

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CAMBRIDGE INDUSTRIES USA, INC.,
Petitioner,

v.

APPLIED OPTOELECTRONICS, INC.,
Patent Owner.

IPR2025-00437
Patent 10,788,690 B2

Record of Oral Argument
Held: June 4, 2026

Before CHRISTOPHER G. PAULRAJ, MONICA S. ULLAGADDI, and
IFTIKHAR AHMED, *Administrative Patent Judges*.

APPEARANCES:

ON BEHALF OF THE PETITIONER:

NICOLA PISANO, ESQ.
REGIS WORLEY, JR., ESQ.
COZEN O'CONNOR
501 West Broadway
Suite 1610
San Diego, California 92101
(619) 685-1714 (Pisano)
(619) 685-1717 (Worley)
npisano@cozen.com
rworley@cozen.com

ANN MARIE GORMAN
NEIL PARK
CAMBRIDGE INDUSTRIES, INC.

ON BEHALF OF THE PATENT OWNER:

JO DALE CAROTHERS, Ph.D., ESQ.
ERIC CALIGIURI, ESQ.
WEINTRAUB TOBIN LAW CORPORATION
San Diego Office
(858) 436-8152
jcarothers@weintraub.com
ecaligiuri@weintraub.com

The above-entitled matter came on for hearing Thursday, June 4, 2026, commencing at 10:00 a.m., at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.

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

(10:11 a.m.)

JUDGE ULLAGADDI: We're on the record. Good morning. We are here today for oral arguments in Inter Partes Review matter number 2025-00437 involving U.S. Patent Number 10,788,690. Cambridge Industries is the Petitioner and Applied Optoelectronics is the Patent Owner. I am Judge Ullagaddi. I'm joined by Judge Paulraj and Judge Ahmed.

I would like to start by getting appearances of counsel. Who do we have on behalf of Petitioner?

MR. PISANO: Good morning. Nick Pisano of Cozen O'Connor. With me today is Regis Worley, my colleague. And on behalf of Cambridge Industries, Inc., is Ms. Ann Marie Gorman and Neil Park (phonetic).

JUDGE ULLAGADDI: Thank you, Counsel.

MS. CAROTHERS: Good morning, Your Honors. Jo Dale Carothers of Weintraub Tobin here on behalf of Patent Owner, Applied Optoelectronics Inc. And with me for Weintraub Tobin is Eric Caligiuri.

JUDGE ULLAGADDI: And does either party plan to discuss anything confidential today? I'll start with you.

MS. CAROTHERS: We do not.

MR. PISANO: No.

JUDGE ULLAGADDI: Thank you. Have the parties filed their demonstratives?

MR. PISANO: Yes.

MS. CAROTHERS: And we will not be using demonstratives, only reference to either their demonstratives or an exhibit if needed.

1 JUDGE ULLAGADDI: Okay. Please remember when referring to
2 the demonstratives to identify what slide number you're on so that we follow
3 along to make the record clear.

4 I would like to remind everyone that recording of this proceeding
5 either by audio or video as set forth in our oral hearing order, each party will
6 have 45 minutes to argue.

7 We will begin by hearing from Petitioner first. Petitioner, who bears
8 burden to show unpatentability of the challenged claims by preponderance
9 of the evidence, will begin by presenting its case in chief. Patent Owner will
10 then respond to Petitioner's arguments, and thereafter Petitioner may use any
11 time that it has reserved for rebuttal to respond to Patent Owner's arguments.
12 Petitioner's rebuttal may not be more than half of the allotted total time.
13 Thereafter, Patent Owner may use any time that it has reserved for so
14 rebuttal to respond to Petitioner's rebuttal.

15 Petitioner's Counsel, would you like to reserve your any time for
16 rebuttal today?

17 MR. PISANO: Yes, ma'am. Let's see. Let's reserve 20 minutes.

18 JUDGE ULLAGADDI: Twenty minutes. So that would be 25
19 minutes for your main case?

20 MR. PISANO: Correct.

21 JUDGE ULLAGADDI: Okay. When you are ready, we invite you to
22 present the remarks.

23 MR. PISANO: Thank you. Your Honor, I have some the exhibit
24 books with demonstratives and some of the exhibits in here. I'd like to pass
25 them up, if I might approach.

1 JUDGE ULLAGADDI: Sure.

2 MR. PISANO: Okay. I guess I'll leave it here for you. I'm having
3 technology failure, but you should have the presentation.

4 (Off the record comments.)

5 JUDGE ULLAGADDI: Hold on just one moment, Counsel. Let's go
6 off the record, please.

7 (Whereupon, the above-entitled matter went off the record at 10:16
8 a.m. and resumed at 10:16 a.m.)

9 JUDGE ULLAGADDI: We're on the record.

10 MR. PISANO: Okay. Can you see the presentation there?

11 JUDGE PAULRAJ: Yes.

12 MR. PISANO: Okay. All right. Fine. Thank you. Again, my
13 name's Nick Pisano, Cozen O'Connor. And the subject is U.S. Patent
14 10,788,690. There are 19 claims in the patent. We challenged all 19.
15 Claims 1 to 10 were directed to opto-isolator array. And so we might as
16 well just get at it.

17 So, Claim 1 of the '690 patent calls for an opto-isolator array, a
18 magnetic base, a plurality of opto-isolators, one adhesive layer, and a
19 mounting surface. And so these are color-coded in Figure 2 here of the '690
20 patent. This description is in the Petition at pages 5 to 6, and the figure's
21 from Exhibit 101, Figure 2.

22 Let's see. Oops. Let's see. Oh, sorry. There we go.

23 So the primary reference that the Petition is relying on is Wang. It's a
24 Chinese patent. It is prior art. There's no dispute about that. It was
25 submitted as Exhibit 1005 in the Chinese version, and for us English

1 speakers, it's also Exhibit 1006. A certified translation was submitted. And
2 the title of Exhibit 1005 and 1006 is "Multichannel Isolator Device."

3 And as you can see, this is Figure 6 of the Chinese patent, it's -- and
4 this is in the Petition, although not color-coded. But, anyway, these figures
5 are in the Petition at pages 2013 and 2021. And what you see is paragraph
6 37 and 44, for example. Other paragraphs are cited, but it shows a
7 multichannel isolator device. It has a substrate in green, that's the thing at
8 the bottom, and you've got a plurality of isolators, which are the -- indicated
9 at 100.

10 Those are made up of the polarizer, Faraday plate, and an analyzer.
11 And then they are -- there's baffles between them, but, in any event, it is
12 sitting on a substrate made of magnetic material, and the isolators 100 are
13 sequentially disposed on the base. And the isolator are -- the isolators 100
14 are bonded to the baffles and the base by means of an adhesive, which is
15 exactly what the claim requires. So --

16 JUDGE ULLAGADDI: Counsel, can I ask a question about these two
17 figures?

18 MR. PISANO: Yes, ma'am.

19 JUDGE ULLAGADDI: It appears that in Figure 6 the baffles are
20 taller than the isolators, and in Figure 2 the baffles are shorter than the
21 isolators. Are these two different embodiments?

22 MR. PISANO: They are two different embodiments, but they are for
23 the -- well, in Figure 2 -- sorry. Figure 2 is from the '690 patent. Figure 6 is
24 from the -- oh, my goodness, I may have to take this down. Figure 6 is from
25 the Chinese patent.

1 JUDGE ULLAGADDI: Okay.

2 MR. PISANO: So, although they look identical, they're not. These
3 figures are from different patents. Hence the anticipation claim here. Which
4 is maybe a reason why Patent Owner did not challenge the invalidity of
5 Claims 1 through 10. So if you line them up here -- now I'm on Slide 5.

6 If you put Figure 2 from the '690 patent on one side and Figure 6,
7 which is the Chinese patent, on the other side, you can see, you know, you're
8 right, the baffles are taller in Figure 2, they're shorter in Figure 6, but that
9 doesn't matter because the claim elements are substrate, which is the bottom
10 202, or the thing that the label says substrate, as called out in paragraph 44
11 of Wang.

12 You've got the adhesive, which is 206 in the '690 patent. And it's
13 described in the text of the Chinese patent. And you have the isolators 100.
14 So, in Figure 6, there's an array of two isolators, in Figure 2 there's an array
15 of four. But there was no other difference in those two devices. So our
16 position is -- let's see.

17 So, that's for figures -- or Claims 1 through 8. When you get to
18 Claims 9 and 10 of the '690 patent, there's a second embodiment. And in
19 that embodiment, there's also a magnetic piece that is sitting on top of the
20 isolators. So, Figure 7, again, is the '690 patent. And that shows this top
21 portion 203. And Figure 12 is from the Chinese patent. And that shows,
22 again, a top portion.

23 And in the '690 patent, on the left-hand side of the figure, it says
24 second magnetic base 203. And the reason why you got that is you want an
25 annular magnetic field going through the opto-isolator. And, for the same

1 purpose, on the right-hand side in the Chinese patent, you see paragraph 48,
2 substrate further includes a top plate 313 disposed on top of the isolators to
3 obtain an annular magnetic field.

4 In other words, there's -- it's magnetic all the way around, generating
5 an annular field through the opto-isolators. So we believe that anticipates
6 Claims 9 and 10 of the '690 patent.

7 So, I think -- Patent Owner did not mount a defense and said it was up
8 to us to prove it. I think this is anticipatory. Based on the description of the
9 Chinese patent and the '690 patent, all the claimed elements there, they line
10 up, the pictures are virtually identical. So I think that takes care of Claims 1
11 to 10.

12 Now we get the Claim 11. And Claim 11 of the '690 patent is
13 basically the use of the device of Claims 1 to 10 in its intended -- for its
14 intended purpose. Which is, you have an array of opto-isolators here and if
15 you look at -- this is Figure 1 and the claim requires a transceiver housing,
16 which actually isn't identified in the patent. But anyway, passing that.

17 And then we have an optical transmitter subassembly, a TOSA. And
18 that is this little box here. I don't know if you can see it. That's this little
19 box there. That's the TOSA. And then it's -- you have a substrate defined by
20 a mounting surface. Not clear whether that's the same mounting surface as
21 the magnetic substrate, but let's assume it is. You've got -- well, no, it is.

22 You've got opto-isolator array, which is this -- there's 127. You can
23 see it here. That's the opto-isolator array. You've got a plurality of laser
24 diodes 110, and that's these four guys lined up here because this is a four-
25 channel TOSA device or four-channel transceiver. You've got this magnetic

1 base, which is what everything is sitting on. And it says multi-channel
2 TOSA.

3 And then you have an optical receiver subassembly, which is the blue
4 part. So the transmitter assembly is what's sending the outbound signal.
5 The receiver assembly is what's receiving the inbound signal.

6 And, just by way of explanation, you have an optical fiber coming in
7 here. You've got four channels of different wavelengths that are multiplexed
8 on the optical fiber. They come in, they go through this photodiode array. It
9 goes to an amplifier then it goes back to the computer, gets worked on, it
10 comes back to the computer to the transmit circuit. It goes to the -- the
11 lasers, which then go through a focusing lens, onto the opto-isolator, the
12 AWG, which is an arrayed waveguide grating multiplexer.

13 And that puts all of the four signals back together and it sends it out
14 on this line 120, which says, $\lambda-1$, $\lambda-4$. That's your multiplexed
15 four wavelengths going up.

16 So that is what Claim 11 requires. Now, if you go back to what the
17 previous claim had, you've got an array of opto-isolators, you've got all this -
18 - all the other components are there. So what you are now looking for is --
19 are these other components.

20 First of all, is this in a transmitting optical subassembly? Yes,
21 because it's for the outbound signal. That's why we have the opto-isolators.
22 Secondly, is it part of a ROSA? So the idea of having a transceiver that has
23 both a ROSA and TOSA is well known -- was well known in the art and is
24 described, for example, in the '690 patent, which is Exhibit 1001. It's
25 described at lines 30 -- 29 to 37. And it describes what the components of

1 an optical transceiver are.

2 It describes that it has TOSA with multiple -- with a plurality of laser
3 diodes. It has these -- it has the multiplexer, it would have an isolator. And
4 also in that box it connects with the receiving component.

5 So if you look at Xiong -- and Xiong was cited. There's some
6 differences opinion here. But the purpose of citing Xiong, and the only
7 figure that is cited out of Xiong, is this prior art Figure 1.

8 And so the background, Xiong, generally, like the '690 patent
9 describes what is in -- what is in an optical transceiver. So it says an optical
10 transceiver is commonly used in optical networks. In general, it includes a
11 transmitting optical subassembly, a laser chip, and a receiving optical
12 subassembly. And then there's a -- typically it includes a spot size converter
13 120, that's that guy, and an isolator 140.

14 So Xiong basically says, here's how you have -- you have a part of a
15 TOSA, which is the signal from the laser chip, through a spot size converter,
16 to the isolator, to the multiplexer, and out. And, basically, what a person of
17 skill in the art would understand from looking at Xiong is a couple things,
18 just as described in the patent. That you have had -- and I mean the '690
19 patent. That you have to have a laser chip; it's got to be on something; it's
20 got to be focused on the opto-isolator. It can't work -- the laser can't be
21 pointing off in space in various directions.

22 And the reason we mount them on something is to keep them in that
23 alignment. So, now you've got to Wang. And Wang, of course, as we
24 already described, paragraphs 37, 39. And as Patent Owner admits in their
25 Patent Owner's Response, at 5, Wang discloses a multi-channel opto-isolator

1 array. And what a person of skill in the art would understand from multi-
2 channel is there are multiple channels, which means there are multiple
3 channels of different wavelengths that are getting multiplexed together so it
4 can go back out on the optical fiber.

5 And so you will have a plurality of isolators 100 in an array. They're
6 on our substrate. The substrate is made of magnetic material. So this is
7 basically -- and as we described in Claims 1 to 10, this is the opto-isolator
8 that is described in the '690 patent. And you want to do is take it and use it
9 for its normal purpose. So, as explained in, for example, *KSR v. Teleflex*.
10 Arranging old elements with each performing the same function that had
11 been -- they had been known to perform, you would know more than one
12 would expect, is obvious. That's a -- that's *KSR v. Teleflex*, 550 U.S. 398 at
13 417 citing *Sakraida vs. Ag Pro*, 425 U.S. 273 (1976). This is old,
14 established law.

15 So, again, we will just go here, say -- we'll just cite a couple cases.
16 The MPEP, for example. The focus one may make in the determination of
17 obviousness should be on what a person already of skill in the pertinent art
18 would've known at the relevant time, and on what such a person would've
19 reasonably expected to have been able to do in view of that knowledge. So
20 this is -- so, regardless whether the source of knowledge or ability was
21 documentary prior art, general knowledge in the art, or common sense.

22 So I just want to -- I'll just go to the next. A person of skill in the art
23 is also a person of ordinary creativity and not an automaton. So it is within
24 the skill of one in the art to, when looking at the Wang device, to say, okay, I
25 have an opto-isolator here with multiple opto-isolators because it's a multi-

1 channel device. So what am I going to use with that? I'm going to use
2 multiple lasers and I'm going to put it in a TOSA and/or in a ROSA
3 arrangement.

4 JUDGE ULLAGADDI: Counsel, I have a question about that.

5 MR. PISANO: Yes, ma'am.

6 JUDGE ULLAGADDI: So, Claim 11 recites a plurality of laser
7 diodes mounting to at least one mounting surface, each laser diode of the
8 plurality to admit a different associated channel wavelength. Which
9 reference teaches those plurality of laser diodes?

10 MR. PISANO: Well, I would say at least the '690 does in the
11 background of the invention.

12 JUDGE ULLAGADDI: But is that part of the challenge that's in the
13 Petition?

14 MR. PISANO: I believe it is, Your Honor. Because I think what we
15 specifically cite to this portion of the '690 patent, and I can look it up and tell
16 you where. But in paragraph 29 to 35, say, and if you look at -- and this is
17 what I have on the screen right now. For example, some approaches to
18 transmittal of optical assemblies include a plurality of laser diodes,
19 including, for example, laser diode focus lens, multiplexing device for
20 combining multiple wavelengths from each of a plurality of laser
21 arrangements in a single housing. Each component --

22 JUDGE ULLAGADDI: The question I'm asking there is not what the
23 '690 patent background says, but do the challenges rely on applicant-
24 admitted prior art?

25 MR. PISANO: We believe it does, Your Honor. Because if you look

1 at the Petition at page -- we are at page 3 of the Petition. We specifically
2 cite, optical transceivers generally include optical subassembly modules
3 such as the TOSA and ROSA. See Exhibit 1 at 29 to 35.

4 So we do point to the part right there. And just continuing what that
5 portion of the patent says is, each component must be securely attached and
6 mounted. It -- sorry, excuse me. Each component must be securely
7 attached and optically aligned with the associated optical component. And
8 then it says that presents a significant challenge. But that challenge is
9 overcome by Wang, which has all of the opto-isolators attached to a single
10 base.

11 So, respectfully, I do think that that prior art is how -- or that admitted
12 prior art is part of what is cited in the Petition. Now --

13 JUDGE ULLAGADDI: Well, in the Petition, on page 28, for an
14 element 11E, it says, Xiong discloses the TOSA includes a number of laser
15 diodes, each designed to emit to a different associated channel wavelength
16 along a light path -- of a number of light paths.

17 MR. PISANO: Yes, Your Honor.

18 JUDGE ULLAGADDI: So is it the '690 patent background we're
19 relying on, Petitioner is relying on, or is it Xiong, or is it I think in the reply
20 --

21 MR. PISANO: It's also Wang.

22 JUDGE ULLAGADDI: Wang also, in the reply it says that Wang --
23 Xiong teaches all the elements recited in Claim 11, which plainly must be
24 replicated for multiple channels to employ the array of opto-isolators. That's
25 on Petitioner's reply 7.

1 MR. PISANO: Right.

2 JUDGE ULLAGADDI: So I'm hearing three different positions. I'm
3 not clear on what specifically of the three that Petitioner's challenge relies
4 on.

5 MR. PISANO: Okay. So I believe, Your Honor, we rely upon the
6 background, the admitted prior art, which we cite in the Petition of the '690
7 patent, which talks about multichannel TOSAs and ROSAs, talks about
8 having a plurality of laser diodes mounted on something and pointing at the
9 opto-isolators.

10 We have Xiong, the only picture of which is cited is Figure 1, which
11 is the prior art, which shows you have to have a laser diode spot size
12 converter, an isolator, they align, they must be mounted on something, or it
13 doesn't -- or it doesn't work. Wang describes a multi-channel opto-isolator.
14 So, putting apart Xiong's -- you know, if there's a slight error, whether it's
15 one or multiple lasers, the replication of Wang is to take this arrangement
16 right here, where you've got a laser chip, spot size converter, isolator, and
17 you replicate that.

18 You multiply it times four -- actually, you don't need -- this part, you
19 multiply times four, and you align it -- or three or however many you want --
20 and you align it with the opto-isolator array of the -- of Wang, okay? So you
21 have Wang, which has a -- which is a multi-channel opto-isolator, a person
22 of skill in the art knows, based from the background of the '690 patent and
23 also from Wang, itself a multi-channel array. There are multiple lasers.
24 You simply need to align them and point them at the opto-isolator.

25 And there's a lot of discussion in the Patent Owner's reply regarding,

1 well, you can't really use the spot size converter of Xiong. Well, you don't
2 need the spot size converter of Xiong. It's irrelevant.

3 And, in fact, what they did in the '690 patent, in Figure 6, is they just
4 use a spot size converter 205 just like in the prior art with Xiong. You don't
5 have to, you know, modify Xiong. The point of pointing to Xiong is that it
6 shows that things have to be mounted, they have to be aligned, otherwise it
7 doesn't work. And so --

8 JUDGE ULLAGADDI: Does it show that it has to be aligned when
9 there's only one in Xiong?

10 MR. PISANO: Excuse me, ma'am. This thing is aligned. Right here.
11 These are aligned. These do not work if this is not aligned. You have a
12 laser, the spot-size converter. The spot size converter narrows the beam so it
13 hits the isolator. If this is not aligned, it can't work. If it's pointing out in
14 space, it simply can't work.

15 JUDGE ULLAGADDI: So then it says in the claim -- okay.

16 (Simultaneous speaking.)

17 JUDGE AHMED: So, Counsel, the explanation that you gave about
18 how this combination works, where is that in your papers? It's either in the
19 Petition or the reply. What do we look to to find that explanation of how --
20 you gave a good explanation how everything would come together. But
21 where do we find that in your papers? Because that's what we have to rely
22 on to make our decision.

23 MR. PISANO: Sure. In the Petition -- is this in the original Petition
24 or the reply? This is the reply. We cite the same portion of the '690 patent
25 describing how all these things are aligned, both in the Petition and in the

1 reply at pages 6 to 7.

2 Again, we cite to Exhibit 1001, 29 to 35. And we're also relying upon
3 the skill of a person of ordinary skill in the art. Xiong, as I said -- they have
4 an issue with Xiong. You actually could make Xiong work in this, but it is
5 not -- it's not necessary. The point we're relying on, these components, the
6 laser chip, the spot size converter, the isolator, they have to be mounted to
7 something. They can't be floating in space.

8 And you don't need to use the spot size converter of Xiong. As a
9 matter of fact, a person of skill in the art would say, the only thing I need to
10 look at for Xiong is, I know I have lasers, I know I have spot size converters,
11 and I -- and I'm now going to point these to a multichannel isolator that has
12 multiple channels through which the light can be processed.

13 So -- what? Oh, my colleague would like me to point out that the -- in
14 the background, it says, each component of TOSA must be securely attached
15 and optically aligned with the other associated optical components. This is in
16 the section that I just cited, 29 to 35. It's cited in the Petition, it's cited in the
17 reply. Otherwise, it won't work.

18 And everyone -- I mean, not everyone. People of skill in the art
19 understand a multichannel optic device is multiple channels of different
20 wavelengths. We could not have a multichannel device with everything
21 operating at the same wavelength because they would all interfere with one
22 another. So the wavelengths have to be different. And this is established --
23 this is also mentioned in the background. And so, again --

24 JUDGE AHMED: And to the extent that you rely on the background
25 of the '690 patent, it sounds like Patent Owner points us to the memo from

1 the Director last July, which tells us that we cannot use applicant-admitted
2 prior art to supply a missing claim limitation.

3 MR. PISANO: Right.

4 JUDGE AHMED: I don't know if you've got that citation. How do
5 you respond to that?

6 MR. PISANO: It doesn't apply because that only applies for IPRs
7 filed on and after September 2025, I think. But ours was filed much earlier.
8 It doesn't -- by its own terms, it does not apply. As matter of fact, I deal
9 with that in the last slide. But also, with all due respect to the Director, you
10 know, you have to apply the law of the land. And *KSR v. Teleflex* is the law
11 of the land, it's from the Supreme Court, with all due respect to the Director.

12 Which means you have to use common sense. You have a device,
13 described in Claims 1 to 10, claiming the method of using that device
14 exactly as a person of skill in the art would understand is completely
15 reasonable.

16 So, again, just I'll wrap that quickly here. Claims are obvious over
17 Wang in view of Xiong, or in view of the background. But Xiong has
18 elements, they're aligned, that's how it works. It doesn't work otherwise.
19 The title of Wang is multichannel optical devices. We point out repeatedly
20 in the Petition, at 10, and 11 and elsewhere, that a POSITA would have
21 understood that the prior art transceiver arrangement requires the
22 components to be mounted on a substrate and aligned. Yes, they have to be.
23 It can't work otherwise.

24 And even Dr. Willner was not willing to say that. As a matter of fact,
25 in his deposition, when he testified, when he was asked those questions, he

1 said, well, other than with -- other than with respect to the '690 patent -- and
2 I don't understand what that meant -- he said, yes, generally, these things
3 have to be aligned in that -- in that way.

4 Let's see. We're having a -- okay. Yeah. Hold on one second. Okay.

5 So, again, Patent Owner says Xiong does not disclose multiple lasers.
6 Yes, Wang does, and which is part of the reference and the admitted prior art
7 does. So then Dr. Willner admitted that, with respect to Wang -- or Xiong,
8 that this is not necessarily the case that things have to be mounted and
9 aligned. That is described in the background. Each laser diode in Wang
10 must be mounted to a mounting surface. It must be aligned. And this is
11 notorious in the art.

12 And then, in our reply, we pointed out that -- exactly that. It must be
13 the case that these things are mounted and aligned. And, you know, it
14 cannot be the case that Dr. Willner believes that loose components in a bag
15 will work. They won't work, all right?

16 So, then, finally, Judge Ahmed, with respect to the Director's memo,
17 that was only effective on and after September 1st, 2025. It's not applicable
18 here. But, again, I'll go back to the fact that of *KSR v. Teleflex*. Nothing
19 requires a PTAB panel to check its common sense at the door or adhere to
20 the inherent disclosures of the prior art. I don't think those are new
21 arguments. We cite to those portions. We say what they say, and they
22 should be in the record to be relied upon. So, that finishes my
23 presentation.

24 JUDGE ULLAGADDI: Thank you, Counsel. You will have about 17
25 minutes for your rebuttal.

1 And, Counsel, would you like to reserve any time for rebuttal today?

2 MS. CAROTHERS: Yes, please. I would like to reserve 15 minutes.

3 JUDGE ULLAGADDI: Fifteen minutes. That leaves 30 minutes for
4 your main case. All right. And when you're ready, you may begin.

5 MS. CAROTHERS: Thank you. So, may it please the Board, as I
6 said before, I'm Jo Dale Carothers from Weintraub Tobin here on behalf of
7 the Patent Owner, Applied Optoelectronics, Inc. And I'd just like to get
8 straight to critical gaps in the arguments that Petitioner has made.

9 I put up here from their demonstrative at page 5, Figure 2. And I'm --
10 we have not commented on Figures 1 through 8. This part is also applicable
11 to Claims 11 forward, so I'll just point out that -- Your Honor, I believe you
12 asked about the baffles versus -- in Figure 2 of the '690 versus in the prior
13 reference Wang. I just wanted to clarify so you have an accurate point on
14 the record that Figure 2 does not have baffles at all. So the figures are not
15 identical. Number 206, which he's labeled in blue, is actually just adhesive.
16 And the '690 patent does not use or refer to baffles.

17 So moving on to -- let me just put that one back up for you. And
18 again, on the left, you have page 5 of Exhibit 1001, the '690 patent, which is
19 the patent owned by Applied Optoelectronics, or AOI for short. And on
20 right, it shows -- let me scoot -- move over to the argument they used from
21 Wang. And I'm going to move down to the one they used for -- when they
22 talked about it with respect to Claim 11. And this would be at page 9 of the
23 demonstrative from Petitioner.

24 The fundamental problem here is that an element -- at least one
25 element is completely missing from the Wang-Xiong combination as it

1 applies to Claim 11. As you just heard, the Petitioner just said, well, the
2 basin -- the magnetic basin and the substrate are the same thing. They're not.
3 It's very clear from Claim 11 that they are not. And let me show you Exhibit
4 1001 at page 12, which is Claim 11.

5
6 So if you go to Claim 11 and -- let me make it slightly larger for you.
7 Claim 11 very specifically says that there is a substrate defined by at least
8 one mounting surface. It goes on to say that a plurality of laser diodes are
9 mounted to that at least one mounting surface of the substrate. It further
10 goes on to say that the optical isolator array is mounted to the at least one
11 mounting surface of the substrate adjacent to the plurality of laser diodes.

12 Further down in -- when it talks about the optical isolator array, it
13 goes on to say that the optical isolator array itself comprises at least a first
14 magnetic base and a plurality of optical isolators. So I have an isolator array
15 that comprises a magnetic base and isolators, and that isolator array is then
16 mounted on the mounting surface of at least one -- is mounted on the at least
17 one mounting surface of the substrate.

18 So the magnetic base, the first magnetic base, and the mounting
19 surface of the substrate are two different things. And that's easily seen if we
20 look side by side at the '690 patent, Figure 5, which is Exhibit 1001, at page
21 5. And if I put that next to the demonstrative they've used, which is page 9
22 of Petitioner's demonstrative, I can show you that, as cited in the patent, the
23 opto-isolator array present is the first magnetic base, which is element 202,
24 diode plurality of optical isolators coupled to the magnetic base and the
25 optical isolators in this figure shown as 204-1 through 204-4.

1 JUDGE ULLAGADDI: Counsel, can I ask where in your Patent
2 Owner's Response this argument is made that there's -- a magnetic base and
3 a substrate are two different parts?

4 MS. CAROTHERS: Well, we repeatedly said that the substrate is not
5 shown in their -- in their Petition. And if you look at their Petition at -- let
6 me give you the citation. If you look at their Petition at pages, I believe it
7 would be 27 to 30, where they talk about what they've labeled as 11F. And,
8 specifically, I direct you to the first paragraph on page 29 where they talk
9 about the optical array being connected to the magnetic base.

10 They rely 100 percent on Xiong in the Petition for this. They never
11 mentioned Wang for this element. And so, as you pointed out before, it's
12 been very difficult to tell which reference, and which portion of which
13 reference, they're using for different things. And so as we moved along with
14 their different responses after the Petition, we seem to get different
15 arguments each time.

16 So this is -- we have repeatedly said there's no substrate disclosed in
17 Wang or Xiong, and we continue to say that in response to their
18 demonstratives today. And if you look at Figure 5, you'll see that, in Figure
19 5 of the '690 patent, the substrate 220 is completely separate from the
20 magnetic base 202.

21 And so they keep pointing to Wang and they say that 311 is the
22 substrate. Well, every time they refer to 311, Wang says it's a base. Wang,
23 in the English translation we were given uses the term "substrate"
24 repeatedly. But it appears to many times, like in paragraph 44 of Wang, it
25 says that the substrate is actually -- that, effectively, the combination of the

1 device; it's the base, it's the isolators all put together. Other times it seems to
2 use substrate differently. Anytime it talks about 311, it says it's the -- it says
3 it's a base.

4 But it doesn't really matter what you want call it. If Wang wants to
5 call it a substrate, it can, but there's not a separate magnetic base that couples
6 to a substrate as required by the Claim 11, and the dependent claims
7 therefrom. So that's just fundamentally missing.

8 Furthermore, I would also like to make a few other points with respect
9 to things that Petitioner just raised. If we go back -- if you don't mind, I'm
10 going to go back to Claim 11, unless you had questions about these figures.
11 Happy to bring them back if you do.

12 If we go back to looking at Claim 11, and we see that in the element,
13 at least one optical transceiver subassembly TOSA arrangement, Claim 11
14 goes to a TOSA arrangement. And a TOSA arrangement includes all the
15 elements that come below it. Xiong nowhere talks about a TOSA
16 arrangement. Xiong talks about a single old-fashioned TOSA. It doesn't tell
17 me how to replicate it in a way that would end up with the '609 patent.

18 And it's not nearly as trivial as Petitioner would have you believe to
19 go from a very simple disclosure of a single channel, old-fashioned design to
20 end up with the unique combination claimed in the '690 patent, which has
21 much more than merely what's even in Claim 1. Claim 11 gives very
22 specific ways they have to be connected, what has to be adjacent to each
23 other, which surfaces have to be connected to each other.

24 And Petitioner has failed to show that Wang or Xiong gets us there.
25 Because if I even go to Wang, which has multiple isolators that are formed

1 and connected together, it does not tell me then how to go and use it. It
2 doesn't have to be used with multiple laser diodes, it doesn't have to be used
3 with multiple wavelengths, it doesn't have to be done in any of these ways.
4 Wang just gave an invention for a use of a combination of baffles and
5 isolators in a way you could put them together. It didn't then tell me -- it's
6 silent on how then to put it in the system.

7 And Petitioner's done nothing more to give conclusory arguments as,
8 well, anyone would know how to do it. Anyone would know how to do it.
9 Your expert can't deny it. Well, but they don't point to where the expert
10 admitted anything related to that. The expert answered questions that were
11 hypothetical as to what Xiong had to say about a single channel. And it's not
12 the same to take one single channel and say, oh, it's easy. We replicate it.

13 You have to actually make the design, make the changes, make things
14 work together. And it's very clear in the '690 patent that it requires that the
15 magnetic base be connected to a separate substrate. And perhaps one reason
16 Wang didn't mention always calling it's base magnetic or whatever is there is
17 a base -- in Wang, it doesn't even have to be magnetic. I says it might be.
18 But there are not separate magnetic base coupled to a substrate in such a way
19 that it's then adjacent to the diodes and all the other elements of Claim 11 are
20 met.

21 And I would just remind you that the Petition that talks about Xiong
22 disclosing multiple laser diodes and satisfying all that, it doesn't. It never
23 mentions that. It's a single-channel device.

24 And I would also finally point out that Wang isn't about a system, as
25 Claim 11 is. And Claim 11 is not a method claim. It's a system claim.

1 Wang was just talking about an isolator device. And to the extent that
2 Petitioner wanted to put together this interesting bag of loose components on
3 page 13 of its demonstratives, we don't know where that's coming from
4 because our expert never suggested that somebody throw a bunch of parts in
5 a loose bag. I think our expert actually said that things may be mounted as
6 opposed to putting something loosely together. And what's important for a
7 circuit is that things be connected. No one ever said throwing components
8 in a bag made a circuit. So, not sure where that's coming from, but I'll leave
9 it at that.

10 And I know I have quite a bit of time left, but I respect your time, and
11 happy to answer any questions you have.

12 JUDGE ULLAGADDI: Counsel, what is your response to the
13 Petitioner's position that they cited the '690 patent in their Petition, that it's
14 applicant-admitted prior art, that the Director's memo doesn't apply to this
15 Petition? What is your response to that?

16 MS. CAROTHERS: I have several things. And thank you for asking.
17 I have a few things I'd say to that. First, I don't believe that they actually
18 tried to rely upon it in their Petition. I think this is afterthought, but that's
19 merely my opinion. I can't read minds, but I do not believe it was there. I
20 believe they relied entirely on Xiong for this and, after Patent Owner's
21 Response, realized that they couldn't rely on Xiong for that.

22 To the extent that you point to a very generic background that
23 mentions if I -- let me grab the patent real quickly. The background of
24 Xiong -- I'm sorry. The background of the '690 patent talks about
25 transmitter optical subassemblies, TOSAs, at column 1, lines 29 through --

1 well, you can go to the end, 43, if you'd like. It talks about transmitter
2 optical subassemblies. It doesn't talk about what might be known in
3 transmitter optical subassembly arrangements as claimed.

4 So, even to the extent they point to it, if they did, which I would
5 vehemently they argue they did not point to it for their argument. It's just
6 talking about general TOSAs, which would be the equivalent of if -- you
7 know, if I have a channel, I'm going to align it. And it doesn't talk about
8 when I have an entire arrangement exactly what I would do to do that.

9 Second, we don't believe that their argument to rely upon expert
10 testimony of our expert or to rely upon background sections was made until
11 after the memo from the Director came out, which was well after the
12 September date. And even if that memo hadn't come out, ultimately, the
13 Federal Circuit has said that we must comply with providing all the
14 information, and mere conclusory comments, or conclusory expert
15 testimony, will not get us there -- or will not get them there. So I think it
16 would be reasonable to apply it, but I think we get to the same outcome
17 whether or not you do apply it.

18 Further, I don't think there's enough, even in the background, even of
19 the '690, to disclose enough to cover all the claim elements. It's a generic
20 statement about a TOSA assembly, not a TOSA assembly -- or, not a TOSA
21 arrangement. So --

22 JUDGE ULLAGADDI: So can you tell me what exactly is missing
23 from the background that is in the claimed arrangement?

24 MS. CAROTHERS: Yeah. It has to do with the magnetic base
25 mounted to a substrate, the plurality of lasers diodes that are connected in a

1 particular way, that they're mounted adjacent to the isolator array. It doesn't
2 have that whole connection; it just says that it might have a laser diode
3 connected.

4 Again, we're talking about a general thing, whereas our claim has a
5 very specific way of things to be connected. You know, Petitioner will
6 probably say, well, everybody would know how to do it that way. Well, you
7 have to point to a reference that says that, and instead relied on what I say
8 would be conclusory statements.

9 And so we feel that Petitioner has not shown by preponderance of the
10 evidence that at least Claims 11 through 19 are unpatentable. We leave it to
11 you to decide that if they met their burden on Claims 1 through 10. And I
12 guess, unless you have further questions, I'll reserve my time that might be
13 remaining.

14 JUDGE AHMED: Counsel, let me ask you, do they really have to
15 show everything in one reference? Their argument is, when we put these
16 two references together, a person of skill in the art would know how to do it
17 and would end up with a combination that's claimed. Why is that wrong?

18 MS. CAROTHERS: That's right because -- well, first of all, we do
19 not believe one of skill in the art would be motivated to take Wang and think
20 they could put it with Xiong. Because Xiong is a single channel and Wang
21 is multiple channels. And it's not a mere replication to just say I'll put them
22 all together. The whole beauty of the '690 patent is the way they've been
23 able to save space and move things together in a manner that does that.

24 So, one, you would have to figure out how to do it properly. You
25 would have to make it work. And all that Xiong gives you is a basic single

1 channel. It doesn't talk about how to then take a multichannel isolator array
2 and turn that into the transceiver as claimed. And --

3 JUDGE AHMED: But isn't that a bodily incorporation argument that
4 you're making, that you are kind of stuck with the array and the single
5 isolator. Why wouldn't a POSITA know when putting these things together
6 you have to use the array with multiple diodes?

7 (Simultaneous speaking.)

8 MS. CAROTHERS: Well, one is that you don't necessarily know that
9 -- you can't just take it and say that I can just put them that close together.
10 Everything would have to be redesigned so that you have the right angles,
11 the right spacing, the correct layout, and then be able to find a way to make
12 sure that they will work correctly together. And if you take what they did
13 in Xiong, you would have to test each channel separately. Whereas the '690
14 has tried to come up with a way where you can test the combined isolator
15 array and then not have to worry about how it's going to work separately
16 with the different channels because it's an integrated design approach. So
17 that -- that is our understanding of the difference.

18 JUDGE AHMED: And then, going back to your argument about the
19 base and substrate being different elements, I think that we already asked
20 you this. Where is that argument in your Patent Owner Response? Can you
21 point us to a page?

22 MS. CAROTHERS: Yes. Yeah, well, I can point you -- our Patent
23 Owner Response responded to their argument where for this element they
24 relied entirely on Xiong. And so, in Xiong, there weren't the plurality of
25 diodes, there weren't any of these. And it wasn't even clear that they were

1 trying to argue that the magnetic base and the substrate were the same.

2 So we pointed out in our Patent Owner Response at -- and let me give
3 you my -- let me give you the citation. I believe it's 15, but let me double-
4 check that for you.

5 Yes. If you would look at 15 through 16, and then if you continue on
6 to the motivations to combine, that's where we respond to what they had
7 argued when they argued Xiong. And so pretty much everything was
8 missing from Xiong. And so that is where we directly responded to the
9 argument in the Petition.

10 JUDGE AHMED: Thank you.

11 MS. CAROTHERS: You're welcome. Thank you for your time. And
12 could you tell me how much time I have left?

13 JUDGE ULLAGADDI: You have 22 minutes for surrebuttal.

14 MS. CAROTHERS: Thank you.

15 JUDGE ULLAGADDI: Counsel, you have about 17 minutes for
16 rebuttal.

17 MR. PISANO: Okay. Thank you. And I don't think we need that
18 long.

19 So, up on the screen -- well, first of all, we had some discussion about
20 baffles and substrate. The baffles, what I'm calling the baffle, the thing that
21 sits between the -- that sits between the opto-isolators, this is the adhesive in
22 the patent. And it could be the adhesive or could be something else in
23 Wang. Doesn't matter.

24 What matters is that the base, the substrate, is magnetic, because that's
25 where you get the magnetic field that activates the opto-isolator. Now, what

1 I heard -- so that's the first point about the baffles. Baffles don't appear in
2 the claim. That's a red herring.

3 What I also heard was that -- I heard a claim construction argument
4 about substrate, which there was no dispute about what a substrate was until
5 we just got to this argument.

6 Now, I don't think anybody disputes -- maybe I wasn't hearing it right.
7 But this component right here, 202 in the patent, this is from Figure 5 of the
8 patent, this is the magnetic substrate. And that's the thing -- same thing that
9 has a corresponding component in the Wang patent. And then this part
10 down here, 220, this is not magnetic. It was described in the patent as a
11 PCB, which is normally where you mount components of an electrical
12 circuit.

13 So, I respectfully do not think it constitutes an invention to say, I'm
14 going to take a good component, use it for its intended purpose, and mount it
15 on a PCB, which is -- I'm going to take Wang, which is a multi-opto-isolator
16 array for a multichannel array, and I'm going to put it on a PCB, onto which
17 I'll also put the laser diodes which are pointed at the opto-isolator. So I think
18 there's a claim construction issue that I just heard there, which I have not
19 seen. It is not in the Patent Owner Response.

20 MS. CAROTHERS: I wouldn't characterize it as a claim construction
21 issue. I think in claim limitation 11D there's a substrate.

22 MR. PISANO: Yes.

23 MS. CAROTHERS: And then in claim limitation 11F there's a
24 magnetic base. There are two different claim limitations. In your
25 combination, which is the substrate and which is the magnetic base?

1 MR. PISANO: Well, in our combination, the -- in Wang, the
2 substrate is this part down here. And Xiong, you know, doesn't have a
3 substrate. But we'll go back to -- I mean, there can be nothing more
4 notorious than that electric components are applied toward the circuit board.
5 And for her to point out and say, well, there's nothing there that shows that,
6 well, that gets exactly to my comment. These are not components for
7 floating loose in a bag. A person of skill in the art understands these things
8 are mounted to something, because if they're not mounted to something, you
9 cannot maintain alignment. They cannot intersect.

10 And so, just quickly, I'll go to, in the Petition, at page 11, we talk
11 about Wang. We say the multichannel isolator comprises a substrate,
12 multiple channels, a plurality of isolators disposed in the respective channels
13 where each optical isolator includes -- blah, blah, blah, or a part of the
14 substrate that's made of magnetic material that can generate a magnetic field.

15 So the part of the substrate that's not might be a PCB. So that's in the
16 Petition. Again, we would cite you to, you know, what is the purpose of
17 Wang? Why was it created? And I think we cite to paragraph 7 and 8 and
18 12, that say the whole purpose is to provide a more compact device.

19 Now, the final thing I thought I heard. So, Xiong is single -- it's a
20 straight-through arrangement. It shows -- it doesn't show a substrate. But,
21 again, a person of skill in the art would realize those components need to be
22 mounted on something, because it just can't work otherwise.

23 JUDGE ULLAGADDI: Okay. I'm going to stop you right there.
24 One second, Counsel.

25 MR. PISANO: Yes, ma'am.

1 JUDGE ULLAGADDI: Does the declarant testify that this is the
2 missing limitation in combination, that a person of ordinary skill in the art
3 would know that it has to be there? Is that an inherency position or
4 obviousness position? And where in the declaration is it?

5 MR. PISANO: I'm sorry, declaration? We're just dealing with -- you
6 mean of Dr. Kirk? I got the call right now. But I'm not relying on Dr. Kirk.
7 I didn't cite to him. What I'm relying on is the admitted prior art in the
8 background of the patent, Wang, and general knowledge, which applies only
9 for IPRs filed after -- not responses, not replies. And so you can rely on a
10 person of skill in the art. They would know things are mounted on a base.
11 They --

12 JUDGE ULLAGADDI: Sure, they would, but you need a declarant to
13 testify to that. I can't take your word for that. That's attorney argument.

14 MR. PISANO: Don't take my word for it. Take the '690's inventors.
15 They say, paragraphs -- column 1, 29 to 35, they say, must be mounted on a
16 surface, and it must be in optical alignment. I think that's sufficient.

17 There is skill in the art. These people did not invent transceivers, they
18 did not invent TOSAs, they did not invent ROSAs. They didn't invent any
19 of it. In fact, they didn't invent the opto-isolator array, because that's in
20 Wang. And Wang must be used multichannel. Not must. Can be. In fact,
21 that's what it says it is. It would be as if, for example, I am Apple and I
22 patented this iPhone and you -- I got faulted because I did not describe the
23 5G network that it connects to. That is notoriously known. Everybody
24 knows you're going to connect the phone to the network. Now, maybe not
25 the specifics, but definitely there's a network.

1 And so, at the same fundamental level, the components are mounted
2 on something, as it says in the background, optically aligned, pointing at one
3 another, intersecting one another. And it is known the base has to be
4 magnetic. Well, it could be not entirely magnetic. If the substrate was, for
5 example, a magnetic port portion with a PCB underneath it, which I think is
6 actually described as one possible embodiment in Wang, then it's there.

7 So that's all I have to say for the moment. Thank you, Your Honor. I
8 do think that we heard some new arguments that argue about the substrate is
9 not in the Patent Owner's Response. And there you have it.

10 JUDGE ULLAGADDI: Any further questions from the Panel for
11 Petitioner's counsel?

12 Okay. Thank you.

13 MR. PISANO: Thank you.

14 MS. CAROTHERS: So, thank you, Your Honors. The magnetic base
15 and the substrate are two separate structures, separate elements in the claims,
16 that have to be connected in a particular relationship. It's Petitioner's
17 responsibility to meet their burden by a preponderance to show that those
18 are there, or that there's evidence that they would be there in the manner and
19 in the combination and in the relationship as claimed.

20 We continue to hear new arguments that were never in the Petition.
21 And that was their burden, was to put those arguments in their Petition if
22 they wanted to make it. We believe even the arguments they've tried to add
23 don't walk because when -- Your Honor -- and I apologize if I get your name
24 wrong -- Ullagaddi, brought up, you asked him to point to where's the base,
25 where's the substrate, and he never did.

1 So for those reasons, as well as all the reasons in our briefing, in
2 conclusion, Your Honors, the prior art fails to teach the required limitations
3 of Claim 1 and its dependent claims. And for those reasons, we believe
4 Petitioner has failed to carry its burden. We respectfully request that the
5 Board find at least Claims 11 through 9 patentable. Thank you.

6 JUDGE ULLAGADDI: Any further questions for Patent Owner's
7 counsel?

8 Thank you, Counsel.

9 MS. CAROTHERS: Thank you.

10 JUDGE ULLAGADDI: Hearing no further questions, we thank you
11 for the opportunity to investigate the record with you today and your
12 attentiveness to our questions. We invite you to remain in the room to
13 clarify any matters that the reporter may have. With that, we're adjourned.

14 (Whereupon, the above-entitled matter went off the record at 11:17
15 a.m.)

IPR2025-00437
Patent 10,788,690 B2

PETITIONER:

Nicola Pisano
Regis Worley
COZEN O'CONNOR
npisano@cozen.com
rworley@cozen.com

PATENT OWNER:

Jo Carothers
Eric Caligiuri
WEINTRAUB TOBIN LAW CORPORATION
jcarothers@weintraub.com
ecaligiuri@weintraub.com