

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.

IPR2022-01586¹
Patent 11,208,029 B2

Record of Oral Hearing
Held: February 22, 2024

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

¹ Porsche Cars North America, Inc., which filed a petition in IPR2023-01122, has been joined as a party to this proceeding.

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The above-entitled matter came on for hearing on Thursday, February 22, 2024, commencing at 10:00 a.m. EST, at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.

P R O C E E D I N G S

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10:00 a.m.

JUDGE MELVIN: Okay. Good morning. I'm Judge Melvin.
Appearing on video are Judges Jurgovan and Moore. This is a hearing for
IPR2022-1586. Could Counsel make their appearances, please, starting with
petitioner?

MR. FITZSIMMONS: Good morning, Your Honors. This is Jason
Fitzsimmons for petitioner, Volkswagen Group of America.

JUDGE MELVIN: Okay. And for patent owner?

MS. SHAH: Sangeeta Shah on behalf of patent owner, Mr. Spero.

JUDGE MELVIN: Okay. Thank you. So you'll each have 60
minutes, as was specified in the hearing order. I believe you should be
familiar with our procedures. Let me know if you have any questions. You
each may reserve up to half your time for rebuttal or sur-rebuttal. So,
petitioner, how much time would you like to reserve?

MR. FITZSIMMONS: Twenty minutes, please, Your Honor.

JUDGE MELVIN: Sounds good. And patent owner?

MS. SHAH: The same.

JUDGE MELVIN: Okay. I'll set up the timer. So you should get a
yellow light when your rebuttal time starts. And unless there are any
questions or preliminary matters. Yes.

MS. SHAH: I do have one question.

JUDGE MELVIN: Sure.

1 MS. SHAH: I have a little bit of a dry throat. I'm going to have to be
2 drinking water. If I need to request a quick break to the restroom, how
3 would I go about, is that possible? And how would I go about that?

4 JUDGE MELVIN: That should be fine.

5 MS. SHAH: All right.

6 JUDGE MELVIN: If, you mean if it's in the middle of petitioner's
7 presentation? Or –

8 MS. SHAH: No, no, no, no, no. I'll try to do it in between.

9 JUDGE MELVIN: That shouldn't be a problem.

10 MS. SHAH: Okay. Thank you.

11 JUDGE MELVIN: Okay. Great. And just a sort of reminder. Try to
12 be clear about references to slides for the record, since we have video
13 judges. So, with that, we do have your slides in front of us so you can refer
14 to them. Or share your screen, you know, either way. Okay. We're ready.

15 MR. FITZSIMMONS: Good morning, Your Honors. May it please
16 the Board, I'm Jason Fitzsimmons from Stern Kessler Goldstein & Fox on
17 behalf of petitioner, Volkswagen Group of America.

18 Joining me today from Stern Kessler are Michael Specht, the Counsel
19 for petitioner, and Ian Soule, here at the Counsel table with me. Robert
20 Colletti from joint petitioner Porsche Group is also here with us today.

21 This is a straightforward case, with two straightforward obviousness
22 combinations. Now while it may not appear as such, in view of our 70 plus
23 slides here, I don't expect to speak to all of them today.

24 What I do plan to discuss, as explained in our briefs and by our expert,
25 Dr. Jiao in his declarations, is that under either of the two grounds in the
26 petitions all of the '029 patent claims are unpatentable.

1 So starting with Slide 2. Three issues crystalized throughout trial.
2 The primary issues that the patent owner disputes are whether the
3 combinations disclose the “increasing light in a direction” limitations.
4 That’s Element 1.5/12.5/23.5 of the independent claims.

5 Second, whether a person skilled in the art would have been motivated
6 to combine the references in the two grounds. And third, whether Dr. Turk
7 qualifies as a person of ordinary skill.

8 The answer to the first two questions is yes. Both combinations do
9 disclose increasing the light, increasing light in the direction of the road
10 curve. And a person skilled in the art would have been motivated to make
11 the combination on the grounds.

12 The answer to the third issue however is no. Dr. Turk does not meet
13 the definition of a person of ordinary skill, as agreed upon by both parties
14 and both declarants, because he does not have at least two years of industry
15 experience in the area of automotive lighting and lighting control systems.

16 Now importantly, the petition succeeds regardless of whether Dr.
17 Turk's declarations are excluded. But the facts here are so directly on point
18 with the Federal Circuit’s precedent in the *Kyocera* case that petitioner was
19 compelled to file its motion to exclude.

20 Turning to Slide 3, the petition presented two grounds. Each of two
21 reference obviousness combination that show a different approach that the
22 person skilled in the art would have taken in improving automotive
23 headlamps, as at issue in the '029 patent here.

24 The first combination, Beam and Kobayashi, shows why it would
25 have been obvious to modify an adaptive LED array headlamp that changes
26 where its illumination is placed based on GPS data, road curvature, which

1 was already a known technique in the art, which is in the Kobayashi
2 reference.

3 The second combination, Gotou and Karlsson, shows why it also
4 would have been obvious to modify Gotou's adaptive headlamp, which
5 already directs light to curves based on GPS data, road curvature data, and
6 substitute those headlamps with an LED array as in the Karlsson reference
7 instead of the traditional incandescent bulbs.

8 And while either reference, or excuse me, while either combination is
9 sufficient to render all the claims obvious here, Your Honors, both
10 combinations use that.

11 So on Slide 4, briefly it's important to understand what the person of
12 skill in the art would have known and been considering in the early 2000s
13 here. This is the underpinning and the lens through which that person of
14 ordinary skill in the art would understand the prior art.

15 Now petitioner's expert, Dr. Jiao, explained the concept of adaptive
16 lighting for a curve goes all the way back to the 1940s and '50s. But
17 generally what we think of as sort of the modern day adaptive headlamps
18 came throughout the '90s, 1990s.

19 And this was through a famous project, through a global group of
20 headlamp and auto manufacturers called the EUREKA Project. This was an
21 inflection point in the industry. And the EUREKA Project investigated, it
22 studied, it recommended adaptive front lighting system functions, including
23 glare control, reflectings of pedestrians, road signs, and other headlamp
24 features of an adaptive nature.

25 On Slide 5, as both the petition and Dr. Jiao explain, we see some of
26 the type of beam patterns that came out of this EUREKA Project for

1 adaptive headlamps. And these are shown here. This is Exhibit 1017, the
2 Hogrefe reference. This is from 1997.

3 You can see there's multiple types of beam patterns that a person of
4 skill in the art would understand, who'd want to produce from these adaptive
5 headlamp systems.

6 For example, you have a city intersection. You have when the vehicle
7 is traveling at high speed. You have road curvatures. And hos this
8 amorphous, these amorphous shapes as you can see adapt to the road
9 conditions, including the curves. And this is what adaptive front lighting
10 systems were all about.

11 On Slide 7, again, adaptive beam patterns in the prior art. The
12 Hogrefe background reference here explains, for example, that a curve or an
13 intersection can be adaptively illuminated before reaching the curve. And as
14 we'll get to, this is the precise limitation of the patent owner is disputing.

15 Additionally, we see that, for example, when you're lighting a dark
16 country road, instead of illuminating trees and fields, you want to take that
17 available light and direct it dynamically in the direction where it's actually
18 needed. Again, this is the purpose of these adaptive front lighting systems.

19 So let's turn to the claims. And that will start on Slide 11. And Claim
20 1 is representative here of all independent Claims, 1, 12, and 23.

21 And so as we look at the '029 patent claims we see that all they're
22 claiming are components and concepts that were already known in the prior
23 art.

24 So, Claim 1 is for a motor vehicle. And that motor vehicle has a
25 plurality of headlamps. And those headlamps have a plurality of LED light
26 sources there in Element 1.1.

1 In Elements 1.4, or excuse me, 1.2 through 1.4 we have a processor
2 with instructions stored on memory, that when executed by, the instruction
3 when executed by the processor enable it to receive first data, for example
4 map data as recited in the claim. This is, for example GPS data indicating a
5 road curvature.

6 Element 1.5 says that this processor determines a light change to adapt
7 that light pattern in at least one of color, intensity, or spatial distribution.
8 The purpose here is to increase light in a direction of the road curvature.

9 Now, all of those three things are just illumination characteristics of
10 the headlamp beam. And only one is required to satisfy this claim.
11 Although, as we'll discuss, at least two of these, intensity and spatial
12 distribution are disclosed by the prior art references.

13 And then finally Element 1.6 is then just controlling these LEDs in
14 advance of the curve to light that curve.

15 On Slide 14, as I'll skip over Independent Claims 12 and 23 because
16 they were the essentially the same limitations. And so we'll turn to Slide 14.

17 So we saw what the '029 patent claims. Now I would like to discuss
18 what it does not purport to invent here. And on Slide 14 we see that the '029
19 patent does not purport to invent, in the top left, a new type of lamp.

20 It specifically recites, this is not a new lamp technology. Patent
21 owner's declarant to Dr. Turk states the same thing. So the LEDs here don't
22 confer any patentability to the '029 patent claims.

23 As we see in the top right excerpt here from the '029 patent, the use of
24 map data such as GPS to control headlamps, that was also know. Patent
25 owner does not dispute that.

1 And the '029 patent itself acknowledges that adaptive frontal lighting
2 systems, referred to as AFS, that's not a contribution to the art either.

3 And as we just saw adaptive front lighting systems were indeed well
4 known prior to the '029 patent, as well as lighting curves. As the '029
5 patent says, these systems are used to aid in seeing around curves. We also
6 saw this in Exhibit 1017, that Hograph reference showing those different
7 types of illumination patterns.

8 To round things off on Slide 15, the '029 patent also does not purport
9 to invent any type of new controller, or any algorithm either. In fact, the
10 patent itself gives an example of a control system for a continuously variable
11 headlamp, that's a Stam reference, that could be used to implement this.

12 And so, just based on what the '029 patent itself acknowledges, it was
13 already in the prior art. There's nothing new recited in the claims here. And
14 so, it's not surprising that there are multiple prior art combinations that
15 render the claims obvious.

16 Again, Slide 15 here we see, excuse me, Slide 16. The two technical
17 issues, whether the combinations disclose increasing light in a direction of a
18 road curvature, that's disclosed by the references. And a person skilled in
19 the art would be motivated to combine them, that is also true. We'll discuss
20 that as well. And then we'll also address the final issue here, Dr. Turk's lack
21 of skill in the art.

22 So first, Slide 18. We will begin with the Gotou and Karlsson ground.
23 Now this combination, it starts with Gotou's adaptive headlamp. And that's
24 controlled using map data, GPS, to light a curve before the vehicle gets to it.

1 Now Gotou nearly anticipates the '029 patent claims. And what it's
2 done is just simply modify it here by updating its incandescent bulbs with
3 the controllable LED array in Karlsson's adaptive headlamp.

4 Now patent owner does not dispute nearly all of the elements. And
5 so, those are listed on the slide here. And what we'll be focusing on is the
6 Element 1.5, the increasing light in a direction of a curve element.

7 So starting with Gotou on Slide 19. Again, Gotou is this adaptive
8 headlamp system. It uses map data from its GPS receiver and its navigation
9 system, ECU 31. And what it does is it distributes light toward the curve in
10 advance of getting to that curve.

11 And if Gotou had expressly disclosed that its bulbs were LEDs it
12 would have anticipated these claims, but for that. So Gotou is combined
13 here.

14 Before I reach the Karlsson reference actually on the next slide,
15 excuse me, Slide 21. Slide 21 provides a tie in here between Gotou and the
16 Karlsson reference. So Gotou discloses that in some embodiments it can
17 have a one-bulb embodiment or this two-bulb-illumination embodiment to
18 help change the illumination characteristics of the headlamp.

19 And so, that's a plurality of bulbs. And then the next sort of step in
20 the evolution of headlamp technology we move to a reference like Karlsson,
21 which has an array of multiple LEDs.

22 And so, on Slide 24 we see Karlsson's Figure 14. And what Karlsson
23 discloses is again this highly adaptive headlamp array of LEDs that can be
24 selectively tuned for beam patterns.

1 And Figure 14 shows the emitted light beam here in Karlsson as
2 its Window 50, which not only can it shift in the plane of view drawings left
3 to right, so side to side, but also top to bottom, up and down.

4 But this window, Karlsson discloses in the above there, it can also
5 vary in shape, in dimension in order to achieve the desired pattern of the
6 beam. So again, this is the point of AFS. We want to be able to adapt our
7 beam pattern in order to put light where it's best for the driver and for, again,
8 oncoming vehicles to reduce glare to them.

9 Karlsson does this based on sensor input, for example, from light
10 sensors from oncoming vehicles, taillights of preceding vehicles as well.

11 Now the patent owner's position here is that Karlsson defaults to
12 having all of its LEDs always on. And that's not the case. I'll remind the
13 Board, which the Board noted in its Institution decision, which is Page 10,
14 that it wasn't always the patent owner's case. That this is how Karlsson
15 worked.

16 In the patent owner's preliminary response, Page 41, the patent owner
17 agreed that Karlsson would laterally shift this window of active LEDs in
18 order to produce the desired beam pattern.

19 And so, Karlsson does not have all its LEDs always on. It can
20 manipulate these LEDs. They can be on, they can be off, it can adjust the
21 intensity, all things that Karlsson discloses.

22 On Slide 29 we see a bit more here of how Karlsson works.
23 Karlsson also discloses that it has these spatial light modulators, also known
24 as SLMs. And they can be controlled to transmit light to a specified degree
25 so that the desired of intensity of each of the individual little spotlight beams
26 in Karlsson can be adjusted. And Karlsson discloses that it can do those

1 individually or in groups of LEDs as well. So it is, again, it's a highly
2 adaptive LED array headlamp.

3 So we see that Karlsson and Gotou discloses all of the limitations here
4 of the independent claims of the '029 patent. And a person of ordinary skill
5 in the art would have been motivated to combine these references as well.

6 So starting on Slide 32, there our petition and the supporting
7 declaration from Dr. Jiao provided many reasons that a person of ordinary
8 skill in the art would have been motivated to combine Gotou and Karlsson.

9 These come from the references themselves, as well as
10 contemporaneous references. Reasons include the benefits of the LEDs in
11 Karlsson's array themselves, long life expectancy, the ability to adapt to
12 unfavorable weather, low voltage, the ability to have a very highly adaptive
13 beam pattern that can be fine tuned for glare reduction, again, lighting these
14 curves.

15 And so this, all of this together, makes it safer for drivers on the
16 road. Not only the driver of that vehicle but drivers of other vehicles as
17 well. And so, there's clear motivation to combine these references, as
18 discussed early in the petition and by Dr. Jiao.

19 And so, under this combination of Gotou and Karlsson, this
20 primary reference that discloses that you want to light the curves, and the
21 reference combined with it, this highly adaptive LED array, all of the claims
22 of the '029 patent would have been obvious.

23 Now the second ground in the petition starts here –

24 JUDGE MELVIN: So before you move on to the other ground –

25 MR. FITZSIMMONS: Yes, Your Honor.

1 JUDGE MELVIN: -- you know, patent owner has certain arguments.
2 For example, you sort of touched on patent owner's position that Karlsson
3 defaults to all LEDs being lit. Now, that's not based just, that argument is
4 not based just on Karlsson's disclosures, but also on your statements in a
5 related IPR, or another IPR, right?

6 So, is that something you plan to address in your principal argument,
7 or only on rebuttal?

8 MR. FITZSIMMONS: I'm happy to address that right now, Your
9 Honor.

10 JUDGE MELVIN: Seems like the sort of focus of patent owner's
11 argument as I understand it.

12 MR. FITZSIMMONS: Right. So that argument comes from, as Your
13 Honors know, there are three patents here. There are six petitions. And so
14 this comes from one petition for a different patent, which has different
15 claims.

16 And as we saw here, if we go, well we can go back to Slide 29, just as
17 a placeholder.

18 But this is, the patent owner's argument here comes from the 318
19 proceeding for the '551 patent. And we see there that our expert, Dr. Jiao,
20 explained what was meant by that. This is in Dr. Jiao's declaration in this
21 proceeding, Exhibit 1036, Paragraph 58. It's also in our reply brief at Page
22 9.

23 And what Dr. Jiao says, and he's now responding to Dr. Turk who had
24 a very similar argument. He says, Dr. Turk mischaracterizes my testimony
25 in my first declaration for a separate IPR, where he's discussing Karlsson.

1 And he says, there he cites testimony related to my opinion regarding
2 a specific surrounding area of Karlsson's reduced illumination with respect
3 to glare control.

4 So he's talking about this area around the dimmed area. And he says,
5 Dr. Jiao explains, this is not inconsistent with my testimony here, explaining
6 Karlsson's directionality and intensity control. That testimony in that other
7 case does not suggest that Karlsson's maximized area around the glare
8 control region means that all of Karlsson's LED spotlight beams are
9 illuminated, much less illuminated to their highest degree.

10 So, Dr. Jiao clarifies what is meant by that in this other proceeding,
11 this other patent for this other claim language, and what that meant. It's this
12 area around the glare control region that he was referring to.

13 JUDGE MELVIN: Would you agree that Karlsson could be operated
14 in a system such that its default is to illuminate all LEDs?

15 MR. FITZSIMMONS: So Karlsson can do many things. It's a highly
16 adaptive system. So the potential for Karlsson to turn on all LEDs is there.
17 But that's not how it's operating.

18 And as we saw with sort of the state of the art of these adaptive front
19 lighting systems, that's not what the person of ordinary skill in the art would
20 understand Karlsson to be disclosing, because as we saw, these amorphous
21 shapes. That's what it's trying to achieve.

22 So Karlsson doesn't just want to put everything full blast, to sort of
23 use a colloquialism, all the time. It wants to manipulate its beam pattern so
24 that the, for the best pattern for the driver and to reduce glare control.

25 JUDGE MELVIN: And the particular subset of LEDs that Karlsson
26 might light as its default would depend on the optical system in which those

1 LEDs are operated? The beam spread, for example, that's caused by the
2 lenses?

3 MR. FITZSIMMONS: Right, Yes. Where that light goes will
4 depend on the optical system that's associated with it. Karlsson discloses
5 also again these spatial light modulators, which can adjust the intensity and
6 directionality of the beam.

7 If we go to Slide 33 we actually see one of the quotes here at the
8 bottom right. Karlsson in column 14 discusses how these light sources, they
9 can selectively switch the individual light sources individually or in groups.
10 Again, on, off, or to selectively adjust the light intensity of those beams
11 providing a beam pattern, right. So Karlsson has this highly adaptive LED
12 array.

13 JUDGE MELVIN: And the modulators, Karlsson's modulators, are
14 relevant to certain dependent claims here? Or just as consistent or not with
15 Karlsson's sort of multi-LED embodiment, right?

16 MR. FITZSIMMONS: Yes. They're consistent with how Karlsson's
17 LED array will operate, like these adaptive front lighting systems, emphasis
18 on adaptive, right. And so, it wants to be able to modulate in this example
19 the intensity, right. Karlsson also just talks about the beam pattern itself.
20 And so that can be beam spread as well.

21 JUDGE MELVIN: Okay.

22 MR. FITZSIMMONS: And modulators can achieve that function.

23 JUDGE MELVIN: Okay. Thank you.

24 MR. FITZSIMMONS: If there are no further questions on the Gotou
25 and Karlsson ground I'll turn to, next then to the Beam and Kobayashi
26 ground. And that starts on Slide 32. Excuse me, 42.

1 So the second ground here that we're discussing is Beam and
2 Kobayashi. And the claims here would have also been obvious. This time
3 we're starting with a primary reference with this highly adaptive LED
4 headlamp, that's Beam.

5 And we're adding to that the known technique of adapting a beam
6 pattern in advance of a curve using GPS data, map data as another input,
7 which comes from the Kobayashi reference.

8 And again, as we see on Slide 42 nearly all of the independent claim
9 limitations are not in dispute. And we'll be focusing on the element at 1.5,
10 an analogous element to the other independent claims, directing light
11 towards the curve.

12 So the Beam reference on Slide 43 now. Even in its abstract, Beam
13 makes very clear that its headlamp microbeams control, or excuse me, that
14 its headlamp has microbeams, and that it controls the intensity and/or the
15 angular position of these microbeams.

16 Column 4 of the Beam patent, for example, also discloses that the
17 angular position, directionality, or attenuation, intensity of each of the
18 microbeams is independently set by the controller.

19 So again, similar to Karlsson. The beam is this highly adaptive LED
20 array that the purpose is for this adaptive front lighting system to put light
21 where it's needed.

22 JUDGE MELVIN: Column 4, Beam also says that the resulting beam
23 is at full intensity except in areas that would dazzle a driver ahead, right. So,
24 I mean, this was a point that we touched on in the Institution Decision.

1 And as I understand your Reply you take issue with patent owner's
2 expert declarant. But I'm not sure I understood your view that Beam in fact
3 lights less than the full spread by default.

4 MR. FITZSIMMONS: Yes, Your Honor. So we can jump right to
5 that. So I would turn your attention to Slide 49. And so again, we're
6 looking at this through the lens of a person of ordinary skill in the art.

7 And we know, based on all the background references that these
8 adaptive lighting systems, what they're trying to do is put the light sort of in
9 the best place possible, right.

10 We saw that from the EUREKA Project, the same as sort of
11 conglomeration of auto manufacturers and headlight manufacturers. What
12 are they trying to do? They're trying to put light where it's needed, and not
13 have light where it's not needed.

14 And so the patent owner's assertion that the Beam reference just puts
15 light everywhere to flood light everywhere doesn't make sense in view of
16 what a person skilled in the art would understand and try and be
17 accomplished by these systems.

18 In addition to that the person of ordinary skill in the art would
19 understand that maximum intensity when we're talking about vehicle
20 headlamps here, it relates to the maximum intensity in a, as desired or
21 appropriate in a given location or direction.

22 Dr. Jiao, our expert, explained this, for example, Exhibit 1036, his
23 declaration, Paragraphs 16 to 26, and also 111 through 117. What he
24 explained is that a person of ordinary skill in the art would understand that
25 the term maximum intensity, as we saw on the slide there, and discussed in

1 the Beam reference, it means it would commonly relate to light intensity
2 level at different angles.

3 Now we know this additionally from the next slide when we talk
4 about the difference between intensity and brightness.

5 And so if we start there the person skilled in the art in this field would
6 understand that intensity is luminous intensity. That's measured in the unit
7 candelas. Candelas is a measurement of luminous flux per solid angle
8 emitted by a light source.

9 So when we're thinking about intensity as Beam talks about, or even
10 maximum intensity, it's maximum intensity at a particular point. Dr. Jiao
11 has these diagrams in his declarations that show for different beam patterns
12 you have, you want different intensities, maximum intensities at different
13 locations in that beam pattern.

14 So the maximum intensity at one point, perhaps a, towards the left
15 lane closer to the vehicle, is different than the maximum intensity that would
16 be desired in the right land, or towards the right shoulder further down the
17 road.

18 And so patent owner's declarant, Dr. Turk, he does not understand
19 this concept. We'll turn to Slide 50. Dr. Turk takes sort of a lay person's
20 approach here. Not, Slide 52. And when he's thinking about intensity he's
21 thinking about brightness.

22 But brightness is a human perception of how, of light. Intensity, when
23 we're talking about it is a technical term a person skilled in the art as a
24 technical term, as I just explained. And that's how they would be reading
25 Beam, in light of, again, their background knowledge of what these adaptive
26 front lighting systems are trying to achieve.

1 And so if we go to now Slide 53 and we look at Beam's disclosure.
2 And what does Beam do? It controls the intensity and/or angular position of
3 its narrow microbeams.

4 And so as I just explained it's not going to be full blast anywhere. But
5 even if you took that understanding it still discloses manipulating or
6 adapting the angular position.

7 And so that's why also this full intensity argument doesn't make
8 sense. Because Beam would have no reason to say, I control my intensity
9 and my angular position of my microbeams if they were always on full blast
10 all the time. There would be nowhere to send it to adapt the angular position
11 of the microbeams. This is why --

12 JUDGE MELVIN: Well, isn't, I mean, on Slide 53, right there in the
13 quote it's talking about determining location of light sources, right? So the
14 point is to avoid glare. To avoid glare, all one needs to do is divert the light
15 beam from that source, right?

16 MR. FITZSIMMONS: That's one way to accomplish it. So you can
17 --

18 JUDGE MELVIN: So I don't understand why that is inconsistent
19 with lighting the full extent of the beam.

20 MR. FITZSIMMONS: Because Beam is, the Beam reference --

21 JUDGE MELVIN: Sure.

22 MR. FITZSIMMONS: -- is still disclosing to adapt or change the
23 angular position. And so what it can do is have like a high beam pattern,
24 and if there's an oncoming vehicle it can change its light distribution so that
25 it wouldn't blind that vehicle. But it's not just flooding the entire scene with
26 that.

1 I think a good example of it, do we have Exhibit 1018? So a good
2 example of this is Exhibit 1018, the Löwenau reference. It's Page 35. And
3 it's Figure 5 here, Your Honors. I'll give you a moment if you need, or I'm
4 not sure if all remote Judges are able to see this on the screen.

5 But what the Löwenau reference discloses is that one of the
6 advantages of these adaptive light control, or adaptive front lighting systems,
7 right, is that even on this like dark country road, right, instead of
8 illuminating some fields or trees, the available light is directed dynamically
9 in the direction where it is actually needed.

10 This is what a person skilled in the art is thinking about. They don't
11 want to just put light out to the shoulders of the road, as far towards the --

12 JUDGE MELVIN: Well, I mean, I --

13 MR. FITZSIMMONS: -- trees as you need it --

14 JUDGE MELVIN: I understand that that's a known benefit of
15 adaptive light systems. I think in Karlsson, as you pointed out, it expressly
16 discloses a window that can move around and direct the beam accordingly.
17 There doesn't seem to be a corresponding disclosure in the Beam reference
18 of that, let's say steering the beam left and right, is there?

19 MR. FITZSIMMONS: So, what Beam does is it discloses adjusting
20 the intensity and angular position. And so again --

21 JUDGE MELVIN: But it does so in the context of reducing glare to
22 oncoming vehicles, not, for example, of following road curvature.

23 MR. FITZSIMMONS: So the Beam patent doesn't expressly do it for
24 the purpose of road curvature. But again, Beam is our primary reference.
25 And it's modified in --

1 JUDGE MELVIN: Well, I understand the modification. But, I mean,
2 I think the point is that in Karlsson, because it expressly discloses moving
3 the window of illuminated LEDs it, at least one can argue that it very clearly
4 directs its projected beam in multiple directions. And in order to do so it
5 could not default to illuminating all the LEDs.

6 And I'm not sure that that's the case within Beam. It seems that the
7 objective of Beam is prevent glare. And one could do that while
8 illuminating the full extent of the projected light.

9 MR. FITZSIMMONS: So, I don't disagree with Your Honor that that
10 would be possible. But when we're reading a reference from prior art, we
11 are reading it through the lens of a person skilled in the art.

12 And what Dr. Jiao here has done is explained how that person skilled
13 in the art would understand the Beam reference. And so his testimony and
14 his declarations explains why, especially in view of what the persons skilled
15 in the art at the time were trying to accomplish here, why Beam would not
16 be having all its LEDs on to do that.

17 JUDGE MELVIN: Okay.

18 MR. FITZSIMMONS: The other point with the Beam reference that
19 I'd like to address is if we actually turn back to Slide 45. So one of the
20 arguments that the patent owner makes is that in the Beam reference, that in
21 this LED embodiment, shown here in Figure 4 and Figure 6, patent owner
22 argues that there's no spatial light modulator in that. The patent owner
23 argues it's, superfluous is their term.

24 It's not the case. And I think perhaps the clearest example of that is
25 Claim 4 of the Beam patent itself, which recites both LED's, in the first half

1 of that claim there, and a spatial light modulator in the second half of that
2 claim.

3 So the, as Dr. Jiao explained in his deposition testimony, when Beam
4 describes that its Lamp 202 in a first embodiment, and the SLM shown in
5 that same embodiment, 203, are replaced by the LED array 401. What
6 Beam is telling the reader is that those elements are combined into one.

7 And again, Claim 4 makes this very clear that Beam discloses
8 embodiments where you have both LEDs and spatial light modulators
9 working together in the headlamp.

10 We'll go now to Slide 55, and the motivation to combine Beam and
11 Kobayashi. So we again provided many reasons in the petition, Pages 24
12 through 30 supported by Dr. Jiao's original declaration, Exhibit 1003, of
13 why a person skilled in the art would be motivated to combine the Beam
14 reference with the Kobayashi reference.

15 Those included safety, Number 1. But also the ability to again adapt
16 the light to light these curves. And do that, as in Kobayashi, based on just
17 this additional known input of map data, GPS data, which was well known
18 and previously done in the prior art.

19 And so, the patent owner sort of had three arguments against the
20 motivation to combine these references. They're more technical arguments
21 than that are specifically about the motivation to combine.

22 So Number 1 is basically that it would, the combination would defeat
23 Beam's sort of high illumination purpose. I discussed why, and Dr. Jiao
24 explains, Beam is not just full blast light at all times.

25 Second, the patent owner argues that the combination would be
26 inoperative because you can't change the direction. That goes along with

1 that first point. But as we saw Beam reference discloses not only changing
2 intensity, but the angular position of the microbeams.

3 And then the third point there is essentially just a result of those first
4 two, and not really a separate argument. And so a person skilled in the art
5 would have also been motivated to combine the Beam reference and the
6 Kobayashi reference.

7 If there are any questions on that combination, Your Honors, I'm
8 happy to answer them. Otherwise I would like to turn to the motion to
9 exclude.

10 JUDGE MELVIN: Okay.

11 MR. FITZSIMMONS: So, starting on Slide 57. So first we recognize
12 that the Board is loathe to exclude evidence, and particularly declaration
13 testimony. I've been involved in over 100 IPRs, and can't recall a single
14 time where we've moved to exclude a declaration from a proffered expert.

15 The facts here though, Your Honor, align so closely with the Federal
16 Circuit precedent in *Kyocera* that they compel the petitioner's motion to
17 exclude Dr. Turk's testimony.

18 Now Dr. Turk's lack of industry experience in the area of automotive
19 lighting and lighting control systems, which was expressly stated and
20 required in the petition, and with which both Dr. Turk and the patent owner
21 agreed, dictate the finding here that Dr. Turk is not a person of ordinary
22 skill. And under the law his testimony must be excluded.

23 JUDGE MELVIN: So in *Kyocera* wasn't the issue whether or not it
24 was an abuse of discretion to exclude certain testimony? And you're saying
25 that then compels excluding all testimony by somebody not of skill? I mean,
26 you do see the distinction I'm making, right?

1 MR. FITZSIMMONS: I see the distinction. And so, the ITC
2 excluded some testimony and not others.

3 JUDGE MELVIN: Right.

4 MR. FITZSIMMONS: Part. And the Federal Circuit said it was an
5 abuse of discretion for the ALJ to exclude, to not exclude certain testimony.

6 JUDGE MELVIN: Okay.

7 MR. FITZSIMMONS: Because the, that proffered expert didn't meet
8 the level of a person of ordinary skill in the art. So yes, Your Honor, it does
9 compel it here.

10 On Slide 58, again *Kyocera* case has very similar facts. The parties
11 here agreed on the person of ordinary skill definition. In *Kyocera*, the ALJ
12 noted how *Kyocera* chose not to contest, and even seemed to adopt, the
13 articulation of the ordinary skill level in the art.

14 Point 2, here the definition requires a particular set of experience in a
15 relevant field. In *Kyocera*, that was specific to a power-nailer design. Here
16 the industry experience requires, it's also specific, automotive lighting and
17 lighting control systems.

18 On Slide 59, again all of the parties agreed on the definition for the
19 person of ordinary skill. It was clearly laid out in the petition that the person
20 of ordinary skill not only had a bachelor's in certain engineering disciplines,
21 but also at least two years of experience in the area of automotive lighting
22 and lighting control systems.

23 The patent owner's response was equally clear. They said, patent
24 owner does not dispute petitioner's proposed level of ordinary skill.

25 Now I'd also note that the Institution decision here, Pages 5 and 6
26 said, to the extent patent owner believes the level of ordinary skill affects

1 this proceeding it should explain that in the instituted trial. Patent owner
2 didn't explain anything. They accepted petitioner's definition.

3 And I note it's also important that the patent owner knew before filing
4 its patent owner response that the petitioner disputed Dr. Turk's
5 qualifications.

6 In the patent owner's objection, or excuse me, in response to
7 objections filed by the petitioner, the patent owner, and this is in the record
8 at Exhibit 2027.

9 The patent owner said, to the extent you are implying that Dr. Turk's
10 education or experience does not satisfy petitioner's proposed level of skill
11 in the art, and they continue from there. So the patent owner was aware of
12 this dispute. And yet they still accepted this level.

13 On the next slide, Slide 60, Dr. Jiao obviously has the same level of
14 ordinary skill and, excuse me, patent owner's declarant, Dr. Turk, also
15 agreed with this. When asked, do you accept the petitioner's proposed level
16 of ordinary skill in the art, Dr. Turk replied, yes.

17 So now we're on Slide 61. The best response that patent owner could
18 come up with was that Dr. Turk worked on the autonomous vehicle systems
19 at Martin Marietta. But Dr. Turk worked on the computer vision and
20 sensing of imaging navigation aspects of that project.

21 The patent owner and Dr. Turk, they say, illumination was an
22 important part of driving at night. But they never go so far as to say that Dr.
23 Turk worked on the vehicle illumination. Their words are carefully chosen
24 here.

1 We see on the next slide, Slide 62 some additional reasons, additional
2 evidence supporting that Dr. Turk does not qualify as a person of ordinary
3 skill.

4 So there were many reasons that Dr. Jiao included in his supplemental
5 declaration, I think it's at 1036, of why he believes Dr. Turk does not qualify
6 as a person of ordinary skill.

7 But among them Dr. Jiao stated, and this is Exhibit 1036, Paragraph
8 27. Dr. Jiao stated, I was shocked that Dr. Turk was not aware of the
9 EUREKA Project, one of the most well known major projects in adaptive
10 front lighting systems.

11 And as we talked at the beginning, this was an inflection point in the
12 industry, and a project that Dr. Turk did not know of.

13 Additionally, Dr. Turk has never worked for a vehicle headlamp
14 company. He has never worked for an LED company, or any other lighting
15 source company. Never worked for a general lighting company. Never
16 designed a vehicle forward lighting system. And he has no patents, awards,
17 or papers on vehicle forward lighting.

18 Now, while this isn't a requirement for the person of ordinary skill, it
19 is certainly evidence of his lack of skill and experience in the field.

20 On Slide 63 we see that Dr. Turk claimed that he personally worked
21 on the illumination portion of that project. This referring to that Martin
22 Marietta project. He says that he did that at times. But he, the alleged
23 expert in such illumination, he remarkably did not remember too much detail
24 about it.

25 And if we look at Dr. Turk's CV, notably it doesn't even hint at his
26 participation in the illumination portion of that project. His CV describes his

1 role there as researching vision algorithm development. That what he has
2 experience in. He doesn't have experience in automotive lighting and
3 lighting control systems.

4 Now again, while this issue is not dispositive, and the grounds in the
5 petition, both grounds render all the claims obvious without it, this is an
6 important point for Your Honors to decide.

7 Now the patent owner's burden was to establish that Dr. Turk has the
8 required level of skill of a person of ordinary skill. And they fall far short of
9 that standard.

10 Unless Your Honors have any questions about that, or any questions
11 about the dependent claims I'll reserve the rest of my time for rebuttal.

12 JUDGE MELVIN: Okay. I suspect we will have some questions
13 about the dependent claims. But you can address those on rebuttal, you
14 know. It probably makes sense at this point. So you, you know, you have
15 your time, 14 and a half minutes.

16 MR. FITZSIMMONS: Thank you, Your Honor.

17 MS. SHAH: Good morning, Your Honors. Sangeet Shah on behalf
18 of Mr. Spero. And with me I have at counsel table Andrew Turner and
19 Bernard Tomsa from Brooks Kushman.

20 So we'd like to focus on four issues that require resolution here. The
21 first, we'll establish with all four of these issues the following. The first is
22 that we will show that the intrinsic record establishes that Karlsson, like
23 Beam, uses all of its LEDs in its base operational state.

24 The second issue that we will establish is that Beam's full LED array
25 operates at max intensity at all times, foreclosing the ability for light to
26 increase in any direction.

1 We will next establish, associated with this argument that petitioner
2 has raised for Beam and Karlsson, that the use of SLMs to steer emission is,
3 Number 1 a new and impermissible argument. It was not raised at the
4 petition. And second, it's irrelevant.

5 SLMs cannot steer emission by their functionality. And Number 2, if
6 an SLM is used to control emission the claims are no longer met.

7 A third point that we'll establish is that several dependent claims were
8 never proved. Because of petitioner's style of analogous arguments with
9 conclusory assertions petitioner failed to meet its burden of proof under 37
10 CFR Rule 104, which requires the petition to identify where each element of
11 the claim is found in the prior art.

12 And the fourth issue we will establish is that Dr. Turk, with his 25
13 years of experience in optics and sensing, which are absolutely relevant to
14 all of the matters in this dispute, in the patent, establishes him as not only a
15 POSA, but an expert on all matters in dispute.

16 With that we'd like to turn to the first issue, which is Karlsson and the
17 Karlsson reference. So there's two primary issues we'd like to focus on here
18 with respect to the Karlsson reference.

19 And it's first, why Karlsson uses its full array at full intensity, similar
20 to Beam. And second, sort of demystifying how and when the Figure 14
21 window operates.

22 And this is really important because petitioner in its proofs relied on
23 one sentence. And hence, there's a tremendous amount of context that's
24 needed to surround what the one sentence means within the intrinsic record.

1 So by contrast our proofs will rely on the intrinsic record as opposed
2 to infusing POSA arguments and other extraneous arguments from the
3 extrinsic record.

4 To start with we do want to note the two adverse admissions that in
5 our opinion establish that petitioner's interpretation is correct, and also
6 comports with the record evidence. If you could turn to Slide 21, please?

7 So this is the very first statement that was made by petitioner's expert,
8 Dr. Jiao. As is noted earlier in a parallel proceeding IPR 00318, Dr. Jiao
9 opining on the same figure of the same reference, describing the same
10 functionality makes this statement.

11 This is not different. Again, exact same issue, same patent, same
12 figure, same expert, same issue once again. So here we have the statement.

13 And it's, Karlsson's light beam is controlled in such a manner that no
14 light or light having low intensity is emitted in directions from which light is
15 detected. The remaining areas of light beam 7 are left at full intensity,
16 retaining an optimum light effect for the driver.

17 This quote then has Figure 14 is specifically cited as an example of
18 this concept. So again, there's a direct correlation between this quote and
19 Figure 14.

20 It's also important to note that this quote explicitly talks about how
21 the remaining areas of light beam 7 are left at full intensity, which clearly
22 establishes that the now suppressed areas were at full intensity prior to
23 suppression, which means in their operational state the LEDs are at full
24 intensity.

25 JUDGE MELVIN: Wait. Don't you agree that Figure 14 discloses a
26 window that's less than the full LED array?

1 MS. SHAH: We do agree that it discloses a window. What we are
2 establishing here is that that window, it does – Figure 14 is not the
3 established operational state of Karlsson; that really the operational state of
4 Karlsson is max LED array at full intensity. And that becomes clear. It's,
5 unfortunately, a little bit complicated to go through it, which we're about to
6 do, kind of detailed line-by-line.

7 Because, again, there's really only one sentence that exists in Karlsson
8 that talks about Figure 14 directly. So, you have to kind of go through
9 methodically all of Karlsson, including Karlsson's relationship to the Flaaten
10 reference, which it includes in its explanation of a reference, a typical type
11 of lighting device that it is specifically improving.

12 So, in that context, it talks about optimum lighting effects, and we'll
13 kind of systematically go through what proofs exist within the Karlsson
14 reference to explain Figure 14, and again, to demystify this issue of how is it
15 operating; what is that sliding window, and that that really is establishing a
16 suppression of illumination in relationship to the operational state, which is
17 full LEDs, full intensity, which is exactly what Petitioner's expert agreed to
18 in these statements that we're talking about right now.

19 The second statement that Petitioner's expert explained is what a
20 person of ordinary skill in the art would have understood. Here, Dr. Jiao
21 states, "A person of ordinary skill in the art would have understood that
22 positioning full intensity LEDs all around the reduced illumination area
23 provides the optimum lighting effect, because doing so maximizes the area
24 that is fully illuminated."

1 These two statements fundamentally align with Patent Owner's
2 understanding and the record testimony of how Karlsson operates, as further
3 informed by the Flaaten reference.

4 So, first, this is another point that's very important to mention. In its
5 operational state, emitted beam 7 is the beam emitted from the Karlsson
6 system. The phrase "beam 7" appears 20 times in the specification and is
7 shown in all of the figures showing emitted beams, with the exception of
8 Figure 14, which addresses situational glare.

9 In contrast to emitted beam 50, which is identified in Figure 14,
10 including the sliding window illustration, as explained in the surreply at
11 page 18, Karlsson repeatedly mentions that the pattern of that light beam
12 being emitted or adapted -- I'm sorry -- that the pattern of the light beam
13 being emitted is adapted or adjusted based on detected light, indicating a
14 first operational state, beam 7, which is, then, adapted to suppress
15 illumination, resulting in a second adjusted beam.

16 If we can turn to Exhibit 1010, page 8, specifically, lines 8 to 9?

17 So here, we'd like to point to, again, within the Karlsson reference
18 itself, there's an explicit statement that identifies "In the description below,
19 light parts or parts having light functions bear the same reference numerals,"
20 which again is very important here because that means emitted beam 50
21 does not have the same function as emitted beam 7.

22 So next, we'd like to turn to Karlsson's identification of the Flaaten
23 reference, Exhibit 1010, page 1, please.

24 Karlsson specifically identifies the Flaaten reference as the type of
25 lighting device Karlsson is improving.

1 Page 2 of Karlsson, Exhibit 1010. That explicitly states and discusses
2 the Flaaten reference, citing Flaaten as an example of an optimum lighting
3 effect.

4 Based on this relationship between Karlsson identifying Flaaten as
5 having an optimal lighting effect, a person of ordinary skill in the art would
6 look to Flaaten to try to understand what does optimum lighting effect mean
7 in the context of the Karlsson reference.

8 So now, we'd like to turn to Exhibit 2017, pages 1 to 2.

9 So, Flaaten goes on to explain, "It is, thus, desirable to enable such
10 control of the light that only the portion of the light that would
11 inconvenience the driver of meeting cars is removed, leaving as much as
12 possible of the roadway and the surroundings illuminated."

13 On page 2, you'll see the Flaaten reference, Exhibit 2017, reiterates in
14 the description of optics, "Flaaten specifies that the remaining light
15 specifically illuminates surroundings, including curves."

16 Next, I'd like to turn to Exhibit 2017, page 3.

17 Flaaten confirms that the headlights provide the best possible
18 illumination, a point that Dr. Jiao agreed with in Exhibit 1036, paragraph 61,
19 when he explains that Flaaten seeks to provide the best possible
20 illumination.

21 If we could next turn to slide 21?

22 Thus, this Petitioner admits, reading Karlsson in view of Flaaten, a
23 person of ordinary skill in the art would understand that, under Karlsson,
24 "the best possible illumination and optimal lighting effect used the full LED
25 array, maximizing the area that is fully illuminated, resulting in the

1 surroundings being illuminated, including curves, to the greatest extent
2 possible."

3 And thus, Petitioner's admissions comport with Patent Owner's
4 testimony regarding the one record-supported and consistent interpretation
5 of Karlsson.

6 Karlsson, like Flaaten, and as Petitioner admits, functions by
7 reduction/suppression of the light where light might create glare. It
8 temporarily removes -- I'm sorry -- where light might create glare, that light
9 is temporarily removed and the full LED array operates at full intensity, as
10 the optimum illumination examples show, which means that any situations
11 that may result in glare could cause temporary suppression of LED emission,
12 but under no circumstance is there a way to increase illumination, which is
13 required by these claims, in any direction; and further, the base operational
14 state already illuminates curves as much as possible.

15 Additionally, and at a minimum, the lack of clarity with the one
16 sentence that Petitioner identifies to establish how Figure 14 functions,
17 coupled with Petitioner's own admissions, raise an ambiguity as to when and
18 how Figure 14 applies with the vehicle in operation. This impacts
19 Petitioner's ability to meet its burden of persuasion as to Ground 2. And this
20 is referenced in the surreply on page 19 as well.

21 If we could turn to slide 52?

22 In addition to the missing proofs associated with the second ground,
23 and specifically, the Karlsson reference, Petitioner's motivation to combine
24 arguments are also deficient. They argue that the combination of Gotou and
25 Karlsson is a, quote, "simple substitution."

26 If we can turn to slide 53?

1 Petitioner's briefing and today's arguments focus only on the "why"
2 prong of motivation to combine, never addressing the challenges that Patent
3 Owner presented, specifically, in the form of the state of the art regarding
4 the challenges associated with "how" this combination would actually be put
5 together by a person of ordinary skill.

6 Dr. Jiao himself explained in a paper two years after the relevant time
7 period, in Exhibit 2012, page 3, as we can see on the top of the slide here, he
8 specifically commented on the issues of using LED light sources and the
9 great concerns and challenges for the optical engineers at the time. Again,
10 this is in 2004, two years after our relevant time period.

11 On the next slide, on the upper righthand side, you'll see he,
12 additionally, stated the need for very specific optics associated with each
13 LED. This is Exhibit 2007. None of this was addressed in the record. And
14 all of these issues are essential to the issue of whether there is, in fact,
15 motivation to combine, specifically, with respect to, have they established
16 how a person of ordinary skill in the art would put together a Gotou and
17 Karlsson.

18 JUDGE MELVIN: I'm not sure I follow. I mean, Karlsson disclosed
19 an LED light source, right? So, already faced all of the challenges that
20 you're identifying here?

21 MS. SHAH: Yes and no. Karlsson certainly did identify the
22 existence of an LED. What it doesn't do, and what is unclear from
23 Petitioner's explanation, is the specific idea of what happens with respect to
24 the specific optics here. They have not been clear about there's a
25 relationship that exists between the LEDs that are used and the optics that
26 are used. The petition does not specify, nor does it explain, how optics

1 factor into the combination of Gotou and Karlsson, which are critical,
2 obviously, for establishing a functional headlamp.

3 In addition to that, Dr. Jiao explicitly talks here about the issues of
4 using LED light sources and the challenges in the form of light reflection
5 efficiency, beam pattern compression, and optical accuracy.

6 So, what is relevant here, apart from what Dr. Jiao said, is, again,
7 within the Karlsson reference itself. So, just give me one minute.

8 Within the Karlsson reference itself, Karlsson makes a point to
9 establish that it recognizes that there are these issues that exist within the
10 embodiments that it presents. It, specifically, talks about and identifies
11 multiple instances -- and I can give you a couple of different ones -- but
12 where it is analyzing light transmissivity in relationship to system losses,
13 again, looking at it in the context of output and safety, because this is what
14 matters, right, with respect to headlights.

15 So, Karlsson, for multiple embodiments, then, goes through an actual
16 calculation of what are the losses associated with a given embodiment in
17 relationship to light transmissivity, coupled with the output, specifically
18 mentioning that this impacts safety functionality.

19 Having said all of that as a backdrop, it, then, becomes clear that
20 Karlsson recognizes that output matters; that system losses matter. And
21 where this becomes relevant is the bottom of slide 53 here, where we have,
22 again, another one of Dr. Jiao's papers that makes it clear that at the time
23 LED output was about 3 percent of tungsten capability. And so, this is,
24 clearly, an issue that needs to be addressed with respect to what would a
25 person of skill in the art have understood at the time, when you have Gotou,
26 which is the primary reference here, which, according to Petitioner, is a

1 merely anticipatory reference. It satisfies predictive curve illumination. It
2 just doesn't use LEDs, right, according to Petitioner.

3 So, then, you have a real question at hand as to why would a person of
4 skill in the art add in an LED digital system that has, per Dr. Jiao, all of
5 these issues at the time. This is not a simple substitution.

6 The second issue -- so, you've got this kind of backdrop of what's
7 going on here with respect to the --

8 JUDGE MELVIN: Are you saying Karlsson didn't work for the
9 applications it disclosed?

10 MS. SHAH: No. What I'm saying is that there's more; that Petitioner
11 didn't satisfy its burden of establishing motivation to combine. They should
12 have addressed -- we identified any number of issues with respect to the
13 state of the art, including Dr. Jiao's own admissions of --

14 JUDGE MELVIN: So, you're saying, because LEDs aren't as bright
15 as halogen bulbs, there was less reason to use them?

16 MS. SHAH: I'm saying it would have given pause -- when you have
17 a, quote, "completely functional" primary reference that satisfies predictive
18 curve illumination, which was the goal of Gotou as well as the claims, right?
19 So, the issue is you have this completely functional system. What would
20 have motivated a person of skill in the art to add in, to modify it for LEDs?

21 I agree they identify certain explanations as to why you would want
22 longevity, at a minimum, why you'd want to use an LED, right? That
23 doesn't explain all these other issues that we identified, including the issues
24 that are raised by Karlsson itself as to output, the balance between losses,
25 output, and the need for safety. While we raised it, there was no explanation
26 in Petitioner's briefing on reply as to why a person of skill in the art,

1 recognizing these issues that are also within the Karlsson reference, why
2 they would actually include the Karlsson reference to modify a fully
3 functioning Gotou system to add in the LEDs, but for the claims at hand.
4 So, that's the first point.

5 The second point, which we will actually get to -- we can get to
6 now -- is the issue of motivation to combine specifically with respect to the
7 "how" prong. So, Petitioner relies on this two-bulb configuration in part.
8 They seem to rely on both, but one of the things they mentioned in the
9 arguments today was the two-bulb configuration.

10 So, with respect to the two-bulb configuration, you have a shortfall
11 that exists because there's no explanation of how you actually control -- what
12 are you taking from Karlsson and what are you controlling, then, in
13 relationship to between Karlsson, Gotou and Karlsson?

14 In the two-bulb configuration, Petitioner never mentions how one
15 would actually control Karlsson's LEDs; what would be used; what
16 hardware would be included. And so, there's this fundamental failure that
17 exists with respect to, once again, the proof that Petitioner has the burden to
18 bear, to identify how the Karlsson LEDs would be used with respect to the
19 two-bulb configuration, and more importantly, why the Figure 14
20 functionality that it describes would work in conjunction with the two-bulb
21 configuration.

22 A lot more detail needs to be presented as to how that combination
23 would take place using a two-bulb configuration than merely identifying that
24 Gotou had the ability to have a two-bulb configuration. There were two
25 conventional bulbs that operate very differently than taking an LED array,
26 and then, trying to figure out which of the two bulbs the LED array goes

1 into, and how does that map to the functionality that it's trying to import
2 from Karlsson?

3 All of those proofs are missing from Petitioner's statement of that
4 combination.

5 Next, we would like to turn to the Beam reference. Slide 28, please.

6 As the Beam reference repeatedly repeats, Beam operates at max
7 intensity at all times. Beam provides a simple substitution that maximizes
8 illumination everywhere it can, foreclosing the possibility of increasing light
9 in any direction.

10 Petitioner relies on extrinsic evidence to rewrite Beam. But Beam is
11 very clear as to how it functions, and further, in Exhibit 1036, paragraph
12 130, that Beam is capable of lighting curves. Belatedly and impermissibly,
13 Petitioner adds a new spatial light modulator argument with not one line in
14 the petition regarding how the use of an SLM with an LED allegedly
15 achieves control of angular emission.

16 Under the *Colas Solutions v. Blacklidge Emulsions* case, a new
17 obviousness theory that is presented for the first time in the reply is both
18 untimely and impermissible. Even if there is a consideration of this
19 untimely argument regarding the SLMs and the addition of the SLMs to an
20 LED, SLM control is binary, as the Karlsson reference itself explains, with
21 one two states -- one being a blocking state and the second being a
22 transmissive state.

23 Microbeams that would glare don't exit and are part of the blocking
24 aspect. They are blanked. In the transmissive state, there's only one angle
25 of emission that would be outputted, and thus, there is not the control of

1 angular emission that Petitioner seeks to view within the Beam reference
2 through this SLM argument.

3 Turning next to motivation to combine, Exhibit 1036, paragraph 130,
4 Petitioner also fails to explain why a POSA would add the Kobayashi
5 reference to Beam, when Dr. Jiao admits that Beam is able to illuminate
6 curves, providing no explanation for why a person of ordinary skill in the art
7 would modify, or need to modify, the Beam reference when it operates at
8 maximum intensity at all times.

9 Next, we'd like to turn to the dependent claims, and specifically,
10 Dependent Claim 9.

11 As we raised in our response, Limitation 9.6 was missing from
12 Petitioner's proofs, again, to the style of the petition that was presented,
13 which argued claims through analogy and a variety of conclusory assertions.
14 We identified in our response that Limitation 9.6 was missing completely
15 from their proofs. In their reply, what Petitioner chose to do was copy the
16 exact same set of proofs from the petition into the reply; hence, failing to
17 identify where the specific 9.6 element existed in the prior art. This
18 constitutes the statutory failure of proof under 37 CFR Rule 104, once again,
19 because a petitioner has to, through the petition, identify where each element
20 of the claim is found in the prior art. To this day, there is no proofs with
21 respect to Limitation 9.6.

22 Slide 58, please.

23 JUDGE MELVIN: And that is the control based on a non-camera
24 sensor?

25 MS. SHAH: Yes.

1 JUDGE MELVIN: And the dispute is that you say that the control
2 has to be to diminish glare to another driver, and Petitioner says it need not
3 be, right?

4 MS. SHAH: Right.

5 JUDGE MELVIN: It's a claim construction dispute?

6 MS. SHAH: If it was a claim construction dispute, again, it was
7 something that Petitioner would have to have raised. It was not. Again,
8 there is no briefing as to 9.6 on its face.

9 JUDGE MELVIN: You, as Patent Owner, may raise a claim
10 construction dispute in the Patent Owner response, right?

11 MS. SHAH: So, because there was no briefing at all with respect to
12 this issue, we found it to be an issue of lack of proofs, fundamentally. So,
13 did not continue to go down, then, the issue of claim construction. But, yes,
14 had there been an argument as to the meaning of 9.6, we certainly would
15 have raised what we thought the appropriate construction should have been.

16 JUDGE MELVIN: Are you saying, if a petitioner doesn't offer a
17 claim construction, then it's enough for patent owner to simply say, "That's
18 it. You should have construed it."?

19 MS. SHAH: No, I'm saying here there was no mapping at all to
20 Limitation 9.6. There's nothing. There was no mention of any proofs within
21 the prior art that mapped to Limitation 9.6, because they mapped in this sort
22 of analogy form. And as a result, there is a failure of proof, just a
23 fundamental failure of proof, for lack of mapping anything to 9.6,
24 specifically.

25 Turning to slide 58, the same issue applies, but with respect to Claims
26 21 and 32, which were mapped to Claim 10, these claims, once again, were

1 not addressed in their entirety. They have different language. That different
2 language is not subject to be conflated; and hence, Petitioner's failure to
3 address these claims outright constitutes, once again, failure to meet their
4 statutory proof requirements under 37 CFR Rule 104.

5 And finally, turning to the issue of the Motion to Exclude, Dr. Turk is
6 indisputably a person of ordinary skill in the art with his 25 years of
7 experience in imaging and sensing.

8 Petitioner argues that Patent Owner waived its ability to contest the
9 person of ordinary skill level using *Kyocera* as its primary vehicle. The facts
10 of *Kyocera*, however, do not support this conclusion, because in *Kyocera*
11 there was no contest. The Patent Owner never contested the POSA level
12 during the context of the trial. That is absolutely not the case here.

13 Here, if you take a look at the facts that preceded, we started off with
14 the Patent Owner and the Petitioner raised two different POSA levels. The
15 Board, specifically, requested us to identify, to the extent there was a
16 difference, why that mattered.

17 As we went through our deposition testimony, Dr. Jiao repeatedly
18 indicated that, in the context of his case industry experience, as well as
19 classes that he conducted, that automotive lighting and lighting controls
20 constitutes and includes the specific imaging and optics experience that we
21 identified in our separate POSA level standard.

22 JUDGE MELVIN: Well, wait. You're relying on a separate level of
23 skill from the preliminary response?

24 MS. SHAH: No. I'm just identifying kind of sequentially what
25 happened. We, clearly, had two different standards when we began.

26 JUDGE MELVIN: In the Patent Owner response --

1 MS. SHAH: Yes.

2 JUDGE MELVIN: -- you expressly stated you don't dispute
3 Petitioner's level.

4 MS. SHAH: That's correct.

5 JUDGE MELVIN: Okay. And as support, you cited the petition,
6 right, for what that level of skill is, presumably?

7 MS. SHAH: I would have to go back and check, but I presume that's
8 the case, yes.

9 JUDGE MELVIN: Okay. So, it seems that you agree with the
10 language of Petitioner's proposed level of skill?

11 MS. SHAH: Yes. So, this is the part that I wanted to clarify. As we
12 confirmed the language of Petitioner's ordinary skill level, right, the two
13 years of automotive lighting experience and lighting controls, as we delved
14 into that, it became clear to us that the interpretation that Dr. Jiao was giving
15 to automotive lighting and lighting control experience actually included
16 optical imaging experience and sensing experience.

17 He, specifically, talked about the relationship of imaging, sensing, and
18 optics to automotive lighting and lighting control experience. He talked
19 about it in the context of SAE classes that he conducted. He talked about it
20 in the context of his industry experience, where he has an optical controls
21 team. He has a separate team that actually manages the lighting controls and
22 what's involved with respect to optics and imaging and sensing, in all three
23 areas.

24 And so, based on the information we received, it was our
25 confirmation, then, that their standard was actually broader than ours. And

1 so, there was no need for us to contest this issue; that we could just agree to
2 Petitioner's standard.

3 It wasn't until the hint that we received from their objections that they
4 objected, then, to Dr. Turk's credentials -- to which we did immediately
5 point out that, if you're talking about the -- there's also a sliding scale in their
6 explanation, right? It's two years of industry experience, coupled with a
7 sliding scale for educational experience that may also be factored in.

8 So, we, specifically, circled back and said -- you know, we sort of
9 raised a flag with respect to the lack of -- it wasn't fully detailed. It was
10 simply an objection, and to which we responded that we didn't think it was
11 appropriate, and we did specifically point out the sliding scale.

12 As fully briefed for the first time on reply, it, then, became clear that
13 they were adopting a very narrow industry-specific definition, which, again,
14 was explained here today; that it includes a whole myriad of different
15 things -- from having to have specific vehicle lighting experience, needing to
16 work for a vehicle headlamp company, needing to design a headlamp. As
17 they pointed out here, this is not a case about designing a headlamp. This is
18 not a case about designing LEDs. This case totally rests on optics, sensing,
19 and the controls associated with getting an input from imaging and
20 sensing -- from sensors and imaging, and then, having really refined optics
21 controlled that provide narrow beam lighting in a variety of ways; in this
22 case, for predictive curve illumination.

23 That is central to the patent. It is central to all the disputes in this
24 matter, and that is precisely what Dr. Turk's experience lies in.

25 So, as soon as it was clear to us that they were importing having this
26 very narrow interpretation of industry experience, we, then, flagged it within

1 the trial, completely in contrast to Kyocera. The trial is still very much
2 active, right? This is the very first opportunity we understood clearly that
3 they were going to import this very narrow interpretation of what automotive
4 lighting control and lighting control experience meant, to which we
5 immediately contested.

6 And not only that, so we explained, right, that optical imaging and
7 sensing very much matters, is very relevant to automotive lighting and
8 lighting controls, and why that means that Dr. Turk qualifies as both an
9 expert and a person of ordinary skill in the art.

10 We also specifically pointed out, which is very relevant here -- if we
11 can turn to this slide, slide 6? You will see here we specifically point to the
12 law that guides. So, under *Kyocera*, there is no waiver, which means there's
13 fundamentally an issue as to what is the appropriate person of ordinary skill
14 level in this case.

15 The Federal Circuit has several different cases that actually address
16 this specific issue: what are the factors that one looks at to be able to discern
17 what an appropriate person of ordinary skill level should be? They are laid
18 out by a variety of cases, a couple of which are identified here on slide 8.

19 The first is *Daiichi* and the second is this *Best Medical* case, both of
20 which are in our briefings. They specifically talk about looking at a variety
21 of different factors -- from the types of problems encountered in the art; the
22 prior art solutions to those problems, as well as the patent's purpose and the
23 patent's teaching as a whole.

24 Starting with the prior art solutions to the problems, the prior art here,
25 as has been identified, is talking about identifying glare solutions, you know,
26 headlights to achieve glare reduction. That is completely about sensing and

1 imaging, to be able to figure out, then, what optics do you apply to your
2 LEDs to avoid glaring situations, once again, which is precisely Dr. Turk's
3 area of expertise.

4 Second, if you take a look at the patent's purpose and patent teachings
5 as a whole, you have the exact same -- the patent specifically talks about the
6 role of -- and what is specifically involved with this patent is the ability to
7 take LEDs; have a very narrow -- to take the ability of an LED to have
8 specifically aimable and dimmable characteristics which can, then, be
9 deployed in combination with imaging and sensing to determine how to
10 identify the correct lighting solution in any given instance in real time using
11 LED optics.

12 So, if you take a look at the patent's purpose, the teachings as a whole,
13 and the prior art solutions that were actually relevant at the time, this issue of
14 glare reduction, which we did discuss both in our preliminary response and
15 again in our surreply, they come back to the same issue. Imaging and
16 sensing, as well as optics, are at the core of this case, and that is precisely
17 Dr. Turk's capability.

18 It is irrelevant that he has not worked at a vehicle lighting company.
19 It is irrelevant that he has not designed a headlamp. Those are not
20 requirements of this case. They are not requirements of the guidance that's
21 set forth by the Federal Circuit. And the fact that he doesn't understand or
22 was not able to speak about the Eureka Project, again, not something that is
23 relevant here.

24 The Federal Circuit has laid out a series of different guidelines. At no
25 point is there test about conferences you attend, publications, and knowledge
26 of projects. This is the operative standard, and under the operative standard,

1 Dr. Turk is, without question, both a POSA and an expert on all matters in
2 dispute.

3 What we did want to point out, that through this Motion to Exclude
4 mechanism, Dr. Jiao and Petitioner were given a platform to insert a series
5 of new arguments in the form of what a person of ordinary skill in the art,
6 who is someone allegedly not Dr. Turk, would know.

7 In that context, if we can turn to slide 15, please?

8 You have multiple -- we're going to identify just one -- but you have
9 multiple instances of contradictory evidence that is presented by Petitioner
10 and their expert, Dr. Jiao.

11 Here on slide 15, you'll see, with respect to the meaning of
12 microbeam, in one instance he says that a microbeam source is the LED.
13 This is in the petition. And then, later in the reply, at Exhibit 2018, Dr. Jiao
14 explicitly says that it is no longer, the microbeam is no longer -- sorry -- the
15 microbeam source is no longer the LED; instead, the microbeam consists of
16 the entire system.

17 Now, the emitting device, the LED-emitting device, and the spatial
18 modulator -- this argument was presented for the very first time in the reply,
19 completely contrasting to anything that was said with respect to this in the
20 petition.

21 And moreover, this, then, became sort of the mechanism with which,
22 again, the sort of twofold approach, right? Argument No. 1, that Dr. Turk is
23 not a POSA. Insert brand-new argument here, which is spatial modulars are
24 necessarily part of the microbeam, and then, argue what the function of an
25 SLM is, to allegedly achieve angular control of emission.

1 None of this was presented in the petition. The words "modulator"
2 and "SLM" do not exist in the petition. This is a new and impermissible
3 argument. And as we demonstrated earlier before, it's also an irrelevant
4 argument because the functionality that's ascribed to an SLM is incapable of
5 achieving angular control of emission.

6 So, fundamentally, you have this disconnect, this contradictory
7 testimony that Dr. Jiao presents through the form, like, again, to the
8 mechanism of this Motion to Exclude, which, in our opinion, raises very
9 serious credibility concerns for Dr. Jiao, in contrast to the very balanced,
10 careful, deliberative testimony that Dr. Turk provided, that, oftentimes,
11 Petitioner chose to mischaracterize through truncated quotes and pointing to
12 broad requests for information that Dr. Turk refused to broadly provide
13 testimony in regards to.

14 And so, with that, I'd like to reserve the rest of my time for rebuttal,
15 unless there's any questions.

16 Thank you.

17 MR. FITZSIMMONS: Your Honors, in response here, I'd, first, like
18 to note that what you just heard for the Gotou and Karlsson grounds from
19 the Patent Owner is that Gotou satisfies the predictive curve illumination
20 elements in this claim, and that the only thing missing is LEDs. They
21 acknowledge that, right? That's what Karlsson has.

22 On Karlsson, three points, perhaps four.

23 The first is that we addressed Dr. Jiao's statement in this other
24 proceeding on our case-in-chief here in the -318 IPR. I want to correct the
25 record. I believe Patent Owner said that that was for the same patent. I want

1 to make clear that's a very different patent, again, a different proceeding,
2 different claims. We already addressed that.

3 The next point is on slide 31 here with respect to how Karlsson
4 operates. On the right here, as the institution decision noted, this was Patent
5 Owner's argument in their preliminary response about how Karlsson
6 operated. They acknowledge that Karlsson's beam shift 50, that box, and the
7 shift in its shape, in its dimension, depending on the desired beam pattern.
8 They've now changed their tune to try to say that Karlsson has all of its
9 LEDs on, in order to try to make an argument against the combination here.

10 On slide 39, the Patent Owner also raised the Flaaten reference. This
11 is a reference that the Patent Owner brought into the proceeding. It is cited
12 in the Karlsson reference. Now, the Flaaten reference actually proves
13 Petitioner's point. The Flaaten reference here on slide 39, it has these more
14 traditional incandescent lights, and what Flaaten describes is that its
15 headlamps, these bulbs, they can, at page 5, line 27, of the Flaaten reference,
16 it says that the angular setting may be adjustable either manually or
17 automatically; an adjustment may be controlled by the light-sensitive sensor.

18 So, it has these traditional bulbs you can see there. Figure 6 is a good
19 example. They're going to be shifting their angular setting, as Flaaten
20 describes. Well, the Patent Owner says that the Karlsson is an improvement
21 on, an advancement of, beyond the Flaaten reference. What does Karlsson
22 do? Karlsson uses LEDs. So, the natural progression from traditional
23 incandescent bulbs, for example, in Flaaten, which is very similar to the
24 Gotou reference, to LEDs in Karlsson is right there to see.

1 The Patent Owner also argued that there were a number of challenges
2 with LED headlamps, heat to packaging, et cetera. Now, the '029 patent
3 doesn't purport to solve any of those problems. It just says use LEDs, right?

4 We thoroughly addressed those. They weren't concerns. And Dr.
5 Jiao, for example, in his declaration, Exhibit 1036, paragraphs 33 to 40,
6 addresses these packaging heat issues. They were known, understood, and a
7 person skilled in the art would have understood how to address them. And
8 as we know, there are many references in the prior art with LED headlamps.

9 Turning to Claim 9, which I believe is the only dependent claim that
10 Patent Owner addressed here today -- and so, Claim 9, we can turn to slide
11 73. Now, Claims 9, 20, and 31 all have very similar limitations. Claim 9
12 depends from Claim 8.

13 Now, the Patent Owner alleged that there was no briefing on elements
14 of this claim. I'd like to make very clear that the petition, at pages 88
15 through 90, and the reply, pages 23 through 24, address these claims for the
16 Gotou and Karlsson ground, and the petition, pages 52 to 54, and the reply,
17 pages 31 to 32, address these claims for the Beam and Kobayashi ground.

18 Now, in Claim 9, the Patent Owner here is alleging that the mapped
19 data, as the third data, cannot be used to control the second plurality of
20 LEDs, because they argue that they're not for the -- that this control isn't for
21 the purpose of glare. But if we look at Claim 8, from which Claim 9
22 depends, and also Claim 9 together, what they say, Claim 8 says that the
23 control is based, at least in part, on the position of the vehicle. And we also
24 see that Claim 9 recites that the control is based, at least in part, on third data
25 from this non-camera sensor of the motor vehicle.

1 And so, it doesn't require that the control is to diminish glare, as in
2 Claim 8. Those two things can be coinciding in how the control works. So,
3 if you look --

4 JUDGE MELVIN: Wait. So, you agree that in Claim 8 the control of
5 the second plurality must be to diminish glare to another driver?

6 MR. FITZSIMMONS: That's what Claim 8 recites.

7 JUDGE MELVIN: Okay. Then, why isn't Patent Owner right that
8 Claim 9 refers with antecedent basis to the same control of the second
9 plurality?

10 MR. FITZSIMMONS: It's the control of it. It's not the control for a
11 certain purpose. Like it's just the control of this. So, there's multiple ways
12 you can -- multiple reasons, excuse me, there's multiple reasons, multiple
13 that you can control these LEDs. One of them is to reduce glare.

14 JUDGE MELVIN: But that's the control, to diminish glare, that is
15 claimed in Claim 8, right? So, when Claim 9 refers back to "the control," it's
16 the control to reduce glare. You don't get to take just half of the antecedent
17 basis.

18 MR. FITZSIMMONS: So, I think that it's referring to the control and
19 it also claims both of them, 8 and 9, or, say, at least in part. So, there can be
20 this confluence of both reasons and both inputs, you can say, that from the
21 sensors, to reduce glare, and from the GPS, the non-camera sensors in order
22 to control --

23 JUDGE MELVIN: Are you saying -- now let me make sure I
24 understand -- you're saying that, based, at least in part on, limits or modifies
25 the purpose of "to diminish glare"? It doesn't say it's --

26 MR. FITZSIMMONS: It modifies the control aspect.

1 JUDGE MELVIN: Well, it doesn't say -- this is Claim 8 --

2 MR. FITZSIMMONS: Mm-hmm.

3 JUDGE MELVIN: It does not say a control based, in part, to
4 diminish glare. It says, based in part on position, right? So, to the extent
5 that "based at least in part on" does any work, it seems to me that it's saying,
6 well, it has to have something to do with position, and that is Claim 8's
7 recitation, right? But it's not clear that, "based at least in part" has any effect
8 on the purpose of the control in Claim 8.

9 MR. FITZSIMMONS: I would disagree with that, then, Your Honor.
10 And, you know, our position is that, "based at least in part" means that there
11 can be other things that it is based on that control. The control can be based
12 on wanting to reduce glare. The control can be, as in Claim 9, based on the
13 non-camera sensor. Again, that's our position.

14 JUDGE MELVIN: Okay. But you agree this is a claim construction
15 dispute?

16 MR. FITZSIMMONS: I believe, essentially, it is, yes, Your Honor.

17 JUDGE MELVIN: Okay.

18 MR. FITZSIMMONS: And how the person skilled in the art would
19 interpret that claim.

20 JUDGE MELVIN: Sure.

21 MR. FITZSIMMONS: The final points I'll make here are with respect
22 to the Motion to Exclude. Patent Owner said that there were lots of things
23 that didn't matter; that it didn't matter Dr. Turk didn't know of the Eureka
24 Project, the foremost seminal project probably in this field. They said it
25 doesn't matter that he didn't work at a vehicle lighting company.

1 It does matter. All of that is evidence of what his level of skill is and
2 whether or not he is a person of ordinary skill.

3 They also mentioned this sliding scale --

4 JUDGE MELVIN: Well, does the person of ordinary skill require
5 such knowledge or experience? I mean, it requires certain experience, right?

6 MR. FITZSIMMONS: Correct. It requires industry experience in
7 automotive lighting and lighting control.

8 JUDGE MELVIN: And isn't Patent Owner's position that Dr. Turk
9 has such experience through his work on the control and imaging systems
10 related to automotive imaging?

11 MR. FITZSIMMONS: Automotive imaging, that's not automotive
12 lighting and lighting control systems. It's just, plain and simple, not. It
13 doesn't meet the definition. It aligns directly with *Kyocera*, where the expert
14 had a tangential line of experience, but not the required one in that case.

15 That case also had this sliding scale, the *Kyocera* case, and they still
16 found that the proffered expert didn't meet the person of ordinary skill
17 standard.

18 This case is about automotive lighting, and Dr. Turk has no
19 automotive lighting and lighting control experience, plain and simple.

20 Unless Your Honors have any further questions, I'll give back the rest
21 of my time.

22 JUDGE MELVIN: All right. Thank you.

23 MR. FITZSIMMONS: Thank you, Your Honors.

24 MR. TOMSA: Your Honors, may it please the Court, my name is
25 Bernard Tomsa, presenting on behalf of Patent Owner Evan Spero.

26 There are several points we would like to address on rebuttal.

1 Your Honors, first, I would like to begin with a discussion of Claim 9.
2 The limitation my co-counsel pointed out was Limitation 9.6. That's a
3 different limitation, Your Honor, than the one that was just discussed by
4 opposing counsel.

5 Limitation 9.6 is a recitation that the control of the -- the first and the
6 second control be subsequent and accommodative of the other. At no point
7 anywhere in the petition, and at no point anywhere in the reply, did
8 Petitioner ever address this limitation. If you look at the enumerated
9 elements of the claim in the petition and the reply, you will never see a
10 recitation to Limitation 9.6.

11 We are, additionally, contesting the second control point, but this is an
12 abject failure of proof which Petitioner absolutely failed to provide.

13 JUDGE MELVIN: Wait. I'm maybe a little confused. The petition,
14 page 90, does identify Limitation 9.6, right?

15 MR. TOMSA: I apologize, Your Honor. It will take me a second to
16 get that.

17 MS. SHAH: Just one second. There's a technical issue.

18 MR. TOMSA: It identifies it, if I recall, Your Honor. Let's see.

19 Well, it addresses Limitation 9.6, but it says, "Regarding the
20 additional alternate properties of the position, the one determinant associated
21 with the other vehicle, Karlsson's device automatically varies a pattern of
22 emitted light."

23 As we pointed out in our response, Your Honor, while it put the
24 number 9.6 next to that, that's actually a different element, right? Limitation
25 9.6 is a discussion of whether one or the other of first and second control is
26 subsequent to and accommodative of the other.

1 So, if you go to page 90 of the petition, you see that there's absolutely
2 no discussion or contemplation of either types of control being subsequent or
3 accommodative of the other. So, they're arguing, unfortunately, a different
4 limitation that they misnumbered as Limitation 9.6.

5 JUDGE MELVIN: Okay. The 9.6 is a typo?

6 MR. TOMSA: That's correct, Your Honor. But, in light of the fact
7 that it's a typo, Your Honor, there is no other callout to Limitation 9.6, and
8 therefore, the proof is simply deficient in this regard.

9 JUDGE MELVIN: Right. And as I understand your position,
10 Petitioner didn't do anything in the reply on this?

11 MR. TOMSA: That's correct.

12 JUDGE MELVIN: Okay.

13 MR. TOMSA: Instead, they resumed arguing the same position,
14 contending the discussion of --

15 JUDGE MELVIN: So, you have two arguments for Claim 9?

16 MR. TOMSA: That's correct, Your Honor.

17 JUDGE MELVIN: Got it.

18 MR. TOMSA: With regards to the control limitation, Your Honor, we
19 do take the position that, when it says, "the control" -- or when it says,
20 "control" in Claim 8, it says, "control for reducing glare," and that it is
21 "based, at least in part, on" certain things. But the function of the control is
22 control for reducing glare. And thus, when Claim 9 says, "the control of the
23 second set of LEDs," it is referencing the same control with the same
24 purpose, right? It is simply saying that it may be based on different things in
25 Claim 9. It never strays from its explanation of what that purpose of that
26 control is.

1 Another point we'd like to address on rebuttal, Your Honor, is the
2 discussion of Figure 14 in Karlsson. We believe it's an open question what
3 the words "optimum illumination" mean in Karlsson. Karlsson provides
4 very little guidance on the issue. As you saw from Petitioner's presentation,
5 a number of extrinsic evidence references were made by Petitioner.

6 If you can pull up Petitioner's slide 5?

7 MR. FITZSIMMONS: Your Honors, may I object? I didn't discuss
8 Figure 14 on my rebuttal, and Patent Owner is limited to responding to the
9 arguments made in our rebuttal.

10 JUDGE MELVIN: Okay. Okay, okay. So, you can raise an
11 objection after the hearing. Okay?

12 MR. FITZSIMMONS: Thank you, Your Honor.

13 MR. TURNER: What slide?

14 MR. TOMSA: Slide 5.

15 In any event, Your Honors, Petitioner attempted to contextualize
16 Karlsson with reference to a number of extrinsic references. You'll recall
17 they showed the picture with fields and roads not being illuminated and the
18 curve being lit, but that wasn't from Karlsson or in the record.

19 They had to turn to extrinsic evidence to even understand what
20 Karlsson might mean by "optimal illumination." We, in the same way, look
21 to extrinsic evidence, but the first evidence we looked to was within the
22 record of a co-pending IPR petition.

23 And the point I want to address here is what Petitioner said in rebuttal.
24 They said it was a different patent in a different case. That was not our
25 point, Your Honor. Our point was it was the same expert opining on the
26 same art, about the same teaching of Figure 14, about the meaning of the

1 same term "optimum." And he defined "optimum" as "maximizing
2 illumination to the greatest extent possible." That's what he said a POSA
3 would understand "optimum" to mean.

4 This is supported by the record, as we showed. It's supported by
5 Karlsson's reference to Flaaten. Flaaten says only remove the glare where it
6 would offend vehicles. Flaaten says it already illuminates curves in
7 roadsides. Flaaten says it wants to illuminate the areas to the greatest extent
8 possible.

9 It is their expert testimony that led us to this conclusion. We agree
10 with their expert that it would illuminate the area to the greatest extent
11 possible and it would maximally do so. They cannot simply walk these
12 statements back because it's now inconvenient for the explanation they wish
13 to present.

14 Next, Your Honor, I'd like to discuss the concepts of SLM, which
15 have again been brought up by Petitioner as potential combinations in the
16 prior art.

17 There is no mention of SLMs or modulators anywhere in the petition,
18 except for a single time in reference to Beam in Claim 10. The words
19 "spatial light modulator" does not appear anywhere. The word "modulator"
20 does not appear anywhere. At no point did Petitioner take the position that
21 spatial light modulators or modulators were being used to control any
22 emission from the LED arrays.

23 Instead, Petitioner repeatedly contended that it was control over
24 directional LEDs and control over LEDs that was being advanced, which
25 comports with a claim limitation that requires control of the light sources.
26 Any new construction is outside the bounds of the original petition, and

1 further, it no longer meets the claim limitation, as it would no longer be
2 control of the light sources.

3 As you can see from our Claim 10, control of the light sources is
4 expressly distinguished from control of light from the sources, which is what
5 Claim 10 recites. Therefore, if Petitioner's contention is that SLMs
6 demonstrate angular control of the light, they are no longer proving control
7 of the light sources.

8 Finally, Your Honors, I'd like to address the person of ordinary skill
9 argument. One of our primary points, Your Honors, and the reason this
10 became a point of contention, is that, when Petitioner began discussing the
11 person of ordinary skill, somehow they only managed to cite paragraph 41 of
12 the three-paragraph explanation of a person of ordinary skill.

13 If you could pull up the POSA definition? Thank you.

14 So, Your Honors, yes, in paragraph 41, it does say that you would
15 need two years of industry experience in automotive and lighting control. It
16 also says that the POSA may work as part of a team of computer engineers
17 to integrate and program controllers. Well, the POSA doesn't carry a team
18 of computer engineers around in his pocket. So, this must be relevant
19 experience for a POSA to have.

20 Furthermore, it went on to say that experience could take the place of
21 some formal training or education or higher skill may make up for less
22 experience. Dr. Turk has a PhD. He has 20 years of optical control
23 experience. He has a master's in electrical engineering. All of this was
24 ignored by this myopic focus on this one particular little portion of
25 paragraph 41. And that is why we began to contest their definition of

1 POSA, because they began applying it in a way that was inconsistent with
2 their originally advanced position.

3 So, then, we raised our objections. Then, we said, "This is not what
4 you stated as your definition of POSA." It is our belief that, under the full
5 definition of a POSA, as understood in the context of their entire
6 explanation, Dr. Turk would absolutely qualify. Moreover, his sensing
7 experience is unquestionably relevant to the claims at issue, as all of these
8 claims relate to control of light. It is not simply building a lamp, Your
9 Honors, and having it illuminate something. It is sensing data to control
10 light. It is central to the question of how that light control is achieved to
11 understand how that data is received and processed.

12 And so, to exclude a person who has 20 years of expertise in sensing
13 because he doesn't meet one-half of one sentence of a qualification in a two-
14 paragraph POSA standard, we think would be an absolute abuse of
15 discretion, Your Honor.

16 JUDGE MELVIN: Okay.

17 MR. TOMSA: If the panel has no questions, we rest.

18 JUDGE MELVIN: No further questions. Thank you.

19 With that --

20 MR. FITZSIMMONS: Your Honors, would this be an appropriate
21 time to raise objections?

22 JUDGE MELVIN: You may. Go ahead.

23 MR. FITZSIMMONS: I just wanted to object to the new argument
24 here in Figure 14, wholly new argument on the spatial light modulators
25 there. It wasn't in response to anything that we said.

26 JUDGE MELVIN: Okay. Understood.

1 Nothing further. So, the hearing is concluded. The case is submitted.
2 Thank you for your time this morning. We appreciate your presentations.
3 We can go off the record.
4 (Whereupon, the above-entitled matter went off the record at 11:53
5 a.m.)

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