IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

NICHIA CORPORATION,

Plaintiff,

v.

TCL MULTIMEDIA TECHNOLOGY HOLDINGS, LTD., et al.,

Defendants.

Civil Action No. 16-681-RGA

MEMORANDUM OPINION

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ANDREWS, U.S. DISTRICT JUDGE:

Presently before the Court is the issue of claim construction of multiple terms in U.S. Patent No. 7,915,631 (the "'631 patent"), U.S. Patent No. 7,901,959 (the "'959 patent"), U.S. Patent No. 8,309,375 (the "'375 patent"), and U.S. Patent No. 7,855,092 (the "'092 patent"). The Court has considered the parties' joint claim construction brief (D.I. 54), associated joint appendix (D.I. 55), and supplemental briefing. (D.I. 60, 63). The Court heard oral argument on October 31, 2017. (D.I. 66) ("Tr.").

I. BACKGROUND

On August 8, 2016, Plaintiff Nichia Corp. filed this action against Defendants TCL Multimedia Technology Holdings, Ltd. and TTE Technology, Inc. alleging infringement of the '631, '959, '375, and '092 patents. (D.I. 1).

II. LEGAL STANDARD

"It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal quotation marks omitted). "'[T]here is no magic formula or catechism for conducting claim construction.' Instead, the court is free to attach the appropriate weight to appropriate sources 'in light of the statutes and policies that inform patent law.'" *SoftView LLC v. Apple Inc.*, 2013 WL 4758195, at *1 (D. Del. Sept. 4, 2013) (quoting *Phillips*, 415 F.3d at 1324) (alteration in original). When construing patent claims, a court considers the literal language of the claim, the patent specification, and the prosecution history. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977–80 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). Of these sources, "the specification is always highly relevant to the claim construction

analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Phillips*, 415 F.3d at 1315 (internal quotation marks omitted).

"[T]he words of a claim are generally given their ordinary and customary meaning. . . . [Which is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1312–13 (citations and internal quotation marks omitted). "[T]he ordinary meaning of a claim term is its meaning to [an] ordinary artisan after reading the entire patent." *Id.* at 1321 (internal quotation marks omitted). "In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Id.* at 1314.

When a court relies solely upon the intrinsic evidence—the patent claims, the specification, and the prosecution history—the court's construction is a determination of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). The court may also make factual findings based upon consideration of 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 1317–19 (internal quotation marks omitted). Extrinsic evidence may assist the court in understanding the underlying technology, the meaning of terms to one skilled in the art, and how the invention works. *Id.* Extrinsic evidence, however, is less reliable and less useful in claim construction than the patent and its prosecution history. *Id.*

"A claim construction is persuasive, not because it follows a certain rule, but because it defines terms in the context of the whole patent." *Renishaw PLC v. Marposs Societa' per*

Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998). It follows that "a claim interpretation that would exclude the inventor's device is rarely the correct interpretation." *Osram GMBH v. Int'l Trade Comm'n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007) (citation and internal quotation marks omitted).

III. PATENTS AT ISSUE

1. The '631 Patent

The '631 patent is directed to a light emitting device containing a semiconductor light emitting component and a phosphor. ('631 patent, abstract). Claim 1 reads as follows:

> 1. A light emitting diode comprising:
>
> an LED chip having an electrode;
>
> a *transparent material* covering said LED chip, and
>
> a phosphor contained in said transparent material and absorbing a part of light emitted by said LED chip and emitting light of wavelength different from that of the absorbed light;
>
> wherein the *main emission peak* of said LED chip is within the range from 400 nm to 530 nm,
>
> a concentration of said phosphor in the vicinity of said LED chip is larger than a concentration of said phosphor in the vicinity of the surface of said transparent material, and
>
> said phosphor *diffuses* the light from said LED chip and suppresses a formation of an emission pattern by a partial blocking of the light by said electrode.

(*Id.* at 30:59–31:6) (disputed terms italicized).

2. The '959 Patent

The '959 patent is also directed to a light emitting device containing a semiconductor light emitting component and a phosphor. ('959 patent, abstract). Claim 1 reads as follows:

> 1. A liquid crystal display comprising:
>
> a back light having a light emitting diode;

a liquid crystal injected between glass substrates; and

a color filter,

wherein said light emitting diode comprising:

an LED chip,

a *transparent material* covering said LED chip, and

a phosphor contained in said transparent material and absorbing a part of light emitted by said LED chip and emitting light of wavelength different from that of the absorbed light,

wherein said LED chip emits light having a spectrum with a peak in the range from 420 to 490 nm, said phosphor emits light having a spectrum with a peak in the range from 530 to 570 nm and a tail continuing beyond 700 nm, and said spectrum of the light emitted from said phosphor and said spectrum of the light emitted from said LED chip *overlap with each other to make a continuous combined spectrum*,

wherein a concentration of said phosphor in the vicinity of said LED chip is larger than a concentration of said phosphor in the vicinity of the surface of said transparent material.

(*Id.* at 31:2–24) (disputed terms italicized).

3. The '375 Patent

The '375 patent is directed to a method for manufacturing a light emitting device. ('375 patent, abstract). Claim 1 reads as follows:

1. A method for manufacturing a light emitting device comprising:

preparing a light emitting component having an active layer of a semiconductor, said active layer comprising a gallium nitride based semiconductor containing indium and being capable of emitting a blue color light having a spectrum with a peak wavelength within the range from 420 to 490 nm;

preparing a phosphor capable of absorbing a part of the blue color light emitted from said light emitting component and emitting a yellow color light having a broad emission spectrum comprising a peak wavelength existing around the range from 510 to 600 nm and a tail continuing

beyond 700 nm, wherein selection of said phosphor is controlled based on an emission wavelength of said light emitting component; and

combining said light emitting component and said phosphor so that *the blue color light from said light emitting component and the yellow color light from said phosphor are mixed to make a white color light*, wherein a chromaticity point of the white color light is on a straight line connecting a point of chromaticity of the blue color light and a point of chromaticity of the yellow color light, and

wherein a content of said phosphor in said light emitting device is selected to obtain a desired chromaticity of the white color light.

(*Id.* at 30:55–31:14) (disputed terms italicized).

4. The '092 Patent

The '092 patent is directed to a device for emitting white-color light. ('092 patent, abstract). Claims 1, 8, and 9 contain disputed terms. Those claims read as follows:

1. A device for emitting white-color light comprising:

(i) a light emitting diode including:

an LED chip comprising a gallium nitride compound semiconductor containing indium and being capable of emitting a blue color light, and

a phosphor capable of absorbing a part of the blue color light and emitting a light having longer wavelength than the blue color light,

the blue color light and the light from said phosphor being mixed to make the white-color,

(ii) a control unit for converting an input to pulse signals,

(iii) a driver receiving said pulse signals from said control unit to drive said LED chip,

wherein the brightness of the white-color light from said light emitting diode is controlled by a width of said pulse signals.

(*Id.* at 31:6–21) (disputed terms italicized).

8. The device according to claim 1, wherein said device comprises a *dispersive member for dispersing light from said light emitting diode*.

(*Id.* at 32:1–3) (disputed terms italicized).

9. The device according to claim 1, wherein said device comprises a *reflective member for reflecting light from said light emitting diode*.

(*Id.* at 32:4–6) (disputed terms italicized).

IV. CONSTRUCTION OF DISPUTED TERMS

1. "transparent material" ('631 patent, claims 1 and 11; '959 patent, claims 1 and 9)

a. *Plaintiff's proposed construction*: "unitary transparent material"

b. *Defendants' proposed construction*: no construction needed, alternatively, it should be defined according to its ordinary meaning: "material that allows light to pass through"

c. *Court's construction*: no construction needed

The parties dispute whether the "transparent material" recited in the '631 and '959 patents can be made of several components. (D.I. 54 at 21, 29, 33). They do not dispute the meaning of "transparent." (*See id.* at 29; Tr. at 11:19–21).

Plaintiff argues that a person of ordinary skill in the art, at the time of the invention, would have understood "transparent material" to refer to "a unitary material that is transparent." (D.I. 54 at 21). According to Plaintiff, nowhere does the '631 patent suggest that a "transparent material" can be made of different components. (*Id.*). Specifically, Plaintiff asserts that the two types of transparent materials described in the patents, the "coating material" and the "molding material," "are treated as distinct components of the invention in both the specification and drawings." (*Id.* at 21–22).

Defendants respond that the '631 patent specification "explicitly describes 'the present invention' as including non-unitary 'transparent materials.'" (*Id.* at 26). Defendants point to the specification, which states in part, "Also, the molding material 104 may be made in a structure of multiple layers of different materials being laminated." (*Id.* (quoting '631 patent, 16:58–62)).

I see no support in the intrinsic record for Plaintiff's attempt to import into the claims a limitation that the "transparent material" be unitary. The patents never refer to a "unitary transparent material," or anything of the sort. To the contrary, as Defendants note, both patents describe a "molding material," that is, a "transparent material," being made "in a structure of multiple layers of different materials being laminated." ('631 patent, 16:58–60; '959 patent, 16:58–60). That a "transparent material" can be made of "multiple layers of different materials" suggests the material need not be unitary. Further, at the *Markman* hearing, Plaintiff seemed to be referring to how the "transparent material" is manufactured, rather than to its structure. (*See* Tr. at 18:3–8). The patents at issue, however, do not claim a process for manufacturing a "transparent material." How the material is manufactured, therefore, has no bearing on the construction of this term. I do not otherwise find it necessary to construe this term, since a jury will have no trouble understanding it. The term is not limited, however, to a "transparent material" that is "unitary," and Plaintiff is prohibited from making an argument to that effect.

2. "main emission peak" ('631 patent, claim 1)

a. *Plaintiff's proposed construction*: plain and ordinary meaning, alternatively, "peak emission wavelength"

b. *Defendants' proposed construction*: "peak emission wavelength"

c. *Court's construction:* "peak emission wavelength"

Plaintiff argues there is no reason for the Court to construe this term. (D.I. 54 at 36). Plaintiff disagrees with Defendants that their proposed construction may provide clarity to the factfinder. (*Id.*). If the Court construes "main emission peak," however, Plaintiff will accept Defendants' proposed construction. (*Id.*). Since the parties agree that "peak emission wavelength" is a proper construction of this term, I will adopt that construction.

3. "diffuses" ('631 patent, claim 1; '959 patent, claims 5 and 13)

a. *Plaintiff's proposed construction*: "scatters by reflections off of phosphor particles"

b. *Defendants' proposed construction*: no construction needed, alternatively, "scatters"

c. *Court's construction*: "scatters"

The parties dispute whether the term "diffuses" includes all possible methods of diffusion, or only diffusion by reflection. (*Id.* at 37, 40). To support its proposed construction, Plaintiff argues the phosphor's role of reflecting light "is important to achieving the further claim limitation that the phosphor acts to 'suppress[] a formation of an emission pattern by a partial blocking of the light by said electrode.'" (*Id.* at 39 (quoting '631 patent, 31:5–6)). Plaintiff further asserts that its construction "is [] consistent with the common definition of the term 'diffuse' in this context, which focuses on the reflection of light." (*Id.* (citing Merriam-Webster's Dictionary)). According to Plaintiff, Defendants' proposed construction is wrong because any scattering of light at "random trajectories by the phosphor is insufficient because it does not scatter the unabsorbed light from the LED chip." (*Id.*).

Defendants counter that their proposed construction is consistent with the claim language, which shows "a clear intent to distinguish between the broader term 'diffusion' from the narrower one, 'reflection.'" (*Id.* at 41). Defendants note that while claim 5 of the '959 patent refers to the phosphor "diffus[ing]" light, claim 21 refers to the phosphor "reflect[ing]" light. (*Id.*). Defendants further argue that the dictionary definition proffered by Plaintiff is misleading. (*Id.* at 42). They explain that Plaintiff omits a portion of the definition describing diffusion by refraction. (*Id.*). According to Defendants, other dictionaries, including those tailored to

physics, confirm that "diffuses" means "scatters." (*Id.*). Finally, Defendants argue that Plaintiff's construction is not supported by the specification, and the portions of the specification to which Plaintiff cites "are completely irrelevant to specific diffusion techniques." (*Id.* at 43).

I will not adopt Plaintiff's proposed construction. Plaintiff appears to be asking the Court to rewrite the claim language. The intrinsic record provides no support, however, for Plaintiff's contention that when the patent uses the word "diffuses," the patentee actually meant "reflects." Rather, as Defendants note, the '959 patent uses the terms in different contexts, which demonstrates that the patentee understood them to have different meanings. While claim 5 of the '959 patent refers to the phosphor "diffus[ing]" light, claim 21 refers to the phosphor "reflect[ing]" light. ('959 patent, 31:34, 32:43). Neither patent specification sheds any additional light on the meaning of the term "diffuses." The parties agree, however, that "diffuses" is a broader term than "reflects." (Tr. at 32:9–18; 39:10–12). They also agree that "diffuses" ordinarily means "scatters." I will therefore construe "diffuses" to mean "scatters." This construction is consistent with the use of the words "diffuses" and "reflects" in the '959 patent specification. The parties do not argue that "diffuses" should be construed differently for the '631 patent.

4. "overlap with each other to make a continuous combined spectrum" ('631 patent, claim 3; '959 patent, claims 1 and 9)

a. *Plaintiff's proposed construction*: "partly extend over each other and each contributes a peak to a continuous combined emission spectrum of the light emitted by the light emitting diode"

b. *Defendants' proposed construction*: no construction needed, otherwise it should be defined by its ordinary meaning: "partly extend over each other to make a continuous combined spectrum"

c. *Court's construction*: "partly extend over each other to make a continuous combined spectrum"

The parties' dispute over this term is twofold. First, the parties disagree about whether the construction should include the language, "each contributes a peak to a continuous combined emission spectrum." (D.I. 54 at 56). Second, they dispute whether the construction should include, "of the light emitted by the light emitting diode." (*Id.*).

To support its proposed construction, Plaintiff points to claim 4 of the '631 patent and claims 1 and 9 of the '959 patent, which require that the LED chip and the phosphor emit light having a spectrum with a peak within a certain range. (*Id.* at 55). Further, Plaintiff points to Figures 18A to 18C in the '631 patent, which show the spectrum of light emitted by the phosphor, the spectrum of light emitted by the blue LED chip, and the continuous combined spectrum created when they overlap. (*Id.*). Citing to Merriam-Webster's Dictionary, Plaintiff contends that its construction is consistent with the common meaning of the term "overlap." (*Id.* at 57). Finally, Plaintiff argues that including "of the light emitted by the light emitting diode" is necessary in order "to avoid misinterpretation of the claim language" (*id.* at 60), and, more specifically, to clarify where the light emitted from the LED device is measured. (Tr. at 77:7–13).

Defendants counter that the claim term "simply requires that two light sources – here, blue light from the LED and yellow light from the phosphor – overlap to create a combined emission, *e.g.*, white color light." (D.I. 54 at 58). According to Defendants, this term should be construed consistent with its plain meaning. (*Id.*). Defendants argue that Plaintiff is "attempting to add superfluous language into the claim," without identifying anything in the specification or the prosecution history that requires the additional language. (*Id.* at 58–59). Defendants assert that the figures to which Plaintiff points "merely confirm what the claims already say," rather than support Plaintiff's proposed construction. (*Id.* at 59). Finally, Defendants dispute whether

Plaintiff's proposed language, "of the light emitted by the light emitting diode," is needed to clarify the claim. (*Id.*). Defendants argue, "There is no question that the light produced by the 'combined spectrum' must be emitted by the 'light emitting diode.'" (*Id.*).

Nothing in the language of this term suggests the "continuous combined emission spectrum" must have two peaks. Plaintiff has not provided any basis upon which the Court may depart from the plain meaning of the term. *See GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) ("[T]he specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal."). Rather, Plaintiff seeks to import a limitation into the claims by relying on Figures 18A to 18C from the patent specification. I see no reason, however, to import such a limitation from the specification. Similarly, the plain meaning of the term does not suggest the "continuous combined emission spectrum" must be "of the light emitted by the light emitting diode." The claim term describes the LED chip emitting light and the phosphor emitting light, but nowhere mentions the resulting light being emitted from the light emitting diode. (*See* '631 patent, 31:9–15; '959 patent, 31:13–20, 32:1–8). Nevertheless, the patent claims make clear that the LED chip and the phosphor are both part of the light emitting diode, and thus the proposed language is not clarifying, merely redundant. I therefore see no reason to include this additional language in the definition of the term. I will adopt Defendants' proposed construction.

5. **"the blue color light from said light emitting component and the yellow color light from said phosphor are mixed to make a white color light" ('375 patent, claim 1)**

    a. *Plaintiff's proposed construction*: "the part of the blue color light from said light emitting component that is transmitted without being absorbed by said phosphor and the yellow color light from said phosphor are combined and each contributes a part of an emission spectrum that creates a white color light"

b. *Defendants' proposed construction*: no construction needed / indefinite—the terms "blue color light," "yellow color light," and "white color light" are indefinite

   If construed, "the part of the blue color light from said light emitting component that is transmitted without being absorbed by said phosphor and the yellow color light from said phosphor are combined to create a white color light"

c. *Court's construction*: "the part of the blue color light from said light emitting component that is transmitted without being absorbed by said phosphor and the yellow color light from said phosphor are combined to create a white color light"

At the *Markman* hearing, Plaintiff indicated the parties have agreed that terms four through six can be grouped together for the purposes of claim construction. (Tr. at 4:10–17). The parties more or less make the same arguments with respect to "each contributes a part of an emission spectrum," as they do for "each contributes a peak to a continuous combined emission spectrum." For different reasons than those stated above, however, I will not adopt Plaintiff's proposed construction for this term.

The additional language in Plaintiff's proposed construction is redundant. That part of the blue color light and the yellow color light "each contributes a part of an emission spectrum" is apparent from the claim language. The claim states that the light from those two sources is "mixed to make a white color light," that is, each contributes a part to the resulting white color light. I therefore see no reason to add this language to the definition of the term. Thus, I will adopt Defendants' proposed construction, "the part of the blue color light from said light emitting component that is transmitted without being absorbed by said phosphor and the yellow color light from said phosphor are combined to create a white color light."

6. "the blue color light and the light from said phosphor being mixed to make the white-color" ('092 patent, claim 1)

a. *Plaintiff's proposed construction*: "the part of the blue color light from said LED chip that is transmitted without being absorbed by said phosphor and the light

from said phosphor are combined and each contributes a part of an emission spectrum that creates the white-color"

b. *Defendants' proposed construction*: no construction needed / indefinite—the terms "blue color" and "white-color" are indefinite

If construed, "the part of the blue color light from said LED chip that is transmitted without being absorbed by said phosphor and the light from said phosphor are combined to create the white-color"

c. *Court's construction*: "the part of the blue color light from said LED chip that is transmitted without being absorbed by said phosphor and the light from said phosphor are combined to create the white-color"

The parties dispute whether the construction of this term should include the language, "each contributes a part of an emission spectrum." This is the same dispute as above. For the reasons explained earlier, I will adopt Defendants' proposed construction for this term.

7. "dispersive member for . . ." ('092 patent, claim 8) and "reflective member for . . ." ('092 patent, claim 9)

a. *Plaintiff's proposed construction*:[1] not means-plus-function, not indefinite, and should be given their plain and ordinary meanings

If the Court construes the terms as means-plus function:

Term	Function	Corresponding Structure
"dispersive member for"	"dispersing light from said light emitting diode"	"dispersive sheet 706, as described in Figures 7–9, and lines 7:20–26, 20:7–60 (and equivalents)"
"reflective member for"	"reflecting light from said light emitting diode"	"reflector 705, reflector film 707, a surface being substantially covered with a reflective material, or barium titanate dispersed in an acrylic binder as white color reflector, as described in Figures 7–9, 5:13–32, 7:20–26, 20:7–60, 27:36–44, and 30:3–11 (and equivalents)"

[1] (D.I. 60 at 1, 2).

b. *Defendants' proposed construction*:[2] means-plus-function

Term	Function	Corresponding Structure
"dispersive member for"	"dispersing light from said light emitting diode"	"dispersive sheet 706, as described in Figures 7–9, and lines 7:20–26, 20:7–60 (and equivalents)"
"reflective member for"	"reflecting light from said light emitting diode"	"reflector 705, reflector film 707, or barium titanate dispersed in an acrylic binder as white color reflector, as described in Figures 7–9, 5:13–32, 7:20–26, 20:7–60, 27:36–44, and 30:3–11 (and equivalents)"

c. *Court's construction*: means-plus-function

Term	Function	Corresponding Structure
"dispersive member for"	"dispersing light from said light emitting diode"	"dispersive sheet 706, as described in Figures 7–9, and lines 7:20–26, 20:7–60 (and equivalents)"
"reflective member for"	"reflecting light from said light emitting diode"	"reflector 705, reflector film 707, or barium titanate dispersed in an acrylic binder as white color reflector, as described in Figures 7–9, 5:13–32, 7:20–26, 20:7–60, 27:36–44, and 30:3–11 (and equivalents)"

The parties dispute whether "dispersive member" and "reflective member" should be construed under 35 U.S.C. § 112(f) as means-plus-function limitations.

"Dispersive member" and "reflective member" are presumptively not subject to construction under § 112(f) because they do not recite the word "means." *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). "When a claim term lacks the word 'means,' the presumption can be overcome and § 112[(f)] will apply if the challenger demonstrates that the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function.'" *Id.* at 1349 (quoting *Watts v. WL Sys., Inc.*, 232 F.3d 877, 880 (Fed. Cir. 2000)). "What is important is . . .

[2] (D.I. 54 at 72, 75; D.I. 63 at 1).

that the term, as the name for structure, has a reasonably well understood meaning in the art." *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996).

Defendants argue that both terms are purely functional and thus should be construed pursuant to § 112(f). (D.I. 54 at 70). Specifically, Defendants argue, "The word 'member' is a word that has no specific meaning to a person of ordinary skill in this art, and does not identify any specific structure that disperses or reflects light." (*Id.* at 70–71). Defendants further contend that neither "dispersive" nor "reflective" imparts structure to the term "member." (*Id.* at 71). Rather, these prefixes merely describe the functionality of dispersing and reflecting light. (*Id.*). Defendants go on to identify specific structures in the patent specification that according to Defendants, are linked to the claimed functions. (*Id.* at 73, 75). Further, Defendants cite to several cases and the Manual of Patent Examining Procedure to support the proposition that "'member for' is a phrase that imparts no structure, and may be construed as a means-plus-function limitation." (*Id.* at 71).

Plaintiff counters that Defendants have failed to show that § 112(f) applies. (*Id.* at 77). According to Plaintiff, a person of ordinary skill in the art "would understand that the 'dispersive member' and the 'reflective member' may take various structural forms and are not meant to be limited to just the specific forms described in certain embodiments in the specification and their equivalents." (*Id.*). A person of ordinary skill in the art would understand a "dispersive member," for example, "to mean a structure that contains or is made of a dispersive material, is applied to or is a surface, and is situated to disperse light." (*Id.* at 78). If the Court finds § 112(f) applies, Plaintiff asserts that the corresponding structure should also include, "a surface being substantially covered with a reflective material." (D.I. 60 at 2).

I agree with Defendants that "dispersive member" and "reflective member" are means-plus-function limitations. Defendants have overcome the presumption that these terms are not subject to § 112(f) by demonstrating that the claims fail to "recite sufficiently definite structure." *See Williamson*, 792 F.3d at 1349.

As an initial matter, I note that both terms from the '092 patent are written in a traditional means-plus-function format. The claims essentially replace the term "means" with "member" and recite the functions performed by each "member." (*See* '092 patent, 32:2–3 (referring to "a dispersive member for dispersing light from said light emitting diode"), 5–6 (referring to "a reflective member for reflecting light from said light emitting diode")).

The claim terms do nothing more, however, than define the functions of each "member." They do not recite any structure. Further, I agree with Defendants that neither does the word "dispersive" nor "reflective" before "member" impart any structure to the terms. Rather, "dispersive" and "reflective" merely refer to the function of each "member," that is, to disperse or to reflect light. The word "member," therefore, appears to be used as a placeholder term, operating as a substitute for "means." *See Williamson*, 792 F.3d at 1350 ("Generic terms such as 'mechanism,' 'element,' 'device,' and other nonce words that reflect nothing more than verbal constructs may be used in a claim in a manner that is tantamount to using the word 'means' because they 'typically do not connote sufficiently definite structure.'") (quoting *Mass. Inst. of Tech. & Elecs. For Imaging, Inc. v. Abacus Software*, 462 F.3d 1344, 1354 (Fed. Cir. 2006)).

Further, I am not persuaded that "dispersive member" and "reflective member" are "understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure." *See id.* at 1349. According to Plaintiff's expert, Dr. Wetzel, a person of ordinary skill would understand that the "dispersive member" and "reflective member" "may

take various structural forms." (D.I. 55, Exh. 25 ¶ 48). For example, a person of ordinary skill "would understand a dispersive member to mean a structure that contains or is made of a dispersive material, is applied to or is a surface, and is situated to disperse light." (*Id.*). Dr. Wetzel essentially opines that any structure made to disperse light could be a "dispersive member," and, similarly, any structure made to reflect light could be a "reflective member." Dr. Wetzel fails to show these terms are understood as the names for sufficiently definite structures. I conclude, therefore, that "dispersive member" and "reflective member" are means-plus-function limitations subject to § 112(f).

Application of § 112(f) proceeds in two steps. *Williamson*, 792 F.3d at 1351. First, the court must identify the claimed function. *Id.* The identified function must be the function "explicitly recited in the claim." *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999). Second, "the court must determine what structure, if any, disclosed in the specification corresponds to the claimed function." *Williamson*, 792 F.3d at 1351. "Structure disclosed in the specification qualifies as 'corresponding structure' if the intrinsic evidence clearly links or associates that structure to the function recited in the claim." *Id.* at 1352.

The claimed functions of the "dispersive member" and "reflective member" are (1) dispersing light from said light emitting diode and (2) reflecting light from said light emitting diode. ('092 patent, 32:2–3, 5–6; *see also* D.I. 60 at 1, 2; D.I. 63 at 1).

The parties generally agree on the structures disclosed in the specification that correspond to these claimed functions. In particular, the parties agree that the corresponding structure for the "dispersive member" is "dispersive sheet 706," as described in Figures 7 to 9 and lines 7:20–26, 20:7–60 of the '092 patent. (D.I. 60 at 1). Further, the parties agree that the corresponding structure for the "reflective member" includes, at least, "reflector 705, reflector film 707, or

barium titanate dispersed in an acrylic binder as white color reflector," as described in Figures 7 to 9, and lines 5:13–32, 7:20–26, 20:7–60, 27:36–44, and 30:3–11 of the '092 patent. (*Id.* at 2; D.I. 63 at 1). The dispersive and reflective members, therefore, are construed to include these corresponding structures and their equivalents.

The parties disagree, however, about whether the corresponding structure for the "reflective member" should include also a "surface being substantially covered with a reflective material." (D.I. 60 at 2; D.I. 63 at 1). Plaintiff argues that by omitting this language from their proposed corresponding structure, Defendants read the specification too narrowly. (D.I. 60 at 2). Defendants respond that the language "is purely functional, open-ended and describes any type of structure that may perform the claimed function." (D.I. 63 at 1).

I agree with Defendants. The language cited by Plaintiff fails to "disclose [a] particular structure that is used to perform the recited function." *See Cox Commc'ns, Inc. v. Spring Commc'n Co. LP*, 838 F.3d 1124, 1232 n.4 (Fed. Cir. 2016) (internal quotation marks and citations omitted). Rather than describe a particular structure, the language refers generally to any "surface" that might reflect light. Thus, I will not construe the corresponding structure for "reflective member" to include a "surface being substantially covered with a reflective material."

IV. CONCLUSION

Within five days the parties shall submit a proposed order consistent with this Memorandum Opinion suitable for submission to the jury.