

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

NICHIA CORPORATION,

Plaintiff,

v.

GLOBAL VALUE LIGHTING, LLC,

Defendant.

Civil Action No. 19-1388-RGA

MEMORANDUM OPINION

Brian P. Egan, Anthony D. Raucci, MORRIS, NICHOLS, ARSHT & TUNNELL LLP, Wilmington, DE; Robert P. Parker, Martin M. Zoltick (argued), Steven Weihrouch, Jenny Colgate, Michael Jones, Daniel R. McCallum, Mark T. Rawls, D. Lawson Allen, ROTHWELL, FIGG, ERNST & MANBECK, P.C., Washington, DC, Attorneys for Plaintiff.

John G. Day, Andrew C. Mayo, ASHBY & GEDDES, Wilmington, DE; Eric D. Hayes (argued), Jay Emerick (argued), KIRKLAND & ELLIS LLP, Chicago, IL; Abigail L. Litow (argued), KIRKLAND & Ellis LLP, Washington, DC, Attorneys for Defendant.

October 28, 2020

/s/ Richard G. Andrews
ANDREWS, UNITED STATES DISTRICT JUDGE:

Before me is the issue of claim construction of multiple terms in U.S. Patent Nos. 9,752,734 (“the ’734 patent”), 7,804,101 (“the ’101 patent”), 9,324,791 (“the ’791 patent”), 6,870,191 (“the ’191 Patent), and 7,345,297 (“the ’297 patent”). I have considered the Parties’ Joint Claim Construction Brief (D.I. 55) and Appendix (D.I. 56, 57). I held oral argument via Skype on September 29, 2020. (D.I. 66).¹

I. 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

¹ Reference to the oral argument is in the form of “Tr. ____.”

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).

II. BACKGROUND

This case is about light emitting diode (“LED”) technology. LEDs are multicomponent devices that generate light in a light emitting region when an electrode applies an electrical current through a semiconductor. LEDs can function singularly as a chip, and multiple chips can also be linked together in a variety of ways to form larger LED packages. LEDs, whether as a chip or package, are often used as lighting devices. When used as a lighting device, the LED chip or package is often housed in a bulb. The light emitted from the LED passes through the bulb. The disputed terms here come from patents covering the use of LEDs in a light bulb (the ’734 Patent) and others covering the structure of the LED chip itself (the ’101 Patent, ’791 Patent, ’191 Patent, and ’297 Patent).

The following claims are the most relevant for the purposes of this Markman:

Claim 1 of the ’734 Patent

1. A light emitting device comprising:

a board having end portions and a center portion therebetween in a longitudinal direction, the board having a first surface on a first surface side thereof and a second surface on a second surface side thereof, the second surface being an opposite side to the first surface, the first surface including a first region and a second region, the first region extending from the center portion of the board to one of the end portions, the second region extending from the center portion of the board to the other of the end portions;

a plurality of light emitting element chips mounted on the first surface side of the board;

a wavelength conversion member formed unitarily with a *transparent member* that seals the plurality of light emitting element chips;

a *transparent bulb* that encloses the board and the plurality of light emitting element chips;

support leads that secure the plurality of light emitting element chips inside the *transparent bulb*;

a support base that can be threadedly engaged with a conventional light bulb socket along a socket axis; and

a pair of metal plates protruding at both ends of the wavelength conversion member,

wherein the wavelength conversion member is provided on the first surface side and the second surface side, the wavelength conversion member is elongated in the longitudinal direction when viewed in plan view of the first surface side of the board,

wherein a first set of the light emitting element chips are mounted on the first region and arranged from the center portion of the board to the one of the end portions,

wherein a second set of the light emitting element chips are mounted on the second region and arranged from the center portion of the board to the other one of the end portions, and

wherein the pair of metal plates are electrically connected with the support base via the support leads.

(D.I. 56, Exh. JA-01 (“Tanda ’734 Patent”), claim 1) (emphasis added).

Claim 17 of the ’734 Patent

17. The light emitting device according to claim 1, wherein the *board* is configured to be *transparent* so that a light emitted from the plurality of light emitting element chips on the first surface side of the board forwards outside of the light emitting device through the second surface of the board.

(D.I. 56, Exh. JA-01 (“Tanda ’734 Patent”), claim 17) (emphasis added).

Claim 36 of the ’101 Patent

36. A semiconductor light emitting diode comprising a substrate, an ohmic electrode and a plurality of semiconductor layers and configured so that light generated in said plurality of semiconductor layers is emitted from said ohmic electrode or from said substrate,

wherein said substrate comprises sapphire,

protruding portions are formed in a repeating pattern within substantially an entire surface of the substrate so as to define a polygon as the repeating pattern in plan view of the substrate while the rest of the surface is substantially flat, and

cross sections of the protruding portions taken along planes orthogonal to the surface of the substrate are convex in shape,

said protruding portions are formed so as to scatter or to diffract light generated in said plurality of light semiconductor layers.

(D.I. 56, Exh. JA-03 (“Niki ’101 Patent”), claim 36) (emphasis added).

Claim 1 of the ’791 Patent

1. A semiconductor element comprising:

a substrate having a first main face and a second main face, the substrate being a sapphire substrate; and

a semiconductor layer formed on a, [sic] side of one of the first main face and the second main face of the substrate, wherein

the substrate has a plurality of *isolated processed portions* and an irregularity face that runs from the *processed portions* at least to the first main face of the substrate and links adjacent ones of the *processed portions*,

the irregularity face runs from each of the *processed portions* to the first main face without passing through another of the *processed portions* and links the adjacent ones of the *processed portions* so that the irregularity face extends over a region between the *processed portions* and the first main face,

the substrate has only one row of the *processed portions* along a depth direction of the substrate,

all of the *processed portions* are disposed closer to the first main face than the second main face in the substrate, and

a flat surface or a series of stepped flat surfaces extends over a region between the *processed portions* and the second main face of the substrate.

(D.I. 56, Exh. JA-06 (“Tamemoto ’791 Patent”), claim 1) (emphasis added).

III. CONSTRUCTION OF AGREED-UPON TERMS

I adopt the following agreed-upon constructions:

Claim Term	Construction
“wherein each of the metal plates crosses the support lead” (’734 Patent)	“wherein each of the metal plates extends across one of the support leads”
“a wavelength conversion member formed unitarily with a transparent member that seals the plurality of light emitting element chips” (’734 Patent)	“a unitary member that serves as both a transparent member and a wavelength

	conversion member and that seals the plurality of light emitting element chips” ²
“a pitch of the protruding portions” (’101 Patent)	“a minimum distance from among the distances between the centers of neighboring protruding portions”
“configured so that light generated in said plurality of semiconductor layers is emitted from said ohmic electrode or from said substrate” (’101 Patent)	“configured so that light generated in the plurality of semiconductor layers is transmitted through said ohmic electrode or said substrate”
“regular triangle” (’101 Patent)	“a triangle comprising three sides of equal length”
“regular hexagon” (’101 Patent)	“a hexagon comprising six sides of equal length and having equal angles”
“wherein said substrate comprises sapphire, protruding portions are formed in a repeating pattern within substantially an entire surface of the substrate” (’101 Patent)	“wherein the substrate comprises sapphire, and a plurality of sapphire substrate portions protrude from the surface of the substrate and form a repeating pattern over substantially the entire surface of the substrate”
“said protruding portions are formed so as to scatter or to diffract light generated in said plurality of light semiconductor layers” (’101 Patent)	no construction necessary, plain and ordinary meaning
“the protruding portions are formed so as to define a triangle as the repeating pattern” (’101 Patent)	“the protruding portions are formed in a repeating pattern, in plan view, and the repeating pattern has the shape of a triangle”
“areas surrounding the protruding portions are filled in with at least one of the semiconductor layers so as to prevent cavities from being formed around the protruding portions” (’101 Patent)	no construction necessary, plain and ordinary meaning
“the protruding portions are formed so as to prevent crystal defects from occurring in the plurality of semiconductor layers” (’101 Patent)	no construction necessary, plain and ordinary meaning
“said recess and/or protruding portion contacts with said semiconductor layers” (’191 Patent)	“said recess and/or protruding portion is in contact with said semiconductor layers”
“a side face of said recess and/or protruding portion is inclined to a laminating direction of said semiconductor layers” (’191 Patent)	“a side face of said recess and/or protruding portion is inclined relative to a laminating direction of said semiconductor layers”

² The Parties separately stipulated to this construction after submitting their Joint Claim Construction Brief. (D.I. 62)

“taper angle [of said side face of said recess or protruding portion]” (’191 Patent)	“the angle formed between the primary surface of the substrate and the side face of the recess or protruding portion”
“at least one recess and/or protruding portion for scattering or diffracting light generated in said semiconductor layers” (’191 Patent)	no construction necessary, plain and ordinary meaning
“said recess and/or protruding portion is in a form that prevents crystal defects from occurring in said semiconductor layers” (’191 Patent)	no construction necessary, plain and ordinary meaning
“electrode formed on a surface of the top layer of said semiconductor layers” (’191 Patent)	no construction necessary, plain and ordinary meaning
“links adjacent ones of the processed portions” (’791 Patent)	“extends between adjacent ones of the processed portions”
“the processed portions and the irregularity face are formed within a range of at least 10% and no more than 80% of a thickness of the substrate” and “the processed portions and the irregularity face are formed within a range of no more than 40% of the thickness of the substrate” (’791 Patent)	“the processed portions and the irregularity face comprise at least 10% and no more than 80% of a thickness of the substrate” and “the processed portions and the irregularity face comprise no more than 40% of the thickness of the substrate”
“from said n-side contact layer between said n-side contact layer and said active layer” and “from the side of an n-side contact layer between said n-side contact layer that has an n electrode and an active layer” (’297 Patent)	“from said n-side contact layer, wherein the n-side layers are formed between said n-side contact layer and said active layer” and “from said n-side contact layer, wherein the n-side layers are formed between said n-side contact layer and an active layer, and wherein said n-side contact layer has an n electrode”
“first set of light emitting element chips . . . second set of light emitting element chips” (’734 Patent)	no construction necessary, plain and ordinary meaning ³

³ The Parties separately stipulated to this construction after submitting their Joint Claim Construction Brief. (D.I. 64)

IV. CONSTRUCTION OF DISPUTED TERMS

1. Term 1: The “transparent” bulb/board/member (’734/1, 2, 3, 17, 26, 27)

- a. *Plaintiff’s proposed construction:*
 - i. “a bulb that allows light to pass through”
 - ii. “the board is configured to allow light to pass through”
 - iii. “a member that allows light to pass through”
- b. *Defendant’s proposed construction:* “transmitting light without appreciable scattering so that objects lying beyond are seen clearly and distinctly”
- c. *Court’s construction:*
 - i. a board, bulb, or member that “allows light to pass through”

The parties agree that a consistent meaning of “transparent” should be applied to the bulb, board, and member claimed in the ’734 patent. They also agree that a “transparent” element allows transmission of light. (D.I. 55 at 6–8). They dispute, however, whether the transmission must be without “appreciable scattering” of light, and whether one must also be able to see “clearly and distinctly” through the transparent element. (*Id.*).

Plaintiff contends that the ’734 patent claims an invention in the field of “light emitting devices,” and that Defendant’s use of extrinsic evidence from the irrelevant field of “imaging optics” therefore renders its construction inappropriate (D.I. 57, Exh. JA-34 (Wetzel Decl.), at ¶ 8; *see* Tr. at 15:12–25). In the context of light emission, Plaintiff’s expert notes, “What matters is that the light passes through, not whether it scatters when passing through.” (D.I. 57, Exh. JA-34 (Wetzel Decl.), at ¶ 10). In fact, some light emitting devices use scattering or diffusion deliberately, for example to “broadly illuminate an environment” or “conceal the point-source nature of an LED chip.” (*Id.*). The ability to see “clearly and distinctly” through an object, therefore, does not effectively gauge “transparency” in the field of light emitting devices. (*Id.*).

Defendant, on the other hand, argues that the plain and ordinary meaning of “transparent” requires that “objects lying beyond are seen clearly and distinctly.” (D.I. 55 at 8–9). The

colloquial understanding of a “transparent” window, for example, is one that provides a “clear view,” unlike a “frosted” (i.e., translucent) window. (*Id.* at 8). Defendant further cites to several general-use dictionaries and one technical dictionary—in the field of visual science (i.e., “imaging optics”)—that similarly state “transparent” objects allow light to pass through in such a way that objects can be seen through them. (*Id.*).

I agree with Plaintiff that “transparent” takes on a broader meaning in the field of “light emitting devices” than in its ordinary English usage. “Transparent” ordinarily indicates the ability to see objects on the other side “clearly and distinctly.” (*Id.* at 9). As Plaintiff’s expert points out, however, light-scattering features of a “light emitting device” can enhance the device’s ability to illuminate an area—its intended purpose—even as it obscures sight through the device. (D.I. 57, Exh. JA-34 (Wetzel Decl.), at ¶ 10). The ordinary lay usage of “transparent” is therefore inappropriately limiting.

I also agree with Plaintiff that the relevant field for interpreting “transparent” is “light emitting devices” rather than visual science or “imaging optics.” To support its construction, Defendant cites to a visual science dictionary definition of transparent: “transmits light without scattering and with little absorption, so that objects can be seen through it.” (D.I. 55 at 9). This definition requires light to transmit “without scattering,” and would exclude light-scattering features that Plaintiff’s expert notes can increase light emission. (D.I. 57, Exh. JA-34 (Wetzel Decl.), at ¶ 10). Defendant does not show that seeing “through” an object allows greater light emission despite rejecting these light-scattering features. Defendant also does not otherwise indicate why “imaging optics,” rather than “light emitting devices,” is the more relevant field for the claimed invention. The extrinsic evidence therefore disfavors limiting “transparent” to elements that allow one to see “clearly and distinctly” through them.

When determining claim construction, though, the specification usually “is dispositive; it is the single best guide to the meaning of a disputed term.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). The more relevant meaning of “transparent,” therefore, is the meaning readily understandable from the intrinsic record.

Plaintiff argues that construing “transparent” to mean “allow[ing] light to pass through” is consistent with the term’s use in the intrinsic evidence. (D.I. 55 at 5–6). The ’734 patent claims a “light emitting device” (’734 patent at 15:11), and it describes numerous features of the device designed to allow light to “effectively” or “easily” outgo (*see id.* at 9:5–25; 3:53–56). Because prior art devices prevented effective passage of light (*see* ’734 patent at 8:45–9:54), Plaintiff contends that its construction of transparent—“allow[ing] light to pass through”—is consistent with the “invention’s purpose of allowing a broad transmission of light.” (D.I. 55 at 6).

Plaintiff also argues that nothing in the intrinsic record indicates that “transparent” requires transmission of light “without appreciable scattering” so that objects lying beyond can be seen “clearly and distinctly.” (*Id.* at 7). Plaintiff notes examples in the specification where elements that increased scattering, such as a “transparent” board with a “non-smooth surface” and “dimples” also enhance light transmission. (*Id.*) (citing ’734 patent at 3:53–59). Defendant’s construction, Plaintiff maintains, ignores this incompatibility between “transparent” elements in the specification having features that cause light scattering and its proposed construction of “transparent” to require “without appreciable scattering” of light. (*Id.* at 14).

Defendant asserts that the specification textually differentiates between “transparent” and “translucent,” making Plaintiff’s construction inconsistent with the intrinsic record. (D.I. 55 at 9–10). When explaining the structure of a “lighting apparatus,” the Background section of the

specification describes a resin that can be “transparent or translucent.” (’734 patent at 1:48–51). Given this distinction in the specification, Defendant maintains that Plaintiff’s choice to claim “transparent” implies exclusion of “translucent.” (D.I. 55 at 9–10). Defendant argues that such an exclusion is incompatible with Plaintiff’s proposed construction (“allows light to pass through”), which would include translucent objects that allow “passage of light” but do not give a “clear view of what lies beyond.” (*Id.* at 8) (citing *Terlep v. Brinkmann Corp.*, 418 F.3d 1379, 1384 (Fed. Cir. 2005)).

I disagree with Defendant. The specification teaches use of “transparent” elements that use light scattering to enhance transmission of light. (’734 patent at 3:53–4:3; 13:11–32). The specification’s use of these light-scattering “transparent” elements renders *Terlep* irrelevant. Although *Terlep* does differentiate “transparent” from “translucent” in the context of an LED, it does so because the prosecution history in that case distinguished the claimed invention from the prior art by noting that the invention did *not* have light-scattering features to “diffuse . . . light output.” 418 F.3d at 1383–84. *Terlep* also construed “clear” rather than “transparent,” which is a meaningful difference considering the prosecution history’s emphasis on the claimed invention’s lack of light-scattering features that could obscure visibility. (*Id.* at 1382).

In this case, the specification’s description of light-scattering “transparent” elements is incompatible with the portion of Defendant’s construction that requires “transparent” elements to transmit light “without appreciable scattering.” The question, then, is whether the intrinsic record requires that one be able to see “clearly and distinctly” through any “transparent” element of the device.

The ’734 patent claims a “light emitting device.” (’734 patent at 15:11). The purpose of the device is to efficiently transmit light for use as a “light source[.]” (*Id.* at 1:35–36). That

purpose is satisfied regardless of whether the device's user can see "clearly and distinctly" through its "transparent" elements. Although an element that scatters light may obscure an image so that it cannot be seen "clearly and distinctly," Plaintiff correctly notes that the efficiency of the element's light transmission is independent of the clarity of "objects lying beyond" the element. (*See* D.I. 55 at 13). The requirement to see "clearly and distinctly" in Defendant's construction, therefore, would only be appropriately limiting if some other purpose of the claimed device required a user to peer through its "transparent" elements at "objects lying beyond." Nothing in the intrinsic record supports such a purpose.

Although Defendant correctly notes that the specification refers to "transparent or translucent" resin in the Background (*id.* at 9–10), claim construction is only "persuasive" when it "defines terms in the context of the *whole* patent." *Renishaw PLC*, 158 F.3d at 1250 (emphasis added). The specification consistently teaches that "transparent" elements provide "effective" and "broad" light emission. (*See, e.g.*, '734 patent at 3:30–4:3, 8:45–9:4, 9:5–25, 9:44–54, 13:63–67, 14:33–46). Many of these embodiments include "transparent" elements with "light scattering" features that could make it difficult to see "clearly and distinctly" through those elements. (*Id.* at 3:53–59; 13:40–44). These embodiments are consistent with Defendant's definition of "translucent" structures as those "not . . . providing a clear view" (D.I. at 16), and they would thus be excluded under Defendant's construction of "transparent." That Defendant's construction would exclude these embodiments argues against adopting it.

The single use of "translucent" in the Background section of the patent is insufficient to justify the exclusion of "transparent" elements with light-scattering features used throughout the "whole patent" and consistent with the purpose of the claimed device. I accordingly adopt Plaintiff's proposed construction.

2. **Term 2: “cross sections of the protruding portions taken along planes orthogonal to the surface of the substrate are convex in shape” (’101/36)**
- a. *Plaintiff’s proposed construction*: “cross sections of the protruding portions taken along planes orthogonal to the surface of the substrate are outwardly curved in shape”
 - b. *Defendant’s proposed construction*: “cross sections of the protruding portions taken along planes orthogonal to the surface of the substrate are outwardly curved in shape, not polygonal in shape”
 - c. *Court’s construction*: “cross sections of the protruding portions taken along planes orthogonal to the surface of the substrate are continuously and outwardly curved in shape”

The parties do not dispute that “convex in shape” means “outwardly curved in shape.” (D.I. 55 at 32–33, 37). The parties also agree that “convex” excludes polygonal shapes, such as squares, trapezoids, and triangles (*id.* at 36–37), but includes curved shapes other than the semi-circular protrusions described in the specification. (’101 patent at 10:26–33). Their dispute centers on whether a “convex” shape that is “outwardly curved” can contain any “discrete angles.” (D.I. 55 at 36–37).

Plaintiff argues that a shape can be “convex” even if it has “discrete angles.” (*Id.* at 36). When prior art with polygonal shapes was distinguished during prosecution, Plaintiff claims, the point was not that those shapes included “discrete angles” but that they lacked “outwardly curved” surfaces. (*Id.*). Defendant, on the other hand, avers that a “convex” shape cannot have “discrete angles” because Fig. 8B in the prosecution history, which was used to support the addition of the claimed language “convex in shape,” solely portrays “protrusions that are curved in their entirety.” (*Id.* at 38–39).

Neither of these arguments prove that “convex” includes or excludes “discrete angles.” Although I agree that the prosecution history does not exclude “discrete angles” based on the way prior art was distinguished, this does not prove that “convex” includes discrete angles. Similarly, Fig. 8B is only one embodiment of “convex” and does not prove that other valid

embodiments of a “convex” shape cannot have discrete angles. In short, the prosecution history does not resolve the dispute.

Taking the top half of a convex lens, Plaintiff next argues that the resulting “dagger point” shape illustrates its claim that a convex curve can have a “discrete angle.” (*Id.* at 36; *see* Fig. 1).

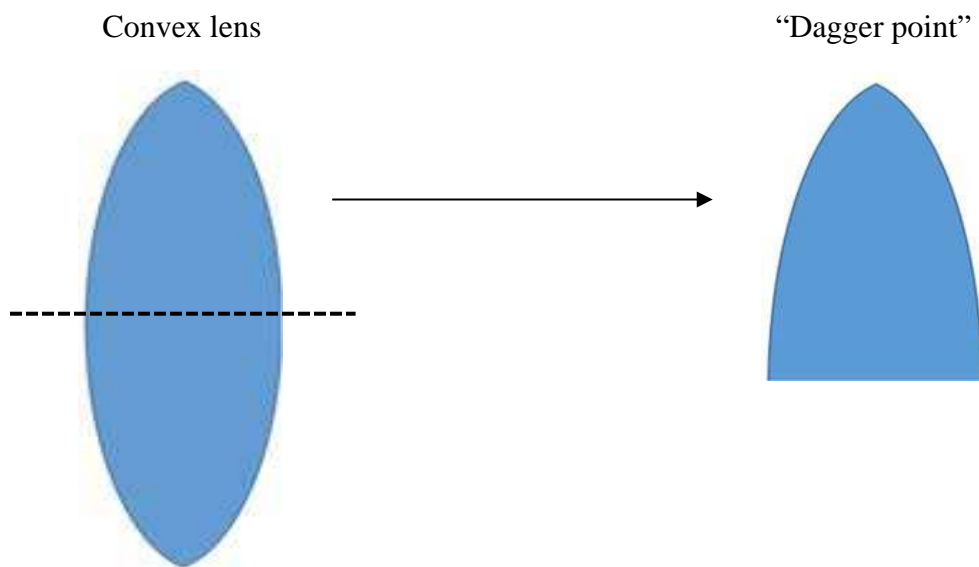


Fig. 1: “Dagger point” shape

As seen in Figure 1, the “dagger point” consists of two outwardly curved lines meeting at an angled peak. Because the “dagger point” shape encompasses a portion of the convex lens, Plaintiff asserts that the “dagger point” is also “surely ‘convex’” despite having a “discrete angle.” (*Id.*).

Defendant contends that a cross-section of a “convex lens” is only “convex” with respect to “light flow through its curved surfaces.” (*Id.* at 37). In the context of the convex lens from which the “dagger point” is taken, light would transmit laterally at a single point on one curved

arm through the other. (*Id.*) If the “dagger point” were to instead transmit from the top (the angled peak) to the bottom, Defendant argues that the light would not be flowing through a convex curve. (*Id.*) Defendant therefore maintains that the “dagger point,” when bisected through its angled peak, is composed of two separate shapes with convex curves. (*Id.*) The “dagger point” itself, however, is not “convex.” (*Id.*).

I agree that a geometric shape does not necessarily pass on its features when subdivided. Bisecting a square horizontally and again vertically, for example, yields four smaller squares that share the features of the original square. Bisecting a square diagonally, however, yields triangles with features different from that of the original square. It is not true that every possible bisection of a convex lens results in two halves that retain the convex features of the original lens. Defendant’s distinction between lateral and vertical light transmission through the “dagger point” is logically sound but does not provide a workable definition of “convex.”

“[T]he words of a claim are generally given their ordinary and customary meaning.” *Phillips*, 415 F.3d at 1312–13 (citations and internal quotation marks omitted). When “the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges . . . claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words,” and “general purpose dictionaries may be helpful.” *Id.* at 1314. Plaintiff’s own expert cites to a “general purpose dictionar[y]’s” definition of “convex” as “curved or rounded outward like the exterior of a sphere or circle.” (D.I. 56, Exh. JA-10 at 74) (internal citation omitted). The “exterior of a sphere or circle” can be plainly understood as a continuous curve with no “discrete angles.” My construction therefore requires that “cross sections of the protruding portions taken along planes orthogonal to the surface of the substrate are continuously and outwardly curved in shape.” I

think in essence this is the construction proposed by Defendant, but I think it is more easily understood by a jury.

3. Term 3: “isolated processed portions” (’791/1, 2, 3, 7)

- a. *Plaintiff’s proposed construction:*
 - i. no construction necessary, plain and ordinary meaning,
or
 - ii. “isolated portions formed by laser light absorption”
- b. *Defendant’s proposed construction:* “isolated portions formed by pulsed laser light absorption”
- c. *Court’s construction:* “processed” means “non-natural.”

The parties agree that “isolated processed portions” are generated using irradiation with a laser beam. (’791 patent at 2:59–67). The parties dispute whether the patent only claims “isolated processed portions” formed using a “pulsed laser.” (D.I. 55 at 41). The only part of this term that is in dispute is “processed.” Both parties propose that “isolated” and “portions” need no construction.

Plaintiff argues that “processed” merely distinguishes isolated portions that are not naturally occurring from those that are naturally occurring. (Tr. at 61:1–24). That is the basis for Plaintiff’s argument that the term does not need to be construed. Plaintiff alternatively argues that if the term is construed, it should not be limited to isolated portions formed using a pulsed laser. I do not think Plaintiff’s alternative argument is consistent with its main argument, since the alternative argument incorporates a process whereas the main argument is that no process should be incorporated into the claim.

Defendant argues that because the specification consistently refers to processed portions formed using a “pulsed laser,” Plaintiff’s alternative construction is overly broad. (D.I. 55 at 40–41) (citing ’791 patent at 2:63–65; 3:54–55; 3:19–21). The specification also distinguishes the claimed invention from the prior art at least in part based on the comparative advantages of using

a pulsed laser. (*Id.* at 1:28–40). Defendant therefore asserts that the pulsed laser “is so central to the invention” that the specification supports construing “isolated processed portions” to mean solely those formed by a “pulsed laser.” (D.I. 55 at 42). Defendant concedes that the same specification was used to generate other patents with method claims. (Tr. at 65:10–13).

Process steps should not be read into the claimed invention unless “the patentee has made clear that the process steps are an essential part of the claimed invention.” *Continental Circuits LLC v. Intel Corp.*, 915 F.3d 788, 799 (Fed. Cir. 2019) (citations and quotations omitted). Plaintiff maintains that nothing in the intrinsic or extrinsic record shows that the method of using a “pulsed laser” to form “isolated processed portions” is an “essential part” of the claimed invention. (D.I. 55 at 43).

I agree with Plaintiff. As Defendant admits, nothing in the prosecution history indicates that limitations on the process of manufacturing the “isolated processed portions” should be incorporated into the claim term. (Tr. 66:23–67:5). Even if the specification describes only one way to make a product, “[a] novel product that meets the criteria of patentability is not limited to the process by which it is made.” *Vanguard Prods. Corp. v. Parker Hannifin Corp.*, 234 F.3d 1370, 1372–73 (Fed. Cir. 2000) (citation omitted). Defendants cite to *Hologic* to argue that, to the contrary, “consistent[] and exclusive[]” disclosure of one embodiment should limit the construction of the claim term. *Hologic, Inc. v. SenoRx, Inc.*, 639 F.3d 1329, 1338 (Fed. Cir. 2011). *Hologic* holds little relevance here, however, because the construction at issue in that case did not involve imposing process limitations on a product claim.

Without evidence that the process steps of a product claim are an “essential part of the claimed invention,” the process step should not be read into the claimed invention. *Continental*

Circuits LLC, 915 F.3d at 799. Nothing in the intrinsic record requires exclusive use of a “pulsed laser” to make the “isolated processed portions.”

Plaintiff argues that no construction of “isolated processed portions” is necessary, or in the alternative, that the term should be construed to mean “isolated portions formed by laser light absorption.” As with use of a “pulsed laser,” the relevant claim terms do not specify that the isolated portions must be “processed” using “laser light absorption.” The patent claims the use of “isolated processed portions,” and that use does not depend on any particular method of creation. I accordingly construe “processed” in “isolated processed portions” as “non-natural.” No additional construction of “isolated processed portions” is necessary.

V. CONCLUSION

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