

**IN THE UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF KENTUCKY
CENTRAL DIVISION AT LEXINGTON**

FEIT ELECTRIC COMPANY, INC.,

Plaintiff,

v.

LEDVANCE, LLC,

Defendant.

Civil Action No. 5:24-CV-00031-DCR

DEFENDANT LEDVANCE LLC's OPENING CLAIM CONSTRUCTION BRIEF

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NOTE: All emphases appearing in this brief have been added unless otherwise indicated.

TABLE OF EXHIBITS

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1	Excerpts of January 10, 2025, Deposition Transcript of E. Fred Schubert, Ph.D. (“Schubert Dep.”)
2	Excerpts of January 10, 2025, Deposition Transcript of Michael Krames, Ph.D. (“Krames Dep.”)
3	Excerpts of Opening Claim Construction Declaration of E. Fred Schubert, Ph.D., dated November 26, 2024 (“Schubert Op. Decl.”)
4	Excerpts of Rebuttal Claim Construction Declaration of E. Fred Schubert, Ph.D., dated December 12, 2024 (“Schubert Reb. Decl.”)
5	Excerpts of Opening Claim Construction Declaration of Michael Krames, Ph.D., dated November 26, 2024 (“Krames Op. Decl.”)
6	<i>Planar, The American Heritage Dictionary of the English Language</i> (5th ed. 2011)
7	<i>Planar, New Oxford American Dictionary</i> (1st ed. 2010)
8	<i>Planar, Webster’s New World College Dictionary</i> (4th ed. 2009)
9	<i>Planar, ASM Materials Engineering Dictionary</i> (1st ed. 1992)
10	Exhibit 7 from January 10, 2025 Deposition of E. Fred Schubert, Ph.D. (“Schubert Dep., Ex. 7”)

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I. INTRODUCTION

This case is about how LED filaments in clear light bulbs look ***when the light is turned off***. The Asserted Claims of U.S. Patent No. 8,604,678 (“the ’678 patent”)¹ cover modifications to conventional LED lighting devices. The patent does not relate to foundational LED lighting technology.² There are three disputed claim terms requiring construction.

First, every Asserted Claim requires a “light diffusing layer” that “improve[s] [the/an] [OFF state/off-state] white appearance of the wavelength conversion component.” But the ’678 patent fails to provide reasonable certainty regarding the scope of this limitation to permit a person of skill in the art to evaluate whether they infringe. The term “improves” is a term of degree which necessarily requires a baseline comparator to evaluate whether the “white appearance” has been “improve[d].” Here, the patent claims and specification contain no such baseline. Similarly, the specification provides no instruction regarding how the “white appearance” should be measured to evaluate an “improvement” or how much “improvement” must be achieved to meet the limitation. Given the complete lack of information in the claims and specification, a person skilled in the art cannot evaluate whether a device infringes the claims, rendering them indefinite.

For the terms “planar” (claims 16, 25) and “a wavelength conversion component having a three dimensional shape that is configured to enclose the one or more solid-state light emitters and to in part at least define a light mixing chamber” (claim 29), LEDVANCE has proposed straight forward, common sense claim constructions that are grounded in the claims and the specification.

¹ Feit alleges infringement of claims 1-3, 16, 19, 20, 21, 25, and 29 (“Asserted Claims”). See ’678 patent, at 26:9-32; 27:8-10; 27:15-43; 27:53-55; 28:40-61.

² As noted in the September Joint Status Report (D.I. 39), LEDVANCE filed a petition for *inter partes* review of every Asserted Claim with the Patent Trial and Appeal Board (“PTAB”). A decision whether to institute review is expected on or around March 17, 2025. If *inter partes* review is instituted, LEDVANCE anticipates asking this Court to stay the case pending the PTAB’s review.

According to the specification, “planar” refers to flat, two-dimensional shapes as opposed to three-dimensional shapes like dome shapes. Despite such disclosures, Feit asks the Court to adopt an interpretation of “planar” that would essentially mean that any shape is “planar.” Indeed, Feit’s expert, Dr. Schubert, contends that a cylinder has a “planar shape” under Feit’s interpretation. Such a departure from the common sense understanding of “planar” is unsupported by the claims and specification.

Similarly, the phrase “a wavelength conversion component having a three dimensional shape that is configured to enclose the one or more solid-state light emitters and to in part at least define a light mixing chamber,” must reflect the fact that the wavelength conversion component must be physically separate from the LED die³ in order to create the “light mixing chamber.” Meanwhile, Feit seeks to essentially read out the phrase “light mixing chamber.” If the wavelength conversion layer was not “physically separate” from the LED die—as in LEDVANCE’s proposed construction—then there would be no “light mixing chamber” for the light to mix.

For these reasons and those discussed herein, LEDVANCE’s proposed constructions should be adopted.

II. OVERVIEW OF THE ’678 PATENT⁴

The Asserted Claims cover a “wavelength conversion component for a light emitting device” (’678 patent, at claim 1), a “light emitting device” (*id.*, at claim 19), or a “light bulb” (*id.*, at claim 29) containing light emitting diodes (“LEDs”). A typical household LED lighting device contains an LED die, which emits blue light, and one or more photoluminescent materials (e.g.,

³ An LED die, also referred to as an LED chip, is the small solid-state light emitter that serves as the core element of an LED lighting device.

⁴ Additional background concerning the ’678 patent and a technology tutorial are set forth at pages 6-31 in the Declaration of Michael Krames, PhD., attached hereto as Exhibit 5.

phosphor materials) that absorbs, and converts some blue light to a different color (e.g., yellow).
See *id.*, at 1:34-42; 25:1-12. The converted and unconverted light combine to yield light which appears nearly white. See *id.*, at 1:34-42.

The specification identifies the problem the purported inventions solve as follows:

One problem associated with a conventional LED lighting device that is addressed by embodiments of the invention **is the non-white color appearance of the device in an OFF state**. . . . [I]n an OFF state . . . light that is produced by the remote phosphor lighting apparatus is based at least in part upon external light (e.g., sunlight or room lights) that excites the phosphor material in the wavelength conversion component, and which therefore generates a yellowish, yellow-orange or orange color in the photoluminescence light. Since the LED chip or die is not generating any blue light, this means that there will not be any residual blue light to combine with the yellow/orange light from the photoluminescence light of the wavelength conversion component to generate white appearing light. **As a result, the lighting device will appear to be yellowish, yellow-orange or orange in color.** This may be undesirable to the potential purchaser or customer that is seeking a white-appearing light.

Id., at 10:59-11:18.

To solve this purported problem, the '678 patent describes, as shown in Figure 3 below, an LED device where the **wavelength conversion component (36)** comprises a **wavelength conversion layer (46)** and a **light diffusing layer (44)**. See '678 patent, at Abstract; see also *id.*, at 8:1-5, Figs. 1-3. The light diffusing layer contains particles of "light scattering material" that create a "white appearance" when the light bulb is turned off. See, e.g., *id.*, at 11:28-36.

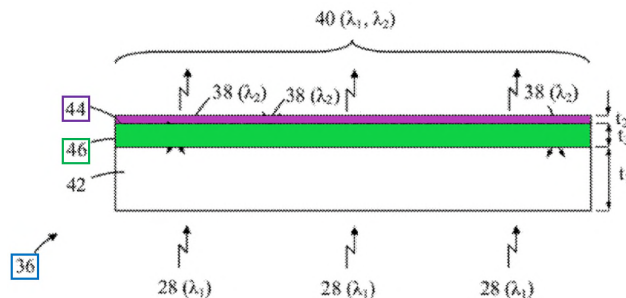


FIG. 3

Id., at Fig. 3 (annotated).

Claim 29 covers a specific embodiment where a three-dimensionally shaped **wavelength conversion component (36)**, which includes the **wavelength conversion layer (46)** and a **light diffusing layer (44)**, is remote, or physically separated from the **LED die (112)**, as shown in annotated Figure 16 below. See Ex. 2 (Krames Dep.), at 30:4-24.

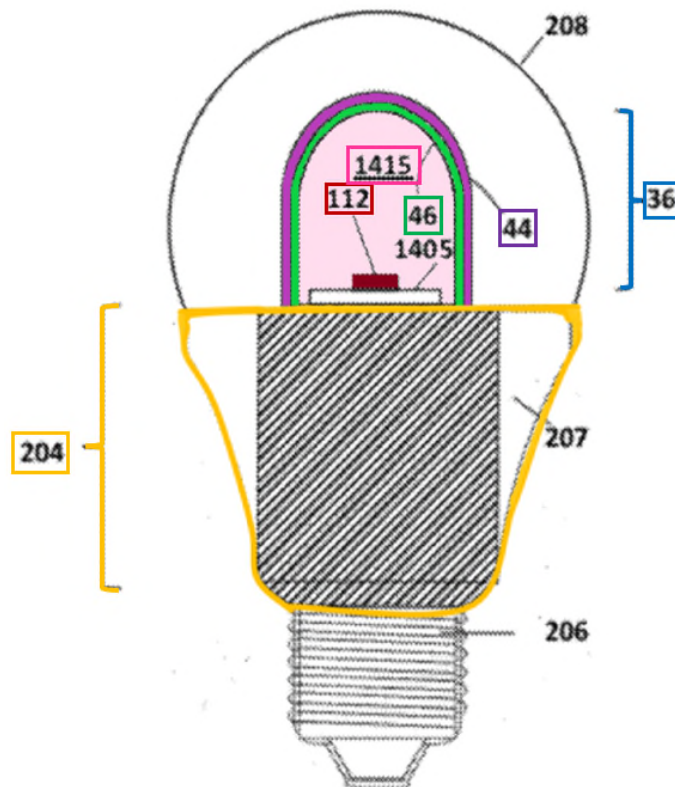


FIG. 16

'678 patent, at Fig. 16 (annotated).

The wavelength conversion component and another component, such as the body or housing, define an interior volume, also referred to as a “light mixing chamber,” wherein the LEDs are located. *Id.*, at 24:49-65. The “light mixing chamber” is the space between the wavelength conversion layer and the LED. As illustrated in annotated Figure 16 above, the **wavelength conversion component (36)** and the **body of the light bulb (204)**, define an **interior volume/light**

mixing chamber (1415 (highlighted in pink)), wherein the LED (112) is located. *See id.*, at 24:49-65. A portion of the light emitted from the LED die, that is not absorbed by the phosphor material, will not make its way out of the device. *See id.*, at 25:1-12. That light is instead emitted back towards the LED die and will end up in the “light mixing chamber.” *See id.*, at 25:10-15.

III. LEGAL STANDARD

Claims should be given “their ordinary and customary meaning” as understood by “a person of ordinary skill in the art in question at the time of the invention,”⁵ viewing the claim terms “in the context of the entire patent.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*). “[D]etermining the ordinary and customary meaning of the claim requires examination of terms that have a particular meaning in a field of art.” *Id.* at 1314. In such circumstances, the ordinary and customary meaning of the claim is ascertained by analyzing “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Id.*

In particular, in construing a disputed claim term, a court must look first to the intrinsic evidence, which includes the claims, the specification, and the prosecution history. *See id.* at 1317. “[T]he context in which a term is used in the asserted claim can be highly instructive.” *Id.* at 1314. “Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.” *Id.* Additionally, the claims “must be read in view of the specification, of which they are a part.” *Id.* at 1315. For

⁵ The parties propose similar credentials for a person of ordinary skill in the art (“POSA”). Specifically, the parties generally agree that a POSA would have had: (1) an undergraduate degree in a pertinent discipline, such as electrical engineering, materials science, or physics, and (2) at least two years of experience in the field of LED packaging design. *Compare* Ex. 3 (Schubert Op. Decl.), at ¶ 16, *with* Ex. 5 (Krames Op. Decl.), at ¶ 28.

example, “the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess.” *Id.* at 1316. “It is therefore entirely appropriate for a court, when conducting claim construction, to rely heavily on the written description for guidance as to the meaning of the claim.” *Id.* at 1317.

Courts may also consider extrinsic evidence, “including expert [] testimony” and “dictionaries.” *Id.* For example, extrinsic evidence may assist the court with understanding the technology or assessing whether a claim term has a specialized meaning to one having ordinary skill in the art. *See id.* at 1318-19. But “conclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court.” *Id.* at 1318.

IV. DISPUTED TERMS

A. “improves an off state white appearance” / “improves the OFF state white appearance” “of the wavelength conversion component”

Term	LEDVANCE’s Proposed Construction	Feit’s Proposed Construction
“wherein the light diffusing layer improves an off-state white appearance of the wavelength conversion component” (’678 patent, claims 1, 19, 29)	Indefinite under 35 U.S.C. § 112	Plain and ordinary meaning
“in which the light scattering material within the light diffusing layer corresponds to an average particle size that improves the OFF state white appearance of the wavelength conversion component” (’678 patent, claim 21)	Indefinite under 35 U.S.C. § 112	Plain and ordinary meaning

All Asserted Claims include a claim limitation in which a “light diffusing layer” “improves [the/an] [OFF state/off-state] white appearance of the wavelength conversion component.” This claim term fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention and therefore renders the Asserted Claims indefinite.

1. Legal Standard for Indefiniteness

“A lack of definiteness renders invalid the patent or any claim in suit.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 902 (2014) (quotation marks and citation omitted). Indefiniteness . . . is a question of law,” *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1319 (Fed. Cir. 2008), and must be proven “by clear and convincing evidence.” *Sonix Tech. Co. v. Publ’ns Int’l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017). A claim is indefinite if its terms “read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus*, 572 U.S. at 901.

“[A] claim is indefinite if its language ‘might mean several different things and no informed and confident choice is available among the contending definitions.’” *Media Rts. Techs., Inc. v. Cap. One Fin. Corp.*, 800 F.3d 1366, 1371 (Fed. Cir. 2015). “[T]he degree of precision necessary for adequate claims is a function of the nature of the subject matter.” *Guangdong Alison Hi-Tech Co. v. Int’l Trade Comm’n*, 936 F.3d 1353, 1359 (Fed. Cir. 2019). While a term of degree—like the term “improved” here—may be definite “where it provide[s] enough certainty to one of skill in the art when read in the context of the invention,” *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370 (Fed. Cir. 2014), a term of degree that is “purely subjective” and depends “on the unpredictable vagaries of any one person’s opinion” is indefinite. *Intell. Ventures I LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372, 1381 (Fed. Cir. 2018) (quoting *Datamize, LLC v. Plumtree*

Software, Inc., 417 F.3d 1342, 1350-51 (Fed. Cir. 2005), *abrogated by Nautilus*, 572 U.S. 898). Terms of degree “necessarily call[] for a comparison against some baseline.” *Liberty Ammunition, Inc. v. United States*, 835 F.3d 1388, 1395 (Fed. Cir. 2016). The use of terms of degree in claims “are problematic if their baseline is unclear to those of ordinary skill in the art.” *Id.* The Federal Circuit has made clear that “claims having terms of degree will fail for indefiniteness unless they ‘provide objective boundaries for those of skill in the art’ when read in light of the specification and the prosecution history.” *Id.* at 1396 (citing *Interval*, 766 F.3d at 1370-71).

2. The Claims, Read in View of the Specification Lack Discernable Objective Boundaries

The term “improves [the/an] [OFF state/off-state] white appearance” is a term of degree as it requires an “improvement” over some baseline. However, neither the claims nor specification describe what baseline must be improved over. Moreover, the claims and specification fail to inform a POSA how to measure the claimed “white appearance” or how much “improvement” must be achieved to meet this limitation. This complete absence of guidance in the claims and specification make it impossible for a POSA to assess whether or not they infringe the claim, which therefore renders this term indefinite.

First, the claims and specification fail to provide any baseline to compare against to determine if the “white appearance” has been “improved” in accordance with the claims. While the claims recite a light diffusing layer, and light scattering material within the light diffusing layer, that “improves [the/an] [OFF state/off-state] white appearance of the wavelength conversion component” (*see* ’678 patent, at 26:15-17, 27:25-27, 27:40-43, 28:53-55), they do not state what is being “improved” over. The specification similarly provides no explanation of what baseline the claimed “improvement” should be measured against. Instead, the specification generalizes that: “the color appearance of the lighting apparatus in its OFF state can be improved by

implementing the light diffusing layer in combination with the wavelength conversion layer.” *See id.*, at 25:63-64; *see also, e.g., id.*, at 3:15-18, 6:38-41, 18:57-60, 20:3-7, 21:60-61, 22:47-48. While the specification identifies materials that may be used in the “light diffusing layer” to “improve” the white appearance, there is no discussion of what baseline “improvement” should be measured against.

Feit argues that this term needs no construction and should be given its “plain and ordinary meaning,” without explaining what it believes the baseline comparator is. Specifically, Feit’s expert, Dr. Schubert, opined that the term “improves [the/an] [OFF state/off-state] white appearance” means “that the light diffusing layer produces an off-state appearance of the wavelength conversion component that is whiter than an off-state appearance of a wavelength conversion component without the diffusion layer.” *See* Ex. 3 (Schubert Op. Decl.), at ¶ 37; *see also id.*, at ¶ 53. He further contends that “the difference between a single-colored yellow or orange remote phosphor device and a white remote phosphor device is readily apparent to a human observer as well as a POSA.” Ex. 4 (Schubert Reb. Decl.), at ¶ 17. This indicates that Feit believes the comparator to measure “improvement” against is a different type of remote phosphor device that is colored yellow or orange. But Dr. Schubert does not argue that there is a standard color for a wavelength conversion layer that should be measured against. *See* Ex. 1 (Schubert Dep.), at 31:21-32:8 (testifying that the claims do not specify what kind of phosphor material is used in the wavelength conversion layer and different phosphor materials can have different colors); *see also id.*, at 55:3-25. In fact, the specification recognizes that such prior art remote phosphor devices do not have a uniform color when it describes wavelength conversion layers in the prior art as having “yellowish, yellow-orange, or orange-color appearance.” ’678 patent, at 2:6-10; *see also* Ex. 1 (Schubert Dep.), at 55:3-25 (explaining that different phosphor materials have different body

colors). Thus, the prior art baseline Feit argues “improvement” should be measured against is a vague range of yellowish and orangish colored wavelength conversion layers. Such vague comparators, lacking in any detail, cannot serve as an objective boundary for the claim term. See *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1364 (Fed. Cir. 2018) (affirming finding that claims were indefinite where “[t]he specification contain[ed] no point of comparison for skilled artisans to determine an objective boundary” for the claim term); *Rovi Guides, Inc. v. Comcast Corp.*, No. 16-CV-9278 (JPO), 2017 WL 3447989, at *14 (S.D.N.Y. Aug. 10, 2017) (holding term “relatively large set of selectable television content items” indefinite where specification failed to provide reference point to evaluate whether a database is “relatively large”); *NimbeLink Corp. v. Digi Int’l Inc.*, No. 22-CV-2345 (NEB/DJF), 2024 WL 4112682, at *6 (D. Minn. Mar. 14, 2024) (holding term “a space-efficient cellular modem device” indefinite as lacking objective boundaries where the specification was “muddled” and did not provide sufficient points of comparison to understand what was “space-efficient”). Second, the claims and specification fail to explain how “white appearance” should be measured to determine if an “improvement” has been achieved. While the specification discusses measuring the color of the light emitted from the LEDs using chromaticity diagrams (see ’678 patent, at 13:33-42), the claims themselves do not provide any detail about how to measure white appearance. For example, the claims do not state the appearance of the wavelength component is “improved” by changing the color to be closer to white using a color chromaticity measurement. The specification similarly fails to provide any instruction to a POSA regarding how to measure “improved white appearance,” despite otherwise making general statements about color chromaticity.

Confusingly, Feit and Dr. Schubert have completely rejected the use of chromaticity measurements for purposes of evaluating whether an “improvement” has been achieved in the

claims. Instead, Dr. Schubert opines that the “improvement” should be evaluated by the “average human” observer. Ex. 4 (Schubert Reb. Decl.), at ¶ 22 (“This demonstrates that a POSA would be familiar with the average human’s perception of color and the ability for an average human to distinguish between two different colors.”); ¶ 20 (“The claimed ‘improvement’ relates to the OFF-state body color as it appears to a human person (color appearance)).” Dr. Schubert broadly defined this human observer as anyone with “normal human vision,” and not “defective vision” (see Ex. 1 (Schubert Dep.), at 35:7-11, 37:19-23), with “defective vision” being “[c]olor blindness or other blindness” (see *id.*, at 35:22-25; see also *id.*, at 50:13-20). Tellingly, Dr. Schubert failed to cite to any industry standard defining an “average human” observer. That is because there is no such thing as an “average human observer” of color.

As LEDVANCE’s expert, Dr. Krames, has opined, a human being’s perception of color is based on many factors and is not consistent across the population. See Ex. 2 (Krames Dep.), at 37:16-20 (testifying that “[d]ifferent humans will view colors as very differently . . . [d]epending on where they live, gender, background”). Human perception of color varies from individual to individual, and the perception of color change is similarly subjective. This subjectivity in recognizing color change was evident during Dr. Schubert’s deposition. When asked to compare several distinct colors, Dr. Schubert was unable to determine which one exhibited a more “white appearance.” See Ex. 1 (Schubert Dep.), at 60:12-19, 61:16-64:9; see also Ex. 10 (Schubert Dep., Ex. 7) (displaying HEX #FFFEEC (color name: “Apricot White;” composition: 93% white, 7% yellow) and HEX #FFFDE9 (color name: “Travertine;” composition: 91% white, 9% yellow)). Moreover, human perception of color is influenced by environmental factors, like the type of lighting in the room. For example, a painted wall will look different to a human in natural light compared to fluorescent lighting. And the same painted wall will look different in low light

compared to bright lighting. However, the claims and specification offer no objective indication of the manner, or circumstances under which, the LED lighting device is to be displayed when evaluating the “improved” white appearance. Therefore, there is no such thing as an “average human observer” to evaluate the “improved” white appearance. If Dr. Schubert’s opinion is correct, and the claims require the “average human observer” to measure the “improvement” in “white appearance” it only further highlights the lack of objective boundaries around the claims. This type of “reference to undefined standards, regardless of whose views might influence the formation of those standards,” has been held to fail “to provide any direction to one skilled in the art attempting to determine the scope of the claimed invention.” *Datamize*, 417 F.3d at 1352.

Third, the claims and specification fail to explain, or to disclose, the degree of “improvement” in “white appearance” that is necessary to meet the claim limitations. The claims themselves provide no detail, i.e., the claims do not claim the “white appearance” must be improved 5% or 10%. Dr. Schubert admitted that the claims do not have objective boundaries with respect to the off state white appearance, and instead rely on human observation. *See* Ex. 1 (Schubert Dep.), at 33:24-34:3. Similarly, the specification is devoid of any explanation of how much change in “white appearance” must be achieved to be classified as an “improvement.” This is important because without being able to understand the amount of color change that is necessary to meet the claim limitation, a POSA could not determine whether they infringe the claims.

Indeed, Dr. Schubert rejected quantification of “improvement” entirely, and instead relies exclusively on the subjective opinion of a human observer: “As I have stated herein and in my Opening Declaration, such level of quantification is not necessary because a POSA would understand the readily apparent OFF-state color change when viewing a wavelength conversion component in the context of the ’678 Patent.” Ex. 4 (Schubert Reb. Decl.), at ¶ 21; *see also* Ex. 1

(Schubert Dep.), at 33:24-34:3 (opining that the claims do not require an objective measurement “[w]ith respect to the off-state white appearance”); *see also id.*, 32:20-24, 34:16-23. Instead, Dr. Schubert argued that “the claimed ‘improvement’ is significant and readily apparent to a human observer.” Ex. 4 (Schubert Reb. Decl.), at ¶ 15. Dr. Schubert defined “readily apparent” as “apparent at first sight,” “clearly obvious,” and “apparent without the need to look tw[o] or three times.” Ex. 1 (Schubert Dep.), at 28:3-8; *see also id.*, at 41:16-42:3. This interpretation finds no support in the claims or specification, and Dr. Schubert has admitted that “readily apparent” is not an industry standard for measuring color change. *See id.*, at 28:9-13, 29:4-8. Instead, Dr. Schubert is essentially rewriting the claims to include a limitation that says “you know it when you see it.” That is precisely the type of claim limitation that the Federal Circuit has consistently found invalid for indefiniteness. *See, e.g., Intell. Ventures*, 902 F.3d at 1381 (noting that claim terms which depend on any one person’s opinion fail to “provide one of ordinary skill in the art with any way to determine whether” they meet the claim limitation).

B. “planar”

Term	LEDVANCE’s Proposed Construction	Feit’s Proposed Construction
“planar” (’678 patent, claims 16, 25)	“two dimensional” or “flat”	Plain and ordinary meaning

LEDVANCE’s proposed construction is based on the plain language of the claims and specification and reflects how a POSA would have understood the claim language in light of the intrinsic evidence. In contrast, Feit’s “plain and ordinary meaning” interpretation of the term (as evidenced by its expert’s testimony) does not comport with the specification or common sense. Specifically, Dr. Schubert opined that planar means “that the wavelength conversion layer and the

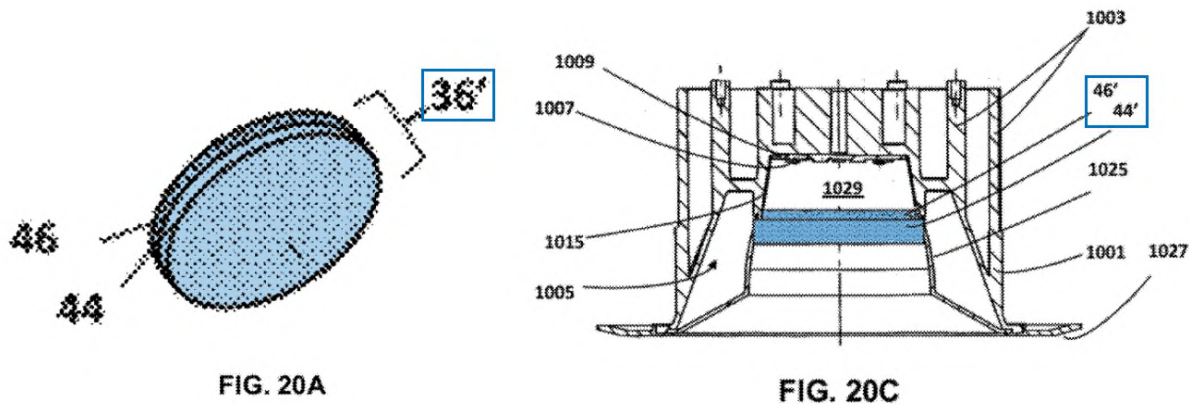
light diffusing layer comprise a length and width that are substantially larger than a thickness.” Ex. 3 (Schubert Op. Decl.), at ¶ 61. This definition is not found in the specification and seeks to impermissibly broaden the scope of the term beyond what is described.

Both the claims and specification describe “planar” shapes as shapes that are “two dimensional” or “flat.” For example, the claims distinguish between “planar shapes” and “three dimensional shape[s].” In particular, each of dependent claims 16 and 25 recite that the wavelength conversion layer and the light diffusing layer of the wavelength conversion component in independent claim 1 “comprises **planar** shapes.” ’678 patent, at 27:8-10, 27:53-55. In contrast, independent claim 29 recites a wavelength conversion component having a “**three dimensional** shape.” *Id.*, at 28:44-47.

The ’678 patent uses the term “planar” throughout the specification to describe shapes that are two dimensional, or flat, and having only two spatial dimensions. Alternatively, the specification describes three dimensional shapes as shapes that incorporate three-dimensional (curved or spherical) elements (e.g., domed shaped or cylindrical). *Id.*, at 8:16-18, 22:26-30. The specification goes on to distinguish these “planar” shapes from three dimensional shapes. For example, the specification describes the light transmissive substrate (42) of the wavelength conversion component (36) in Figure 1 as “a **planar** circular disc.” *Id.*, at 8:13-15. The specification distinguishes such substrates from other embodiments which could comprise “**other geometries** such as being **convex or concave** in form such as for example being **dome shaped or cylindrical**.” *Id.*, at 8:15-18. Therefore, the specification, at minimum, makes clear that “planar shapes” are not convex, concave, dome shaped or cylindrical.

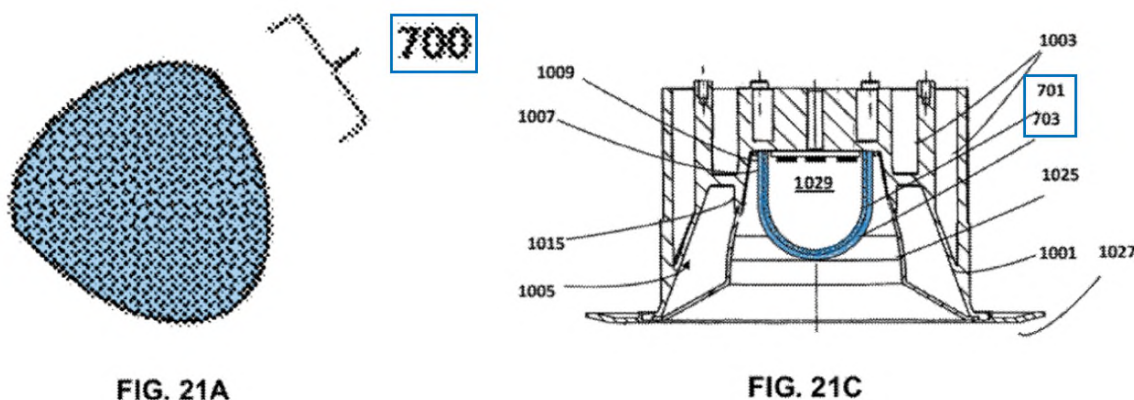
In addition, the specification describes the **wavelength conversion component (36’)** of Figures 20A, 20B, and 20C, which includes a light diffusing layer (44, 44’) and a wavelength

conversion layer (46, 46') (*id.*, at 21:41-43), as a **two-dimensional shape** (e.g., is substantially **planar**) (*id.*, at 22:22-24).



Id., at Figs. 20A and 20C (annotated).

The specification goes on to distinguish this from the “**three-dimensional shape** (e.g., elongated dome shaped shell)” **wavelength conversion component (700)** of Figures 21A and 21C, shown below, which includes a “**three-dimensional** light transmissive thermally conductive substrate 703” and “a **three-dimensional** wavelength conversion layer 701.” *Id.*, at 22:24-31.



Id., at Figs. 21A and 21C (annotated).

Other areas in the specification similarly make this distinction between a two dimensional, planar shape and a three dimensional shape. See e.g., *id.*, at 23:66-24:8 (distinguishing a wavelength conversion component including a “**hemi-spherical elongate** light diffusing layer

1313 and a ***hemi-spherical elongate*** wavelength conversion layer 1315” from a wavelength conversion component “configured in the shape of a generally ***planar*** strip”); *id.*, at 25:20-43 (distinguishing a “***dome-shaped*** wavelength conversion component” and a “***planar*** wavelength conversion component”). Dr. Schubert agrees that the specification makes this distinction. *See* Ex. 1 (Schubert Dep.), at 78:7-10.

While the intrinsic evidence is sufficient on its own, extrinsic evidence also further supports LEDVANCE’s common sense construction of the term “planar.” For example, technical and traditional dictionaries similarly recognize that “planar” shapes are “flat” and have “a two-dimensional characteristic.” Ex. 6 (The American Heritage Dictionary); *see also* Ex. 7 (New Oxford American Dictionary) (defining “planar” as “relating to, or in the form of a plane” and defines “plane” as “completely level or flat” and “of or relating to only two-dimensional surfaces or magnitudes”); Ex. 8 (Webster’s New World College Dictionary) (defining “planar” as “of or pertaining to a point on a surface at which the curvature is zero; of or lying in one plane” and defines “plane” as “flat; level; even”); Ex. 9 (ASM Materials Engineering Dictionary) (defining “planar” as “[l]ying essentially in a single plane”).

In contrast to LEDVANCE’s straightforward construction, Feit argues that planar means “the wavelength conversion layer and the light diffusing layer comprise a length and width that are substantially larger than a thickness.” Ex. 3 (Schubert Op. Decl.), at ¶ 61. Dr. Schubert testified that “planar” shapes can include variation and curvatures. Ex. 1 (Schubert Dep.), at 81:8-10. He further testified that dome-shaped and cylindrical shaped objects could be considered “planar” shapes because certain regions are relatively planar. *See id.*, at 79:25-80:5, 82:20-83:9, 84:7-16. This definition finds no support in the specification and defies common sense. Further, Dr. Schubert’s analysis suggests that any shape could be deemed “planar” when considering a

specific isolated region. Many shapes, including concave and convex shapes can have lengths and widths that are substantially larger than its thickness, yet these shapes would not be considered flat or planar. Feit’s attempt to broaden this claim term in an effort to manufacture an infringement argument should be rejected. The Court should adopt LEDVANCE’s common sense construction of “planar.”

C. “a wavelength conversion component having a three dimensional shape that is configured to enclose the one or more solid-state light emitters and to in part at least define a light mixing chamber”

Term	LEDVANCE’s Proposed Construction	Feit’s Proposed Construction
“a wavelength conversion component having a three dimensional shape that is configured to enclose the one or more solid-state light emitters and to in part at least define a light mixing chamber” (’678 patent, claim 29)	“a wavelength conversion component having a three dimensional shape that is physically separated from, and encloses the one or more solid-state light emitters within an interior volume wherein light emitted from the one or more solid-state emitters and the wavelength conversion component are mixed in the interior volume”	Plain and ordinary meaning

The parties’ dispute regarding this claim term centers on whether claim 29 requires the wavelength conversion component to be “physically separated” from the LEDs by the light mixing chamber. See Ex. 4 (Schubert Reb. Decl.), at ¶¶ 43, 45-47. As set forth below, LEDVANCE’s proposed construction is based on the plain language of the claims and specification of the ’678 patent and reflects how a POSA would have understood the claim language in light of the intrinsic evidence. In contrast, Feit’s proposal (again clarified by its expert’s testimony), which broadens the scope of the claims beyond what is described as the point of the invention—i.e., wavelength conversion layers that are **remote** from the LEDs—should be rejected.

LEDVANCE's proposed construction aligns with the overall scope of claim 29, read in view of the specification. As discussed above, the specification discloses that in a remote wavelength conversion configuration, the wavelength conversion component and body of the light emitting device define an interior volume (or "light mixing chamber") wherein the LEDs are located. *See supra*, pp. 4-5. The space between the wavelength conversion layer and the LEDs is the "light mixing chamber." *See id.* Both the claims and specification of the '678 patent make clear that a light mixing chamber is an "interior volume" and that the wavelength conversion component is "physically separated" from the LED die.

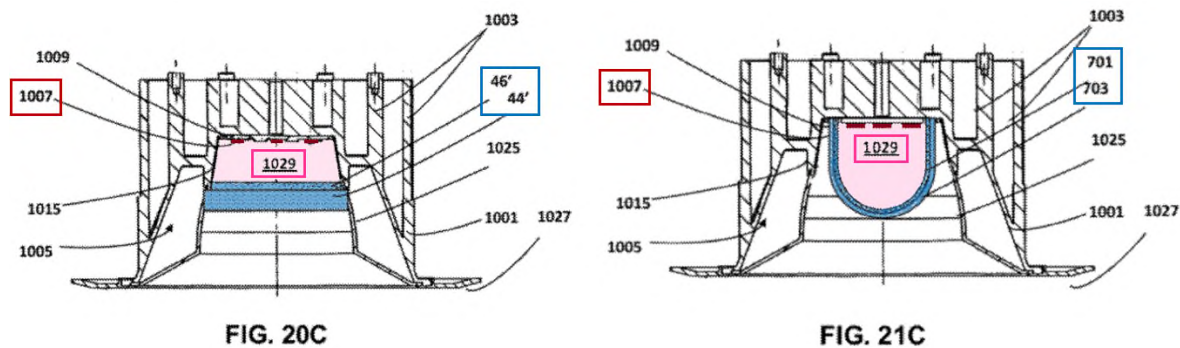
For example, independent claim 29 expressly recites "a wavelength conversion component having a **three dimensional shape** that is configured to **enclose the one or more solid-state light emitters** and to in part at least **define a light mixing chamber.**" '678 patent, at 28:44-47. In order for there to be a "light mixing chamber," the wavelength conversion component would necessarily need to be physically separate from the LEDs, because the "light mixing chamber" would be in the area where the physical separation occurs. If the wavelength conversion component was not physically separated from the LEDs then there would be no place for the "light mixing chamber" to be located. As discussed above, a portion of the light that is emitted from the LEDs, but not absorbed by the phosphor material, will end up in the "interior volume" or "light mixing chamber" that is between the wavelength conversion component and the LEDs. *See supra*, p. 5.

This is confirmed by the specification of the '678 patent, as the focus of the alleged invention in claim 29 is the use of remote phosphors. *See supra*, pp. 4-5. For example, in discussing the remote phosphor application covered by claim 29, the specification discloses that "[t]he wavelength conversion component is positioned **remotely** to the LEDs 24 and is **spatially separated** from the LEDs a distance *d* that is typically at least **1 cm**. In this patent specification

‘remotely’ and ‘remote’ means in a spaced or separated relationship.” ’678 patent, at 7:56-60; see also *id.*, at Fig. 1. As such, there must be some physical separation between the claimed wavelength conversion component and LEDs.

Indeed, the specification discloses that the interior volume provides a “**physical separation** (air gap)” of the wavelength conversion component from the LEDs, which improves the thermal characteristics of the light emitting device. See *id.*, at 24:65-25:1. As illustrated above in annotated Figure 16, the **interior volume/light mixing chamber (1415 (highlighted in pink))** provides a **physical separation** between the **wavelength conversion component (36)** and the **LED die (112)**. See *supra*, pp. 4-5.

Annotated Figures 20C and 21C shown below also demonstrate that the **interior volume/light mixing chamber (1029 (highlighted in pink))** provides a **physical separation** between the **wavelength conversion components (36’, 700)** (i.e., 46’, 44’ and 701, 703) and the **LEDs (1007)**. See ’678 patent, at 24:55-60.



See *id.*, at Figs. 20C and 21C (annotated); see also *id.*, at 24:60-63 (“In the linear lamp 1300 of FIGS. 23A and 23B, an interior volume 1325 is defined by the wavelength conversion component 1311 and the body of the linear lamp 1301.”). During his deposition, in connection with Figures 16, 20C, and 21C, Dr. Schubert agreed that the wavelength conversion components were positioned remotely to the LEDs, and that they were separated and not physically touching. See

Ex. 1 (Schubert Dep.), at 91:19-93:20. Dr. Schubert further stated that “if physically separated implies spatially separated, there is some spatial separation, [he] think[s] [he] would agree.” *See id.*, at 94:6-10.

In contrast, Feit argues that the claim should be given its plain and ordinary meaning and “the ‘light mixing chamber’ defines a volume wherein light emitters are located.” Ex. 3 (Schubert Op. Decl.), at ¶ 65. Feit essentially asks the Court to ignore the intrinsic record and construe the claim term to allow no space between the wavelength conversion component and the LEDs. But like the term “planar,” Feit’s proposed construction is designed to manufacture an infringement argument where none would otherwise exist, as LEDVANCE’s alleged products are not remote phosphor devices. The Court should reject Feit’s attempt to broaden this claim term while ignoring the disclosures in the specification.

V. CONCLUSION

For the foregoing reasons, LEDVANCE respectfully requests that the Court adopt its proposed constructions for the claim terms in dispute.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that on January 23, 2025, the foregoing was electronically filed with the Clerk of the Court using the CM/ECF system, which will send a notice of electronic filing to all counsel of record.

/s/ Cory J. Skolnick

Counsel for Defendant LEDVANCE LLC