the Beam is expressly discussing, in the reference itself, as
26 well as this notion of the characterizations to reducing illumination. So the

1 combination of that is consistent with the understanding that when Beam is
2 talking about its shaded blanking strategy it means termination, and only
3 termination.

4 Slide --

5 JUDGE MOORE: Okay. But you agree with me --

6 MS. SHAH: Oh.

7 JUDGE MOORE: -- that the oncoming vehicle would still see light
8 emitted from the headlights?

9 MS. SHAH: Yes. It would see the max intensity lights or the
10 surrounding areas. It may see some spillover residual light. But it will not
11 see light in the areas that are controlled to be blanked.

12 JUDGE MOORE: Okay.

13 MS. SHAH: Yes. Slide 10.

14 JUDGE JURGOVAN: Okay. Hold on.

15 MS. SHAH: Yes.

16 JUDGE JURGOVAN: I think I understand you to say that the
17 microbeams are shut off entirely in the region where the oncoming, you
18 know, vehicle would be, but when I read this it says, the microbeams must
19 be reduced in intensity. So I'm not sure how you get blanking out of the
20 word reduced.

21 MS. SHAH: So again, we do look at the kind of totality of what's
22 stated here, and in the context of the entire Beam reference. So starting with
23 the field of the invention where it's repeatedly telling you that it wants to
24 prevent illumination to certain areas, which are the areas where it detects
25 light, that the strategy that is to prevent illumination of those areas.

1 Then consistent with that reading when you, as we mentioned here,
2 when it's talking about reduced illumination there is going to be some
3 illumination in those areas, as Judge Moore pointed out, right? You're not
4 going to be able to completely strip all illumination, there is going to be
5 some spillover illumination from the surrounding areas where there is mass
6 intensity still, you know, per Beam's strategy.

7 So that spillover illumination would create from max intensity, even if
8 you're dropping it down to zero, you know, blanking the LEDs in a specific
9 area, the spillover effect will result in a reduction of intensity to that given
10 area. So that's how we're, you know, first of all, the reduction intensity to
11 zero is contemplated, but the point is, is that when you have spillover light
12 certain of the terminology in Beam makes sense in the context of spillover
13 light.

14 That's what we're trying to argue because there is some language that,
15 which Petitioner has pointed out, the sum total of all the language that
16 Petitioner has pointed out is not inconsistent with the view that Beam is
17 expressly blanking areas where it detects light.

18 JUDGE JURGOVAN: Okay. But the language there says, "which
19 microbeam LEDs must be reduced in intensity." So when it says, "which
20 microbeams," that to me is, isn't that talking about individual LEDs?

21 MS. SHAH: No. So there is a little bit of an issue here with respect
22 to microbeams versus LEDs. The emitter is the source of the microbeam,
23 and so Petitioner has conflated the two. It is our position that that's
24 incorrect.

25 There is an emitter, that is the LED. Our claims are simply talking
26 about controls to the LEDs, control of the LEDs. They are frequently

1 pointing to any number of things, including control of the microbeams. And
2 that is a separate issue entirely. And this is all part of their effort to kind of
3 conflate what's going on with the insertion of an SLM that is actually not
4 part of the LED embodiment.

5 So again, what -- this is sort of the shifting arguments that are going
6 on here where they will bring in Figure 3 whenever it suits their purpose. In
7 this instance it's to be able to argue that there is some form of -- well, they
8 argue first for purposes of the camera, as we first discuss. They argue,
9 secondly, that the SLM is of some relevance with the LED embodiment for
10 purposes of angular control. Again, none of these are actually either
11 technically accurate or certainly accurate from the Beam reference itself
12 because those embodiments are distinct and they never made an effort, in
13 any of their proofs to be able to establish how or why Figure 3 teaching
14 should just be inserted into the Figure 14 embodiment.

15 JUDGE JURGOVAN: Thank you, Counsel.

16 MS. SHAH: If you can turn to slide 10 please. So I'd like to take a
17 look now, it's more or less the same argument. We're going to look at
18 specifically the language of Claim 56.

19 Here again, Petitioner ignores the plain language of Claim 56. It
20 argues that Claim 56 does not mention a specific emission or illumination
21 level, it specifically argues that a person of skill in the art would not
22 understand emission or illumination to prohibit zero light.

23 However, the language of Claim 56 speaks for itself. It requires
24 reducing the intensity of illumination to non-glaring illumination of a first
25 area by control of emission from the first cluster.

26 If you can turn to slide 11 please.

1 JUDGE MELVIN: So before you change slides, it seems like—let's
2 just accept your argument that illumination to non-glaring illumination
3 requires non-zero illumination, okay? But that is of a first area, not of the
4 cluster.

5 MS. SHAH: Yes.

6 JUDGE MELVIN: So it seems consistent with that claim language to
7 reduce the illumination from, or the emission from the cluster to zero, which
8 would result in, because of spillover, non-zero illumination to an area. I
9 think your argument is that --

10 MS. SHAH: Could you repeat the last --

11 (Simultaneous speaking.)

12 JUDGE MELVIN: I think your argument is that, in Beam, for
13 example, right? Like the cluster cannot be changed to zero illumination.

14 MS. SHAH: That's right.

15 JUDGE MELVIN: But the claims says, what has to be non-zero,
16 under your claim construction, is an area associated with the vehicle, not a
17 cluster.

18 MS. SHAH: So it would be our position that the claim language is
19 talking about control of the full cluster. And so, Petitioner's arguments are
20 kind of focused in on, well several things. But, so I guess just to focus on
21 your question, it would be our position that what's being controlled here is
22 the full cluster. And so, individual controls of a specific individual LED,
23 while they may allow for an individual LED to be in a non-emitting state,
24 that is not inconsistent with having a prohibition that the full cluster would
25 be, will be blanked. Right?

1 JUDGE MELVIN: What I'm trying to understand is the prohibition
2 that the full cluster be blanked when it seems that the full, that the
3 prohibition is on illumination of an area, not illumination of the cluster.

4 MS. SHAH: Even if we would agree that that's the case, I guess we
5 would focus in on the language that we bolded here which is, reducing
6 intensity to non-glaring illumination, that the requirement of that requires
7 positive illumination. You know, there is no mechanism here that you can
8 achieve non-glaring illumination of a first area. You can't illuminate an area
9 if you have no light. So I guess --

10 JUDGE MELVIN: But you agree that spillover would do so?

11 MS. SHAH: Yes. But this is, again, a control feature, right? So it's
12 not something that's just happening as a consequence, as a secondary
13 consequence, this is an actual control feature. You are controlling the LEDs
14 to reduce intensity of illumination to non-glaring illumination. So it's an
15 active step that's being required of the controller, not something that
16 happens residually.

17 The residual spillover that we are talking about before explains some
18 of the language in Beam that appears to be kind of something other than
19 that's consistent with the preventing of illumination. Here we're talking
20 about control steps that are active. And so the active steps require you to
21 actually do something to the cluster of LEDs that creates non-glaring
22 illumination of the first area.

23 JUDGE MELVIN: But if one knows that spillover is a fact, then the
24 control strategy could be to turn off LEDs in the cluster and allow spillover
25 to create non-glaring illumination. I don't see why that's inconsistent with
26 this claim language.

1 MS. SHAH: Again, it's our position that the claim language is calling
2 for an active step that is reducing intensity of illumination but to create, from
3 the controls of the LEDs for that cluster of non-glaring illumination --

4 JUDGE MELVIN: But this claim isn't --

5 MS. SHAH: -- not --

6 JUDGE MELVIN: It's not talking about emission, it's talking about
7 illumination.

8 MS. SHAH: Yes, so it is actually talking about emission as well
9 because it says, by control of emission from the first cluster.

10 JUDGE MELVIN: Right. And control of emission, I'm sure you
11 would agree, includes zero emission?

12 MS. SHAH: We agree that the definition of that can include zero
13 emission. We agree, it's our position that in the context of the entire claim,
14 when you look at non-glaring illumination, and by control of emission from
15 the first cluster, that the combination of that is requiring positive
16 illumination.

17 JUDGE MELVIN: Okay. Thank you.

18 MS. SHAH: Slide 11 please. So we'd like to now look at the
19 language in Claim 72, which again, requires varying illumination provided
20 to the target by the second -- sorry, by the selected cluster.

21 Petitioner has once again argued that Claim 72 is patentably indistinct
22 from Claim 56. And per Claim 72 illumination is provided to the target by
23 the selected cluster. As explained, with respect to Claim 56, to the extent
24 there is reduced illumination it is not achieved by control of emission from
25 the first cluster but is claimed, at best, the result of residual spillover light
26 from other surrounding LEDs.

1 Slide 12 please. Once again, Petitioner argues that there is no specific
2 emission or illumination level and that a person of skill in the art would not
3 understand emission or illumination to prohibit zero light. We point, once
4 again, to the express language of Claim 72 that requires the LEDs to be
5 controlled to vary illumination provided to the target by the selected cluster.

6 Slide 14 please. We'd now like to turn to the sensor limitations. The
7 sensor limitations, we're looking at Claim 24 as a representative claim, all of
8 the claims in the '551 patent require a sensor that include a camera. Here
9 again we're looking at Claim 24 as a representative of this hardware
10 limitation that's in all of the claims.

11 We want to note that Claim 24 in this instance is representative of the
12 sensor element because the sensor hardware language is exactly the same in
13 all the claims, which is quite a bit different than Petitioner's effort to equate
14 the control functions as the same when the expressed language varies from
15 independent claim to independent claim.

16 Slide 15 please. As you can see from the quote from Karlsson on the
17 right-hand side of slide 15, Karlsson provides two alternate sensing options.
18 The matrix of photodiodes, like the spotlight sensors in Figure 14, or
19 alternatively, a photosensitive plate 23 used in Figure 3.

20 Yet, Petitioner sensing proofs relying on both sensors dying in 23,
21 despite the fact that Karlsson specifically contemplates two alternative
22 sensors. Today they made the argument, effectively for the first time, that
23 they weren't relying on sensor 9 at all, that they were only relying on 23,
24 that the structure limitations in Figure 3 were the only ones that were
25 included in their combinations. That's not so.

1 There is repeated, and we will provide you with citations in our
2 rebuttal, but there is repeated instances all through their petition where
3 they're pointing to proofs associated with both sensors 9 and 23. Again, this
4 is the re-characterization of their arguments that now the structural
5 limitations are coming exclusively from Figure 3.

6 If you can turn to slide 16 please. Notably, Petitioner relies on
7 Karlsson's matrix of photodiode spotlight sensors as is illustrated in Figure
8 14 to satisfy the claimed control limitations. With respect to this matrix of
9 photodiode spotlight sensors in Figure 14, Karlsson specifically discloses
10 that the term spotlight sensors, as used herein, is understood to indicate a
11 light-sensitive sensor of limited, physically light-sensitive dimensions which
12 generally detects light from a specific direction.

13 If we can turn to slide 17 please. The matrix of photodiode spotlight
14 sensor (S) in Figure 14 is simply not a camera. A camera requires a lens to
15 focus the received light and to be able to deliver the sensed array for
16 processing and imaging.

17 Also, Karlsson has no teachings regarding image processing with
18 respect to Figure 14. It only relies on a matrix of spotlight sensors to sense
19 light, which as we discussed, is an alternative embodiment to the
20 photosensitive plate used in Figure 3.

21 And this is because, as you can see here in the images associated with
22 Figure 14, Karlsson provides you with an electrical schematic of how the
23 spotlight sensors function through electrical switches. As you can see from
24 the image of Figure 14, Karlsson discloses an arrangement in which each
25 sensor of an array of spotlight sensors is electrically connected, as shown by

1 the arrow 41, to an adjacent spotlight source to provide a switch to control
2 adjacent LEDs.

3 The usage of electrical switches in Figure 14 moots the need for any
4 image-based sensing method. And once again, Petitioner has failed to
5 explain why there would be any reason to import the camera, the camera
6 from Figure 3 into Figure 14, especially when Figure 14 expressly has its
7 own completely different mechanism for using electrical switches as the
8 sensor function.

9 Notably, Petitioner never argues that Figure 14 spotlight sensors
10 constitute a camera, they simply point to the existence of a camera in Figure
11 3 with no explanation.

12 Slide 19 please. And so as we have hinted already, Petitioner simply
13 comingles different embodiments without explaining why or how.
14 Petitioner comingles the Figure 3 and Figure 14 embodiments relying on
15 both sensors 9 and 23 for the sensing elements, although they are alternative
16 embodiments.

17 In the top right quote Petitioner relies on Sensor 23 from Figure 3,
18 though the rest of Petitioner's control proofs are based on Figure 14.
19 Petitioner does so without providing any explanation as to why a person of
20 skill in the art would mix and match the embodiments, especially as there is
21 no teaching in Figure 14 that would include usage of a camera.

22 Petitioner also fails to explain how a person of skill in the art would
23 integrate a camera into the Figure 14 embodiment, which includes a
24 completely different sensing system that relies, again, on electrically
25 conducted -- connected spotlight sensors to sense light rather than images.

1 We would point to our briefing in the -315 Patent Owner response on
2 page 54, which is the *Abiomed* case which makes it clear that interchanging
3 of various embodiments actually requires proofs. You can't sort of assume
4 that embodiments can necessarily be interchanged, that requires proofs by
5 the Petitioner.

6 Next if we can turn to slide 57. Relatedly, the missing camera proofs
7 associated with the Figure 14 control elements also spill over into all the
8 claims associated with image data. Here we've once again identified a
9 representative claim 33. We note at the bottom of slide 57 that this issue of
10 all the language and image data that shows up in Claim 33 also exists in
11 Claims 41, 49, 57, 65, 73 and 81.

12 Slide 58 please. Once again, because Petitioner chose to make
13 arguments by analogy to Claim 24 and its dependents, the image data
14 language in seven claims went unaddressed. Referring to Claim 33,
15 Petitioner specifically asserted the remaining elements of Claim 33 are
16 patentably indistinct from the elements of Claim 25. Thus, the petition
17 failed to include any proofs regarding the image data language of Claim 33.

18 It's not a part -- image data is not a part of Claim 25, hence Petitioner
19 failed to provide any explanation for why that image data language was
20 immaterial. And that defect exists not only with respect to Claim 33, but as
21 we pointed out, six other dependent other claims that also include the image
22 data language. Petitioner's proofs by analogy are based on spotlight sensors
23 from Figure 14, not image data from a camera that is missing in their proofs.

24 Turning to slide 59 please. So, on reply, Petitioner now attempts to
25 advance a wholly new argument from different sections of their petition. It's
26 our position that, again, these new arguments that were never advanced in

1 the petition should expressly be excluded in their entirety, that these belated
2 arguments that are an attempt to try to fix and rectify the errors that they
3 chose, because they chose this argument by analogy style, should be
4 excluded in their entirety.

5 As you'll see here, which is articulated in our sur-reply briefing on
6 page 8, you'll see we specifically articulate the disconnected sections of the
7 petition that are being relied on. As you'll see in the reply, these are the new
8 arguments that were proffered for the very first time, that point to Karlsson's
9 control means 14 is including a processor. Again, trying to find a
10 connection between the image data support that they never initially included
11 in their petition.

12 If we can turn back to slide 21 please. So we're looking at Beam here
13 to effectively take a look at teachings that expressly contemplate the
14 identification of a glare control region. In contrast to Karlsson, the Beam
15 reference provides teachings regarding glare control.

16 Beam specifically teaches how you determine the blanked area from
17 the location of detected light. This is, again, in complete contrast to
18 Karlsson. So let's take a look at how Beam describes and creates a region, a
19 glare-free region.

20 When an oncoming vehicle's headlights are detected an area slightly
21 wider than the headlight spacing, and approximately six feet high, and
22 whose bottom edge is centered on the oncoming headlights, this is the
23 description in Beam of how it senses detected lights and then creates a
24 mechanism to explain where the glare-free region should be created.

25 If we can next turn to slide 22. It's also notable that in Beam's
26 blanking area, well actually, can we go back to Claim 21 please? So if you

1 note from Figures 1c and 1d, it's notable here that Beam's blanking area, the
2 shaded region of 104 and 105, does not include headlamps nor tail lamps.
3 Again, this will be in contrast to Karlsson because Karlsson has no such
4 mechanism to create any other region except a region around where a
5 detected light is located.

6 If you can go to slide 22 please. If you take a look at the quote on the
7 left, Karlsson doesn't explain which LEDs to control. Petitioner admits this
8 in the quote on the left-hand side. Petitioner admits Karlsson does not
9 expressly disclose how the direction of the target light source is stored and
10 processed to determine which LEDs to be dimmed to avoid glare. Again,
11 this is Petitioner's admission, which is consistent with Karlsson's own
12 teachings.

13 Karlsson teaches, on the right-hand side, the lighting pattern and the
14 lighting intensity are automatically adjusted in such a manner that oncoming
15 traffic will not be blinded. Karlsson goes on to state that that part of the
16 light beam, which might cause inconvenience to oncoming traffic, is
17 automatically suppressed. It then continues to say that the lighting device is
18 controlled in such a manner that no light at all, or light having a low
19 intensity, is emitted in those directions from which light is detected. In all
20 three instances Karlsson is specifically pointing to its ability to focus on the
21 location of where the light is detected and nothing more.

22 If we can turn to slide 23 please. At best, Figure 14's control function
23 arises from the electrical connection of arrow 41 between the spotlight
24 sensor and an adjacent sensor. That would terminate light in the direction of
25 the detected light, not the location that the driver -- where the driver would
26 be glared.

1 Slide 24 please. In conclusion, Karlsson lacks any teachings
2 regarding glare control. It lacks any teachings regarding which LEDs would
3 be blanked, how many LEDs would be blanked, and specifically, how those
4 LEDs would be chosen. These three things are beyond the teachings of
5 Karlsson. There is absolutely no teaching there and Petitioner has not
6 pointed to anything, and cannot point to anything, that supports how the
7 specific LEDs are chosen in Karlsson to achieve an actually clearing feature
8 and function.

9 With that we'd like to next turn to slide 25. Petitioner's record
10 evidence provides no explanation for how the photodiode sensors, the
11 spotlight sensors, as in Figure 14, are processed to determine which LEDs
12 should be controlled to achieve glare reduction. It was precisely the lack of
13 a dimming process in Karlsson that motivated the combination with
14 Nakamura.

15 If we could turn to slide 26 please. Compounding the problem,
16 Nakamura doesn't help address which LEDs would be controlled to achieve
17 the glare reduction function, either. As you can see from the quotes on the
18 right-hand side of 26, Petitioner equates Karlsson's teachings with
19 Nakamura's teachings on detecting headlight targets.

20 Here again, Karlsson, this is from Petitioner's record evidence, -315,
21 Exhibit 1003, paragraphs 241 to 242. Karlsson teaches that means for
22 automatically adjusting the pattern of the light beam use sensors that
23 precisely determine the direction and intensity of the detected light 11.
24 Again, it quotes "the pattern and intensity of the light beam 7 are controlled
25 in such a manner that no light at all, or light having a low intensity, is
26 admitted in those directions from which light is detected." It then continues

1 with respect to Nakamura to say, “Nakamura’s algorithm uses coordinates to
2 quantify the spatial locations of detected headlight targets in a system that is
3 functionally similar to Karlsson.”

4 So, Petitioner’s stated motivation to combine was based on a desire to
5 determine which LEDs should be controlled for glare. And yet, Petitioner
6 only uses coordinate locations for headlights, and there is nothing from
7 Nakamura that helps provide any definition of which LEDs would be used to
8 control, ultimately that means that if at all this combination -- ultimately this
9 means, if all the combination includes is the location of headlights, then
10 Karlsson and Nakamura merely prevent glare to the headlamps, not the
11 driver of the vehicle that is glared.

12 Slide 28 please. We’d like to now turn to what we refer to as the
13 predictive curve claims. Again, we’ll look at Claim 26 as the representative
14 claim because the language is comparable to other dependent claims. In this
15 instance Claims 32 -- sorry, 34, 42, 50, 58, 66, 74 and 82.

16 If you could turn to slide 30 please. Petitioner’s own animations
17 make it clear that apart from the reduced intensity area, the remaining area is
18 at high intensity illumination. Once again, these are Petitioner's -- this entire
19 slide, slide 30, is from Petitioner's own petition.

20 It specifically indicates, Beam maintains a first level of illumination in
21 the areas around the traffic ahead while preventing glare to the other driver.
22 This high intensity area is created by a second cluster of LEDs.

23 If you look at the annotation at the bottom of that page, again,
24 Petitioner's own annotation, it points to the shaded region is significantly
25 reduced intensity. It then expressly identifies everything other than the
26 shaded region, and the areas that are encircled, as high intensity. Again, full

1 intensity, max intensity, everything that we've been discussing here which is
2 contrary to the positions they're taking post-reply.

3 Again, taking a look at the annotations on the right-hand side. Again,
4 Petitioner's own annotations. We have, the only thing we added was the
5 blue circle here, which I did want to note. That annotation once again points
6 out that apart from the shaded areas, everything else are full intensity areas.
7 Once again, these are Petitioner's own annotations.

8 If we can turn to slide 32. In its petition, Petitioner agreed with Patent
9 Owner's interpretation of the Beam argument. This is from the Jiao
10 declaration -315, Exhibit 1003, paragraph 20. Yes, paragraph 120.

11 The LEDs in Figure 4 are part of a system similar to that of Figure 2,
12 except that lamp 202 and spatial light modulator 203 are replaced by an
13 array of light sources 401. Again, this is Petitioner's own expert making it
14 clear that there is not a scenario under which the LEDs are combined with an
15 SLM. In fact, there is a lamp with an SLM embodiment and that is replaced
16 by an array of the light sources 401, which is the LED embodiment.

17 Then they go on to say, this means that spatial light modulator 203 is
18 replaced with the circuitry for controlled powering of the LEDs as claimed
19 to selectively control the energies of the microbeam LEDs. Again, this is
20 Petitioner's own language from the petition which they have now chose to
21 modify on reply.

22 If we can turn to slide 33 please. Thus, as we've established from
23 taking a look in the petition language, all of their arguments about SLMs, in
24 combination with the LED embodiment, are absolutely new. This was never
25 included in the petition. This is an argument that they decided to launch for
26 the first time on reply, that the SLM embodiment must necessarily be part of

1 the LED embodiment. That is a wholly new argument leveled by Petitioner
2 and their expert Dr. Jiao that amounts to rewriting the petition after
3 institution, which is absolutely impermissible.

4 Petitioner's belated effort on reply to rely on disconnected sections of
5 the petition is impermissible under 37 CFR 41.104(b)(4) and the Federal
6 Circuit precedent that we cite on Page 8 of the -318 sur-reply.

7 If you can turn to slide 34 please. Turning to the Karlsson ground, in
8 relation to 26 and the other dependent claims addressing the predictive curve
9 element, the parties, at least at one point agreed that for its base operational
10 state Karlsson uses its full array at full intensity, similar to Beam.

11 Here we'd like to point to the admissions that exist, that are part of
12 this record. A POSA would have understood that positioning the main
13 beam, again, in parentheses, (full intensity) LEDs all around the reduced
14 illumination area provides the optimum lighting effect for the driver because
15 doing so maximizes the area that is fully illuminated. Again, this is their
16 language about the function of Karlsson, what the goal of Karlsson is in the
17 context of maximizing the area that is fully illuminated. This is the optimum
18 lighting effect, and this is Petitioner's own characterization of Karlsson's
19 full intensity teachings.

20 If we continue on to the right-hand side you'll see Dr. Jiao further
21 explains this in greater detail. A POSA would have understood that
22 positioning the main beam, again, (full intensity) LEDs all around the
23 reduced illumination area provides the optimum lighting effect for the driver
24 because doing so maximizes the area that is fully illuminated. He then goes
25 on to explain that this would have been obvious to a person of skill in the art,
26 to configure Karlsson's system to surround the reduced illumination area

1 with full illumination to the greatest extent possible for the same reason.

2 Again, these are Dr. Jiao's words.

3 We'd also like to point to, from the record evidence, the -318 IPR,
4 Exhibit 1003, paragraph 280 where once again Dr. Jiao also states, and his,
5 in another admission, Karlsson's light beam is controlled in such a manner
6 that no light, or light have low intensity, is emitted in directions from which
7 light is detected. The remaining areas of light beam 7 are left at full
8 intensity, retaining an optimum lighting effect for the driver.

9 The usage of the words "left at" means the now suppressed areas were
10 at full intensity prior to suppression, which means in their default state the
11 LEDs are at full intensity. Which again, at one point Petitioner and Dr. Jiao
12 both agreed with that proposition.

13 In the second statement Dr. Jiao explains, a POSA would have
14 understood the positioning with full LEDs, the full intensity LEDs, all
15 around the reduced illumination area provides the optimum lighting effect
16 because doing so maximizes the area that is fully illuminated. Again, from
17 the words of Dr. Jiao.

18 Slide 35 please. As we noted, Karlsson doesn't actually address glare
19 reduction, it has no idea of where the driver is located, it simply knows the
20 detection, it's simply capable of detecting the location of light. So Karlsson
21 imports its glare reduction teachings from Flaaten.

22 As you can see here from the Karlsson quotes on the left, Karlsson
23 specifically discloses the invention relates to a specific kind of lighting
24 device. And at the conclusion of that first top paragraph it says, a lighting
25 device of this type is known and it specifically identifies the Flaaten
26 reference—international patent application, the one that's identified there.

1 It then goes on to explain, and by looking at the Flaaten reference,
2 defining what an optimum lighting effect is, it specifies, the prior art lighting
3 device, that is, that part of the light beam which might cause inconvenience
4 to oncoming traffic is automatically suppressed whilst retaining an optimal
5 light effect for the driver of the vehicle himself.

6 So Karlsson, in conjunction with relying on the underlying Flaaten
7 reference, explains what optimum lighting effect means. Again, this is
8 expressly within the Karlsson reference itself. Nothing that is extrinsic to
9 the record of testimony.

10 If we can turn to slide 36 please. With respect to the issue of
11 predictive curve illumination, Flaaten's optimum lighting effect already
12 covers curves. Flaaten provides satisfactory illumination of curves. This is
13 according to Dr. Jiao.

14 As you can see in the right-hand top quote, Dr. Jiao states, a POSA
15 would understand that Flaaten expressly acknowledges that satisfactory
16 illumination is maintained of the roadway in front of the vehicle, for
17 example, including ahead in curves. Again, continuing with quotes from Dr.
18 Jiao he says, indeed Flaaten itself provides that the roadway, the edges of the
19 road curves, et cetera, are satisfactorily illuminated. Which stands for the
20 proposition now, both parties agree.

21 Karlsson discloses providing fully maximum intensity light in the
22 remaining areas, outside of the antiglare region, to the greatest extent
23 possible, everywhere that it could be needed. Under such circumstances
24 there would be no reason to adapt the light pattern according to the claims,
25 to accommodate road curvature, nor would there be any remaining unlit
26 LEDs from which this adaptation would be possible.

1 You can turn to slide 37 please. Once again here, we have the specific
2 quotes from Dr. Jiao that make it clear that Flaaten provides satisfactory
3 illumination of curves and is trying to provide the best possible illumination
4 in the desired predetermined area.

5 Slide 38 please. Next, with respect to the underlying functionality,
6 Beam 7 in the Karlsson reference is used for describing illumination prior to
7 adaptation. I.e., it is the beam that will be adapted by reduction. In contrast,
8 window 50 in Figure 14 is shown to illustrate how to achieve glare radiated
9 beam -- I'm sorry. Window 50 is shown to illustrate how to achieve glare-
10 related beam reduction as described in the paragraphs following Figure 14.

11 So if you look at the Karlsson reference, Figure 14 is identified. This
12 functionality about Figure 14 is specifically mentioned in the window 50.
13 And then two paragraphs later there is a detailed recitation of specific
14 instances where the Flaaten teachings of glare reduction wouldn't apply.
15 That is, in the instances of two aspects of situational glare. One is with
16 respect to curves, and the second one is with respect to pitching of the
17 vehicle.

18 If we can turn to slide 39 please. As you can see here on the right-
19 hand side we show what the impact is. Our Figure 1b shows what the
20 impact is at a curve where you can see distinctly here that if you're in a
21 curve you have, under Karlsson's Figure 14 teaching, in that instance,
22 because of the situational glare that would result from the curve, to avoid
23 glaring an oncoming driver, that's an instance when the window would be
24 shifted to the right and you would create the corresponding change that
25 would take place in the adjustment of the window so that you're not create
26 glaring emission in the context of an upcoming curve.

1 The same thing, we also have figures in our briefing that shows the
2 same implications with respect to the issue of low leveling or pitching.
3 These are the two instances that are identified in Karlsson that create
4 instances of situational glare that trigger the use of Figure 14.

5 Karlsson further goes on to in great detail calculate light output
6 relative to potential system losses to confirm the safe operation of its
7 headlights. Thus Karlsson is concerned about the safety implications of the
8 headlights that it's teaching, and output calculations.

9 Given the teachings within Karlsson about these safety concerns and
10 output calculations, it wouldn't necessarily begin with a scenario where half
11 of the LEDs are necessarily shut off, which is Petitioner's contention as part
12 of its reading of Figure 14. Given the state of the art and the admitted LED
13 output issues that we've briefed in our state-of-the-art section, coupled with
14 Karlsson's own intrinsic record, a person of skill in the art would not
15 interpret Figure 14 as showing embodiment that would be used as a base
16 operational state.

17 Once again, it's notable that Patent Owner's evidence that Figure 14
18 applies to these limited instances of situational glare, given the intrinsic
19 record, the admitted state of the art, coupled with Petitioner's own
20 admissions, if that evidence of how we contend Figure 14 applies limited to
21 situational glare, if that evidence is at least as equally plausible as
22 Petitioner's contentions to the contrary, then Petitioner has failed to meet its
23 burden of proof.

24 If you can turn to slide 40 please? With that I'd like to turn the
25 arguments over to my co-counsel, Bernie Tomsa, who will speak about
26 Claim 48 and Claim 64.

1 MR. TOMSA: May it please the Court. My name is Bernard Tomsa,
2 arguing on behalf of Patent Owner Evan Spero. I appreciate the Board's
3 accommodation and providing me with additional LEAP practitioner time.
4 Your Honor, there are several points we will address today that relate to the
5 missing arguments from the initial Petition. You heard some length from
6 opposing counsel about how Beam teaches concepts such as classifying the
7 object. The problem, Your Honors, is that none of that argument was
8 contained in the original Petition. If you look at this slide right here in the
9 upper right and lower right-hand corners you see the entirety of the
10 argument that was contained for classifying in the original Petition. None of
11 the arguments presented in the three separate slides by Petitioner did today
12 was contained anywhere in here. Petitioner merely contends that claim
13 element 48.8A, the element noted on the left-hand side, is patentably
14 indistinct from elements 24.8, 24.9, and 33. There is no other explanation.
15 There is no tie in to classifying, there is no addressing of this language, and
16 there is absolutely no mention of the word “classifying” in the analogously
17 referenced claims. Petitioner is left without an argument in its petition to
18 deal with this limitation of the claims, and in a desperate attempt, it turns to
19 the presentation of new previously unadvanced arguments in an attempt to
20 cure the problem with this claim. As noted by Patent Owner in its sur-reply
21 on page 8 of both sur-replies in the *Apple v. UUSI* case, the Patent Trial and
22 Appeal Board repeatedly refuses to consider such arguments upon reply, as
23 they effectively amount to rewriting the Petition. But rewriting the petition
24 is all the Petitioner can do at that point, Your Honor, because it has no
25 argument that addresses classifying. Turn to slide 42 please, 43, I'm sorry.

1 First, Your Honor, we'd like to address the failures with respect to the
2 Karlsson argument. For all grounds involving the Karlsson reference,
3 Petitioner argues, again as presented in the lower right-hand corner of the
4 slide, that Element 48.8A is patentably indistinct from Elements 24.8, 24.9,
5 and 33, and simply rejects the claim by analogy. Then the Petitioner says in
6 its reply, this was merely a typo. We contend that it was supposed to be 48.9
7 not 48.8. The problem, Your Honors, is that the argument presented in the
8 lower right-hand corner is that argument Petitioner is referencing and there's
9 nothing there about classifying. This isn't a matter of a typographical error,
10 Your Honor. This is a matter of the fact that the Petitioners presented
11 absolutely no argument.

12 Furthermore, Petitioner cites their expert where they say, well, then
13 the claim language is contained in our expert declaration. It is contained in
14 the expert declaration, Your Honor. But only in a copy and paste of the
15 claim language that is a header to the actual explanation provided by
16 Petitioner's expert. When you unpack that explanation, it amounts to
17 absolutely nothing more than a re-creation of the argument presented for
18 24.8, 24.9 and claim elements 32.8A and B. Specifically, Your Honors,
19 paragraph 319 of the cited portion is a re-creation of paragraph 267, a
20 synopsis of paragraph 268, and a synopsis of paragraph 269, all of which
21 was merely argument directed to element 24.8. Paragraph 320 of Dr. Jiao's
22 explanation for the classifying limitation is just a partial re-creation of
23 paragraph 271 which is simply directed at Element 24.9. Paragraph 322 is a
24 statement about elements -- the claim limitations 32.8A and B and is a re-
25 creation of paragraph 283. Paragraph 324 is a re-creation of paragraph 285,
26 once again merely the argument presented for claim 32.8. At no point in Dr.

1 Jiao's quote "more detailed explanation" is there any new argument or
2 discussion of the word "classifying." It is literally just a re-creation of the
3 analogously argued references 24.8, 24.9, and 32.8A and B. Once again,
4 leaving Petitioner with absolutely no argument in the petition that addresses
5 this unique limitation of claim 48. Turn to the next slide, please. Next slide.
6 Thank you.

7 Then, Your Honor, Petitioner attempts two things with respect to the
8 Beam grounds. In addition to repeating this patentably indistinct argument
9 in the petition and then subsequently arguing that the comparable language
10 can be found in Dr. Jiao's declaration, Petitioner will also -- I will also show
11 the Petitioners advanced significant new argument in this situation. First,
12 Your Honor, and I apologize for the tediousness of this, I just want to point
13 out the exact situation occurred here with respect to Dr. Jiao's declaration.
14 Petitioner cites Dr. Jiao's declaration as evidence of the classifying
15 limitation. Paragraph 185 of Dr. Jiao's declaration is just a re-creation of the
16 paragraph seen here. Paragraph 186 of Dr. Jiao's declaration is a re-creation
17 of paragraph 138, which is simply the argument for claim 24.8. Paragraph
18 187 of Dr. Jiao's declaration is a near verbatim recreation of paragraph 143,
19 which is simply the argument for claim 24.9. Paragraphs 188 and 189 are
20 copies of paragraphs 144 and 145, which is the remainder of the argument
21 for 24.9. So, Your Honors, like with the Karlsson argument, Petitioner is
22 left with absolutely no argument for the Beam grounds either that addresses
23 the classifying limitation.

24 Now as I mentioned at the onset Your Honors, we saw three distinct
25 slides from Petitioner presented in this proceeding as evidence of why Beam
26 teaches classifying. Notably absent from those slides was any reference to

1 Petitioner's original proof seen here. There was no mention of that section
2 of the petition because it simply proves nothing. Furthermore, Your Honors,
3 if you look at the citations on the bottom of Petitioner's slides, 21, 22, and
4 23, you'll see that they all cite the reply. The only time they cite the petition
5 is for the simple quote taken from Beam to explain the thresholding
6 limitation. They do not even provide evidence that any of this argument was
7 present in their Petition. They simply advance it on reply and ask the Board
8 to freshly consider the argument despite the fact that it is entirely newly
9 advanced argument, to which Petitioner is not entitled to present on reply.
10 Nonetheless, Your Honor, for completeness' sake we will also demonstrate
11 why this argument is actually incorrect. Proceed with slide 46, please.

12 In addition to the reply being new argument, Petitioner first advances
13 upon reply a construction that a POSA would understand that the plain
14 language of classifying requires quote "Placing detected objects into
15 categories plural or classes plural." Even Petitioner recognizes that
16 classifying requires some sort of consideration of multiple categories or
17 classes of objects. If you could go to the next slide, please.

18 In responding to this argument on sur-reply, and again only for
19 completeness because it is always Patent Owner's position that Petitioner is
20 not even entitled to this argument, Patent Owner argued the exact same plain
21 meaning namely that were Beam to classify something, it would have to
22 know what as object was and it would have to place it into one of multiple
23 categories or classes. Dr. Turk in his deposition advanced the same plain
24 meaning the Petitioner did. Namely that classifying means multiclass plural
25 classification. This comports with Petitioner's statement that a POSA would
26 have understood that classifying is simply placing objects into categories

1 plural or classes plural. Further clarified by Dr. Jiao in upper right-hand
2 corner of slide 47 where he says, “I note that the verb ‘classified’ is defined
3 as quote ‘a range or assign in classes.’” plural. Every single explanation for
4 the meaning of the word “classifying” provided by Petitioner includes the
5 plural form of categories or classes because to classify something means you
6 have to distinguish it from something else which requires, per their
7 definition and ours, contemplation of multiple classes.

8 JUDGE MELVIN: Can it classify something as a vehicle versus non-
9 vehicle?

10 MR. TOMSA: That would be two classes, Your Honor.

11 JUDGE MELVIN: Oh.

12 MR. TOMSA: So Beam never classifies things as a vehicle or not a
13 vehicle.

14 JUDGE MELVIN: Understand that argument. I just wanted to make
15 sure I understand.

16 MR. TOMSA: Yes. Next slide please. Against that backdrop, Your
17 Honor, we then explore the teaching of Beam that is proffered by Petitioner
18 to explain the meaning of the word “classifying.” Here we see on the left
19 the teaching from Beam. The only portion of the petition quoted by
20 Petitioner where they say, “Beam’s teaching is the spatial scene data is
21 thresholded to eliminate weak signals.” That is, Beam takes incoming light
22 and then decides which of that light is above or below a threshold and then
23 simply eliminates light below a threshold. There is no contemplation of an
24 object, there is no correlation of light to an object, and there is no certainly
25 no placement of any object into any sort of class. Once Beam has discarded
26 the useless below threshold data, Beam proceeds with its ant glare

1 functionality. And at no point does it classify any object whatsoever. In
2 addition, and I must stress this again, all of this is completely new argument
3 to which Petitioner is not even entitled in the first place. Next slide, please,
4 51. Thank you.

5 Your Honor, now we'd like to address the new argument the Petitioner
6 presents for claim 64. Once again, in addition to including new arguments
7 in the Petition, Petitioner has actually advanced an explanation about the
8 meaning of the word "cluster" that cannot even be found in its reply. That is
9 wholly new argument simply presented at this moment, in this proceeding,
10 to which Patent Owner doesn't have a response except for the fact that it's
11 absolutely not entitled to advance new meaning of terminology and new
12 argument related to the meaning of terms such as "cluster" that is never
13 previously explained. I will show you, I believe on slide 52, the argument
14 the Petitioner did make in its reply, and you will see that none of the
15 multitude of explanations the Petitioner provided about the meaning of
16 "cluster" is present anywhere in that argument.

17 With respect to claim 64, it describes the situation where there is
18 another vehicle addressed by a first cluster of illumination. Subsequently,
19 that vehicle moves, a subsequent cluster is selected that's subsequently
20 addressed to other vehicle, and that second cluster for the same other vehicle
21 is different than the previous cluster. The entire claim is about how you
22 would deal with a single vehicle moving over time. On the other hand, if we
23 look at Petitioner's proof present in the upper right corner of slide 51, we see
24 that it repeatedly references multiple vehicles being an accommodated
25 simultaneously. That is, Your Honor, instead of proving what happens with
26 a single vehicle at a single time at different moments in time, Petitioner has

1 chosen to prove what happens when there are multiple vehicles present
2 simultaneously and its entire proof about a second cluster is directed to a
3 second vehicle that does not even exist in the claims. Once again claim 64 is
4 on the right. And I direct the Board's attention to the specific language of
5 the claim. "Control of LEDs directed towards the other vehicle, a second
6 cluster of LEDs having light associated with directed towards the other
7 vehicle, based on data indicating a subsequent position associated with the
8 other vehicle and then control second light directed toward -- subsequently
9 towards the other vehicle." This claim is only about one vehicle, Your
10 Honor.

11 JUDGE MELVIN: Are you saying the claim does not read on a
12 system that detects two vehicles?

13 MR. TOMSA: I'm saying the claim makes no requirements about a
14 system that detects two vehicles, and Petitioner's proof is exclusively
15 directed about the situation where two vehicles are present. Whether or not
16 the claim reads on that system, a proof about two vehicles being
17 simultaneously present, and how the system will handle that is not a proof
18 about how the system would handle a single individual vehicle and then
19 subsequently handle that same individual vehicle at a second time. So for
20 Petitioner's proof to apply to the claim, they would have to show how this
21 unrelated proof tied back to the language of the claims, something that they
22 have never done. Can you turn to slide 52, please?

23 As I noted before, Your Honor, Petitioner -- their contention is largely
24 that the claim doesn't -- the language doesn't restrict the cluster to a single
25 vehicle. The problem is, there are restrictions created by the claim language
26 and those restrictions are never proven by Petitioner's proof. There is the

1 requirement that another vehicle is addressed at a first point in time, and
2 then that a subsequent set of LEDs selected to address that same other
3 vehicle. Petitioner simply redirects the conversation to an argument
4 essentially that their proof isn't wrong because the claim doesn't foreclose
5 their proof. The problem is as I just stated, they've never shown how their
6 proof actually applies to the language of the claim. So all of the discussion
7 about the technical correctness of their proof is irrelevant if it can't be
8 applied to the language that the claim requires. They can be right about their
9 proof, it simply has nothing to do with the claim. Can you turn to slide 53,
10 please?

11 Then again as before, Petitioner also introduces new argument
12 attempting to rewrite their argument to address the actual claim limitation of
13 a single vehicle and introduces new evidence never previously cited with
14 respect to claim 64 in an attempt to prove their new argument. Once again
15 recognizing they have absolutely no argument whatsoever in the petition
16 directed to claim 64, Petitioner is forced to rewrite the argument in the
17 petition to give it new context directed to a new proof supported by new
18 evidence never previously advanced. Slide 54, please.

19 Again, Your Honors, on the left you can see the proof that Petitioner
20 advanced in the Petition. I'm sorry, next slide. We have a slide that shows
21 their argument. Can you go to 56, please? Okay. Here we go, Your Honor.
22 This is the proof that was advanced by the Petitioner in the Petition, right.
23 As you can see it's directed in multiple vehicles, and it discusses an analogy
24 to claim 56 and the handling of multiple vehicles. On the right-hand side,
25 Your Honor, you see the new proof advanced by the Petitioner which is
26 discussing that handling of similar vehicles -- the same vehicle and provides

1 references to claim elements 72 and 80 which as you can see from their
2 actual proof in the petition on the left are nowhere present in that proof.
3 They've completely rewritten the argument about a completely different
4 concept and relied on completely new evidence in order to make their proof.
5 Once again, this is absolutely impermissible for them to do on reply. Next
6 slide.

7 All right, Your Honors, that concludes my portion. If you have no
8 further questions, my co-counsel will address the person of ordinary skill
9 limitation portion.

10 MS. SHAH: If we can turn to slide 71, please. I'm sorry, slide 66,
11 please. So Petitioner, once again, advanced its argument about trying to
12 exclude the testimony of Dr. Turk. It principally relies on the *Kyocera* case
13 for this proposition and a recast of some of the facts. We've laid out here
14 what we think are the most distinguishing aspects of the distinctions between
15 the *Kyocera* case and the POSA standard that was advanced by Petitioner.
16 Petitioner advanced a very broad skill level as part of its POSA level without
17 a lot of specificity. As you can see here on the left-hand side, this is the
18 POSA standard the Petitioner advanced. A POSA in the context of the '551
19 patent would have a bachelor of science degree in the following areas as
20 well as two years of industry experience in the area of automotive lighting
21 and lighting control systems. The POSA may work as part of a team, for
22 example, with computer engineers to affect control of the given light source.
23 And then it states in paragraph 45, experience could take the place of some
24 formal training, this description is approximate. And a higher level of
25 education or skill might make up for less experience and vice versa. This is
26 the breadth of the POSA standard that Petitioner advanced. After deposition

1 testimony -- I'm sorry. After questioning Dr. Jiao and understanding what
2 Petitioner's understanding of the term "automotive lighting and lighting
3 control systems" what that umbrella term included Patent Owner understood
4 that automotive lighting and lighting control systems as Dr. Jiao testified in
5 his deposition repeatedly over and over again based on his industry
6 experience and his educational teaching with -- classes that automotive
7 lighting and lighting control systems necessarily includes the fields of optics,
8 sensing, and imaging. Based on all of the questioning we had of Dr. Jiao
9 associated with the breadth of this skill level and that optics, imaging, and
10 sensing were part of these this broad classification of automotive lighting
11 and lighting control systems, we did not dispute the POSA -- the breadth of
12 the POSA standard the Petitioner advanced. We understood that there was
13 no issue here based on the breadth. Of course, on reply we learned from the
14 first time Petitioner was going to advance a very very narrow interpretation
15 of this standard which, again, is missing from the standard itself. They're
16 going to imbue any number of things. That you have to have designed a
17 vehicle headlamp. That you have to have worked on certain projects. You
18 have to understand the EUREKA Project, which has nothing to do with this
19 particular case. They're going to go through a whole litany of things that Dr.
20 Turk doesn't know, as somehow evidence of the fact that he is not a POSA.
21 But however the critical analogy -- the critical work here is twofold. The
22 analysis is, number one what was the specificity of the Petitioner's skill level
23 that they articulated as compared to the *Kyocera* case that they rely on
24 exclusively? Take a look at the level of skill articulated in *Kyocera*. Here,
25 *Kyocera* specifically says, "A person of skill in the art relevant to the
26 Asserted Patents would either have a Master's Degree with at least two years

1 of experience in power nailer design.” And then it follows up by explaining
2 this sliding scale in great detail. It's not amorphous. It says, “A Bachelor's
3 Degree in mechanical engineering with at least five years of experience and
4 power nailer design or ten years of experience in power nailer design.”

5 Again, explaining in great detail what the sliding scale looks like. This
6 experience -- the definition, this is again this is per the *Kyocera* case, that
7 definition requires at a minimum two years of experience designing power
8 nailers. There is no such specificity in the breadth of the POSA standard
9 that Petitioner advanced. It is now trying to change that through their
10 narrow interpretation and that is essentially why this motion to exclude is
11 disconnected from the proofs that they actually offered in the first place.

12 Petitioner's narrow interpretation was only clarified on reply when it
13 chose to effectively ignore the sliding scale and also chose to ignore the fact
14 that there was a timely challenge that was raised by Patent Owner. The very
15 first time this narrow standard was addressed, which is substantially
16 narrower than the breadth of the scale that was -- the breadth of the POSA
17 level advanced in the *Kyocera* case, Patent Owner objected immediately.
18 The very first opportunity it had on sur-reply it again raised the dispute
19 regarding the narrow interpretation that Petitioner was now advancing.
20 Hence, again, factually completely different than the fact pattern of *Kyocera*
21 and once again the underlying issue in *Kyocera* was the specificity of the
22 broad skill level that we have in the case here versus the very specific skill
23 level that's articulated in the *Kyocera* that mandates a minimum of two years
24 and explains how the sliding scale functions.

25 As we noted in 315 sur-reply on page 1, after we learned of this new
26 interpretation we asked Dr. Jiao repeatedly in over 30 minutes of

1 questioning that spanned 19 pages of the transcript to try to help us
2 understand what the meaning of “lighting control systems” was to which he
3 only provided circular reasoning and kept reading from his declaration
4 testimony that it means nothing more than what is stated here on the left-
5 hand side, providing no further explanation. It is Patent Owner’s contention
6 that, yes, there is a dispute here as to whether -- what the breadth of this skill
7 level of how to interpret the breadth of Patent Owner -- sorry -- Petitioner’s
8 skill level, but that also in the Federal Circuit has provided guidance and that
9 that guidance determines how the POSA standard should be interpreted in
10 the first place. Petitioner has chosen to never talk about any of these cases
11 that we discussed in depth in our motion to exclude. The *Daiichi* factor and
12 the numerous other cases that we articulated as guiding the Federal Circuit’s
13 kind of providing some analysis as to how you even fashion a POSA
14 standard. Again, Petitioners never talked about this case law. Because all of
15 the case law tells you to look back at patent. Try to understand what are the
16 teachings of the patent. Understand the purpose of the patent. Understand
17 the claim of the patent in combination. All of that leads you to the same
18 conclusion that imaging, sensing, and optics are very much part of the patent
19 teachings in question here, and very much part of Dr. Turk’s -- the
20 fundamental expertise that he brings to the table.

21 It is absolutely fine to have two different areas of technical fields that
22 are comingled in a given patent, which is the case here. So it is fine that you
23 have an expert like Dr. Jiao whose expertise resides and LEDs and
24 headlamps, and equally fine that you have an expert such as Dr. Turk, who
25 brings a tremendous amount of 20 plus years of knowledge in the area of

1 image, imaging, optics, and sensors. There's nothing inconsistent with that
2 based on the '551 patent. And Petitioner has no answer for that.

3 JUDGE JURGOVAN: So counsel --

4 MS. SHAH: Yes.

5 JUDGE JURGOVAN: -- your reading of that is that automotive, the
6 adjective, only applies to the first occurrence of lighting, not the second.

7 MS. SHAH: That's correct.

8 JUDGE JURGOVAN: So automotive lighting and different field --

9 MS. SHAH: That's --

10 JUDGE JURGOVAN: -- lighting control systems?

11 MS. SHAH: That's correct. We --

12 JUDGE JURGOVAN: I see. Thank you.

13 MS. SHAH: That is part of our analysis is that it's not specifically
14 saying the area of automotive lighting and automotive lighting control
15 systems. And then as we've also established, contrary to Petitioner's
16 assertions, we do think that Dr. Turk's experience stands -- you know, is
17 sufficient even if -- under their own interpretation. But more importantly, we
18 think the correct interpretation of the POSA standard has to include imaging,
19 sensing, and optics as part of the relevant fields. That's what -- that's called
20 out from the patent and the patent purposes. And any interpretation that is
21 inconsistent with that is inconsistent with the governing Federal Circuit
22 precedent on this point.

23 JUDGE JURGOVAN: Thank you. Thank you.

24 MS. SHAH: And next if we can turn to slide 71, please. It is our
25 contention based on any number of the inconsistent testimony that was
26 proffered by Dr. Jiao that while we were not seeking to exclude his

1 testimony, we think that there is a case to be made certainly that is entitled to
2 produce weight. Dr. Jiao was repeatedly unable to explain the theoretical
3 person of ordinary skill perspective, comingling it with his own. As we've
4 articulated here, there's numerous -- again a litany of questions in his
5 deposition testimony where he continually referred to himself as the person
6 of skill in the art, was unable to make any distinction between a person of
7 skill in the art and himself as an expert. Again, the law clearly contrasts a
8 person of skill in the art with one of expert skill and established that it is
9 improper to determine the challenge claims patentability from expert's
10 perspective rather than the POSA's perspective. We also, again, as we've
11 discussed here, there's any number of times that Dr. Jiao's testimony is
12 inconsistent with itself. A variety of positions were taken at the petition
13 level that were fundamentally contradicted within the same series of IPRs
14 from petition to reply. We've provided a chart in our sur-reply that
15 articulates a series of these inconsistent and contradictory positions, which
16 again is also established here in slide 70. You can take a look at them here.
17 With respect to the, you know, the replace combine argument where he
18 reads replace is actually Beam is saying it's combined. With respect to
19 whether Beam is capable of directional control, he says that it is. Later on,
20 he changes his position. With respect to the definition of the term
21 "microbeam" again he changes it. In the beginning, a "microbeam" is a light
22 emitted from a source, later on the "microbeam" and the source are actually
23 two things. Again, there's a litany of inconsistencies here that we think
24 should be reviewed, and perhaps lead to the opposite conclusion that Dr.
25 Jiao's testimony should be entitled to reduced weight. Next if we can turn to
26 slide 60.

1 The parties agree on this one thing that under Fox Factory, Patent
2 Owner is afforded an opportunity to prove nexus by showing that the
3 evidence of secondary considerations is the direct result of unique
4 characteristics of the claimed invention. Patent owner did provide nexus
5 evidence in the underlying reexamination. And the central reexamination
6 unit found that the moniker is predictive curve illumination. There was the
7 feature in claim 26, light in between two dark zones in claim 40, the
8 classifying object in claim 48 were quote “uniquely distinct features.” As
9 Your Honor specifically noted, Petitioner never asked for the deposition of
10 Mr. Stam. It’s very much the reexamination of file history is absolutely part
11 of the record of this case. They included it as an exhibit. And while it is
12 true that Dr. Turk reviewed Dr. Stam’s testimony -- I’m sorry -- declaration
13 evidence and he agreed with the underlying testimony, it was Petitioner’s --
14 the Petitioner wanted to request Dr.’s -- I’m sorry -- Mr. Stam’s deposition
15 they could have asked. They never asked and now they’re sort of arguing
16 that he was never made available. That’s not the case. In any event, the
17 correspondence between the claim scope and the objective evidence
18 presented in the reexamination file history. Specifically, the unique claim
19 features that were the subject of industry praise and long-felt unmet need are
20 detailed in the reexamination file history and they speak for themselves.
21 We’d like to cite Exhibit 2023 on slide 63 for the citations associated with
22 the industry praise that we’re referring to. Exhibit 2023 of page 70-77, 728-
23 70, 734, those are the citations for the reexamination file history that we
24 think are relevant. Petitioner’s reliance on these unique features is being
25 taught by the presented grounds is misplaced. As we’ve established,
26 Petitioner has failed to meet its burden of proof that claims 26, 40, and 48

1 are unpatentable. Accordingly, Patent Owner's secondary considerations
2 establish how the patented features reviewed in the marketplace and should
3 be considered as further evidence of non-obviousness.

4 With that, I'd like to just quickly take a moment to take a look and
5 discuss -- to take a look and see if there's anything we want to specifically
6 rebut from their opening arguments. One thing is, we did want to note here,
7 I've indicated that I was going to provide record cites to establish that in the
8 Petition, Petitioners repeatedly equated the use -- combined the use of the
9 sensor of Figure 3 as well as the sensor of Figure 14. That shows up over
10 and over again in their petition contrary to the statements they made today.
11 Exhibit 1003, the Jiao declaration, paragraph 88 and paragraph 234, again,
12 make it clear that Petitioner repeatedly relied on the combination of the
13 sensors of both Figure 3 and Figure 14. Not just limited to Figure 3 and
14 once again never even established why -- just the sensors of Figure 3 when
15 they're relying on the controls of Figure 14. If we could turn to slide 19 of
16 the Petitioner's slide deck, please.

17 So here, you'll note what Petitioner is effectively doing is taking the
18 non-emitting state language from the dependent claim 25 and trying to read
19 that into independent claim 24. Their sort of construction -- their after-the-
20 fact construction effectively tries to change the reading of claim 24 to take
21 the non-emitting state language that's in claim 25 and again modify the
22 interpretation of claim 24 to include that limitation. Next, if we can turn to
23 slide 21 of Petitioner's slide deck.

24 Here you can see on the right-hand side, this is -- Petitioner truncates
25 Dr. Turk's testimony and quotes a very general length question that they
26 asked him about whether he understood classified techniques, whether they

1 were known in the arts. Those questions were not asked in the context of the
2 Beam reference, which is specifically what's relevant here. If you turn to
3 Exhibit 1054, page 95, lines 20-23, it's clear from that testimony that if you
4 look at the full totality of Dr. Turk's testimony his full response indicates
5 that the microbeam is decreased if it is directed into the device rather than
6 out of the device. Which is, again, the point is this line of questioning is
7 what is going out of the device. So they're pointing to limited questioning
8 number 1 on a general question and then eliminating the actual crux of his
9 answer as mischaracterizing his testimony.

10 And with this I'd like to leave the remaining time for sur-rebuttal.
11 Thank you.

12 JUDGE MELVIN: Okay.

13 MR. FITZSIMMONS: So we've now seen Patent Owner's
14 scattershot our arguments here and, Your Honors, they're grasping at straws
15 based on untenable claim constructions and incorrect interpretations of the
16 reference based on the testimony of Dr. Turk, who doesn't even qualify as a
17 person of skill in the art here. There were myriad of inaccurate statements
18 by Patent Owner here. Your Honors picked up on many of them. I'd like to
19 point out several others.

20 First, looking here this is up on the screen this is the Patent Owner's
21 demonstratives slide 5. And the this is regarding Beam and their
22 interpretation that Beam is only on or off. As you see the header this the
23 slide is independent claims 32, 56, 72 and what they cite here on the right-
24 hand side from Dr. Jiao's declaration in the 315 preceding paragraph 193 as
25 an alleged admission that Beam's LEDs are on or off. This is completely
26 misleading, Your Honors. This quote from Dr. Jiao is with respect to

1 specifically dependent claim 49, which is not even dependent from any of
2 the independent claims listed on this slide. What claim 49 specifically
3 recites is a change of at least one LED of the cluster to a non-emitting state.
4 So, of course, the proof for that claim is going to describe that the LEDs can
5 be off. Beam can control its LEDs to turn them off, but it also can and does
6 control them to an intermediate intensity. That's the first point.

7 Second point is on Patent Owner's slide 16. Give you a moment to
8 get there. And this is regarding Karlsson and Figure 14. So here, at the
9 bottom of Patent Owner's slide 16, they have a quote from their reply saying
10 that allegedly, "Petitioner relies on Karlsson's matrix of photo diodes as
11 illustrated in Figure 14 for satisfying various control limitations." This is
12 wrong. The patent either -- owner doesn't either understand Karlsson or
13 arguments. All of these Petition cites, 66, 68, 69, and so on, those are all the
14 instructional claim elements. There's no comingling of embodiments here.
15 Figure 3 in the Petitions is used for the structural elements. Figure 14 is
16 applied for, of course, to show the LED matrix itself and for those
17 instructional features of how those clusters work. I'll also note along these
18 lines, Karlsson for example page 3, lines 7 through 11 discusses partial
19 dimming, it discusses reducing or decreasing light intensity.

20 The third point here is on image data. Specifically, I'll talk with
21 respect to the Beam reference here. Image data from camera is a basic
22 fundamental output of the camera. Claim 32 from which claim 33 depends,
23 clearly covers this. For example, the Petition, the 315 Petition, page 29,
24 talking about where there's one or more sensors -- this is the limitation of
25 the claim -- including one or more cameras, it's the first time a camera is
26 recited. The petition quotes Beam saying that, "The spatial scene data from

1 the sensor, the camera, is thresholded to eliminate weak signals and becomes
2 the input to the processor.” Another quote from Beam which is cited in the
3 petition page 31, “The output which is the video or other electrical signals
4 from the camera in Beam drives controller one way which uses the data to
5 determine the size and position of the lighted measures to dim.” This
6 concept is so basic, it's even described in the motivation to combine the
7 references where, for example, the 315 Petition, page 17 says, “Beam’s
8 controller 108 receives an image from the sensor 107.” Your Honors, the
9 image data elements are disclosed.

10 Next, on the classifying element in claim 48. Now, the Petition, page
11 45 with respect to this element does indeed say there’s no patentable
12 distinction between several other claim elements or claims. One of those, for
13 example, it cites element 24.8 and in the Beam ground, that can be found at
14 Petition, for example 315, page 33 where it says, “Beam’s controller module
15 uses the sensor spatial data video to determine whether there are illumination
16 sources, headlights, or taillights present in the field of view and determines
17 their location.” Citing Beam at 614 to 19. This is classifying. Additionally,
18 for the Karlsson ground, similarly, says, patentably indistinct from 24.7,
19 24.8, I believe claim 33. We look at page 66 of the Petition. It says,
20 “Karlsson’s light sensitive sensor detects the distribution and the intensity of
21 light in the area ahead of a vehicle and it's to detect light from oncoming
22 traffic.” Again, this satisfies the classifying limitation, is present in the
23 petition itself.

24 I’d also like to address Patent Owner’s slide 34. We don’t need to
25 bring it up here, but they -- and where they have Dr. Jiao’s paragraph 281.
26 This is with respect to Karlsson, and Karlsson does not again default to

1 having all of its LEDs on. We discussed this at length in the ‘029
2 proceeding. But I would add here that, again, Dr. Jiao in his declaration in
3 that proceeding, again, it’s IPR2022-01586 for that ‘029 patent, it’s Exhibit
4 1036, paragraph 58. Dr. Jiao explains that, “Dr. Turk mischaracterizes my
5 testimony with respect to that paragraph 281.” He says, Dr. Jiao says,

6 “This is related to my opinion regarding a specific surrounding
7 area of Karlsson’s reduced illumination with respect to glare
8 control. The area I discussed there is the area around the
9 reduced illumination area. This maximizes the area illuminated
10 around a vehicle that Karlsson avoids providing glare to while
11 simultaneously allowing the driver of the vehicle with
12 Karlsson’s system to fully see the area around the reduced
13 illumination area providing an optimum lighting effect.”

14 Dr. Jiao continues and says that, “This does not suggest that Karlsson's
15 maximized area around the glare control region means that all of Karlsson’s
16 LED spotlight beams are illuminated much less illuminated at their highest
17 degree.”

18 Two more points, Your Honor, regarding the expert testimony of Dr.
19 Jiao. Petitioner, or excuse me, Patent Owner argues for reducing the weight
20 of Dr. Jiao’s testimony. I would submit to the Board, Dr. Jiao is a true
21 expert in this field. His testimony should be given significant weight here.
22 And in addition to that, the Patent Owner’s mischaracterization of Dr. Jiao’s
23 testimony that they had on their slide 71 is egregious. I’ll read some other
24 excerpts here from that portion of the deposition transcript that Dr. Jiao
25 explained how he defined and applied the person of ordinary skill. So in his
26 deposition, Exhibit 2025, page 15, lines 11 through 20 Dr. Jiao says, “I

1 described what a POSA should be in order to do the analysis, which includes
2 the timeframe. And for the POSA that I described,” the one in his
3 declaration, “yes, I applied my understanding to write my declarations.”
4 Page 40 of that deposition transcript, lines 4 through 12 Dr. Jiao says, “I
5 used the description of a POSA to conduct an analysis and develop my
6 generated declarations.” Further on, on page 48 he says that, “Again, my
7 analysis based on a POSA at the description I described it a POSA’s
8 experience and knowledge to read, review, and provide the art or references
9 in the provided declarations. That’s what I did.” He continued, “I used the
10 POSA’s description that I put down for POSA’s knowledge and experience
11 to review the references to understand the limitations.” There is no question
12 here, Your Honors, that Dr. Jiao applied the standard elicited in his
13 declaration, and how he applied the art, and how he analyzed the art and the
14 ‘551 patent.

15 Final point here regarding the motion to exclude, Your Honors, now
16 an individual can qualify as a person of ordinary skill based on their
17 experience, but here Dr. Turk was confused about basic lighting concepts
18 that my colleague, Mr. Soule, explained during his portion of our discussion
19 here. So Dr. Turk does not get the benefit of the doubt here. Neither does
20 the Patent Owner. Unless there are any questions, Your Honor, with that I’ll
21 cede the rest of our time.

22 JUDGE MELVIN: Thank you.

23 MR. TOMSA: Can you bring up slide 16? We're going to have to
24 do this quickly, Your Honors. You have a very limited time remaining here.
25 Like to address a point that opposing counsel made about slide 16 and this
26 ties into my co-counsel’s point about the fact that they chose Figure 14 to

1 prove all the control elements of Karlsson and yet chose Figure 3 to prove
2 all the structural elements of Karlsson. They used the functionality
3 described with respect to Figure 14 consistently, and never explained why or
4 how the photo diode ray matrix, the alternative sensing system Karlsson,
5 will be removed from Figure 14 and replaced in some manner for some
6 reason with a camera. They simply during the structural recitation point to a
7 camera over here in Karlsson and then when they get to the substantive
8 elements of the proof, continue to use Figure 14 and all the control function
9 intended therewith including the sensor system to describe how Karlsson
10 functions. They're not entitled to simply combine embodiments from
11 Karlsson unless they provide an explanation as to why or how those
12 embodiments would be combined. Could you please turn to slide 34,
13 please?

14 This relates to Dr. Jiao's admission that Petitioner now attempts to
15 contextualize. If you'll recall, Petitioner stated that Dr. Jiao says that we
16 miscast his testimony and that his testimony simply relates to using these
17 full intensity LEDs in an area around the reduced intensity area. I'm not
18 entirely sure exactly what that looks like. It sounds like it's a halo around
19 the vehicle signifying that somehow myriad areas immediately adjacent to
20 the vehicle are more important than areas elsewhere on the scene where
21 apparently no such full intensity illumination is provided. It's also in direct
22 contradiction of what Dr. Jiao says here, where he says, "Positioning the
23 main beam full intensity LEDs all around the area provides the optimum
24 effect because it maximizes the area that's fully illuminated." "Maximize"
25 means the whole area, not just some area immediately adjacent to the
26 vehicle. Dr. Jiao continues that it would have been obvious to POSA to

1 surround the reduced in illumination area with full illumination to the
2 greatest extent possible. Once again, he does not equivocate or adjust his
3 position that it would only be the areas immediately adjacent to the reduced
4 illumination area. He says that any person of ordinary skill would
5 understand that the smartest, safest thing to do when using the Karlsson
6 array would be to position the full-intensity LEDs all around the reduced
7 illumination area to the greatest extent possible. This comports with our
8 understanding of Karlsson.

9 Finally, Your Honors, I would like to address the point my co-counsel
10 made about the person of ordinary skill and the distinction between the
11 *Kyocera* case. Petitioner presented a very broad definition, and now they
12 seek to very narrowly interpret it. They were the masters of that definition.
13 They could have written it in a narrow manner if they had felt that would
14 have been appropriate. They did not. They only now seek to apply this
15 narrow interpretation after the fact and interpretation is markedly different
16 from what is on the record in this slide. As you can see in *Kyocera*, a
17 narrow interpretation was already advanced with a correlation between the
18 specific sliding scale and a specific amount of educational experience. Here,
19 Petitioner simply says it's an approximate description preceded in both and
20 some amount of education could take the amount of experience. Dr. Turk
21 has a Ph.D. and 20 years of experience in optical and sensing systems.
22 Optical and sensing systems are unquestionably relevant of the claims, so
23 relevant in fact, the Petitioner chose to note that the POSA may work as part
24 of a team, for example, with computer engineers to integrate program
25 controllers in various control inputs. But the POSA doesn't carry the team
26 around in its pocket, Your Honors. The POSA needs to have that

1 understanding in order to understand the patent and the claims. Pursuant to
2 Petitioner's broad definition and with the understanding that the POSA must
3 be defined in a way that relates to the patent, Patent Owner submits that Dr.
4 Turk is unquestioningly both an expert and a person of ordinary skill. Thank
5 you, Your Honors.

6 JUDGE MELVIN: Thank you. With that our proceeding is
7 concluded. Thank you everybody for your presentations and your time
8 today. It was certainly helpful. The case is submitted.

9 (Whereupon, the above-entitled matter went off the record at 3:52
10 p.m.)

IPR2023-00315 (Patent 9,955,551 B2)

IPR2023-00318 (Patent 9,955,551 B2)

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