

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

OPTICIS CO., LTD

Petitioner,

v.

INNEOS LLC,

Patent Owner.

Case No. IPR2023-01256
U.S. Patent No. 7,198,416

**SUR-REPLY TO PETITIONER'S REPLY TO PATENT OWNER'S
RESPONSE TO INSTITUTION OF *INTER PARTES* REVIEW**

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EXHIBIT LIST

Exhibit No.	Description
2003	Declaration of Dr. Michael Lebby, Ph.D.
2004	WEBSTER’S NINTH NEW COLLEGIATE DICTIONARY 962, 1059, 1061, 1161 (9th ed.1986).
2005	<i>Radial</i> , CHAMBERS DICTIONARY OF SCIENCE AND TECHNOLOGY (rev. ed. 1974).
2006	<i>Ferrule</i> , NEWTON’S TELECOM DICTIONARY (21st ed. 2005).
2007	JOSEPH E. PALAIS, FIBER OPTIC COMMUNICATIONS 33–48 (2nd ed. 1988).
2008	<i>Fiber optic spot illumination</i> , FIBER OPTICS STANDARD DICTIONARY (2nd ed. 1989).
2009	Pages of Eric Grann Inventor Notebook.
2010	Curtis Ray Inventor Notebook.
2011	Declaration of Michael Liang.
2012	Wilfrid B. Veldkamp et al., <i>Coherent Summation of Laser Beams Using Binary Phase Gratings</i> , 11 OPTICS LETTERS, 303–05 (1986).
2013	J. W. Goodman et al., <i>Optical Interconnections for VLSI Systems</i> , 7 PROCEEDINGS OF THE IEEE, 850–66 (1984).
2014	H. John Caulfield, <i>Parallel N4 Weighted Optical Interconnections</i> , 26 APPLIED OPTICS, 4039–40 (1987).

Exhibit No.	Description
2015	Adolf W. Lohmann et al., <i>Optical Perfect Shuffle</i> , 25 APPLIED OPTICS, 1530–31 (1986).
2016	<i>Ferrule</i> , NEWTON’S TELECOM DICTIONARY (28th ed. 2014).
2017	JEFF HECHT, UNDERSTANDING FIBER OPTICS 317 (5th ed. 2015).
2018	U.S. Patent No. 6,201,908 to Grann.
2019	Scheduling Order, Dkt. 53, Inneos LLC v. Opticis Co. Ltd. et al., No. 8-23-cv-00185 (C.D. Cal. Aug. 10, 2023).
2020	Order Denying Stay, Dkt. 74, Inneos LLC v. Opticis Co. Ltd. et al., No. 8-23-cv-00185 (C.D. Cal. Sept. 13, 2023).
2021	<i>Ferrule</i> , IBM DICTIONARY OF COMPUTING (10th ed. 1993).
2022	Opticis USA’s Notice of Joinder in Connection with Motion to Stay, Dkt. 70, Inneos LLC v. Opticis Co. Ltd. et al., No. 8-23-cv-00185 (C.D. Cal. Aug. 28, 2023).
2023	Exhibit from April 11, 2024, Deposition of Dr. Alan Willner, Ph.D., University of Southern California Optical Communication Laboratory Research Webpage Printout.
2024	Exhibit from April 11, 2024, Deposition of Dr. Alan Willner, Ph.D., Annotated Optical Communication Laboratory Research Webpage Printout, dated April 11, 2024.
2025	Exhibit from April 11, 2024, Deposition of Dr. Alan Willner, Ph.D., Declaration in Support of Defendant Opticis Co., Ltd.’s Opening Claim Construction Brief, Dkt. 83, Inneos LLC v. Opticis Co. Ltd. et al., No. 8-23-cv-00185 (C.D. Cal. Dec. 15, 2023).

Exhibit No.	Description
2026	Exhibit from April 11, 2024, Deposition of Dr. Alan Willner, Ph.D., Exhibit A to the Declaration of Dr. Alan Willner, Ph.D. (EX1003)
2027	Computer file titled “straightmux”, last modified October 16, 2003.
2028	Computer file titled “straightmuxsec”, last modified October 16, 2003.
2029	Computer file titled “ceramic”, last modified July 18, 2003.
2030	Computer file titled “ymux”, last modified July 21, 2003.
2031	Computer file titled “ymuxxsec”, last modified October 16, 2003.
2032	Email from Curtis Ray to Eric Grann with attachment, dated October 16, 2003.
2033	Windows Explorer window containing metadata for “straightmux,” “straightmuxsec,” and “ymuxxsec”.
2034	Email from Curtis Ray to Brian Peters and Eric Grann with screenshot of attachment, dated November 11, 2003.
2035	Email from Curtis Ray to Eric Grann with screenshot of attachment sheet 1, dated January 13, 2004.
2036	Email from Brian Peters to Mike Rogers, dated July 17, 2003.
2037	Computer file titled “Ultem Focuser”, last modified July 21, 2003.

Exhibit No.	Description
2038	Computer file titled “Utem Focuser.SMF”, last modified July 22, 2003.
2039	Windows Explorer window containing metadata for “Utem Focuser” and “Utem Focuser.SMF”.
2040	Windows Explorer window containing metadata for “New LX4 mux with 500 micron pitch” and contents of “New LX4 mux with 500 micron pitch”.
2041	Email from Brian Peters to Hatch Graham, dated December 8, 2003.
2042	Computer file titled “Single Lens LX4 coupler1”, last modified January 9, 2004.
2043	Windows Explorer window containing metadata for “Single Lens LX4 coupler1”.
2044	Windows Explorer window containing metadata for “ceramic” and “ymux”.
2045	Declaration of Curtis Ray, dated April 23, 2024.
2046	Declaration of Eric Grann, dated April 23, 2024.
2047	Declaration of Scott Fluegel, dated April 23, 2024.
2048	Deposition Transcript of Dr. Alan Willner, Ph.D., dated April 11, 2024.
2049	Supplemental Declaration of Dr. Michael Lebby, Ph.D.

Exhibit No.	Description
2050	Email from Brian Peters to Eric Grann and Curtis Ray, dated November 10, 2003.
2051	EXPUNGED
2052	EXPUNGED
2053	EXPUNGED
2054	RESERVED
2055	RESERVED
2056	Deposition Transcript of Dr. Alan Willner, Ph.D., dated August 29, 2024.

I. INTRODUCTION

Patent Owner Inneos LLC (“Inneos”) submits this Sur-Reply concerning Opticis Co. Ltd.’s Petition for *Inter Partes* Review of U.S. Patent No. 7,198,416 (“the ’416 Patent”).

First, Petitioner has improperly introduced new arguments and evidence, including expert testimony either uncited or incorporated by reference in its Reply, as well as expert testimony that contradicts his deposition. This improper material should be disregarded.

Second, the Board should adopt Inneos’ proposed constructions of “optical combiner” and “stopped single optical fiber.” Petitioner has failed to support its constructions.

Third, Grounds 1-4 all fail. Kurita and Lemoff fail to disclose all elements of the Challenged Claims, and the references in Grounds 2 and 4 are not combinable and fail to disclose all elements of the Challenged Claims.

Fourth, Ground 5 fails because the record as a whole, including the prosecution history, establishes that Inneos successfully swore behind Bhandarkar.

The Challenged Claims are therefore not unpatentable over the asserted grounds.

II. PETITIONER’S REPLY AND SUPPLEMENTAL EXPERT DECLARATION INCLUDE IMPROPER MATERIAL AND SHOULD BE DISREGARDED.

Petitioner’s Reply suffers multiple improprieties, each of which independently requires it to be disregarded, namely:

- Asserting new arguments and/or grounds based on additional references;
- Incorporating by reference large blocks of Dr. Willner’s 89-page Supplemental Declaration; and
- Contradicting Dr. Willner’s deposition testimony with new declaration testimony on topics he refused, or was unable, to address at his deposition.

A. Impermissible New Arguments and Evidence

Petitioner’s Reply introduces new arguments and evidence, including Dr. Willner’s 89-page Supplemental Declaration (EX1016) and a new reference, U.S. Patent No. 6,396,978 (“Grann ’978 Patent”) (EX1020). Petitioner’s Reply introduces new arguments based on EX1020 and U.S. Patent No. 6,201,908 (“Grann ’908 Patent”) (EX2018), neither of which were included in the Petition’s asserted grounds. These new arguments are improper and must be disregarded. *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016). “Shifting arguments in this fashion is foreclosed by statute,

[Federal Circuit] precedent, and Board guidelines.” *Wasica Fin. GmbH v. Cont’l Auto. Sys., Inc.*, 853 F.3d 1272, 1286 (Fed. Cir. 2017) (citations omitted).

Moreover, because they are intertwined throughout Petitioner’s Reply, the entire Reply submission should be disregarded. For example, in his second deposition, Dr. Willner testified that he relies on EX1020 and EX2018 as documentary evidence to support his bare assertions of motivation to modify Kurita. EX2056 24:16-28:23, 29:11-36:7 (relying on EX1020, EX2018 to modify Kurita to add integration, passive alignment, “commercially viable product”).

If a new argument or ground is presented in a Reply, the Board may not “parse the reply brief to determine which, if any, parts of that brief are [properly] responsive and which are improper.” *Intelligent Bio-Systems*, 821 F.3d at 1369. Instead, the entire reply brief and accompanying declaration must be disregarded or excluded. *Id.* at 1370; *see also* PTAB Consolidated Trial Practice Guide pp.73-75 (November 2019) (“CTPG”) (“The Board is not required to attempt to sort proper from improper portions of the reply or sur-reply.”). The CTPG specifically warns against using newly disclosed references to “gap-fill” when a claim element was not taught by the references submitted with the Petition. *Id.* at 74.

In Section III, Petitioner argues that a POSITA “would have known of the earlier Grann patents,” and that they provide motivation to add components to Kurita. Reply pp.9-12. This is not the same thing as “state of the art.”¹

Additionally, even if Inneos cited EX2018 for one purpose (explaining conception, Patent Owner’s Response (“POR”) p.71), Petitioner may not use it for another, unrelated purpose (motivation to modify Kurita). *See Vimeo, Inc. v. British Telecomms. PLC*, No. IPR2019-00833, Paper 20 at 49-53 (PTAB Aug. 5, 2020).

All discussions of EX1020 and EX2018 in Petitioner’s Reply and EX1016 should be disregarded, as should EX1020.

Further, Section III is cross-referenced throughout Petitioner’s Reply. *See, e.g.*, Reply pp.8, 12, 15. Further, Dr. Willner references the Grann patents in his Claim Construction section and cross-cites to his Ground 1 analysis. EX1016 ¶5

¹ Petitioner might argue that Section III’s purpose is merely to establish the “state of the art” at the time of the invention, relying on *e.g.*, *Genzyme Therapeutic Prods. Ltd. v. Biomarin Pharm. Inc.*, 825 F.3d 1360, 1365-69 (Fed. Cir. 2016), as cited in the CTPG. But this is incorrect. *Genzyme* is distinguishable at least because *Genzyme’s* counsel *admitted at the hearing* that the “prior art as a whole” could be used “in order to figure out what’s common knowledge.” *Id.* at 1367 (emphasis added). Moreover, because Inneos cannot submit evidence or expert testimony with this Sur-Reply, 37 CFR §42.23(b), it would violate Inneos’ due process rights under the APA to allow this new evidence. *Id.* at 1366. Thus, the Board must disregard the new arguments and evidence. *Apple Inc. v. Smart Mobile Techs. LLC*, No. IPR2022-00981, Paper 34 at 49 (PTAB Nov. 7, 2023) (newly-raised assertions concerning what a person of skill in the art would have understood were “untimely and therefore inappropriate”).

(citing ¶¶70-71). Paragraphs 70-71, in turn, cite to the Grann patents (EX1020 and EX2018) as well as deposition testimony by Curtis Ray (EX1017) concerning the Grann patents. Further discussion of this Ray deposition testimony appears in Paragraph 80 as well. The Board is neither required or expected to unravel this lattice-work of new and old arguments. The entire Reply, including new Exhibits, should be disregarded. *Intelligent Bio-Systems*, 821 F.3d at 1369.

B. Uncited and Incorporated-by-Reference Expert Testimony

Dr. Willner submitted an 89-page Supplemental Declaration with Petitioner's Reply. EX1016. Petitioner batch-cites entire sections of EX1016 to support broadly-asserted one-sentence propositions. For example:

EX1016 Section	Reply
II(A)	p.11
II(C)	p.4
II(E)	p.9
III(A)	p.12
III(B)(3)	p.18
III(C)	pp.19-20
III(D)	p.20 n.5
IV	p.26

Incorporation by reference is prohibited. 37 CFR §42.6(a)(3). The Board may disregard such improper expert declarations. *Pac. Market Int'l v. Ignite USA, LLC*, No. IPR2016-01875, Paper 32 at 15(PTAB Mar. 27, 2018) (disregarding expert declaration filed with Reply because the party “attempt[ed] to incorporate by reference three pages of argument that would not fit” within the word limits of a Reply which was four words shy of the 5,600-word limit). Here, similarly, Petitioner’s Reply is 5,597 words, three words shy of the 5,600-word limit.² Considering only the citations listed above, Petitioner has incorporated by reference 77 pages of EX1016 into its 26-page Reply.

Additionally, extensive portions of EX1016 are not even directly cited in the Reply. Including the paragraphs of the sections identified above, the following paragraphs of EX1016 are not cited by number in the Reply: ¶¶1-13, 18-31, 33-52, 57-62, 75-76, 81-82, 84, 93-99, 101-106, 115-118, 123-136, 140, and 156-180. The Board should disregard them all.

C. Contradictory and Improper Bolstering

Inneos previously identified deficiencies in Dr. Willner’s deposition testimony, including refusals and failures to respond to questions. *E.g.*, POR pp.87-88. Yet in EX1016, he not only seeks to defend his non-responsiveness

² Petitioner’s Reply also block-cites portions of EX1003. To the extent these citations are not responsive to Inneos’ Response, they are likewise improper incorporation by reference and/or not proper reply material.

(EX1016 §IV), but also attempts to provide supplemental testimony (and belated responses) to questions he was unable or unwilling to answer at his deposition. This is improper, it undermines his credibility, and his effort to “clean up” his testimony via a further declaration should receive no weight. *See SPTS Techs. Ltd. v. Plasma-Therm LLC*, No. IPR2018-00618, Paper 24 at 25-27 (PTAB Aug. 26, 2019); *Delaware Valley Floral Grp., Inc. v. Shaw Rose Nets, LLC*, 597 F.3d 1374, 1381-82 (Fed. Cir. 2010).

For example:

1. Construction of “Optical Combiner”

During his first deposition, Dr. Willner was asked about his proposed construction of “optical combiner” in the underlying district court action³ (“a device that combines multiple optical inputs into an output”). EX2048 64:25-65:7. In particular, he was asked—repeatedly—what “an output” means, including whether it needed to be multiplexed, and whether “an” means “one.” EX2048 65:9-69:16. Dr. Willner avoided responding. *Id.*

In EX1016, he now endorses a previously undisclosed online dictionary (*see infra* §III(B)), which explicitly recites “a single output.” EX1016 ¶¶14 (quoting EX1019), 45. He also offers additional commentary on multiplexing. *Id.* ¶20. *Cf.* EX1016 ¶¶172-173.

³ Dr. Willner did not propose a construction of “optical combiner” in his opening IPR declaration. EX1003.

2. Meaning of “Stopped”

Dr. Willner asserted that “the word ‘stopped’ is not typically used to describe optical fibers in this field.” EX2048 80:22-24.

Apparently, to reconcile his proposed construction with this admission, he now asserts that “a POSITA would have understood the term ‘stopped’ to mean ‘fixed’ *in the context of the ’416 Patent claims.*” EX1016 ¶50 (emphasis added). This shift to focus on the intrinsic evidence, coupled with the fact that “fixed” appears nowhere in the ’416 Patent, is fatal to Dr. Willner’s definition.

3. Ways to “Fix” a Fiber Optic Cable

Dr. Willner was asked how a fiber optic cable could be “fixed,” according to his construction. All he could think of were the structures in Lemoff and Bhandarkar. EX2048 96:4-103:6. Yet in EX1016, he opines about “clamping” and “v-grooves.” EX1016 ¶¶53-56. But he never explains them, or how they satisfy either party’s proposed construction of “stopped single optical fiber.” *Id.* Moreover, he acknowledges that they are “not literally within the text of the ’416 Patent.” *Id.* ¶56.

4. What the Fiber is “Fixed” To

Dr. Willner explained that his proposed construction of “stopped” to mean “fixed” meant fixed in an absolute sense, or “such that the movement in a spatial dimension is substantially limited.” EX2048 80:2-7. Further, when asked whether

a “fixed” fiber would also be in alignment with the combiner, he resisted connecting the two concepts. *Id.* 85:12-96:19.

Yet in his Supplemental Declaration, he changes his frame of reference, now insisting that “stopped” means “fixed” in a relative sense, merely “*with respect to the optical combiner.*” EX1016 ¶51.

5. Whether Kurita’s Components are “Integrated”

Building from Inneos’ construction of “optical combiner,” Dr. Willner was asked whether the system of Kurita was “integrated.” He indicated that he had not previously addressed integration and did not answer. EX2048 129:19-131:12.

In EX1016, he offers a new (and unsupported) opinion that “there is no reason why a POSITA would not also understand how to implement the conceptual diagram [of Kurita] in a packaged, integrated device (e.g., with a housing)” and “a POSITA would have been much more likely to implement Kurita in a practical device, with a housing, using integrated, pre-aligned components.” EX1016 ¶66; *see also id.* ¶¶67-68.⁴

III. CLAIM CONSTRUCTION

A. “Optical Combiner”

“Optical combiner” appears in the preamble of ’416 Patent claims 1 and 7. Inneos construes this term as “an integrated subassembly of optical components for

⁴ Dr. Willner improperly relies on the Grann patents to support this new opinion. §II(A), *supra*.

multiplexing light of different wavelengths, which includes an integrated pre-aligned connector with a stop to hold the single fiber optic cable.” POR pp.16-26.

In its Institution Decision, the Board found that “optical combiner” is limiting. The Board acknowledged that “the ’416 Patent’s specification discloses an integrated, monolithic molded optical combiner,” but added that it also includes “an optical combiner comprised of components that are integrated sufficiently to combine multiple optical inputs into an optical output focused onto a spot on an optical fiber but are not integrated in a pre-aligned unit.” Institution Decision pp.7-9. The Board concluded, “[d]uring trial, the parties can address what the ordinary and customary meaning” of “optical combiner” would be to a POSITA. *Id.* at 9. As *Phillips* teaches, the “ordinary and customary meaning” is determined “not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc). And “because patentees frequently use terms idiosyncratically,” courts look to intrinsic and extrinsic evidence to determine the ordinary and customary meaning to a POSITA at the time of the invention. *Id.* at 1313-14.

The Reply mistakenly attacks Inneos’ claim construction as not directed to “ordinary and customary meaning.” Reply p.5. But this misconstrues *Phillips*. Inneos addressed the proper construction under *Phillips*. POR pp.16-26.

Petitioner argues in reply that “optical combiner” should be given a generically broad construction of “a device that combines multiple optical inputs into an output.” Reply p.4. But this runs contrary to *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1256-57 (Fed. Cir. 1989). In *Corning*, the Federal Circuit rejected a broad construction of “optical waveguide” as “divorced from reality” because it failed to take into account the particular problem the inventors were working on, as described in the specification. *Corning*, 868 F.2d at 1257. To be sure, *Corning* considers language suggesting definition (“are hereinafter referred to as...”), and also the specification’s description of physical attributes, equations, and the particular structural relationship set forth in the specification, as well as the particular problem. *Id.* at 1256-57. Although the *Corning* court does not state the precise construction adopted, it is clear that *all* of these factors were considered in finding that “optical waveguide” as used in the patent was narrower than the broad generic meaning. The Federal Circuit has frequently confined broad terms in the preamble to a specification’s particular disclosures, and has interpreted “the present invention” as disavowing claim scope beyond that described. *See Poly-America, L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016); *Wastow Enters., LLC v. Truckmovers.com, Inc.*, 855 F. App’x 748, 750-52 (Fed. Cir. 2021) (narrowly construing general term in preamble); *Honeywell Int’l, Inc. v. ITT Indus.*, 452 F.3d 1312, 1318 (Fed. Cir.

2006) (preamble term limited by specification’s description of “present invention”).⁵

Petitioner also newly cites an online dictionary to support its generic construction. Reply p.5 (citing EX1019). EX1019 is not contemporaneous with the invention, and is facially inapplicable to the field of the ’416 Patent. Other than the generic first sentence (which Petitioner elides to exclude “display technologies”), the subject matter of EX1019 is inapplicable, and Dr. Willner did not contend otherwise at his deposition. EX2056 43:7-59:8. Although an opposing party is normally expected to submit evidence showing why an untimely dictionary is inapplicable, here, Board rules preclude Inneos from submitting such evidence with its Sur-Reply. 37 CFR §42.23(b). Accepting EX1019 would deny Inneos the right to be heard by submitting responsive evidence. *See Genzyme*, 825 F.3d at 1366. Petitioner has not shown that EX1019 was unavailable earlier.

Petitioner then argues, paradoxically, that Inneos’ construction is *not narrow enough*, suggesting that “optical combiner” should be limited to “injection-molded” materials, pointing to six different, nonsynonymous, terms in the specification. Reply pp. 5-6. Petitioner also selectively grabs one of five bullet

⁵ Petitioner’s citation to *Thorner v. Sony Computer Entertainment America LLC*, 669 F.3d 1362, 1366 (Fed. Cir. 2012) is not to the contrary. In *Thorner*, the “present invention” wording in the specification met the “exacting” bar of disavowal of claim scope. *Id.*

points listing “key features” and suggests that, too, is an omitted limitation, but makes no effort to connect this concept to the claim language. *Id.* Moreover, this bullet point (EX1001 4:66-5:3) is framed permissively. Neither narrowing addition should be included in the construction.

Next, Petitioner shifts again, arguing that the structural features included in Inneos’ construction are merely “*permissive*” and “*optional*.” Reply pp.6-7. This argument is fallacious; an indication that something could be X *or* Y does not mean that it could be X or Y *or anything else too*. The “in most embodiments” passage Petitioner relies on refers to whether the components are integrated *into a single monolithic plastic-molded device*, not whether they are *integrated* at all. *Id.*

Petitioner further argues that the ’416 Patent’s third embodiment is not “integrated” because it shows components, such as support 215, in addition to the “single monolithic optical block” of coupling optic 216. Reply p.7. However, the specification makes clear that the combiner is “shown generally” as 210 and includes lasers, support 215,⁶ and coupling optic 216 (together with its constituent parts). As shown in Fig. 7, these components are “integrated,” which is all that Inneos’ proposed construction specifies.

⁶ Petitioner erroneously interprets support 215 as being limited to the larger flat box-shape and not including the smaller cube-shaped supports for each laser.

Finally, Petitioner also repeats its reliance on the specification's discussion of Lee. Reply pp.7-8. As previously explained, this is inapposite. POR pp.23-24.

B. “Stopped Single Optical Fiber”

In its Petition, Petitioner proposed that “stopped” means “fixed.” Petition p.13. Petitioner's sole support was Dr. Willner's declaration. *Id.* (citing EX1003).

In response, Inneos argued that the term “stopped single optical fiber” means “a single optical fiber that has been inserted into the optical combiner until it abuts a physical structure that prevents the fiber from being inserted further into the optical combiner.” POR pp.26-31.

In its Institution Decision, the Board stated, “The '416 patent's specification...appears to include a fiber that is fixed in other ways that enable the collimated output beam to be focused onto a single spot on the optical fiber.” Institution Decision p.11. The Board did not, however, cite any portion of the specification that teaches a way to “stop” an optical fiber other than by use of a stop inside the ferrule, as described in Inneos' Response. *See* POR pp.29-31.⁷

Dr. Willner asserts that “stopped” single optical fiber has no ordinary meaning to a POSITA (EX2048 80:22-24); thus, this term cannot be construed more broadly than disclosed in the specification. *See Indacon, Inc. v. Facebook, Inc.*, 824 F.3d 1352, 1357 (Fed. Cir. 2016); *Irdeto Access, Inc. v. Echostar Satellite*

⁷ The Board's wording does not track Inneos' construction.

Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004). The specification discloses only one structure for providing a stopped single optical fiber. Despite many opportunities to provide more evidence to support its position, Petitioner has only offered Dr. Willner’s *ipse dixit*. And, as noted, during his deposition, he agreed that “stopped” did not have a meaning to a POSITA at the time of the invention. EX2048 80:22-24.⁸

Petitioner fails to identify anything in the specification disclosing any other structure for “stop[ping a] single optical fiber.” Reply p.8.⁹ Instead, Petitioner identifies several different structures that could “fix” a fiber: a stop in a receptacle that stops the ferrule (Lemoff), and (newly-identified) “clamping and v-grooves,” even while admitting that “clamping and v-grooves” are “not literally within the text of the ’416 Patent.” Reply p.8 (citing EX1016 ¶¶53-56). *See also supra* §§II(C)(2)-(4).

Ultimately, Petitioner ends its argument where it began: improperly seeking to change the claim to equate “stopped” with the much broader term “fixed”—

⁸ Even in the *apologia* concerning his deposition in EX1016, Dr. Willner makes no reference to his admissions on “stopped single optical fiber.” As he states, “[t]he transcript speaks for itself.” EX1016 ¶175.

⁹ Dr. Willner agrees “that the stop or seat 60 within ferrule 80 may be used to stop a single optical fiber when the single optical fiber is inserted into the ferrule 80. The seat 60 functions as a stop in the example of the first embodiment [of the ’416 Patent] because it causes the single optical fiber inserted into the ferrule 80 to become stopped.” EX1016 ¶53.

when the claim term is “stopped single optical fiber”—and then to recite other ways of “fixing” a fiber (without a stop) that were known in the art. The Federal Circuit has disapproved this kind of over-broadening construction (even under the no-longer-applicable BRI standard). In *In re Man Mach. Interface Techs. LLC*, 822 F.3d 1282, 1286 (Fed. Cir. 2016), the Federal Circuit rejected the Board’s construction of “thumb switch” as overly broad. The Board construed the term as “not preclud[ing] another digit, i.e., index finger” from activating the switch. Rejecting this construction, the Federal Circuit noted that it “ignores the term ‘thumb’ in ‘thumb switch.’” *Id.* at 1285. Similarly, here, Petitioner’s proposal to construe “stopped single optical fiber” as “fixed” ignores the “stop.”

IV. EACH GROUND FAILS TO SHOW THE CHALLENGED CLAIMS WOULD HAVE BEEN OBVIOUS

A. Ground 1: Kurita Alone

Kurita does not teach the “radial sector” or “quadrant” limitations of the Challenged Claims. Petitioner’s Reply focuses on the 2x2 arrangement of Kurita Fig. 3, but fails to address the requirement that both “radial” and “quadrant” require alignment with the *center axis* of the lens. Inneos has consistently addressed this requirement. EX2003 ¶¶155-156; EX2004 pp.5, 7; EX2005 p.5; EX2049 ¶¶69-71; *see also* Institution Decision p.14. Petitioner cites no portion of Kurita that teaches Fig. 3 to be centered on the lens; Kurita is silent on the point

(and indeed the 3x3 array of Figs 1-2 indicate that center-alignment on the lens was not part of Kurita's design).

Kurita does not disclose an "optical combiner" under Inneos' construction. It does not teach an integrated subassembly—even if the Board adopts a construction requiring some lesser degree of integration, Kurita does not teach a sufficiently integrated subassembly. "In the absence of such other supporting evidence to enable a skilled artisan to make the claimed invention, a standalone §103 reference must enable the portions of its disclosure being relied upon." *Raytheon Techs. Corp. v. Gen. Elec. Co.*, 993 F.3d 1374, 1376-77, 1381 (Fed. Cir. 2021). Petitioner's evidence is devoid of any explanation how Kurita enables a POSITA to make an integrated subassembly of optical components. Kurita also does not teach or enable an integrated connector with a stop.

Nor does Kurita disclose a "stopped single optical fiber," under Inneos' construction. Moreover, because Kurita does not disclose or enable any manner of "fixing" the fiber optic cable, it also fails under Petitioner's construction.

If the Board adopts either of Inneos' constructions, Ground 1 fails. Petitioner's argument that Kurita alone teaches all limitations of the Challenged Claims even under Inneos' constructions (Reply pp.14-15) improperly raises new theories and is also internally inconsistent. Far from relying on Kurita alone, Petitioner expands its argument to rely on Kurita combined with EX1020 and/or

EX2018. Reply p.15 (citing Reply §III and EX1016 ¶¶65-74, both of which address EX1020 and EX2018). As explained *supra* §II(A), this is improper. Further, by acknowledging the need for a motivation to combine analysis (Reply p.15) Petitioner acknowledges that its argument is now premised on a new combination and not on Kurita alone. But its asserted rationale for a motivation to combine Kurita with EX1020 and/or EX2018 is based on *Petitioner's* proposed construction of “stopped”: “*fixing* the fiber is necessary to make sure it is not free floating in space.” Reply p.15 (emphasis added). On *Inneos'* proposed construction, Petitioner entirely fails to identify a motivation to combine Kurita with EX1020 or EX2018.

B. Ground 2: Kurita and Lemoff and/or LaMarche

1. Kurita and Lemoff Are Not Combinable

For Ground 2, Petitioner relies on Lemoff solely to add a connector to Kurita. Reply pp.15, 18. But Lemoff and Kurita are not combinable. They are not analogous. *See* POR p.47. In Reply, Petitioner quotes selectively to argue that Lemoff *is* a multiplexer, eliding Lemoff's critical wording: “*without using an optical multiplexer.*” EX1006 1:55-56 (emphasis added).

The Petition asserts three rationales that the “receptacle and ferrule arrangement” of Lemoff could be combined with Kurita to “secur[e] an optical fiber”: (1) Kurita was “ready for improvement,” (2) the combination is “according

to known methods,” and (3) “Lemoff...allows optical fibers to be plugged into or out of the optical device based on changing circumstances.” Petition pp.29-31.

The first two are too conclusory to be entitled to any weight. Mere “conclusory statements” like these may not serve as a basis for finding the asserted claims obvious. *See In re Nuvasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016).

The third is a non-sequitur, emphasizing the Lemoff receptacle’s *disconnectability* as a rationale for using it to *secure* the fiber in Kurita. But *disconnectability* would serve no identified purpose in Kurita. *See* POR p.48. Petitioner ignores this, and instead focuses on “bodily incorporation” in response to Inneos’ further argument about the physical incompatibility of Lemoff and Kurita. Reply pp.16-18.¹⁰ Petitioner’s citation to *Intel* concerning “bodily incorporation” misses the point. *Id.* at 16. Although “the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference,” the test *is* whether a POSITA “would have been motivated to combine the teachings of the prior art references to achieve the

¹⁰ Dr. Willner’s credibility is further undermined by his reliance on an obvious typographical error in Lemoff (“**lot** less than 100” microns). EX1016 ¶114. Lemoff teaches the opposite. Both the original application (¶21) and the EP version (¶17) show that the correct phrase is “**not** less than 100” microns. EX2056 13:11-23:18. Dr. Willner didn’t consult either document. *Id.* Additionally, Inneos seeks judicial notice that both ¶21 of the original Lemoff application (U.S. Appl. No. 10/370,853) and ¶17 of Lemoff’s European counterpart, EP1 450 453, state “...not less than 100” microns. Fed. R. Evid. 201; *see Mobility Workx, LLC v. Unified Patents, LLC*, 15 F.4th 1146, 1151-52 (Fed. Cir. 2021).

claimed invention.” *Allied Erecting and Dismantling Co., Inc. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (cleaned up). Here, there is no motivation to combine Kurita with Lemoff—and in particular no clear reason to add Lemoff’s pluggable connector into Kurita’s test-bench setup. Merely being “in a POSITA’s toolbox” is not sufficient. *See Redline Detection, LLC v. Star Envirotech, Inc.*, 811 F.3d 435, 453-53 (Fed. Cir. 2015). In his second deposition, Dr. Willner did not identify any coherent rationale for adding pluggable connectors to Kurita. EX2056 40:2-43:6; *see also* EX2003 ¶¶225-236.

2. Kurita and LaMarche Are Not Combinable

Petitioner offers no further arguments for combining Kurita with LaMarche. *See* Reply pp.15-18.¹¹ Accordingly, Inneos relies on its Response. POR pp.43-47.

C. Ground 3: Lemoff Alone

Petitioner makes two further arguments concerning Ground 3. Both are unavailing.

First, acknowledging that Lemoff lacks collimating lenses, Petitioner posits, alternatively, that a POSITA would have known to use them or that LaMarche teaches them, and that a POSITA would have been motivated to add collimating lenses to Lemoff. Reply p.19. Yet Petitioner does not articulate *why* a POSITA would have added collimating lenses to Lemoff. *See* POR pp.59-60. Petitioner’s

¹¹ EX1016 §§III(B)(1)-(2) are not cited in the Reply, and must be disregarded. *See supra* §II(A).

generalized assertions that combining Lemoff and LaMarche would improve “coupling efficiency,” without explaining how this particular combination would do so, is insufficient to overcome Inneos’ explanation why they are not combinable. POR p.62 (“there is no evidence that adding collimating lenses to Lemoff would lead to an improvement of coupling efficiency”); *see also* POR pp.52-56, 64-67; *infra* §IV(D). Again, a standalone §103 reference must enable the portions of its disclosure being relied upon, in the absence of supporting evidence to enable a skilled artisan to make the claimed invention. *Raytheon*, 993 F.3d at 1376-77, 1381. Lemoff does not mention collimating lenses, placing them at each aperture, or how this would be accomplished. Dr. Willner and LaMarche do not either.

Second, Petitioner overlooks the *function* of the means-plus-function limitation, “focusing means,” asserting that Fig. 2 “meets *the structure* for the ‘focusing means’ element.” Reply pp.19-20 (emphasis added). The function is: “focusing said [n] *collimated* beams *onto a single spot* at said stopped single optical fiber...” ’416 Patent claims 1, 7 (emphasis added). Tellingly, the Petition ignores “collimated” and “onto a single spot.” Petition p.45; *see also* POR pp.55-57, 63-65. At least because Lemoff does not include collimating lenses, and does

not focus onto a single spot,¹² Lemoff does not teach the claimed function. *RCA Corp. v. Applied Digital Data Sys., Inc.*, 730 F.2d 1440, 1445 n.5 (Fed. Cir. 1984).

Further, because Lemoff provides numerous distinct optical signals through the apertures 120, it does not provide “an output” (or a single output) and therefore fails to disclose an “optical combiner” even under Petitioner’s construction. *See* EX2056 51:10-52:8; *supra* §II.C.1.

D. Ground 4: Lemoff and LaMarche

Recognizing LaMarche’s weakness, which is not analogous art, Petitioner asserts in one short paragraph that it “has many of the same optical elements” and “would have commended itself to a POSITA.” Reply. p.20. This is not the standard. Citing no authorities, Petitioner simply posits that Inneos has gotten the law wrong. But absent any actual citations in reply, Inneos is correct that LaMarche is not analogous and is not combinable with Lemoff. *In re Nuvasive, Inc.*, 842 F.3d at 1383.

Other than repeating its “bodily incorporation” assertion, Petitioner offers no evidence of a motivation to combine the two patently-incompatible inventions in Lemoff and LaMarche. Here, Inneos, and the Board, have applied the correct test: whether “a skilled artisan would have been motivated to combine the teachings of

¹² EX1006, Abstract (“This optical signal emitter does not require an optical multiplexer, or other device, to combine components of an optical signal.”); 1:55-56 (same).

the prior art references to achieve the claimed invention[.]” *Intel Corp. v. PACT XPP Schweiz AG*, No. 2022-1038, 2023 WL 2198649, at *3 (Fed. Cir. Feb. 24, 2023) (citations omitted). “[E]vidence that the teachings and concepts of the prior art were *(either actually or apparently) incompatible* such that a skilled artisan would not have reasonably expected to succeed in combining those teachings is relevant to the obviousness analysis.” *Id.* (emphasis added). In that case, however, “*the Board never made a factual finding that King’s bus system could not be modified to include Arimilli’s L3 caches operating in shared mode.*” *Id.* (emphasis added). Here, Inneos has argued that Lemoff could not be modified to include LaMarche’s collimating lenses *over each aperture*. POR pp.59-60.

E. Ground 5: The Inventors of the ’416 Patent Successfully Swore Behind Bhandarkar

Petitioner’s Reply addresses only the issue of reasonably continuous diligence. Reply pp.20-26. Petitioner mischaracterizes the legal standard, quoting one phrase from *Perfect Surgical Techniques, Inc. v. Olympus America, Inc.*, 841 F.3d 1004 (Fed. Cir. 2016), but otherwise ignoring that case’s holding and rationale. As the Federal Circuit stated in both *Perfect Surgical* and *Arctic Cat v. GEP Power Products, Inc.*, 919 F.3d 1320 (Fed. Cir. 2019), the requirement of diligence throughout the entire critical period is subject to a “rule of reason”; “diligence need not be perfectly continuous—only *reasonably* continuous.” *Arctic Cat*, 919 F.3d at 1331 (citing *Perfect Surgical*, 841 F.3d at 1009). Thus, “periods

of inactivity within the critical period do not automatically vanquish a patent owner's claim of reasonable diligence.” *Perfect Surgical*, 841 F.3d at 1009. The point is not to “scour” the record for gaps in evidence of activity, but rather to determine whether, “in light of the evidence as a whole, the invention was not abandoned or unreasonably delayed.” *Id.* (cleaned up).

Petitioner attempts to distinguish *Correge* and *In re Enhanced*, but these cases and others demonstrate that prior art searching can support a diligence finding.¹³ Reply pp.21-22. See, e.g., *Medtronic, Inc. v. Teleflex Innovations S.A.R.L.*, No. IPR2020-00137, Paper 130 at 67-70 (PTAB June 17, 2021) (reasonably continuous diligence where period included four-month period during which counsel opened patent search, reported results, and ultimately opened prosecution file). Here, the inventors disclosed their prior art search results, including Lee, to the attorney who wrote the provisional. Thus, the prior art searching was directly related to reducing the invention to practice—regardless of whether the provisional identifies these references. Nor does Petitioner cite any requirement that these efforts have an “effect” on reduction to practice. If that

¹³ *Correge v. Murphy*, 705 F.2d 1326 (Fed. Cir. 1983) concerned abandonment, which is related to a reasonable diligence analysis. *Perfect Surgical*, 841 F.3d at 1009. In *In re Enhanced Sec. Rsch., LLC*, 739 F.3d 1347, 1358-59 (Fed. Cir. 2014), the Federal Circuit did count prior art searching towards diligence, even though the evidence as a whole in that case did not establish the attorney was reasonably diligent.

were the case, then failed experiments and deleted words would not count toward diligence.

Petitioner also argues that the relative completeness by October 2003 of the draft figures and provisional somehow demonstrates a lack of diligence. Reply pp.23-25. But the “evidence as a whole” across “the entire critical period” shows that “the invention was not abandoned or unreasonably delayed.” *Perfect Surgical*, 841 F.3d at 1009 (cleaned up). Even after mid-October 2003, prior art searching and other refinements were conducted over the next several months, followed by the provisional filing in early February 2004. Supporting evidence includes declarations showing that versions of the disclosure were dated 10/16/03, 10/24/03-11/10/03, and 1/27/04. EX2011 ¶¶6, 8, 10. The inventors emailed about “design issues and goals” on 1/13/04. EX2035. Design documents are dated 1/9/04 and 1/29/04. EX2040, EX2043. These documents and timeline are explained by inventor testimony. EX2045; EX2046. The evidence as a whole shows the work undertaken to bring forward the invention claimed in the ’416 Patent, even as the three co-inventors were also running an early-stage startup. *See generally* EX2011; EXS2027-2050.

Finally, Ground 5 merely re-argues an issue already resolved during examination. As Inneos has noted (POR p.68), the applicant successfully swore behind Bhandarkar during prosecution. EX1002 p.22. This prior resolution is

sufficient for the Board to find for Inneos. *See Shenzhen Zhiyi Tech. Co. Ltd. v. iRobot Corp.*, No. IPR2017-02050, Paper 8 at 11-12 (PTAB Mar. 12, 2018) (denying institution where issue is based on prior art and arguments considered by the Examiner); *Aquestive Therapeutics, Inc. v. Neurelis, Inc.*, No. IPR2019-00450, Paper 8 at 22 (PTAB Aug. 1, 2019) (same).

Petitioner has failed to meet its burden. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378-79 (Fed. Cir. 2015).

V. CONCLUSION

For the foregoing reasons, the Board should find each of the Challenged Claims not invalid under Grounds 1-5.

Date: September 13, 2024

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. §42.24(d), the undersigned certifies that this Patent Owner's Sur-Reply to Petitioner's Response to Institution of *Inter Partes* Review complies with the type-volume limitation of 37 C.F.R. §42.24(b). The word count application of the word processing program used to prepare this Patent Owner's Sur-Reply to Petitioner's Response to Institution of *Inter Partes* Review indicates that the Patent Owner's Sur-Reply contains 5,582 words.

Dated: September 13, 2024

/s/ Barry J. Herman

Barry J. Herman (Reg. No. 51,254)

Lead Counsel for Patent Owner

CERTIFICATE OF SERVICE

The undersigned certifies that on September 13, 2024, that a true and correct copy of the foregoing was served on Counsel for Petitioner via filing through the P-TACTS, as well as by delivering a copy via electronic mail to the following email address(es):

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