

NOTE: This disposition is nonprecedential.

**United States Court of Appeals  
for the Federal Circuit**

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**CAMBRIAN SCIENCE CORPORATION, A  
CALIFORNIA CORPORATION,  
*Plaintiff-Appellant***

**v.**

**COX COMMUNICATIONS, INC., A DELAWARE  
CORPORATION, 360 NETWORKS USA INC., A  
NEVADA CORPORATION, TELEKENEX, A  
DELAWARE CORPORATION, INFINERA,  
CORPORATION, A DELAWARE CORPORATION,  
XO COMMUNICATIONS SERVICES LLC, A  
DELAWARE LIMITED LIABILITY COMPANY,  
GLOBAL CROSSING TELECOMMUNICATIONS,  
INC., A MICHIGAN CORPORATION, LEVEL 3  
COMMUNICATIONS, LLC, A DELAWARE LIMITED  
LIABILITY COMPANY, ELECTRIC LIGHTWAVE  
LLC, A DELAWARE LIMITED LIABILITY  
COMPANY, IXC HOLDINGS INC, DBA  
TELEKENEX, A DELAWARE CORPORATION,  
*Defendants-Appellees***

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2014-1686

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Appeal from the United States District Court for the  
Central District of California in No. 8:11-CV-01011 AG  
(JPRx), Judge Andrew J. Guilford.

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Decided: June 29, 2015

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C. DALE QUISENBERRY, Polasek, Quisenberry & Errington, LLP, Bellaire, TX, argued for plaintiff-appellant.

RUFFIN B. CORDELL, Fish & Richardson, P.C., Washington, DC, argued for defendants-appellees. Also represented by JOSEPH V. COLAIANNI, JR., LINHONG ZHANG; JOHN A. DRAGSETH, Minneapolis, MN; OLGA I. MAY, San Diego, CA; AUDRA A. DIAL, Kilpatrick Townsend & Stockton LLP, Atlanta, GA.

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Before PROST, *Chief Judge*, LOURIE and CHEN, *Circuit Judges*.

PROST, *Chief Judge*.

This appeal arises from the judgment of the United States District Court for the Central District of California following its entering of a final judgment in favor of Cox Communications, Inc. et al. (collectively “Cox”). Cambrian Science Corporation (“Cambrian”) asserted claims 57 and 58 of United States Patent No. 6,775,312 (“312 patent”) against Cox’s Generation 2 photonic integrated circuit (“Gen 2”).<sup>1</sup> While Cox moved for summary judgment on several grounds, the district court reached only the issue of non-infringement based on the “active waveguide coupler” claim limitation.

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<sup>1</sup> While Cambrian also accused two other chips, the Generation 1 photonic integrated circuit and the Generation 3 photonic integrated circuit, Cambrian appeals only the district court’s ruling as it relates to the Gen 2 chip.

Because we agree with Cox that the district court did not err in either its claim construction or its summary judgment holdings, we affirm the district court's final judgment.

#### BACKGROUND

This case involves fiber optic data communication systems in which lasers are used to produce light beams that are then transmitted over fiber optic cables. Data is transmitted through the fiber optic cables by modulating the light that is produced by the laser. To increase the amount of data carried on a fiber optic cable, it is regular practice to combine multiple light beams, each light beam calibrated to a different wavelength. An optical component called a "coupler" is responsible for receiving and combining the multiple modulated light beams onto the single fiber optic cable.

During the transmission of an optical signal across a fiber optic cable, the optical signal gradually loses intensity. To counteract this, components called amplifiers are attached to the system to boost the intensity of the optical signals. A component that boosts the power of an optical signal is said to produce "gain." Furthermore, adding gain to the system is referred to as "pumping."

Optical components can be made of either active materials or passive materials. Active material is capable of being pumped to provide gain, thus increasing the intensity of the light traveling through it. Conversely, passive material does not allow for the light traveling through it to increase intensity, even when pumped.<sup>2</sup>

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<sup>2</sup> The parties disagree as to the meaning of "active" and "passive." However, as we find below, these terms are clearly defined in the specification.

The patent at issue is directed to the physical interface between passive and active components. Specifically, the patent uses an active waveguide coupler to facilitate the coupling of multiple lasers into a single fiber optic cable. '312 patent abstract. The patent explains that the use of the active coupler alleviates many of the problems surrounding the use of both active and passive components within the same integrated chip, i.e., the active to passive transition points. The patent states that by using an active coupler, it overcomes the prior art's increased manufacturing complexity and the signal refraction caused by misalignment between active and passive materials. *Id.* at col. 2 ll. 21-55.

The only asserted independent claim is claim 57, which reads:

A photonic integrated circuit comprising:

a laser array formed in a crystalline lattice structure semiconductor material;

an *active waveguide coupler* receiving outputs of the laser array; and

wherein at least one portion of the photonic integrated circuit is formed at a non-orthogonal angle with respect to a cleavage plane of the semiconductor material.

*Id.* at col. 17 l. 25–col. 18 l. 3 (emphasis added).

Following a *Markman* hearing the district court construed the phrase “active waveguide coupler” to mean “a component that forms a portion of the optical path, that combines light from multiple sources, and in which the absorption of an optical signal can be changed to gain by application of pumping.” J.A. 88. In construing the phrase, the district court held that only the word “active” was actually in dispute.

Thereafter, Cox moved for summary judgment on various grounds; however, the district court only reached the issue of non-infringement based on the “active waveguide coupler” requirement. Cambrian requested a Rule 56(d) continuance, which was denied on the ground that the district court found that Cambrian had not acted diligently in seeking the discovery of the information it now sought. The district court granted summary judgment of non-infringement as to both claims 57 and 58.

Cambrian timely appealed to this court, arguing that the district court erred in its claim construction and summary judgment ruling. This court has jurisdiction over this case under 28 U.S.C. § 1295(a)(1).

## DISCUSSION

### Claim Construction

The ultimate construction of a claim term is a legal question reviewed de novo by this court. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). Underpinning the ultimate construction of the claims are both findings of fact and law. The Supreme Court has held that district court findings regarding the intrinsic record are solely a determination of law, while those findings relying on the extrinsic record are findings of fact to be reviewed for clear error. *Shire Dev., LLC v. Watson Pharm., Inc.*, No. 13-1409, 2015 WL 3483245, at \*4 (Fed. Cir. June 3, 2015) (quoting *Teva*, 135 S. Ct. 841-42).

When determining the construction of a claim term, we look to how a person of ordinary skill in the art understands the term. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). “Importantly, the person of ordinary skill in the art is deemed to read the claim term 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.” *Id.*

Cambrian appeals only the last clause of the district court's claim construction, "and in which the absorption of an optical signal can be changed to gain by application of pumping," which correlates with the term "active." Cambrian argues that the district court erred in its construction, as the claim language does not include any of the aforementioned limitations. For example, Cambrian points to the fact that the words, "absorption," "optical," "gain," and "pumping" are not included in the claim. Furthermore, Cambrian contends that the district court's inclusion of these terms violates both the rule against limiting the scope of the claims to the embodiments disclosed in the specification, under *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1344 (Fed. Cir. 2001), and the rule against importing limitations from the specification into the claim, under *Phillips*, 415 F.3d. at 1320.

Cox responds that the district court's claim construction matches the plain claim language and aligns with the specification, as it makes clear that the waveguide coupler must be active. We agree.

First, we look to the claim language, as "[t]he actual words of the claim are the controlling focus." *Digital Biometrics, Inc. v. Identix, Inc.*, 149 F.3d 1335, 1344 (Fed. Cir. 1998). The claims in question, by their plain language, require an "active waveguide coupler," not simply a "waveguide coupler." Therefore this case turns on the meaning of "active."

Second, "claims must be read in view of the specification, of which they are a part." *Phillips*, 415 F.3d at 1315 (internal quotation marks omitted). The '312 patent specification clearly defines "active" and "passive." An active region or component is one that is made of active material, which is capable of being pumped to produce gain to an optical signal. This description of the active region is found repeatedly throughout the specification. See '312 patent col. 7 ll. 62-64, col. 8 ll. 9-12, 13-16.

Furthermore, the specification draws a distinction between active and passive material, by specifically defining passive material as material not capable of being pumped. *See id.* at col. 2 ll. 29-31, 20-23, col. 5 ll. 46-49. Cambrian points to nothing in the intrinsic record—and we cannot find anything—that indicates that passive material is capable of producing gain when pumped. Thus, the ability to provide gain when pumped is required for a material to be active, and therefore must be required of the “*active* waveguide coupler.”

Cambrian cites to various portions of the specification arguing that providing gain is an optional, but not required, characteristic of an active waveguide coupler. We disagree. Cambrian cites to the following sections of the specification:

The MMI coupler 100 of FIG. 6 is *optionally* pumped substantially over the entire active region thereof. In this manner, maximum gain may be obtained. Alternatively, MMI coupler 100 or any other active region of the photonic integrated circuit of the present invention *may be pumped only at selected portions thereof*, as discussed below.

*Id.* at col. 7 ll. 62-67 (emphases added).

Referring now to FIG. 7, another embodiment of the present invention has an MMI coupler 101, which is *pumped only partially*. That is, the electrodes of the MMI coupler 101 are configured so as to *only pump* the active material of the MMI coupler 101 *at certain locations*, e.g., at the locations therein of maximum light intensity.

*Id.* at col. 8 ll. 1-6 (emphases added). Cambrian argues that these passages show that active material may be composed of regions that are both capable and not capable of being pumped. However, this is a misreading of the specification. The passages instead indicate that while

active material must be capable of being pumped, the described invention does not require that every portion of the material capable of being pumped actually be pumped.

Cambrian makes the additional argument that the district court should not have relied upon Mr. Koch's expert testimony. We need not reach that issue here, as the intrinsic evidence fully determines the proper construction of the contested claim term. *See Shire Dev.*, 2015 WL 3483245, at \*4.

#### Summary Judgment

We review the district court's grant or denial of summary judgment under the law of the regional circuit, here the Ninth Circuit. *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 769 F.3d 1371, 1377 (Fed. Cir. 2014). The Ninth Circuit reviews the grant or denial of summary judgment de novo. *Humane Soc'y of the U.S. v. Locke*, 626 F.3d 1040, 1047 (9th Cir. 2010).

For an accused product to literally infringe a patent claim, every limitation recited in the claim must be found in the accused device. *Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1405 (Fed. Cir. 1996). Here, it is clear that the accused device, Gen 2, does not contain an "active waveguide coupler" and thus cannot literally infringe the asserted claims.

For Cox's Gen 2 device to infringe it must contain an "active waveguide coupler," which, by our construction, requires that a component of the system both (1) "combine[] light from multiple sources" and (2) be made of active material, i.e., material "in which the absorption of an optical signal can be changed to gain by application of pumping." As the district court found, and as we agree, the evidence leads to only one possible conclusion—that there is no "active waveguide coupler" present in the Gen 2 circuit. Instead, the waveguide coupler used in the Gen



2 device is passive.<sup>3</sup> Cambrian’s argument that one should look to the combination of both the coupler and its attached amplifier is unavailing. The claim term requires that the waveguide coupler be active, not that the waveguide coupler in combination with other components may be considered active.

Further, Cambrian argues that because it is possible that the coupler found in the Gen 2 device contains some material that in some cases may be considered active, there is a genuine factual question as to whether the waveguide coupler is active or passive. We disagree. Even if the coupler contains some portions that are active, this does not satisfy the claim construction for an “active waveguide coupler,” as an active coupler must be capable of being pumped at any location. Furthermore, the undisputed testimony makes clear that the Gen 2 waveguide coupler is incapable of being pumped, and thus cannot meet the claim construction of an “active waveguide coupler.” Appellees’ Br. 47 (citing the testimony of Cambrian’s expert, Dr. Dutta, at J.A. 9088 (104:7-16)).

Cambrian’s doctrine of equivalents argument is equally unavailing. Under the doctrine of equivalents, “a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is ‘equivalence’ between the elements of the accused product or process and the claimed elements of the patented invention.” *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997). However, “the range of equivalents cannot be divorced from the scope of the claims.” *Vehicular Techs. Corp. v. Titan*

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<sup>3</sup> The parties’ briefs are not consistent as to whether or not it is confidential that the Gen 2 coupler is passive. Nevertheless, as Cox’s attorney referred to it as passive during oral argument, any confidentiality that may apply to this fact has been waived.

*Wheel Int'l, Inc.*, 212 F.3d 1377, 1382 (Fed. Cir. 2000). The Supreme Court has held that the proper inquiry is: Whether “the accused product or process contain elements identical or equivalent to each claimed element of the patented invention?” *Warner-Jenkinson Co.*, 520 U.S. at 19.

Cambrian fails to demonstrate that there is a genuine dispute of material fact as to whether the Gen 2 product satisfies the doctrine of equivalents. Cambrian’s factual support for its doctrine of equivalents claim is limited to two paragraphs from its expert report, both of which are conclusory. J.A. 9197 ¶ 163, 9206 ¶ 195. Both paragraphs simply conclude that if literal infringement is not met, then it is the expert’s opinion that the “active waveguide coupler” limitation is met under the doctrine of equivalents because any differences between the structure and the claim limitations are insubstantial. *Id.* The paragraphs are devoid of any particularized testimony or linking arguments. In fact, the paragraphs lack any factual statements. Thus, as with literal infringement, we affirm the district court’s ruling as to the doctrine of equivalents.

We have reviewed Cambrian’s remaining arguments and find them unpersuasive.

#### CONCLUSION

For the reasons stated above, we affirm the district court’s claim construction for the term “active waveguide coupler” and the district court’s grant of summary judgment of non-infringement.

**AFFIRMED**