

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

CAO LIGHTING, INC.,

Plaintiff,

v.

LIGHT EFFICIENT DESIGN,

Defendant.

Case No. 17 C 7359

Judge Harry D. Leinenweber

MEMORANDUM OPINION

Plaintiff CAO Lighting, Inc. ("CAO") alleges that Defendant TADD, LLC, doing business as Light Efficient Design ("TADD"), is infringing its patent, United States Patent No. 6,465,961 ("the '961 Patent"). Both parties have submitted opening claim construction briefs (Dkt. Nos. 26, 27) and supplemental claim construction briefs (Dkt. Nos. 67, 68). The parties dispute the construction of six terms that appear throughout the claims of the asserted patent. This Opinion sets forth the Court's construction of the contested claim language.

I. BACKGROUND

Plaintiff makes, markets, and sells light-emitting diode ("LED") lighting products. By way of background, LED technology produces light more efficiently than traditional incandescent light bulbs. (John Curran Decl. ¶ 15, Ex. A to Def.'s Suppl. Br., Dkt. No. 67-1.) LED lighting products create visible light by

passing an electrical current through a semi-conductor light source. (*Id.*) To prevent performance issues, the heat LEDs produce is absorbed into a heat sink. (*Id.* ¶ 21.)

Plaintiff owns the '961 Patent. The U.S. Patent and Trademark Office issued the '961 Patent on October 15, 2002, with 20 claims. ('961 Patent, Ex. A to First Am. Compl., Dkt. No. 56-1.) The '961 Patent describes and claims new and novel features of an LED lighting source, including (1) an enclosure with an interior volume, (2) a base including an electrical connector, (3) a heat sink configured to withdraw heat and suitable for mounting semiconductor devices, and (4) semiconductor chips capable of emitting light with a power output greater than 40 milliwatts.

Plaintiff originally filed suit in the District of Idaho against TADD and Electric Wholesale Supply Company, Inc. ("EWS"). Plaintiff claims that TADD is making, using, importing, and selling LED lighting products that infringe on the '961 Patent. In particular, Plaintiff asserts that certain of TADD's "8000 Series" lighting products infringe on the subject patent. Plaintiff further contends that EWS is infringing on its patent by distributing LED's infringing products. In October of 2017, the District of Idaho severed Plaintiff's claims against TADD and EWS and transferred the claims against TADD to the Northern District of Illinois. That court retained the claims against EWS and stayed

them until Plaintiff's suit against TADD before this Court is complete. Thus, when the Court refers to "Defendant" in this Opinion, it refers to TADD.

Defendant denies infringement and denies that the '961 Patent claims new and novel features. The parties now dispute the construction of six terms that appear throughout the claims of the '961 Patent: (1) "output light at greater than about 40 milliwatts," (2) "monochromatic," (3) "enclosure," (4) "in said interior volume," (5) "in said base," and (6) "array of LEDs." Each term will be discussed in turn.

II. LEGAL STANDARD

Determining the meaning of a patent claim is a matter of law for a judge to decide. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 391 (1996). The scope of the patent, delineated by the claims, defines what right the patentee has to exclude. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (citation omitted). Claims are construed from the perspective of a person of ordinary skill in the art of the invention. *Id.* at 1315. The claim terms are given their "ordinary and customary reading," which is the meaning understood at the time of invention by a person having ordinary skill in the art. *Id.* at 1312-13. The intrinsic evidence of a patent—the same resources that a person of ordinary skill would also review—is a court's "primary focus in determining the

ordinary and customary meaning of a claim limitation.” *Phillips*, 415 F.3d at 1316. The intrinsic evidence includes the claims, the patent specification, and the prosecution history. *McDavid Knee Guard, Inc. v. Nike USA, Inc.*, 809 F. Supp. 2d 863, 868 (N.D. Ill. 2011) (citing *Phillips*, 415 F.3d at 1313).

Courts can also look to extrinsic evidence, which consists of “all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Phillips*, 415 F.3d at 1317. Extrinsic evidence can shed useful light on the relevant art; however, it is “less significant than the intrinsic record” in determining the legally operative meaning of claim language. *Id.* Thus, in construing claims, courts should turn to extrinsic evidence only if intrinsic evidence does not yield an answer. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996). In sum, courts engaging in claim construction generally follow the following hierarchy of evidence: (i) claim language, (ii) other intrinsic evidence, and (iii) extrinsic evidence. *Suffolk Techs. LLC v. AOL Inc.*, 942 F. Supp. 2d 600, 605 (E.D. Va. 2013) (citing *Advanced Cardiovascular Sys. v. Medtronic*, 265 F.3d 1294, 1304 (Fed. Cir. 2001)), *aff’d*, 752 F.3d 1358 (Fed. Cir. 2014).

III. DISCUSSION

A. "Output light at greater than about 40 milliwatts"

The first claim term at issue is "output light at greater than about 40 milliwatts." Claim 21 of the '961 Patent recites:

The semiconductor light source as recited in claim 8 wherein: said at least one semiconductor chip is a light emitting diode (LED) chip configured to output light at greater than about 40 milliwatts, and said LED chip is configured to emit monochromatic visible light.

(Reexamination Certificate, Ex. B to First Am. Compl., Dkt. No. 56-2.) Plaintiff proposes the following construction: "Radiometric light output greater than about 40 milliwatts as quantitated by an appropriate measuring and detection device." Defendant's proposed construction is "Includes a light output of about 15 lumens."

Plaintiff's construction centers on a radiometric measurement of light. Light output is measured in two different systems according to use: radiometry and photometry. (Eric Bretschneider Decl. ¶¶ 24, 26, Ex. B to Def.'s Suppl. Br., Dkt. No. 67-2.) Radiometry, which measures light output in watts (or a fraction thereof, *i.e.*, milliwatts), is commonly used in physics, engineering, and sensing applications. (Bretschneider Decl. ¶ 24.) Photometry, which measures light output in lumens, is used for measuring light as related to use by humans. (Bretschneider Decl. ¶ 26.) Plaintiff and Defendant's experts agree that a light source has both a radiant power, measured in milliwatts, and a luminous

flux, measured in lumens. (Curran Decl. ¶¶ 30-32; Bretschneider Decl. ¶¶ 24-27.) Thus, both radiometric and photometric light measurements are fundamental terms utilized by those skilled in the art of LED lighting.

Plaintiff contends that a radiometric measurement (in milliwatts) is necessary because the inventor used that measurement system in the claims of the '961 Patent. Claims 21, 25, 40, 42, 58, and 77 all recite the milliwatts measurement, and it is a "bedrock principle" of patent law that courts look first to claim language to define the scope of the invention. *Phillips*, 415 F.3d at 1312. Furthermore, Plaintiff asserts, its construction is consistent with the specification, as the specification's only reference to measuring light output is as follows: "[h]igh power' LED's [sic] means that the light output from each LED module is greater than 40 milliwatts." ('961 Patent, 4:6-7.) Defendant argues that Plaintiff's proposed construction is not supported by the intrinsic record, as the terms "radiometric light output," "radiometric," or "radiant power" do not appear in the claims or the specification. This argument is unavailing. The inventor sufficiently identified his use of radiometry by using its unit of measurement, watts, throughout in the claims. A person of ordinary skill in the art of LED lighting would understand that the use of milliwatts in the '961 Patent defines light output in terms of

radiometry. Thus, Plaintiff's interpretation aligns with the plain meaning of the claim, and the plain meaning of a claim almost always controls its construction. *Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1369 (Fed. Cir. 2012).

However, there are two primary exceptions to the general rule that the plain meaning of the claim controls: (1) when a patentee sets out a definition and acts as his own lexicographer, or (2) when the patentee disavows the full scope of a claim during patent prosecution ("prosecution disclaimer"). *Id.* Defendant argues that the second exception is present here.

A patent's prosecution history is relevant intrinsic evidence, and a court should consider it if it is in evidence. The prosecution history consists of the complete record of the proceedings before the U.S. Patent and Trademark Office ("PTO") and includes the prior art cited during the examination of the patent. *Phillips*, 415 F.3d at 1317. It provides evidence of how the PTO and the inventor understood the patent. *Id.* The prosecution history constitutes a public record of the patentee's representations concerning the scope and meaning of the claims, and competitors "are entitled to rely on those representations when ascertaining the degree of lawful conduct, such as designing around the claimed invention." *Hockerson-Halberstadt, Inc. v. Avia Grp. Int'l, Inc.*, 222 F.3d 951, 957 (Fed. Cir. 2000). This history

can “often inform the meaning of the claim language by demonstrating how the investor understood the invention and whether the investor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Phillips*, 415 F.3d at 1317. However, patent prosecution represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, and therefore can be less useful than the specification for claim construction purposes. *Id.*

A brief recitation of the subject patent’s prosecution history is in order. The ‘961 Patent was issued in 2002 with 20 claims. It was then subject to two merged *Inter Partes* Reexaminations (95/000,680 and 95/002,324), which resulted in the cancellation of all 20 of the original claims. That decision was affirmed on appeal. *GE Lighting Inc. v. Epistar Corp.*, Appeal 2016-008254, 2016 WL 7030873 (P.T.A.B. Nov. 30, 2016). Pursuant to an *Ex Parte* Reexamination (90/012,957), the PTO determined new claims 21-103 to be patentable. (Reexamination Certificate, Ex. B to First Am. Compl., Dkt. No. 56-2.)

During the prosecution of the third Reexamination, Plaintiff submitted its new claim 21, reciting one or more LED chips “configured to output light at greater than about 40 milliwatts.” (Reexamination Resp., Dkt. No. 26-5.) Plaintiff sought to

distinguish the '961 Patent from a prior art (the "Begemann" patent) that described output in terms of lumens. Accordingly, Plaintiff made the following representation to the PTO:

Begemann teaches that the LEDs 4 of FIG. 1 and FIG. 2 are configured to have "a luminous flux of 5 [lumens] or more." Begemann, 2:1-3. However, a light output of "40 milliwatts" is *roughly equal to a light output of about 15 lumens*. Therefore, the single "LED chip" of claim 18 [sic] produces roughly 3 times the light output as LEDs 4 of the LED lamps of Begemann. Therefore, Begemann does not teach or suggest one or more LED chips "configured to *output light at greater than about 40 milliwatts*."

(Reexamination Resp. at 33 (emphasis added).) Defendant argues that the Patent Examiner must have accepted this argument, because he stated:

Proposed new claim 21, from which all of the other proposed new claims depend directly or indirectly, includes a feature requiring the semiconductor chip to be "a light emitting diode (LED) chip configured to output light at greater than about 40 milliwatts," which Patent Owner argues is not explicitly taught or suggested by any reference currently relied on to reject the claims. . . For this reason, the claims are found patentable.

(Notice of Intent to Issue Reexamination Certificate, Dkt. No. 26-5.) As an initial matter, the Court notes that whether the Examiner relied on CAO's representation in its conclusion is irrelevant. The prosecution disclaimer analysis "focuses on what the applicant said, not on whether the representation was necessary or

persuasive.” *Uship Intellectual Properties, LLC v. United States*, 714 F.3d 1311, 1315-16 (Fed. Cir. 2013).

Nevertheless, Defendant contends that Plaintiff explicitly represented to the Examiner that a light output of 40 milliwatts is roughly equal to a light output of 15 lumens, and pursuant to prosecution disclaimer Plaintiff now must be bound by that representation. This representation carries particular weight because Plaintiff made the representation not to define the invention more specifically, but instead to differentiate the invention from prior art. See *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1220 (Fed. Cir. 1995) (finding that a position taken to establish patentability in view of prior art is a “substantive position on the technology for which a patent is sought, and will generally generate an estoppel,” while arguments made in order to more particularly point out the applicant’s invention are “not presumed to raise an estoppel”). And a patentee should not be able to construe claims “one way in order to obtain their allowance and in a different way against accused infringers.” *Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1360 (Fed. Cir. 2017) (citation omitted).

However, Plaintiff’s representation that 40 milliwatts is “roughly equal” to 15 lumens does not meet the high bar that the Federal Circuit has set for prosecution disclaimer. For

prosecution disclaimer to apply, the alleged disavowing actions or statements made during prosecution must be “both clear and unmistakable.” *Aylus Networks*, 856 F.3d at 1359 (citation omitted). Thus, when the patentee “unequivocally and unambiguously disavows a certain meaning to obtain a patent . . . [prosecution disclaimer] narrows the meaning of the claim consistent with the scope of the claim surrendered.” *Id.* Defendant has only identified one sentence in the entire prosecution history of the ‘961 Patent that relates to the milliwatts/lumens distinction, and while it did serve the function of differentiating the ‘961 Patent from prior art, that sentence does not even disclaim any specific meanings. Plaintiff performed a rough approximation of the light output power of his invention relative to another invention that chose to measure light output in lumens. Plaintiff’s representation did not narrow the meaning of the ‘961 Patent. See *Grober v. Mako Prod., Inc.*, 686 F.3d 1335, 1342 (Fed. Cir. 2012). Thus, Defendant’s prosecution disclaimer argument fails, and the Court accepts Plaintiff’s construction, as it aligns with the plain meaning of the claim language.

B. “Monochromatic”

The construction of “monochromatic” determines whether the ‘961 Patent recites an LED chip that emits light of a single wavelength, or light that is one color. Plaintiff asserts that the

plain and ordinary meaning of "monochromatic" in light of the entire intrinsic record is "one color." Defendant counters that the intrinsic evidence defines "monochromatic" as "light of a single wavelength."

By way of background, LEDs emit various colors depending on the elements used in the semiconductor. (Curran Decl. ¶ 18.) LED colors include infrared, red, orange, yellow, green, blue, violet, and ultraviolet. (*Id.*) In order to produce white light, the LED light source must be manipulated. For example, LEDs can be combined with photoluminescent phosphors which, in combination with the light output of a blue LED, produce a blue-white color. (*Id.*) The wavelength of light determines its perceived color to humans. (Curran Decl. ¶¶ 34, 36.) Within the visible light spectrum, there are various ranges of wavelengths that humans perceive as one color. (*Id.*) The definition of "monochromatic" contains both parties' constructions. See *Monochromatic*, Mirriam-Webster Dictionary (2019) ("(1): having or consisting of one color or hue; (2): consisting of radiation of a single wavelength.").

The Court looks first to the claim language. Patent '961 discusses monochromatic light in several claims. Claim 21 depends on claim 1, which recites "at least one semiconductor chip capable of emitting light mounted on one of said panels, said semiconductor chip being capable of *emitting monochromatic light*." ('961 Patent,

10:1-4 (emphasis added).) Claim 21 recites "said LED chip is configured to *emit monochromatic visible light.*" (Reexamination Certificate, 1:38-39 (emphasis added).) Claims 42 and 77 both describe LED chips surface mounted on the primary heat sink, "each configured to *output monochromatic visible light* at greater than about 40 milliwatts, and said LED chip and said [additional] LED chips are all configured to emit *a same color of monochromatic visible light.*" (*Id.* (emphasis added); see also claims 40, 58).) The claims consistently reference "monochromatic" in terms of "visible light"—that is, visible to humans. As humans cannot see wavelength, only color, it stands to reason that when "monochromatic" precedes "visible light," the claim refers to emitting light that is one color. The claims do not reference wavelength, which further supports this construction. Thus, the claims, which are of primary importance in patent construction, *Phillips*, 415 F.3d at 1312, appear to define monochromatic in terms of single color.

Nevertheless, Defendant does not contend that the claim language supports its construction of "monochromatic." Instead, Defendant urges the Court to look to the specification, wherein, Defendant asserts, Plaintiff repeatedly used "monochromatic" to mean single wavelength light:

The semiconductor devices may be any semiconductor devices capable of emitting light, such as LED's, LED

arrays, VCSEL's, VCSEL arrays, photon recycling devices that cause a *monochromatic chip* to emit white light, and others. . . .

A thickness of phosphor 607 may be placed over the chip or array 604 in order to convert *single wavelength light* emitted from the chip or array into *multiple wavelength white light* useful for illumination of spaces used by humans. . . .

The interior surface 1003b of the enclosure may have a coating or layer 1004 which serves to alter properties of the light emitted from the light source 1002. For example, if light from the light source 1002 *is single wavelength*, then the light-altering coating 1004 may be phosphorous which will turn the *monochromatic light* into white light. . . .

(Patent '961, 3:42-46, 7:66-8:3, 8:48-54 (emphasis added).)

Defendant contends that regardless of the use of "monochromatic" in the claims, the specification clearly and unambiguously defined that term to mean "single wavelength," and the use of the term in the specification therefore controls. Thus, Defendant invokes the "lexicographer" exception. While the plain meaning of a claim term almost always controls its construction, there are two primary exceptions to this rule: (1) when a patentee sets out a definition and acts as his own lexicographer, or (2) prosecution disclaimer. *Toshiba Corp.*, 681 F.3d at 1369. To act as his own lexicographer, a patentee must "clearly set forth a definition of the disputed claim term" other than its plain and ordinary meaning. *Thorner v. Sony Computer Entm't Am. LLC*, 669

F.3d 1362, 1365 (Fed. Cir. 2012). The patentee must “clearly express an intent to redefine the term.” *Id.* (citations and internal quotations omitted). For example, the Federal Circuit has held that a patentee acted as his own lexicographer when the specification stated: “‘Multiple embossed’ means two or more embossing patterns are superimposed on the web to create a complex pattern of differing depths of embossing.” *3M Innovative Properties Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1369, 1371 (Fed. Cir. 2004).

According to Defendant, because the specification recites that a phosphor is used to convert single wavelength light emitted from the chip or array into multiple wavelength white light, the inventor must have intended “monochromatic” to mean single-wavelength light. Defendant’s interpretation of the specification fails to meet the high bar of the lexicography exception. The specification does not approach the level of clarity required to define “monochromatic” other than the plain meaning set forth in the claims. Indeed, the “Background of Invention” section of the ‘961 Patent appears to define “monochromatic” as “one color”: “A distinct need is felt in the prior art for a semiconductor light source for use in illuminating a space with *single color light in the visible range . . .*” (‘961 Patent 1:46:48.) Accordingly,

Defendant has failed to establish that the specification clearly defines monochromatic as a single wavelength.

Finally, the Courts turns to the pertinent extrinsic evidence. Both parties have produced a person of skill in the art of LED lighting to serve as expert witnesses. A court can consider extrinsic evidence in the form of expert testimony to provide background on the technology or invention at issue, or to establish that a particular patent term has a particular meaning in the pertinent field. *Phillips*, 415 F.3d at 1318. Defendant's expert, Dr. Eric Bretschneider, contends that "monochromatic" means a single wavelength. Plaintiff's expert, Dr. John Curran, did not opine directly on this issue, as it apparently was raised after Dr. Curran had already submitted his declaration to the Court. Regardless, the Court finds Dr. Bretschneider's opinion unpersuasive. Dr. Bretschneider states that "monochromatic light is light of a single wavelength" in his declaration. (Bretschneider Decl. ¶ 22.) However, Dr. Bretschneider does not contend that a person of ordinary skill in this field would not define monochromatic as "one color," nor does he assert that the '961 Patent defines monochromatic as single wavelength. Rather, he simply sets forth a conclusory definition, and conclusory assertions by experts as to the definition of a claim term are not useful to the Court. *Phillips*, 415 F.3d at 1318. Thus, Defendant's

extrinsic evidence fails to overcome the plain meaning of the claim language. The Court adopts Plaintiff's construction.

C. "Enclosure"

The original claim 1 of the '961 Patent, included in current claim 21, recites a semiconductor light source that includes "an enclosure, said enclosure being fabricated from a material substantially transparent to white light, an interior volume within said enclosure, a heat sink located in said interior volume." ('961 Patent, 9:55-59.) The parties dispute whether the enclosure is a *barrier* surrounding the interior volume, such that there can be no flow between the exterior and the interior volume. Plaintiff proposes to construe "enclosure" as "a structure that encloses a volume." Defendant suggests "a barrier surrounding a volume."

Defendant asserts that Plaintiff's construction would render the claim impermissibly indefinite. Plaintiff claims that Defendant is estopped from arguing indefiniteness. The Local Rules in the District of Idaho, where this action was originally filed, required Defendant to disclose any grounds for indefiniteness in its initial invalidity contentions, and Plaintiff asserts that Defendant failed to do so. However, the Federal Circuit grants district courts broad discretion in the enforcement of local patent rules. *Allvoice Devs. US, LLC v. Microsoft Corp.*, 612 Fed. Appx.

1009, 1014 (Fed. Cir. 2015). Accordingly, the Court finds that Defendant has not waived its ability to argue definiteness. See *Riddell, Inc. v. Kranos Corp.*, No. 16 C 4496, 2017 WL 2264347, at *5 (N.D. Ill. May 24, 2017).

Indefiniteness is a standard that assesses compliance with 35 U.S.C. § 112(b), which requires no special form of claiming, but mandates the following: "The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention." 35 U.S.C. § 112(b). An entire patent or certain claims can be invalid for indefiniteness if the claims, read in light of the specification and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).

Defendant asserts that the circular nature of Plaintiff's proposed construction renders the enclosure impermissibly indefinite. Every piece of an apparatus could be considered a structure. Thus, to say that an enclosure is a structure that encloses a volume is merely to say that an enclosure encloses. This argument may be facially persuasive, but the Court must also consider definiteness in light of the claims and specification.

Nautilus, 572 U.S. at 901. And the specification defines the enclosure as follows:

The enclosure 101 may be of any desired shape, including spherical, cylindrical, elliptical, domed, square, n-sided where n is an integer, or otherwise. The enclosure may be made from any desired light transparent or translucent materials, including glass, plastic, polycarbonate... The enclosure 101 has an exterior surface 101a and an interior surface 101b.

(‘961 Patent, 2:52-60.) This detailed description is sufficient to inform those skilled in the art about the scope of the invention. Accordingly, the Court finds that the enclosure, even under Plaintiff’s proposed construction, is not indefinite. What remains is the parties’ debate over the permeability of the enclosure.

In support of its construction, Plaintiff invokes the rule that where claims “can reasonably be interpreted to include a specific embodiment, it is incorrect to construe the claims to exclude that embodiment, absent probative evidence on the contrary.” *GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1311 (Fed. Cir. 2014). According to Plaintiff, some claims and embodiments require an enclosure that does not act as a barrier. Plaintiff asserts that the following claims and specification constitute an embodiment in which the heat sink is cooled by air circulation through an air chamber located in the interior volume:

(1) Claim 47: "[T]he semiconductor light source further comprises an air entrance, and . . . an air exit." (Reexamination Certificate, 3:65-61.)

(2) Claim 49: "The semiconductor light source as recited in claim 47 wherein: the semiconductor light source further comprises an air chamber located in said interior volume, and said air entrance and air exit are configured to allow air to travel through said air chamber." (Reexamination Certificate, 4:1-6.)

(3) The following specification portion: "The enclosure encloses an interior volume which may be a vacuum, or may contain a gas such as ordinary air, an inert gas such as argon or nitrogen, or any other desired gas. In some embodiments of the invention, a gas will be included in the interior volume 102 for the purpose of avoiding oxidation of the heat sink and the semiconductor." ('961 Patent, 3:9-14.)

(4) Figure 6 (below), which "depicts a cross sectional view of a heat sink of the invention using a fan and TE cooler to circulate air and remove heat." ('961 Patent, 2:31-33, 7:15-39.)

(5) The specification's description of Figure 6, specifically: "The air chamber is open at its entrance and at its exit 406b. A fan 407 may be placed in or near the air chamber 406 in order to cause air 408 to travel in the entrance 406a, through the air chamber 406 past the TE material 405 and out of the exit 406b, carrying heat with it." ('961 Patent, 7:31-35.)

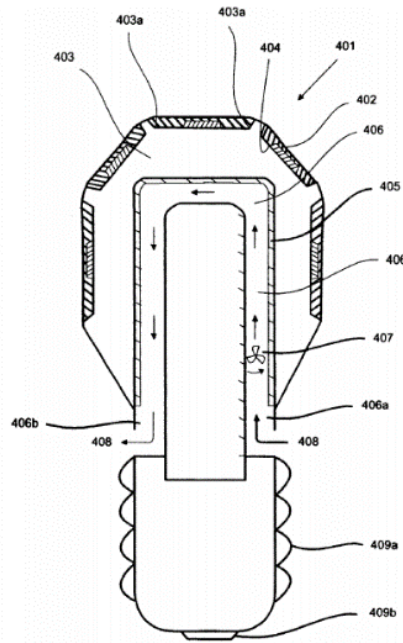


Fig. 6

Claim 47 and the specification at 3:9-14 do not support Plaintiff's construction. Claim 47 merely recites a version of the light source that has an air entrance and exit, without specifying where they are located. It is silent on the subject of the enclosure and immaterial to either parties' construction. The specification at 3:9-14 indicates that a barrier is necessary, stating, "[t]he enclosure 101 encloses an interior volume 102 which may be vacuum, or may contain a gas such as ordinary air, an inert gas such as argon or nitrogen, or any other desired gas." ('961 Patent, 3:9-12.) Naturally, a barrier is required to contain a gas. (See Bretschneider Decl. ¶ 40 ("A structure that allows gas to flow

into/out of the enclosure would not be able to maintain a vacuum or an inert gas such as argon or nitrogen.”).) However, courts should avoid importing limitations from the specification into the claims. *Phillips*, 415 F.3d at 1323. Thus, this aspect of the specification is insufficient to support Defendant’s construction.

The remainder of the intrinsic record supports Plaintiff’s construction. The specification at 7:15-39 and Figure 6 do not further define “enclosure” nor do they explicitly state a need for flow through the enclosure. However, the logical conclusion of this embodiment is some need for a flow between the interior volume and the exterior. The purpose of the air circulation is heat dissipation. (’961 Patent, Abstract.) Hot air travels out of the air chamber. (’961 Patent, 7:31-35.) This hot air presumably must then exit through the enclosure. Similarly, claim 49 recites an air entrance and air exit that allow air to travel through an air chamber that is located in the interior volume. While claim 49 does not explicitly state the relationship between the air travel and the enclosure, it follows logically that some flow through the enclosure is necessary. Defendant concedes that these embodiments would require air to flow through the enclosure in some fashion. (Def.’s Claim Construction Br. at 14, Dkt. No. 27 (“A barrier does not preclude an air entrance or exit.”).) Accordingly, the Court finds that a person of ordinary skill in the LED lighting art would

interpret some embodiments of the '961 Patent to require airflow through the enclosure for cooling purposes, which would be impossible if the enclosure operated as a pure "barrier." The Court adopts Plaintiff's construction.

D. "In said interior volume"

The original claim 1 of the '961 Patent, included in current claim 21, requires "an enclosure . . . an interior volume within said enclosure, a heat sink located in said interior volume." ('961 Patent, 9:55-59.) Plaintiff proposes to construe "in said interior volume" as "included within the interior volume." Plaintiff seeks to assign a meaning to this term that would permit the heat sink to be located partially in and partially out of the interior volume. Defendant proposes "within the interior volume of said enclosure." Defendant's construction requires the heat sink to be located entirely within the interior volume of the enclosure.

Plaintiff asserts that Defendant's construction would exclude a specific embodiment in the specification. Where claims can reasonably be interpreted to include a specific embodiment, it is incorrect to construe claims to exclude that embodiment, absent probative evidence to the contrary. *GE Lighting Sols.*, 750 F.3d at 1311 (citation omitted). Plaintiff contends that the following specification teaches an embodiment wherein the heat sink is not

located entirely in the interior volume, but rather continues into the support or base:

The enclosure 101 may be mounted to a support 105. The support may be a separate component or may be integral with the base 103. . . . Located within the interior volume 102 is at least one heat sink 104. The heat sink 104 may be of any desired shape, depending on the application. . . . If the heat sink 104 may be mounted on a support 105, the support 105 may be designed in order to place the heat sink in the most desirable position within the interior volume 102..

('961 Patent, 3:15-33.)

Plaintiff does not explain how Defendant's construction would exclude these embodiments, and apparently, it would not. The cited specification teaches that the heat sink may be mounted on a support; and that the support may be separate or attached to the base. However, it does not indicate that the support (and the heat sink mounted thereon) would be in any way outside the interior volume. Furthermore, the specification teaches that if the heat sink is mounted on a support, that support may be designed to place the heat sink in the most desirable position *within the interior volume*. Given the foregoing, the specific embodiment cannot reasonably be interpreted as Plaintiff suggests. The written description must "clearly allow persons of ordinary skill in the art to recognize that [he] invented what is claimed." *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). Plaintiff has failed to meet this standard, as no claim,

Cir. 1998). Plaintiff cannot make claims broader than its disclosure. *Id.* at 1480. Accordingly, in light of the plain meaning of the claim language, the written description, and the relevant illustration, the Court adopts Defendant's construction.

E. "In said base"

Claim 33 of the '961 Patent discloses: "The semiconductor light source as recited in claim 32 wherein: the semiconductor light source further comprises a base to which said enclosure is mounted, and said AC/DC converter is positioned in said base." (Reexamination Certificate, 2:41-45.) Plaintiff seeks to define "in said base" as "included within the base," such that the AC/DC converter could be positioned in the base or partially in the base. Defendant proposes construing "in said base" as "within the base," a definition that requires the AC/DC converter to be entirely within the base.

The specification describes an "AC/DC converter 705" but does not define its location. ('961 Patent, 8:60-63.) Plaintiff points to where the specification, describing Figure 1, states that the "AC/DC converter may be located in the base 103 *or in another location.*" ('961 Patent, 3:63-64 (emphasis added).) However, no AC/DC converter is shown in Figure 1 and the specification does not explain where else it might be. The AC/DC converter 705 is

illustrated only in Figure 11, which does not indicate its location (although it appears to be in the base).

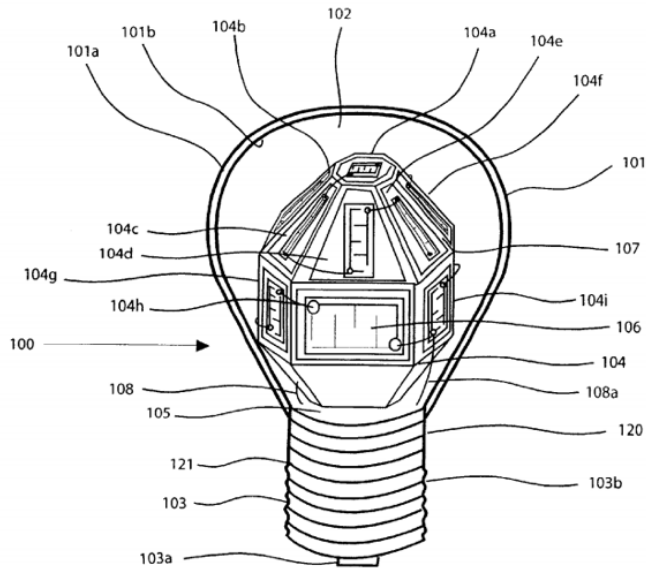


Fig. 1

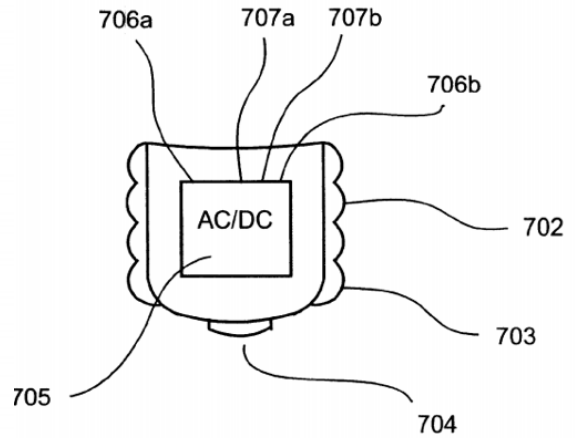


Fig. 11

Defendant argues that Plaintiff cannot claim an AC/DC converter that is only partially in the base, as Plaintiff did not claim or illustrate such an embodiment. Defendant asserts that Plaintiff failed to comply with PTO rules regarding the sufficiency of drawings, citing 37 C.F.R. § 1.83(a):

The drawing in a nonprovisional application must show every feature of the invention specified in the claims. However, conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing

in the form of a graphical drawing symbol or a labeled representation (e.g., a labeled rectangular box).

37 C.F.R. § 1.83(a). The Manual of Patent Examining Procedure ("MPEP") further provides, "[a]ny structural detail that is of sufficient importance to be described should be shown in the drawing." MPEP § 608.02(D). The MPEP is not binding on courts, but it may receive judicial notice to the extent that it does not conflict with the patent statute. *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 964 (Fed. Cir. 2002). The Court finds that Plaintiff has complied with both 37 C.F.R. § 1.83(a) and the MPEP. Plaintiff included Figure 11, a drawing of the AC/DC converter. While Figure 11 does not precisely indicate the location of the AC/DC converter within the context of the apparatus as a whole, there is no such requirement under 37 C.F.R. § 1.83(a) or the MPEP. Thus, Defendant's drawing-based argument fails.

Regardless, the Court notes that the plain meaning of claim 33 is that the AC/DC converter is positioned only in the base. And the claims, not the specification, provide the measure of the patentee's right to exclude. *Johnson & Johnston Assocs. Inc. v. R.E. Serv. Co.*, 285 F.3d 1046, 1052 (Fed. Cir. 2002). The specification is "highly relevant" intrinsic evidence, as it is the single best guide to the meaning of a disputed term. *Phillips*, 415 F.3d at 1315. However, the specification is not a substitute for, nor can it be used to rewrite, the chosen claim language.

SuperGuide Corp. v. DirectTV Enterprises, Inc., 358 F.3d 870, 875 (Fed. Cir. 2004) (“Specifications teach. Claims claim.”).

Plaintiff seeks to use the specification to expand claim 33. The specification does clearly state that the AC/DC converter can be located in “another location,” but the claim itself takes a narrower approach, stating only that the AC/DC converter is “positioned in said base.” While the specification may be referred to in order to limit the claim, it can never be made available to *expand it*. *Johnson & Johnston*, 285 F.3d at 1052 (citation omitted) (“Out of all the possible permutations of elements which can be made from the specifications, he reserves for himself only those contained in the claims.”).

Additionally, other intrinsic evidence emphasizes the AC/DC converter being in the base. The Abstract states that “[a]n AC/DC converter may be included in the light source fitting.” (‘961 Patent, Abstract.) The specification then explains that “fitting” is synonymous with “base.” (‘961 Patent, 3:17-19 (“The base 103 may be configured as a fitting or connector for use in a desired light socket.”).) Thus, the specification at 3:63-64 is insufficient to overcome the plain meaning of claim 33. The Court adopts Defendant’s construction.

F. "Array of LEDs"

The claims reference "LED array chips" throughout, but the term is most precisely defined in claim 22: "said LED chip is an LED array chip . . . said LED array chip includes a pad in electrical connection with a metal strip arranged in an array formation configured to provide power to said active layer." (Reexamination Certificate, 1:42:48.) Plaintiff's proposed construction of "array of LEDs" is "a plurality of LEDs arranged in a pattern." Defendant seeks the following construction: "a plurality of LEDs arranged in a pattern and formatted to be operated at a specific voltage." Thus, while parties agree that an "array of LEDs" is a "plurality of LEDs arranged in a pattern," Defendant seeks to impose a further limitation to that definition: that the plurality of LEDs be formatted to be operated at a specific voltage.

The claims, specification, and drawings do not contemplate specific voltages within the LED array, and do not support Defendant's construction. (See '961 Patent, Figures 1, 4a, 4b; 3:26-30; 3:42-46; 6:12-29.) Perhaps due to this fact, Defendant supports its "specific voltage" construction with third party extrinsic evidence. Specifically, Defendant points to the definition of "array of LEDs" offered on the website of an unrelated retail LED lighting store:

A group of LEDs set in a square, rectangular or linear pattern and formatted to be operated at a specific voltage. They will always include wires called leads. One is negative, the other positive. In RGB products, there are four wires - red, blue, green and common.

(TheLEDLight.com Definitions, Ex. 8 to Def.'s Claim Construction Br., Dkt. No. 27-7.) Pursuant to this definition, Defendant argues that a person of skill in the art would understand that the LEDs in the array have more in common than simply being arranged in a pattern—they must be formatted to operate at a specific voltage. Courts can consider extrinsic evidence, technical dictionaries in particular, to determine the accepted meanings of terms used in various fields. *Phillips*, 415 F.3d at 1318. The Court declines to adopt Defendant's construction, however, because it imposes a limitation that is not present in the claims or specification. It is improper to import a limitation into a claim where the limitation has no basis in the intrinsic record. *Seachange Int'l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1376 (Fed. Cir. 2005). The Court adopts Plaintiff's construction as it is consistent with the intrinsic evidence.

IV. CONCLUSION

For the reasons stated herein, the Court construes the six disputed terms of the '961 Patent as follows:

- 1) **Output light at greater than about 40 milliwatts:** Radiometric light output greater than about 40 milliwatts as quantitated by an appropriate measuring and detection device.
- 2) **Monochromatic:** One color.
- 3) **Enclosure:** A structure that encloses a volume.
- 4) **In said interior volume:** Within the interior volume of said enclosure.
- 5) **In said base:** Within the base.
- 6) **Array of LEDs:** A plurality of LEDs arranged in a pattern.

IT IS SO ORDERED.



Harry D. Leinenweber, Judge
United States District Court

Dated: 4/3/2019