

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CAMBRIDGE INDUSTRIES USA, INC.,

Petitioner,

v.

APPLIED OPTOELECTRONICS, INC.,

Patent Owner.

Case IPR2025-00437
Patent No. 10,788,690

**PATENT OWNER'S SUR-REPLY TO PETITIONER'S REPLY TO PATENT
OWNER RESPONSE TO PETITION FOR *INTER PARTES* REVIEW OF U.S.
PATENT NO. 10,788,690**

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EXHIBITS

Exhibit No.	Description
2005	July 31, 2025 Memorandum from Acting Director Stewart entitled “Enforcement and Non-Waiver of 37 C.F.R. § 42.104(B)(4) and Permissible Uses of General Knowledge in Inter Partes Reviews”

I. INTRODUCTION

Pursuant to the Board’s Case Management and Scheduling Order (Paper 12, filed August 26, 2025) and the Parties’ Second Joint Stipulation to Adjust Scheduling Order (filed April 2, 2026), Patent Owner Applied Optoelectronics, Inc. (“AOI” or “Patent Owner”) submits this Sur-Reply to Petitioner’s Reply (Paper 21) to Patent Owner Response (Paper 14) to the Petition (Paper 2) of Cambridge Industries USA, Inc. (“CIG USA” or “Petitioner”) for *Inter Partes* Review of U.S. Patent No. 10,788,690 (the “’690 Patent”) (Exh. 1001).

First, Patent Owner did not concede patentability of claims 1-10 under Ground 1. Patent Owner merely remained silent, leaving the burden on Petitioner.

Second, Petitioner has failed to remedy its deficient showing as to the unpatentability of claims 11-19 under Ground 2. Petitioner’s Reply repeatedly misstates Petitioner’s original arguments in its Petition and relies on arguments not supported by the Petition, highlighting its insufficiencies.

Specifically, the Reply does not remedy Petitioner’s failure to show that Wang in view of Xiong renders claims 11-19 unpatentable. In fact, Petitioner’s Reply leaves its Petition without support that this combination renders obvious independent claim 11’s limitation requiring “a plurality of laser diodes mounted to

the at least one mounting surface of the substrate, each laser diode of the plurality of laser diodes to emit a different associated channel wavelength along a corresponding light path of a plurality of light paths.” It also leaves other claim limitations effectively unsupported as discussed below.

In its Reply, Petitioner improperly introduces new arguments in a failed attempt to overcome the deficiencies in its Petition. Regardless, even if considered, the new arguments fail to remedy the deficiencies in the Petition.

Accordingly, none of claims 11-19 are unpatentable.

II. GROUND 1: PATENT OWNER MADE NO ADMISSIONS AS TO THE PATENTABILITY OF CLAIMS 1-10 UNDER GROUND 1.

In its Reply, Petitioner argues that Patent Owner’s Response conceded that claims 1-10 are unpatentable under Ground 1 of the Petition. That is incorrect. Patent Owner made no such admission but instead remained silent on Ground 1. Petitioner still bears the burden of proving unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e). The Board must still find that the Petition as to Ground 1 meets the legal standards for anticipation.

III. GROUND 2: PETITIONER FAILED TO REMEDY THE DEFICIENCIES IN ITS PETITION AS TO THE ALLEGED UNPATENTABILITY OF CLAIMS 11-19.

A. The Reply Does Not Remedy the Petitioner's Failure to Show that Wang in view of Xiong Renders Claims 11-19 Unpatentable.

Ground 2 in the Petition does not show disclosure of all the limitations of independent claim 11 or its dependent claims 12-19 of the '690 Patent. In its Reply, Petitioner improperly tries to rewrite, and in some instances, disavow its deficient Petition, which failed to show that Wang in view of Xiong renders obvious any of the claims 11-19 of the '690 Patent. Petitioner's Reply does not remedy the failure of its Petition.

1. Petitioner's Reply Leaves its Petition Without Support that Wang in view of Xiong Discloses Claim 11's Limitation Requiring "a plurality of laser diodes mounted to the at least one mounting surface of the substrate, each laser diode of the plurality of laser diodes to emit a different associated channel wavelength along a corresponding light path of a plurality of light paths."

Petitioner essentially admits in its Reply that Petitioner and its expert were wrong to rely on Xiong in the Petition for disclosing claim 11's limitation requiring "a plurality of laser diodes mounted to the at least one mounting surface of the substrate, each laser diode of the plurality of laser diodes to emit a different

associated channel wavelength along a corresponding light path of a plurality of light paths.” In fact, in its Reply, Petitioner appears to be arguing that its Petition did not rely on Xiong for this claim limitation. That argument is disingenuous as shown below. More importantly, it leaves Petitioner without support in its Petition for its Ground 2 argument that Wang in view of Xiong renders claim 11 obvious.

In its Reply, Petitioner states its Petition relies on “the ‘Background’ section of Xiong to demonstrate that it was well known in the art to have an optical transceiver in which a laser diode is aligned with an optical isolator, as shown in the prior art of FIG. 1 of Xiong.” Reply at p. 2. Petitioner further argues that in its Petition, “Xiong is cited mostly for its discussion of prior art systems.” Reply at p. 5.

Upon review of the Petition, however, Petitioner relies on Xiong for much more, including the alleged disclosure of “a plurality of laser diodes ...” as required by claim 11. Problematically for Petitioner, its interpretation of Xiong was incorrect, which leaves a gaping hole in its Ground 2 arguments for claim 11.

Claim 11 requires “a plurality of laser diodes mounted to the at least one mounting surface of the substrate, each laser diode of the plurality of laser diodes to emit a different associated channel wavelength along a corresponding light path of a plurality of light paths.” Exh. 1001, claim 11.

In Ground 2 in its Petition, Petitioner argues that claim 11 was obvious over Wang in view of Xiong because Petitioner admits that Wang does not disclose a plurality of laser diodes as required by claim 11. *See, e.g.*, Reply at p. 8. In other words, Petitioner recognizes that it needs to combine Wang with another reference to show all of the limitations of claim 11. In a failed attempt to do so, Petitioner combines Wang with Xiong in its Petition even though Xiong does not disclose a plurality of laser diodes. *See, e.g.*, Petition at p. 28 (incorrectly alleging that “Xiong discloses the TOSA includes a number of laser diodes each designed to emit a different associated channel wavelength along a corresponding light path of a number of light paths.”; Patent Owner Response (Paper 14) at p. 13 (stating “A POSITA would not understand Xiong to disclose a plurality of laser diodes, each emitting different wavelengths for a multi-channel TOSA arrangement; Exh. 1014, p. 64:19-25 to p. 65:1 (stating, “Figure 1 of Xiong shows an example of a single channel TOSA.”))

Contrary to its retreat from the argument now, Petitioner argues in its Petition that Xiong discloses a plurality of laser diodes. *See, e.g.*, Petition at pp. 14, 28. Specifically, in its Petition, Petitioner states, “As further described in Xiong, a TOSA includes *a number of laser diodes* that are *each designed to emit a different associated channel wavelength* along a corresponding light path.”

Petition at p. 14 (citing Exh. 1003 at ¶ 67 wherein Petitioner's expert, Dr. Kirk, states "As further described in Xiong, a TOSA includes a number of laser diodes that are each designed to emit a different associated channel wavelength along a corresponding light path.") (emphasis added).

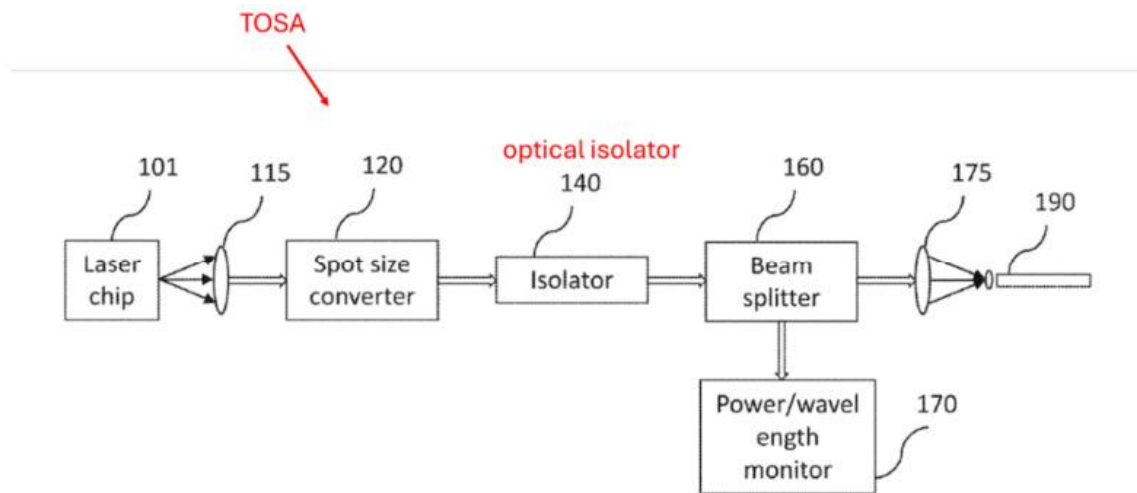
In support of its statement, the Petition references various portions of the detailed description of Xiong, as well as the background. As discussed below, all of those citations, however, refer only to a single laser diode and thus a single associated channel wavelength. No support is found for Petitioner and its expert's mistaken allegations to the contrary.

For example, Petitioner and its expert cite to text in Xiong that states "Optical transceivers are commonly used in optical networking for conversion between an optical signal and an electrical signal. In general, an optical transceiver includes a Transmit Optical Subassembly (TOSA), which typically includes *a light-emitting device* such as a laser chip, and a Receiver Optical Subassembly (ROSA), which typically includes a light-receiving device such as *a photodiode*." Petition at p. 28 (citing Exh. 1008 at Col. 1:25-65 and Exh. 1003 at ¶ 104) (emphasis added). On its face, this statement refers to a single light-emitting device and a single photodiode and thus a single-channel transceiver.

Next, Petitioner cites to the detailed description of Xiong that states,

“Referring to FIG. 6, this approach, which is also based on the refraction effect and exploits the changes in beam radius upon refraction at flat prism interfaces, involves positioning the single wedge prism in the optical path of light transmitted from *a laser*.” Petition at p. 28 (citing Exh. 1008 at Col. 6:66-7:3 and Exh. 1003 at ¶ 104) (emphasis added). Again, this makes clear that Xiong is directed simply to a single laser for a single channel TOSA.

Further, Petitioner’s Reply draws particular attention to Xiong’s FIG. 1, which is prior art to Xiong. *See, e.g.*, Petition at p. 28 (citing Exh. 1008 Col. 1:24-65 and Exh. 1003 at ¶ 104). However, as discussed below, FIG. 1 does nothing to remedy this mistake in interpretation. FIG. 1 of Xiong is shown below for convenience.



As shown in FIG. 1 and the accompanying text, FIG. 1 is directed to a

single laser and a single isolator. Specifically, Xiong states:

Referring to FIG. 1, a typical TOSA includes a spot size converter 120, **an isolator 140**, and a beam splitter 160. The spot size converter 120 shapes and/or sizes **the beam of light emitted from the laser chip 101** and collimated by the collimating lens 115 to improve coupling efficiency into an optical fiber, and thus provide higher power. **The isolator 140 prevents back-reflection light** from reaching the laser chip 101, while allowing the light to pass to the beam splitter 160. The beam splitter 160 allows a portion of the light to be tapped and diverted to a power/wavelength monitor 170, while allowing the remaining light to be transmitted to the optical fiber coupled to the fiber pigtail 190 via the focusing lens 175.

Xiong at Col. 1:24-36. (emphasis added).

As the text and FIG. 1 show, a single beam of light from the laser chip 101, which spreads upon emission as shown by the arrows emerging from laser chip 101, is collimated by the collimating lens 115. The single isolator 140 then prevents back reflection light from reaching the laser chip 101. *Id.*; *see also, e.g.*, Exh. 1014, 65:2-9. Neither FIG. 1 nor the accompanying text support Petitioner and its expert's argument that Xiong discloses "a number of laser diodes that are each designed to emit a different associated channel wavelength along a corresponding light path." *See, e.g.*, Petition at p. 14.

In light of Petitioner's implicit admission that it is no longer relying on Xiong for this element of claim 11, Petitioner's Ground 2 provides no support that

Wang in view of Xiong renders claim 11 unpatentable.

2. Petitioner’s Reply Improperly Introduces New Arguments in a Failed Attempt to Overcome This and Other Deficiencies in Its Petition.

Apparently, recognizing the mistake Petitioner and its expert made with respect to Xiong, Petitioner seeks to introduce new arguments in its Reply. However, Petitioner again fails to show that claims 11-19 are unpatentable.

i. In its Reply, Petitioner Unsuccessfully Attempts to Rely on Dr. Willner’s Deposition Testimony to Remedy the Petition’s Deficiencies.

Petitioner argues that Patent Owner’s expert, Dr. Willner, made various admissions about the *prior art* figure in Xiong. Not only does Petitioner omit relevant language from Dr. Willner’s testimony, any “admissions” as to Xiong’s prior art FIG. 1 relate only to a single channel TOSA with a single light-emitting device, which do not remedy deficiencies in Petitioner’s failed Ground 2.

First, as discussed above, Petitioner fails to show a disclosure of the limitation of claim 11 requiring “a plurality of laser diodes mounted to the at least one mounting surface of the substrate, each laser diode of the plurality of laser diodes to emit a different associated channel wavelength along a corresponding

light path of a plurality of light paths.” Exh. 1001, claim 11.

Second, in its Reply, Petitioner unsuccessfully attempts to rely on Dr. Willner’s deposition testimony as to a single channel transceiver in Xiong to satisfy the claim 11 requirement that each optical isolator in the optical isolator array “is optically aligned with a corresponding laser diode of the plurality of laser diodes via a corresponding light path.” Reply at p. 6; Exh. 1001, claim 11.

Petitioner alleges that “Dr. Willner agreed that for the prior art system depicted and described in relation to Figure 1 of Xiong, a POSITA would know that the laser chip would need to be optically aligned with the isolator,” Reply at 6 (citing Ex. 1014 at 65:2-20). However, as shown below, Dr. Willner’s response specifically referred to alignment in a single channel TOSA as shown in FIG. 1 of Xiong. This testimony is not an admission as to alignment of isolators in an isolator array. Specifically, Dr. Willner testified as follows:

2 Q. And in Figure 1 of Xiong, it shows a
3 laser with its light path directed through a
4 spot-size converter and then on to an
5 optoisolator, correct?

6 A. The Figure 1 of Xiong shows a laser
7 chip emitting light, passing through a lens,
8 passing through a spot-size converter and
9 passing through an isolator.

10 Q. And to be useful as a TOSA, the
11 device shown in Figure 1 of Xiong would have
12 to have the laser chip optically aligned with
13 the isolator, correct?

14 A. So the light coming out of this --
15 so this is a single channel TOSA. The light
16 coming out of the single laser chip passing
17 through the lens and the spot-size converter
18 and the isolator, a person of ordinary skill
19 would know that it would likely need to be
20 aligned.

Exh. 1014, Willner Deposition Testimony at p. 65:2-20.

Next, claim 11 also requires “an optical isolator array mounted to the at least one mounting surface adjacent the plurality of laser diodes such that the plurality of light paths intersect with the optical isolator array.” Exh. 1001, claim 11. Petitioner had also relied on Xiong for this disclosure but now unsuccessfully attempts to rely on Dr. Willner’s testimony instead. *See* Petition at p. 29; Reply at pp. 8-10.

In its Reply, Petitioner alleges that Dr. Willner agreed that “those components would need to be mounted in some fashion to maintain that optical alignment.” Reply at p. 6 (citing Ex. 1014 at 65:21-66:23). Again, Dr. Willner limited his answer to the single channel TOSA with a single light-emitting laser in FIG. 1 of Xiong in speculating that “in this hypothetical case where there's a laser chip, a single lens, a single isolator, that outside the context of the '690, the light would likely need to be aligned amongst those components and also held in place in some fashion.” *See* Ex. 1014 at 65:21-66:23. Dr. Willner’s testimony does not

relate to the claimed mounting of multiple isolators in an isolator array and their position relative to a plurality of laser diodes. Specifically, Dr. Willner testified as follows:

21 Q. And these components that you just
22 mentioned would also need to be mounted,
23 correct?
24 A. The single channel TOSA shown in
25 Figure 1 with the single laser chip emitting

1 light passing through a single lens, passing
2 through a single spot-size converter, passing
3 through a single optical isolator, would
4 likely -- would likely be mounted in some
5 fashion so that the alignment can be
6 maintained.

7 Q. And even if you remove the spot-size
8 converter, it would still need to be mounted
9 to maintain the optical alignment, correct?

10 MS. CAROTHERS: Objection. Form.

11 THE WITNESS: The single channel
12 TOSA of Figure 1, which has a single laser
13 chip emitting light through a single lens,
14 and if the spot-size converter was absent, in
15 which case there would be some differences,
16 of course, and so -- so if in this
17 hypothetical case where there's a laser chip,
18 a single lens, a single isolator, that
19 outside the context of the '690, the light
20 would likely need to be aligned amongst those
21 components and also held in place in some
22 fashion, such that the alignment can be
23 maintained.

Ex. 1014, Willner Deposition Testimony at 65:21-66:23.

For at least the above reasons, Dr. Willner’s testimony does not remedy these deficiencies in the Petition. Therefore, Petitioner fails to show that claims 11-19 are unpatentable.

Petitioner also states that in Xiong, “[t]he TOSA is described as including *at least* one optical isolator ...” Exh. 1003 at ¶ 67 citing Xiong FIG. 7a, 1:24-65, 6:66-7:3, and 8:22-42. These citations show that Xiong discloses one isolator for use with a single light-emitting device in a TOSA. Petitioner’s use of the language “at least one optical isolator” implies that it interprets Xiong to disclose the possibility of more than one isolator, such as the claimed isolator. Nothing in these citations supports such an implication. Therefore, the language “at least one” should be disregarded.

ii. In its Reply, Petitioner Unsuccessfully Attempts to Rely on the Background in the ’690 Patent to Remedy the Petition’s Deficiencies.

For the first time, in its Reply, Petitioner also attempts to improperly rely on the background of the ’690 Patent to remedy deficiencies in its Petition. Here, “Petitioner may not submit new evidence or argument in reply that it could have presented earlier, e.g. to make out a *prima facie* case of unpatentability.” See Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019)

(“TPG 2019”), 73.¹

Petitioner’s arguments presented for the first time in its Reply should be disregarded. However, even if they were to be considered they fail for at least the following reasons.

In its Reply, Petitioner points to the background section of the ’690 Patent,

¹ In addition, pursuant to Acting Director Stewart’s July 31, 2025 Memorandum (“Stewart’s July 2025 Memo”) on Enforcement and Non-Waiver Of 37 C.F.R. § 42.104(B)(4) and Permissible Uses of General Knowledge in Inter Partes Reviews, Petitioner would not be allowed to make the argument at all today. Stewart’s July 2025 Memo specifically states that “applicant admitted prior art (AAPA), expert testimony, common sense, and other evidence that is not ‘prior art consisting of patents or printed publications’ (collectively, “general knowledge”) may not be used to supply a missing claim limitation.” Stewart’s July 2025 Memo. Arguably, Petitioner should not be allowed to correct its and its expert’s mistake as to Xiong by not only impermissibly introducing a new argument precluded by the TPG 2019 but also one that would be precluded in a current petition.

which includes some general statements about optical transceivers and transmitter optical subassemblies (TOSAs). Petitioner relies on these general statements for the first time in an attempt to overcome deficiencies in its Petition. *See, e.g.,* Reply at pp. 8-9.

The '690 Patent background section does not cite to any prior art references, gives scant details, if any, and in no way indicates how, or even if, the unspecified approaches alluded to could be used in combination with the disclosed invention of the '690 Patent. Instead, the '690 Patent background section points out problems with the other approaches. Exh. 1001 at Col. 1:29-35. Nevertheless, in its Reply, Petitioner attempts to expand this language into something more substantive in an effort to remedy the deficiencies in its Petition. *See, e.g.,* Reply at pp. 8-9. Petitioner's new arguments fail.

In its Reply, Petitioner argues that all the limitations of claim 11 are met because the '690 Patent background section mentions multi-channel TOSAs and TOSAs may be in a single housing. *Id.* Claim 11, however, requires a specific combination of elements, including not only a TOSA *arrangement* in a single housing, but also the ROSA in the same housing. *See* Exh. 1001, claim 11. This is not mentioned in the '690 background. *See* Exh. 1001 at Col. 1: 15-43.

In its Reply, Petitioner cites to the background section of the '690 Patent,

along with Dr. Willner's deposition testimony, stating that "the opto-isolator array of Wang and the plurality of laser diodes used with that array must be mounted on something to maintain alignment therebetween, as opposed to floating loose in a bag" See Reply at p. 9 (citing Ex. 1014 at 24:25-26:25, 28:25-29:16, 32:14-33:2; Ex. 1001 at 1:29-37). However, that statement does not support the proposition that the relevant limitation of claim 11 is met. In fact, the claimed mounting requirements as discussed above are more specific and require much more than "mounting on something to maintain alignment therebetween." See, e.g. *id.*

Specifically, claim 11 requires

a substrate defined by ***at least one mounting surface;***

a plurality of laser diodes mounted to the at least one mounting surface of the substrate, each laser diode of the plurality of laser diodes to emit a different associated channel wavelength along a corresponding light path of a plurality of light paths; and

an optical isolator array mounted to the at least one mounting surface adjacent the plurality of laser diodes such that the plurality of light paths intersect with the optical isolator array

Exh. 1001, claim 11 (emphasis added). Petitioner's handwaving and pointing to reliance on general statements does not suffice to disclose the claimed mounting requirements.

In its Reply, Petitioner also cites Dr. Willner's testimony for its statement that optical transceivers are always packaged in a housing. However, Petitioner cites only to the testimony of Dr. Willner discussing the housing for some unspecified multi-channel TOSA, not a TOSA arrangement and ROSA sharing a housing. Specifically, Dr. Willner testified as follows:

9 Q. And the multichannel TOSAs you were
10 familiar with, did they include a housing?
11 A. A multichannel TOSA, there are
12 versions of multichannel TOSAs that have
13 housings. I think that's -- you know, there
14 are versions of multichannel TOSAs that have
15 housings.

Exh. 1014, Willner Deposition Testimony at 23:9-15.

14 Q. And you agree that the background
15 section of the '690 patent discusses known
16 prior art, correct?
17 A. I believe that the background
18 section is discussing various issues that are
19 about the -- about the field, about some of
20 the art.
21 Q. It's certainly not discussing all
22 the art, but it does discuss some of the
23 prior art and perhaps some of the problems
24 with that prior art, correct?
25 A. I would say that it's discussing

1 some of the issues related, some of the prior
2 art, some of the problems.

Exh. 1014, Willner Deposition Testimony at 32:14-33:2.

Dr. Willner's testimony does not support Petitioner's argument that optical transceivers, which by their nature require both a transmitter (*i.e.*, a TOSA) and receiver (*i.e.*, a ROSA), are always packaged in a housing. Therefore, Petitioner fails to remedy deficiencies as to the required housing in claim 11. Exh. 1001, claim 11.

In its Reply, Petitioner also cites to Dr. Willner's testimony for the proposition that "A POSITA further would have understood that for a multichannel device as described in Wang, the arrangement of the prior art FIG. 1 of Xiong would be replication for each opt-isolator in the array." Reply at p. 10. Dr. Willner said no such thing. Instead, he merely speculated that multichannel TOSAs outside the context one claimed in the '690 might have certain features. Specifically, Dr. Willner testified as follows.

7 Q. And the multichannel TOSAs that were
8 known prior to 2019, they would have included
9 a plurality of laser diodes in a multiplexer,
10 correct?
11 MS. CAROTHERS: Objection. Form.
12 THE WITNESS: I'm not saying that's
13 a -- so TOSAs, in general, not the TOSA
14 arrangement of the '690, would have likely --
15 well, it is -- it's certainly possible that
16 they would have multiple lasers in there.
17 BY MR. WORLEY:
18 Q. And that was known in the art,
19 correct?
20 A. It was known in the art that a

21 multichannel TOSA, not the TOSA arrangement
22 of the '690, that the multichannel TOSA would
23 have multiple -- multiple lasers, you know,
24 could have multiple lasers.

25 Q. Prior to 2019, the components of a

1 multichannel TOSA, the laser diodes, and the
2 isolator, they would have been optically
3 aligned, correct?

4 A. So outside the context of the '690,
5 a multichannel TOSA, which had multiple --
6 which might have had multiple lasers, might
7 have had multiple lenses, multiple isolators,
8 and those might have been aligned.

9 Q. Those components would have also had
10 to be securely attached to something in order
11 to maintain that optical alignment, correct?

12 A. For a TOSA, outside the '690 TOSA
13 arrangement, could have had multiple lasers,
14 multiple lenses, multiple isolators that were
15 aligned, and that would have been mounted
16 such that the alignment would be maintained.

Exh. 1014, Willner Deposition Testimony at 28:7-29:16.

This testimony does not support Petitioner's argument that "[a] POSITA further would have understood that for a multichannel device as described in Wang, the arrangement of the prior art FIG. 1 of Xiong would be replication for each opt-isolator in the array." Reply at p. 10. In fact, Patent Owner's Response already addressed that implementing the claimed multi-channel transceiver in the '690 Patent requires more than merely replicating a single channel receiver. Patent Owner's Response at pp. 16-18.

Therefore, Petitioner's attempt to rely on the background in the '690 Patent, even in conjunction with Dr. Willner's deposition testimony, fails to remedy the Petition's deficiencies.

3. Petitioner's Reply Does Not Remedy the Deficiencies in Its Arguments for a Motivation to Combine the Prior Art References in Ground 2.

Petitioner fails to adequately address Patent Owner's arguments as to why there is no motivation to combine the prior art references cited as the basis for Ground 2.

In its Response, Patent Owner argued that a POSITA would not be motivated to combine Wang with Xiong because Xiong relates only to a single channel TOSA. Petitioner's attempt to argue otherwise misses the point. Neither Patent Owner nor Dr. Willner admit that all the elements of claim 11 were known in the prior art. And one would not have been motivated to combine Wang with Xiong to provide the missing elements of Wang. As previously stated, one would not merely replicate structures in one reference to combine it with the other. Patent Owner Response at pp. 16-18.

IV. PETITIONER'S POSITIONS ARE INCONSISTENT AS TO DR. WILLNER'S TESTIMONY.

As discussed above, in some instances, Petitioner relies on Dr. Willner's testimony, attempting to use it for its benefit. But, at other times, Petitioner selectively argues that his testimony is unreliable. For example, Petitioner complains that Dr. Willner was unable on the spot to explain in detail terms of claim 11 that were not discussed in detail in his declaration. *See* Reply at pp. 12-13. In reality, Dr. Willner testified that at the time he formed his opinions, he analyzed the materials but would want to go back and review the patent rather than give an off the cuff answer from memory as to terms that he did not go into detail about in his declaration. *See, e.g.*, Exh. 1014 at 37:1-14. As for terms that he did not end up relying on and discussing in his declaration, he did not offer new or additional opinions in his deposition. *Id.*

Further, Petitioner complains that Dr. Willner was careful to indicate that there is a transmitter optical subassembly (TOSA) that is different from a transmitter optical subassembly arrangement (TOSA arrangement), the latter term being a claim term. *See* Reply at pp. 1314 (citing Dr. Willner's testimony). Again, that does not provide grounds for arguing Dr. Willner's testimony was inconsistent with his declaration or unreliable.

In fact, if anything, it is the opinion of Dr. Kirk, Petitioner's expert, that should be deemed unreliable as he is the one who put forth inaccurate testimony as to the disclosure in Xiong as already discussed.

V. CONCLUSION

For the reasons stated above and in the Patent Owner Response, Petitioner has failed to prove by a preponderance of the evidence that the challenged claims of the '690 Patent are unpatentable. Therefore, Patent Owner respectfully requests that the Board deny CIG USA's request to cancel challenged claims of the '690 Patent.

Dated: April 27, 2026

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CERTIFICATE OF WORD COUNT

Under the provisions of 37 C.F.R. § 42.24(d), the undersigned hereby certifies that the Microsoft Office word count including all footnotes for the foregoing Patent Owner's Sur-Reply to Petitioner's Reply to Patent Owner Response, excluding the table of contents, table of authorities, certificate of word count, appendix and certificate of service, totals 4,694 words, which is less than the 14,000 words allowed under 37 C.F.R. § 42.24(b)(2).

Dated: April 27, 2026

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CERTIFICATE OF SERVICE

The undersigned hereby certifies service on the Petitioner, pursuant to 37 C.F.R. § 42.6(e) and by agreement of counsel, by electronic (e-mail) delivery of a true copy of the foregoing **Patent Owner's Sur-Reply to Petitioner's Reply to Patent Owner Response**, which was served on April 27, 2026 to the following Counsel for Petitioner via e-mail:

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