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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

APPLIED OPTOELECTRONICS, INC., Plaintiff, vs. CAMBRIDGE INDUSTRIES USA, INC., Defendant.	Case No. 3:24-cv-01010-JD **JOINT CLAIM CONSTRUCTION AND PREHEARING STATEMENT**

Plaintiff Applied Optoelectronics, Inc. ("AOI" or Plaintiff") and Defendant Cambridge Industries USA, Inc. ("CIG USA" or "Defendant") by and through their counsel hereby jointly submit this Joint Claim Construction and Prehearing Statement ("Statement") pursuant to Patent Local Rule 4-3 and this Court's Scheduling Order (Dkt. No. 30).

I. Agreed Constructions (Patent Local Rule 4-3(a))

The Parties have not agreed to the construction of any terms at this time.

II. Disputed Terms (Patent Local Rule 4-3(b))

The parties identify the following disputed claim terms, along with each party's references to the specification and prosecution history that support their respective constructions, and an identification of any extrinsic evidence:

U.S. Patent No.	Term	Plaintiff AOI's Proposed Construction	Defendant CIG USA's Proposed Construction
10,313,024	"feedthrough device" (claims 1 and 10)	Plain and ordinary meaning, which one of ordinary skill in the art at the relevant time would understand the meaning to be: "a device designed to transmit electrical signals or power from one region to another region". *See, e.g.*, Abstract; Claims 1, 9, 10; Cols. 2:7-67; 8:1-56; Fig. 3	"***patterns/traces that propagate signals from external circuitry to components within the hermetic sealed package***." *See*, '024 patent, Col. 2, lines 7-12
10,313,024	"first and second surfaces disposed opposite each other" AND "opposing arrangement" (claims 1, 12, and 15)	"first and second surfaces disposed opposite each other": Plain and ordinary meaning, which one of ordinary skill in the art at the relevant time would understand the meaning to be: "two surfaces located on different sides of the substrate, arranged in an opposing manner". *See, e.g.*, Claims 1, 10, 12, 13, 15; Col. 8:12-9:11; Fig. 3 "opposing arrangement": Plain and ordinary meaning, which one of ordinary skill in the art at the relevant time would understand the meaning to be: "arranged on top and bottom sides of the substrate". *See, e.g.*, Claims 1, 15; Col. 2:18-47, 5:5-18, 9:1-34; Figs. 2A-2B, 3	"***two surfaces located on different sides of a substrate***." AND "***arranged on top and bottom sides of a substrate.***" *See, e.g.*, *Id.*, Col. 2 lines 18-24 (with respect to "feedthrough device" this "electrically isolates RF traces from power-related traces (e.g., DC traces, ground traces) by disposing power and RF traces on opposite sides. This configuration of power and RF traces may also be referred to as an opposing arrangement"; Col. 2, lines 39-47: "A first side of the feedthrough device may include traces configured to propagate power signals, e.g., DC signals, from circuitry of the substrate to components within the hermetically-sealed housing. On the other hand, a second side of the feedthrough device, opposite the first side, may include traces

			configured to propagate RF signals from circuitry of the substrate to components within the hermetically-sealed housing"; and Col. 2, lines 48-52: "Therefore, the RF and power signal traces of the feedthrough device may be electrically isolated from each other based on the distance therebetween, e.g., provided by the width of the feedthrough device, and/or the material properties of the feedthrough device."
9,523,826	"<u>confined by the main body and sliding component</u>" (claims 1 and 7)	Plain and ordinary meaning	"***enclosed within the limiting space by the main body and the sliding component***." *See, e.g.*, '826 Patent, FIGS. 2 and 3, Col. 3, lines 11-24; Col. 4, lines 13-18
10,466,432	"<u>fiber interface</u>" (claims 1 and 2)	Plain and ordinary meaning, which one of ordinary skill in the art at the relevant time would understand the meaning to be: "a receptacle used to receive a fiber optic ceramic ferrule". *See, e.g.,* Abstract; Claims 1, 2; Col. 1:42-2:37; 3:10-4:19; Figs. 1-11.	"***a receptacle that receives a fiber optic ferrule***" *See, e.g.,* '432 Patent, FIGS. 1 and 2, Col. 1, lines 48-52; Col. 2, lines 8-10; Col, 3; lines 18-26.
10,466,432	"<u>passive optical element</u>" (claims 1 and 3)	Plain and ordinary meaning, which one of ordinary skill in the art at the relevant time would understand the meaning to be: "devices or elements used in optical systems that do not require external power or active control to perform their function".	"***a separately manufactured and assembled module containing optical components including a mechanical transfer pin, a fiber array, a plurality of ferrules coupled to fiber interfaces and optionally an arrayed waveguide grating, which is coupled without***

		See, e.g., Abstract; Claims 1, 3,4, 6; Col. 1:42-2:37, 3:10-4:19; Figs. 1-11	***soldering to a printed circuit board assembly ("PCBA")***. *See Id.*, FIGS. 1-5, Col. 1, lines 39-65; Col. 2, lines 32-34; Col. 4, lines 20-28; '432 Prosecution History, Amendment file June 18, 2019, at 5-7; Notice of Allowability mailed August 13, 2019 at pages 2-3: "A printed circuit board assembly (PCBA component (1) having a receiver and a transmitter (see Fig. 1 showing this component: and – A passive optical element (see separable passive element shown in Fig. 2 and also shown in Figs. 4 and 6. The application's invention/gist is the combination of Figures 1 and 2 (or 4/6) to create an overall "module" that is shown connected in Figure 3." *Id.* (emphasis in original).
10,042,116	"<u>substrate</u>" (claim 1)	Plain and ordinary meaning, which one of ordinary skill in the art at the relevant time would understand the meaning to be: "a supporting structure for an AWG device". *See, e.g.*, Claim 1; Col. 2:28-57, 3:33-57, 8:31-50, 9:21-61, 12:4-11; Figs. 1, 2, 5A	"***a silicon or similar material upon which cladding and core layers are deposited to form the AWG device***." *See* '116 Patent at Col. 2, lines 30-34; Col. 3, lines 33-46; Col. 8, lines 31-45; Col. 9, lines 46-50. *See also* '116 Prosecution History, Response dated January 29, 2018, at 7-8 (Bai discloses an AWG 110 that emits light from the side *opposite* the substrate 124 towards a photodetector 114 (see FIG. 1A and 1B of Bai

			reproduced below). Thus, Bai appears to disclose the opposite of Applicant's claimed invention. In contrast, claim 1 requires emitting light from the AWG chip "*on the same side as the substrate*. … Applicant further submits that one of ordinary skill in the art would not be motivated to modify Bai to emit light on the same side as the substrate 124 as the result would prevent coupling with the photodetector 114. Applicant's claimed invention avoids this problem by including an exposed output interface region to allow light to emit from the AWG on the same side as the substrate. *See e.g., Applicant's Disclosure; FIG. 5A and accompanying description*."); Notice of Allowability mailed June 4, 2018, at 2.
10,175,431	"<u>minimum bend radius</u>" (claims 1, 2, 10, 11, and 16)	Plain and ordinary meaning, which one of ordinary skill in the art at the relevant time would understand the meaning to be: "the (smallest) radius of the bend of the intermediate optical fiber starting from the center of the bend to the longitudinal center line (AWG)". *See, e.g.*, Claims 1, 10, 11, 16; Col. 8:14-34, 8:66-10:3; Fig. 4	***indefinite***. According to the '431 Patent, the minimum bend radius is that "associated with the intermediate optical fiber", which has no predetermined and definite value that is known *a priori* because it is associated with, ***depends upon the manufacturer of the intermediate optical fiber***, and may change over time. Thus, intermediate optical fibers of identical diameter

			may have different specified minimum bend radii, and/or such specifications may change over time. *See, e.g.*, Col. 2, 41-49; Col. 8, lines 25-30; Col. 7, lines 55-65.
10,379,301	"carrier" (claims 1 and 7)	Plain and ordinary meaning, which one of ordinary skill in the art at the relevant time would understand the meaning to be: "one or more components for supporting ROSA components such as an AWG". *See, e.g.*, Abstract; Claims 1, 2, 7; Col. 1:37-2:7; 2:66-4:37; Figs. 1-6; Applicant's office action response dated 2018/02/08	"***a ceramic or silicon substrate***." A carrier is generally recognized by a person of skill in the electronics art as a ceramic or silicon rigid substrate having high thermal conductivity, designed to carry an integrated chip. *See, e.g.*, Essentials of Electronic Packaging, P. Viswanadham, ASME (2011) at 7-9. A carrier is distinguished from a printed circuit board, which typically comprises fiberglass or plastic. *Id.* at 8-9; *see also* Handbook of Electronic Package Design, M. Pecht, Ed., Marcel Dekker, Inc. (1991) at 76-83, 173-178, 515-517. The foregoing distinction is recognized in the '301 Patent at Col. 4,lines 6-11 (The plurality of optoelectronic diodes may be disposed on the same circuit board . The position of the optoelectronic diodes may become

			definitive so as to simplify and streamline the manufacturing process . The optoelectronic diodes may be disposed onto the carrier 8 simultaneously, minimizing the iteration of disposing the optoelectronic diodes.")
10,379,301	"the same top surface of the end of the carrier"	Plain and ordinary meaning, which one of ordinary skill in the art at the relevant time would understand the meaning to be: "Certain components are located on the same surface of the carrier". *See, e.g.*, Abstract; Claims 1, 7; Col. 1:37-2:7; 2:66-4:37; Figs. 1-6	"***the topmost surface of the carrier***." *See* '301 Patent, FIGS. 1-2, Col. 2, line 66 to Col. 3, line 5, lines 9-12, Col. 4, lines 6-11. Notably, as illustrated in FIG. 1, the carrier "top surface" of the carrier span multiple elevations.

Note, the parties do not identify any terms for construction in asserted patents 9,170,383 or 10,788,690.

III. Identification of Dispositive and/or Most Significant Terms (Patent Local Rule 4-3(c))

Plaintiff AOI contends all claim terms in the asserted claims of the asserted patents should be given their plain and ordinary meaning, and thus AOI does not believe the construction of any term will be most significant to the resolution of the case nor will any construction be case or claim dispositive.

Defendant CIG USA identifies the following terms it considers to be most significant to the resolution of the case and whether CIG USA believes the terms are also claim dispositive:

Term	Patent(s)	Claim Dispositive

feedthrough device	’024	No
“first and second surfaces disposed opposite each other” and “opposing arrangement”	’024	Yes for 400 QSFP-DD FR4
confined by the main body and sliding component	’826	No
fiber interfaces	’432	No
passive optical element	’432	Yes
substrate	’116	Yes
minimum bend radius Rmin	’431	Yes
carrier	’301	Yes
the same top surface of the end of the carrier	’301	Yes

IV. Anticipated Time for Hearing (Patent Local Rule 4-3(d))

The Parties believe that two hours should be sufficient for the hearing.

V. Witnesses for Claim Construction Hearing (Patent Local Rule 4-3(e))

None.

VI. Factual Findings Related to Claim Construction (Patent Local Rule 4-3(f))

None.

Dated: December 16, 2024

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Dated: December 16, 2024

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<u>ATTESTATION</u>

This document is being filed through the Electronic Case Filing (ECF) system by attorney Jo Dale Carothers. Pursuant to Civ. L.R. 5-1(i)(3), by her signature, Ms. Carothers attests that she has obtained concurrence in the filing of this document from each of the attorneys identified on the caption page and in the above signature block.

Dated: December 16, 2024

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