

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

CIVIL MINUTES – GENERAL

Case No.	LACV 19-4047 PSG (MAAx)	Date	May 27, 2021
Title	Jiaxing Super Lighting Electric Appliance Co., Ltd. et al v. MaxLite, Inc.		

Present: The Honorable	Philip S. Gutierrez, United States District Judge
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Wendy Hernandez

Not Reported

Deputy Clerk

Court Reporter

Attorneys Present for Plaintiff(s):

Attorneys Present for Defendant(s):

Not Present

Not Present

Proceedings (In Chambers): The Court CONSTRUES the Disputed Claim Terms as Stated Herein

Plaintiff Jiaxing Super Lighting Electric Appliance Co., Ltd. (“Super Lighting”), and Obert, Inc. (“Obert”) (collectively “Plaintiffs”) filed suit against Defendant MaxLite, Inc. (“Defendant” or “MaxLite”) for patent infringement on May 8, 2019. *See Complaint*, Dkt. # 1 (“*Compl.*”). Plaintiff alleges Defendant has made, used, sold, offered to sell, or imported products that infringes U.S. Patent Nos. 9,689,536 (“the ’536 Patent”), 9,841,174 (“the ’174 Patent”), 9,723,662 (“the ’662 Patent”), 10,208,897 (“the ’897 Patent”), 9,807,826 (“the ’826 Patent”) and 9,897,265 (“the ’265 Patent”) (collectively the “Patents-in-Suit”). *Compl.* ¶¶ 25, 32, 40, 47, 54, 61.

Before the Court are the disputed patent claim terms for construction. The parties filed a Joint Claim Construction and Prehearing Statement reflecting the parties’ competing claim construction positions on August 27, 2020. Dkt. # 76 (“*Joint Statement*”). On September 15, 2020, the parties each filed an opening claim construction brief. Dkt. # 81 (“*Def.’s Opening Br.*”); Dkt. # 82 (“*Pl.’s Opening Br.*”). On October 6, 2020, the parties each filed a responsive claim construction brief. Dkt. # 83 (“*Def.’s Resp. Br.*”); Dkt. # 84 (“*Pl.’s Resp. Br.*”).

Having considered the moving papers and the arguments presented, the Court **CONSTRUES** the disputed claim terms as stated herein.

I. Background

The ’174 Patent issued December 12, 2017 and is titled “LED Tube Lamp.” The ’174 Patent includes thirty-two claims, including seven independent claims. Plaintiff accuses

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Defendant of infringing at least Claim 18 of the '174 Patent. *Compl.*, ¶ 33. Claim 18 of the '174 Patent recites:

18. A detection method for a light-emitting device (LED) tube lamp for preventing a user from electric shock when the LED tube lamp is being installed on a lamp socket, the detection method comprising:
generating a pulse signal by a detection pulse generating module;
receiving the pulse signal by a switch circuit coupled on a power loop of the LED tube lamp, wherein the switch circuit is conducted during a pulse-on period of the pulse signal to cause the power loop to be conductive;
detecting a sampling signal on the power loop;
comparing the sampling signal with a predefined signal; and
limiting a current on the power loop less than 5 MIU when a signal level of the sampling signal is smaller than the predefined signal.

'174 Patent, Claim 18.

The '897 Patent issued February 19, 2019 and is titled “LED Tube Lamp.” The '897 Patent includes forty-three claims, including two independent claims. Plaintiff accuses Defendant of infringing at least Claims 1, 16, 19, 22, and 23 of the '897 Patent. *Compl.*, ¶ 41. Those claims recite:

1. A ballast bypass LED tube lamp adapted to install on a lamp socket, comprising:
a lamp tube;
two end caps, each having a first external connection terminal, and each coupled to a respective end of the lamp tube, the first external connection terminals of the two end caps for receiving an AC signal without the AC signal passing through a ballast on the lamp socket;
an LED module, disposed in a power loop formed between the first external connection terminals and configured to be driven based on a driving signal for emitting light;
and
a power supply module, coupled to the first external connection terminals and the LED module and configured to drive the LED module by converting a received signal into the driving signal, wherein the power supply module comprises:
a rectifying circuit, coupled to the first external connection terminals of the end caps, for rectifying the received signal to produce a rectified signal;

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- a filtering circuit, coupled to the rectifying circuit, for filtering the rectified signal to produce a filtered signal;
- a driving circuit, coupled to the filtering circuit, for performing power conversion to the filtered signal and producing the driving signal; and
- an installation detection module, configured to determine whether to limit a current on the power loop to less than a predefined value according to an installation detection result,
- wherein the installation detection module causes a current to be conducted in a detection path for detecting an installation state between the LED tube lamp and the lamp socket and generates the installation detection result.
16. The ballast bypass LED tube lamp according to claim 1, wherein the installation detection module comprises:
- a switch circuit, serially connected to the power loop and configured to be switched according to a control signal; and
- a control circuit, configured to produce the control signal according to a detection result signal indicating the installation state.
19. The ballast bypass LED tube lamp according to claim 16, wherein the installation detection module further comprises:
- a detection path circuit, configured to form the detection path; and
- a detection determining circuit, coupled to the detection path circuit and the control circuit and configured to detect a signal feature on the detection path and produce the detection result signal.
22. The ballast bypass LED tube lamp according to claim 19, wherein the detection path circuit comprises:
- a first resistor, having an end connected to the power loop;
- a second resistor, having an end connected to a ground terminal; and
- a transistor, having a first terminal connected to another end of the first resistor via a first node, a second terminal coupled to another end of the second resistor via a second node, and a control terminal receiving a detection control signal,
- wherein the detection determining circuit detects the signal feature on at least one of the first and the second nodes.

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23. The ballast bypass LED tube lamp according to claim 22, wherein the first resistor, the second resistor and the transistor are not included in the power loop.

'897 Patent, Claims 1, 16, 19, 22, 23.

The '265 Patent issued February 20, 2018 and is titled "LED Tube Lamp Having LED Light Strip." The '265 Patent includes twenty-two claims, including two independent claims. Plaintiff accuses Defendant of infringing at least Claims 1–3, 15, 19, and 22 of the '265 Patent. *Compl.*, ¶ 26. Those claims recite:

1. An LED tube lamp, comprising:
a lamp tube, which includes a light transmissive portion, a reinforcing portion and an end cap;
an LED module, which includes an LED light source and an LED light strip; and
a power supply module, which includes a set of N electronic components operably interconnected to drive the LED light source, wherein:
the light transmissive portion is fixedly connected to the reinforcing portion;
the reinforcing portion includes a platform and a bracing structure;
the bracing structure is fixedly connected to the platform and holds the platform in place;
the LED light source is thermally and electrically connected to the LED light strip, which is in turn thermally connected to the reinforcing portion;
the end cap is attached to an end of the lamp tube;
the set of N electronic components consists of a first subset of X electronic components, a second subset of Y electronic components and a third subset of Z components, where N is equal to X+Y+Z;
the first subset of X electronic components is disposed on the LED light strip;
the second subset of Y electronic components is disposed on the reinforcing portion;
the third subset of Z electronic components is disposed on the end cap; and
either $X \neq 0$ and $Y \neq 0$, or $Z \neq 0$, or exactly one of X, Y and Z is equal to 0.
2. The LED tube lamp of claim 1, wherein exactly one of X, Y and Z is equal to N and the power supply module is spaced as far apart as possible from the LED light source.

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3. The LED tube lamp of claim 1, wherein exactly one of X, Y and Z is equal to N and the power supply module is located as close as possible to the end cap.

15. An LED tube lamp, comprising:
a lamp tube, having a light strip disposed inside the lamp tube, a LED module disposed on the light strip, and the LED module comprising at least one LED light source, wherein the lamp tube comprises a light transmissive portion and a reinforcing portion, the reinforcing portion comprises a platform, and the light strip is disposed on the platform;
two end caps attached to two ends of the lamp tube respectively; and a power supply module configured to drive the LED light source for emitting light, wherein at least some electronic components of the power supply module are disposed in one of the two end caps or in both of the two end caps.

19. The LED tube lamp according to claim 15, wherein the electronic components comprise a rectifying circuit, a filtering circuit, and a LED driving module, wherein the LED module is disposed inside the LED driving module, and wherein the LED driving module is coupled to an output terminal of the filtering circuit and configured to drive the LED light source for emitting light.

22. The LED tube lamp according to claim 15, wherein the electronic components comprise a rectifying circuit, a filtering circuit, wherein the LED module is coupled to the filtering circuit which is coupled to the rectifying circuit.

'265 Patent, Claim 1–3, 15, 19, 22.

The '662 Patent issued August 1, 2017 and is titled “Power Source Module for LED Lamp.” The '662 Patent includes forty-three claims, including six independent claims. Plaintiff accuses Defendant of infringing at least Claim 23 of the '662 Patent. *Compl.*, ¶ 26. Claim 23 of the '662 Patent recites:

23. An LED lamp, comprising:
a current limiting circuit electrically connected to a first terminal of the LED lamp for limiting a current from the first terminal;
a first rectifier electrically connected to the current limiting circuit for rectifying the current from the current limiting circuit;

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a filter electrically connected between the first rectifier and at least one LED of the LED lamp for smoothing the current from the first rectifier; and
a filament-simulating circuit electrically connected to a first bi-pin terminal and a second bi-pin terminal of the LED lamp, each of the first and the second bi-pin terminals having a current flowing from one pin to the other pin of the respective bi-pin terminal via the filament-simulating circuit during a pre-heat process executed by a ballast.

'662 Patent, Claim 23.

II. Legal Standard

A. General Principles of Claim Construction

“The purpose of claim construction is to ‘determin[e] the meaning and scope of the patent claims asserted to be infringed.’” *O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008) (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), *aff’d* 517 U.S. 370 (1996)). The Supreme Court has held that claim construction is a matter of law “exclusively within the province of the court.” *Markman*, 517 U.S. at 372. “That is so even where the construction of a term of art has ‘evidentiary underpinnings.’” *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 835 (2015) (quoting *Markman*, 517 U.S. at 390).

When construing claim terms, a court must first “look to the words of the claims themselves . . . to define the scope of the patent invention.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). Words of the claims are “generally given their ordinary and customary meaning,” which is the meaning they “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.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (citation omitted).

However, a claim term should be construed “not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.* at 1313. The specification is “the single best guide to the meaning of a disputed term,” and the court should “rely heavily” on it for guidance. *Id.* at 1315, 1317.

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Further, a court should consider the patent’s prosecution history—the complete record of the proceedings before the United States Patent and Trademark Office (“PTO”) and the prior art cited during the patent’s examination—because it “provides evidence of how the PTO and the inventor understood the patent.” *Id.* at 1317. “[B]ecause the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Id.*

Lastly, although less significant than the intrinsic record, courts may “rely on extrinsic evidence, which ‘consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.’” *Id.* (quoting *Markman*, 52 F.3d at 980). “Extrinsic evidence may be useful to the court, but it is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” *Id.* at 1319.

B. 35 U.S.C. § 112, ¶ 6 Means-Plus-Function Terms

A claim limitation may be phrased as “a means or step for performing a specified function without the recital of structure, material, or acts in support thereof.” 35 U.S.C. § 112, ¶ 6. Whether a claim limitation is a “means-plus-function” phrase is determined during claim construction, with the requirement that such limitations “shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” *Id.* This means plus function interpretation applies “only to purely functional limitations that do not provide the structure that performs the recited function.” *Phillips*, 415 F.3d at 1311. “In construing a means plus function claim, the district court must first determine the claimed function and then identify the corresponding structure in the written description of the patent that performs that function.” *Baran v. Med. Device Techs., Inc.*, 616 F.3d 1309, 1316 (Fed. Cir. 2010). A district court should “construe the meaning of the words used to describe the claimed function, using ordinary principles of claim construction.” *Lockheed Martin Corp. v. Space Sys./Loral, Inc.*, 324 F.3d 1308, 1319 (Fed. Cir. 2003).

To determine whether 35 U.S.C. § 112, ¶ 6 applies, the Federal Circuit has “long recognized the importance of the presence or absence of the word ‘means.’” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). The use of the word “means” creates a rebuttable presumption that § 112, ¶ 6 applies. *Id.* “Generic terms such as ‘mechanism,’ ‘element,’ ‘device,’ and other nonce words that reflect nothing more than verbal

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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’ and therefore may invoke § 112, para. 6.” *Williamson*, 792 F.3d at 1350 (internal citations omitted). The presumption is overcome when the claim language specifies the exact structure necessary to perform the recited function “without need to resort to other portions of the specification or extrinsic evidence for an adequate understanding of the structure.” *TriMed, Inc. v. Stryker Corp.*, 514 F.3d 1256, 1259 (Fed. Cir. 2008).

A claim term that does not actually include the word “means” is presumed not to invoke § 112, ¶ 6. *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005 (Fed. Cir. 2006). The presumption is not strong, however, and its rebuttal does not require a heightened evidentiary showing. *Williamson*, 792 F.3d at 1349. That presumption may be rebutted with the burden of persuasion on the party advocating application of § 112, ¶ 6. To succeed, that party must demonstrate, by a preponderance of evidence, that the claim term: (i) failed to recite sufficiently definite structure; or (ii) recited a function without sufficient structure for performing that function. *Apex Inc. v. Raritan Computer, Inc.*, 325 F.3d 1364, 1372 (Fed. Cir. 2003).

III. Discussion

A. Disputed Terms

- i. “ballast by-pass light-emitting diode (LED) tube lamp” (’174 Patent) / “ballast bypass LED tube lamp” (’897 Patent)*

Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
“ballast by-pass light-emitting diode (LED) tube lamp” (’174 Patent, Claims 13, 17) “ballast bypass LED tube lamp” (’897	Plain and Ordinary Meaning	Limiting preamble terms construed as: “LED tube lamp which is not compatible with a ballast and directly connects commercial electricity to the LED tube lamp”

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Patent, Claims 2, 7, 33, 34, 36, 37)		
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The parties dispute whether the LED tube lamp must be incompatible with a ballast, *i.e.* must bypass if present, and must connect to commercial electricity, or if it only needs to be “capable of bypassing the ballast.” *See Pl.’s Opening Br.* at 5:3–6, 5:16–20; *Def.’s Opening Br.* at 2:10–14.

As a threshold matter, Plaintiff argues that the preamble of Claim 1 of the ’897 Patent, which includes the term “ballast bypass LED tube lamp,” is non-limiting. *See Pl.’s Opening Br.* at 11:25–13:14; ’987 Patent, Claim 1. As Plaintiff acknowledges, however, a preamble is limiting where “the body of the claim relies on the preamble for antecedent basis.” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002); *see also Shoes by Firebug LLC v. Stride Rite Children’s Group, LLC*, 962 F.3d 1362, 1364–69 (Fed. Cir. 2020). The body of Claim 1 uses both the terms “LED tube lamp” and “lamp socket” without independently reciting these limitations. Further, as discussed below, the term “by-pass ballast” was added to Claim 10 of the ’174 Patent to distinguish prior art, and “[a]s long as the same claim limitation is at issue, prosecution disclaimer made on the same limitation in an ancestor application will attach.” *See Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1333 (Fed. Cir. 2003); *see also id.* at 1334 (“we presume, unless otherwise compelled, that the same claim term in the same patent or related patents carries the same construed meaning”). Thus, the preamble also limits Claim 1 of the related ’897 Patent and the Court construes the terms together.

The specification of the ’174 Patent supports Defendant’s construction. The “Background” section describes two kinds of LED tube lamps: “**ballast-compatible** LED tube lamps, *e.g.*, T-LED lamp[s], which directly replace[] fluorescent tube lamps without changing any circuit on the lighting device,” and “**ballast by-pass** LED tube lamps, which omit traditional ballast on their circuit and directly connect the commercial electricity to the LED tube lamp.” ’174 Patent at 2:60–3:1 (emphasis added). This explicit definition of the term “ballast by-pass LED tube lamp” includes both of Defendant’s proposed limitations. Further, the direct comparison between “ballast-compatible” and “ballast by-pass” lamps suggests that “ballast by-pass” means “ballast-incompatible.” Plaintiff counters that the specification’s description of the circuits depicted in Figures 8A and 8C states that the ballast “may be omitted.” *Id.* at 19:14–55; Figs. 8A, 8B. The specification describes Figure 8A as “a block diagram of a system including an LED tube lamp.” *Id.* at 19:15–17. The lack of any qualifier

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in front of the term “LED tube lamp” suggests this embodiment covers both “ballast-compatible” and “ballast by-pass” type LED tube lamps, where the ballast is not omitted and omitted respectively. Because the claims require a “ballast bypass” LED tube lamp, the ballast must be omitted.

The prosecution history for the ’174 Patent also supports a construction requiring that the ballast be omitted. In order to overcome a 35 U.S.C. § 102 rejection based on prior art reference WO2015/066566 to Sadwick (“Sadwick”), the applicant distinguished the claimed “ballast by-pass type LED lamp” from the prior art “conventional direct replacement LED lamp, which connects to the LED lamp powered by ballasts.” *See* Dkt. # 81-3 (“*File History*”) at 14–17. For instance, the applicant argued that “the voltage of ballast is more stable than the commercial electricity that the ballast by-pass LED lamp used.” *Id.* at 16. Thus, the file history also shows that the claimed ballast by-pass LED lamp cannot work with a ballast.

The Court is uncertain whether the parties dispute is the same for the limitation “directly connects commercial electricity to the LED tube lamp,” as neither party discusses the difference between commercial and non-commercial electricity. The Court therefore declines to include this portion of Defendant’s construction at this time. Accordingly, the Court construes the term “ballast bypass LED tube lamp” as a “LED tube lamp which is not compatible with a ballast.”¹

- ii. “[limits/limiting] a current on the power loop [to] less than 5 MIU” (’174 Patent) / “limit a current on [the power loop / a current path of the power supply module] to less than a predefined value” (’897 Patent)

Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
“[limits/limiting] a current on the power loop [to] less than 5 MIU” (’174 Patent,	Plain and Ordinary Meaning	“not allow[ing] the current on the [power loop / current path of the power supply module] to exceed [5 MIU / a

¹ The parties also address extrinsic evidence discussing hybrid LED tube lamps that are both ballast-compatible and ballast-bypass. This extrinsic evidence only shows that hybrid ballast-compatible and bypass lamps may exist but does not show that a ballast-bypass only lamp may also be ballast-compatible. Further, Plaintiff’s argument that Defendant’s construction imports a “negative limitation” is not persuasive as “bypass ballast” is not a negative limitation.

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Claims 13, 17, 18, 20, 26-31) “limit a current on [the power loop / a current path of the power supply module] to less than a predefined value” (’897 Patent, Claims 2, 7, 33, 34, 36, 37)		value defined in advance during installation]”
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The parties do not appear to dispute that the term “predefined value” must be set in advance and Defendant has agreed to drop the phrase “during installation.” *See Pl. ’s Opening Br.* at 6:21–23; *Def. ’s Resp. Br.* at 4:8–14.² The only remaining dispute is whether the current is never allowed to exceed the “predefined value,” even for brief amounts of time. *See Def. ’s Opening Br.* at 6:16–22; *Pl. ’s Resp. Br.* at 3:7–21.

The Court agrees with Defendant that the current recited in the claims must never exceed either 5 MIU or “a predefined value.” The plain and ordinary meaning of the terms “limit” and “less than” suggest a numerical range with an upper limit of either 5 MIU or a “predefined value.” The specification uses the phrase “less than” according to its ordinary meaning. *See, e.g.,* ’897 Patent at 55:15–53 (describing current as “less than” or “greater than or equal to” to a “specific, defined installation current,” and using phrases “smaller current compared to a predetermined value” and “current equal to or larger than a predetermined current”). Defendant also cites three dictionary definitions that support this meaning. *See Def. ’s Opening Br.* at 7:6–13. Plaintiff only responds that Defendant’s argument regarding the “purpose” of the invention is unfounded. *See Pl. ’s Resp. Br.* at 3:7–21. The Court does not find this evidence necessary to construe these terms.

Further, Plaintiff argues that the current on the power loop need not always be limited because Claims 10 and 18 of the ’174 Patent provide express conditions for when the current is limited, *i.e.*, “when a signal level of the [transient current/sampling signal] is smaller than the

² Plaintiff disputes whether the “predefined value” must be “some set, known value,” but the language is not included in either party’s proposed construction and the Court does not reach a conclusion on this issue. *See Pl. ’s Resp. Br.* at 3:22–4:5.

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predefined signal[.]” Nevertheless, a plain reading of the claim language suggests that when these conditions are met, the current on the power loop must be limited below 5 MIU.

Although the Court does not read in a requirement that the current is immediately limited, the current must stay limited while the recited condition is met.

Plaintiff’s expert testimony regarding the Underwriters Laboratories (UL) Standard for Safety for Fluorescent-Lamp Ballasts (“UL 935 Standard”) further confirms that this predefined value is a rigid upper limit to account for “hardware circuitry of limited precision.” *See* Dkt. # 84-2 (“*Hobbs Resp. Decl.*”) ¶¶ 20–25; *see also* Dkt. # 81-19 (“*UL 935 Standard*”). Regular or prolonged currents above this predefined value would cause the same kinds of safety concerns discussed in the specification. Thus, the ’174 and ’897 Patents set out an explicit 5 MIU upper limit to ensure safety and a flexible “predefined” upper limit to provide the flexibility discussed in Plaintiff’s expert’s report. *See id.*

Accordingly, the Court construes these terms to mean “not allow[ing] the current on the [power loop / current path of the power supply module] to exceed [5 MIU / a value defined in advance].”

iii. “installation detection module” (’897 Patent)

Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
“installation detection module” (’897, Claims 2, 16, 17, 18, 31, 33, 36)	Plain and Ordinary Meaning	Subject to 35 U.S.C. § 112(f) Function: [S1] generating a control signal having at least one pulse and [S4] temporarily causing a current to be conducted in a detection path during the pulse-on time of the control signal for [S2] detecting an installation state between the LED tube lamp and a lamp socket

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		Structure: [S1], [S2], and [S4] [S1] The circuits depicted in Figs. 15C, 15H, 15S, or equivalents thereof and [S2] The circuits depicted in Figs. 15D, 15K, 15T, or equivalents thereof and [S4] The circuits depicted in Figs. 15F, 15J, 15P, 15U, or equivalents thereof AS DEPICTED IN the block diagrams of Figs. 15B, 15G, 15L, 15M, 15Q, 15V, or 15W
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The parties dispute whether “installation detection module” is a mean-plus term subject to § 112(f). *See Pl.’s Opening Br.* at 8:13–15; *Def.’s Opening Br.* at 9:17–18.

Defendant argues that the term “module” has often been found to be a “nonce” word subject to § 112(f). *See Def.’s Opening Br.* at 10:8–23; *see also Williamson*, 792 F.3d at 1350. Defendant further argues that the phrase “installation detection” describes the “function of detecting installation ... and a [person of ordinary skill in the art] would not associate the performance of such function with any definite class of structures.” *See Def.’s Opening Br.* at 10:24–11:3.

Plaintiff responds that the language of the claims show that the term “installation detection module” is structural. Specifically, Plaintiff argues that Claims 16, 19, 33, and 36 “expressly recite structure for the installation detection module” by reciting sub-components and defining connections between these sub-components. *See Pl.’s Opening Br.* at 9:16–10:19. Plaintiff also argues that many courts have found that the term “module” was not subject to § 112(f). *See Pl.’s Resp. Br.* at 4:24–5:4.

“[E]ven if the claims recite a nonce term followed by functional language, other language in the claim ‘might inform the structural character of the limitation-in-question or otherwise impart structure’ to the claim term.” *MTD Prod. Inc. v. Iancu*, 933 F.3d 1336, 1341–42 (Fed. Cir. 2019) (quoting *Williamson*, 792 F.3d at 1351). “To determine whether the

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claim limitation at issue connotes sufficiently definite structure to a person of ordinary skill in the art, we look first to intrinsic evidence, and then, if necessary, to the extrinsic evidence.” *TEK Glob., S.R.L. v. Sealant Sys. Int’l, Inc.*, 920 F.3d 777, 785 (Fed. Cir. 2019). Whether a term is subject to § 112(f) is determined in light of the specification. *See Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1372 (Fed. Cir. 2015) (§ 112(f) does not apply when “the claim language, read in light of the specification, recites sufficiently definite structure”) (quotation marks omitted).

The intrinsic evidence shows that the term is not governed by § 112(f). The Court agrees with Plaintiff that the recitation of subcomponents and connections with other structural components suggests that the term is structural. For instance, Claim 1 recites “a ballast bypass LED tube lamp adapted to install on a lamp socket” comprising “a lamp tube,” and “two end caps, each having a first external connection terminal” coupled to the “lamp tube.” ’897 Patent, Claim 1. The claim also recites that a “power loop” is “formed between the first external connection terminals.” *Id.* Regarding the “installation detection module,” the claim recites that the module is “configured to determine whether to limit a current on the power loop” and “causes a current to be conducted in a detection path for detecting an installation state between the LED tube lamp and the lamp socket.” *Id.* Thus, the language of Claim 1 suggests that the term “module” is used similarly to the term “circuit” as recited in the claim.

Claims 16 and 19 further limit the “installation detection module” of Claim 1. These claims recite the following sub-component circuits:

- “a switch circuit, ***serially connected to the power loop*** and configured to be switched according to a control signal”
- “a control circuit, configured to produce the control signal according to a detection result signal indicating the installation state”
- “a detection path circuit, configured to form the detection path”
- “a detection determining circuit, coupled to the detection path circuit and the control circuit and configured to detect a signal feature on the detection path and produce the detection result signal”

’897 Patent, Claims 16, 19 (emphasis added). These dependent claims further suggest that the term “installation detection module” is structural. *TEK Glob., S.R.L.*, 920 F.3d at 785 (finding § 112(f) does not apply where the dependent claims “add limitations that either describe particular structural features or flesh out whether the term has a particular structural meaning”).

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The claims also suggest that the term “module” broadly means a collection of electronic components and circuitry as opposed to a specific circuit. In addition to the “installation detection module,” Claim 1 recites an “LED module, disposed in [the] power loop,” and a “power supply module, coupled to the first external connection terminals and the LED module.” ’897 Patent, Claim 1. Claim 1 specifies that the “power supply module comprises” three circuits: “a rectifying circuit, coupled to the first external connection terminals,” “a filtering circuit, coupled to the rectifying circuit,” and “a driving circuit, coupled to the filtering circuit.” *Id.* Claim 8 further limits the “power supply module,” stating that it comprises “a printed circuit board (PCB), coupled to [a] light strip [disposed on an inner circumferential surface of the lamp tube] and configured to carry and connect electronic components of the power supply module.” The claims are replete with other examples of a “module” comprising electronic components or circuits. A person of ordinary skill in the art would recognize that the “module” terms, as used in the ’897 Patent, are “used not as generic terms or black box recitations of structure or abstractions, but rather as specific references to conventional [electronic circuitry and components].” *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1008 (Fed. Cir. 2018).

The specification further supports the conclusion that the term “installation detection module” is not governed by § 112(f). The specification explicitly defines the term “module” as structural:

Embodiments may be described, and illustrated in the drawings, in terms of functional blocks, units and/or **modules**. Those skilled in the art will appreciate that these blocks, units and/or **modules are physically implemented by electronic (or optical) circuits** such as logic circuits, discrete components, analog circuits, hard-wired circuits, memory elements, wiring connections, and the like, which may be formed using semiconductor-based fabrication techniques or other manufacturing technologies.

’897 Patent, 10:12–35 (emphasis added). Although the term “module” in isolation may not recite specific structure, the term “module” as used in the ’897 Patent does. Further, Figures 15B, 15G, 15L, and 15W all depict “a block diagram of an installation detection module according to some exemplary embodiments.” *See id.* at 6:62–63; 7:5–6; 7:15–16; 7:39–40. The specification describes each of these figures by detailing the connections of the sub-components and external structural components and how they operate as a circuit, similar to the

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claims. *See, e.g., id.* at 56:1–57:33 (describing Figure 15B). Thus, all the intrinsic evidence supports that the term is structural.

Further, the term “installation detection module” as used in the claims of the ’897 Patent is similar to the claimed “soft start circuit” found to convey sufficient structure in *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.* 711 F.3d 1348, 1365 (Fed. Cir. 2013). The full claim language of the term there recited:

a soft start circuit that provides a signal instructing said drive circuit to
discontinue said drive signal when said magnitude of said oscillation signal is
greater than a magnitude of said frequency variation signal.

See id. The court found that the term was not governed by § 112 because “[t]he word ‘circuit’ in combination with such a clear and unambiguous description of the circuit’s operation [*i.e.*, to provide a signal after comparing the magnitude of two signals] weighs heavily in favor finding sufficient structure to avoid means-plus-function claiming.” Similarly, the “installation detection module” is “configured to limit current on a power loop ... according to an installation detection result” generated when it detects an installation state, which is similar to a comparison of two signals. *See* ’897 Patent Claim 1. Thus, the term would “suggest to the ordinarily skilled artisan a defined class of structures.” *Id.*

Defendant’s extrinsic evidence is unpersuasive. Defendant’s expert concludes – with minimal analysis – why the term is not structural. *See* Dkt. # 81-1, ¶¶ 15–18 (“*Zane Decl.*”). These conclusory statements do not overcome the import of the intrinsic evidence.

Accordingly, the Court finds that the term “installation detection module” is not covered by § 112(f). Plaintiff gives no description of the plain and ordinary meaning of the term “installation detection module,” however, and the Court finds that no construction is necessary.

- iv. “causes a current to be conducted in a detection path for detecting [an installation state between the LED tube lamp and the lamp socket / whether a risk of electric shock exists]” (’897 Patent)

Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
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“causes a current to be conducted in a detection path for detecting [an installation state between the LED tube lamp and the lamp socket / whether a risk of electric shock exists]” (’897 patent, Claims 2, 7, 33, 34, 36, 37)	Plain and Ordinary Meaning	“applies a pulse signal in order to detect [an installation state between the LED tube lamp and the lamp socket / whether a risk of electric shock exists]”
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The parties dispute whether a pulsed current is required by the claims. *See Pl.’s Opening Br.* at 15:5–8; *Def.’s Opening Br.* at 14:3–8.

Repetition of language in the Abstract “meant to describe the overall invention, together with the uniformity of the specification ..., makes clear that [a limitation] is not merely a preferred embodiment for [a term], but rather a requirement.” *Wireless Protocol Innovations, Inc. v. TCT Mobile, Inc.*, 771 F. App’x 1012, 1018 (Fed. Cir. 2019). Claim 1 of the ’897 Patent recites that “the installation detection module causes a current to be conducted in a detection path.” ’897 Patent, Claim 1. The third sentence of the Abstract of the ’897 Patent states that “[t]he installation detection circuit is configured to detect **during one or more pulse signals** whether the LED tube lamp is properly installed on a lamp socket, based on detecting a signal generated from the external driving signal.” *Id.*, Abstract. Further, as Defendant emphasizes, every embodiment described in the specification includes pulse signals. *See Def.’s Opening Br.* at 14:20–16:7. The ’897 Patent also discloses that “[s]ince the pulse is for a short time and not for a long time, the electric shock situation will not occur.” ’897 Patent at 63:61–62; *see also Def.’s Opening Br.* at 16:24–17:8; *Nevro Corp. v. Boston Scientific Corp.*, 955 F.3d 35, 43–44 (Fed. Cir. 2020) (limiting term based on problem inventor sought to solve). Thus, the intrinsic evidence supports limiting the term to require a pulse signal.

Plaintiff responds that the specification describes two signals that are not “pulsed”: a “control signal” and a “high level voltage.” *See Pl.’s Opening Br.* at 15:12–24 (citing ’897 Patent at 76:32–38; 82:42–55.) The specification describes each of these signals as pulsed, though. In describing the “control signal,” the specification states that “the control signal has a

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pulse-type signal waveform” in operation. ’897 Patent at 76:47–57. In describing the “comparator 2946” which outputs “a high level voltage,” the specification states that “[t]he comparator 2946 outputs an output signal having pulse-type waveform through this charge and discharge process.” *Id.* at 82:42–55. Both examples support Defendant’s construction.

Plaintiff also argues that “[t]he term ‘pulse signal’ ... does not appear in the claims to be construed, even though it does appear in other unrelated claims.” *See Pl.’s Resp. Br.* at 8:21–23. Plaintiff does not cite to any claims, however. The only claim that mentions the word “pulse” is Claim 24. Claim 24 recites “[t]he ballast bypass LED tube lamp according to claim 22, wherein the detection control signal is a pulse signal.” Rather than suggesting that the “detection control signal” may be something other than a pulse signal, the Court reads this claim to identify the specific pulse signal required for the installation detection circuit. Further, Plaintiff’s reliance on the UL 935 Standard is unavailing because the Table 24.1 discusses maximum peak current and does not address pulse or constant currents. *See UL 935 Standard* at Table 24.1.

Accordingly, the Court construes this term to mean “applies a pulse signal in order to detect [an installation state between the LED tube lamp and the lamp socket / whether a risk of electric shock exists].”

- v. *“a reinforcing portion ... [that] includes a platform and a bracing structure; the bracing structure is fixedly connected to the platform and holds the platform in place” (’265 Patent)*

Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
“a reinforcing portion . . . [that] includes a platform and a bracing structure; the bracing structure is fixedly connected to the platform and holds the platform in place” (’265 Patent, Claims 5, 6.)	<i>See</i> construction for “fixedly connected to the reinforcing portion”; otherwise Plain and Ordinary Meaning	“a structure separate from the LED light strip that provides structural support to the lamp tube and that includes a platform and a bracing structure; the bracing structure is fixedly connected to the platform and holds the platform in place”

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The parties have two disputes concerning the term “a reinforcing portion.” *First*, the parties dispute whether the “reinforcing portion” must provide “structural support.” *See Pl.’s Opening Br.* at 17:20–23. *Second*, they dispute whether the “reinforcing portion” must be separate from the “LED light strip.” *See id.*

The Court finds that the term “reinforcing portion” must provide structural support. As Defendant argues, the word “reinforcing” suggests that the “reinforcing portion” structurally supports the lamp tube. *See Def.’s Opening Br.* at 18:16–23. The specification discloses that the “structural strength” of the “lamp tube” increases when the “reinforcing portion” is enlarged and decreases when the “reinforcing portion” is diminished in proportion to the “light transmissive portion.” ’265 Patent at 15:37–47; 16:13–24. Additionally, the Figures depict the “reinforcing portion” as either a structural base or the structural supports of the lamp tube. *See id.*, Figs. 1–6 (depicting the reinforcing portion as a base labeled 107); Figs. 7, 9–11 (depicting the reinforcing portion as an internal structural support or system of supports labeled 230). Thus, the intrinsic evidence shows that the “reinforcing portion” provides structural support.

Plaintiff does not appear to contest that it the “reinforcing portion” can provide structural support, but that it is not limited to providing structural support. *See Pl.’s Opening Br.* at 18:13–15. The Court agrees given that the specification references the “thermal conductivity” of the “reinforcing portion.” ’265 Patent at 15:21–36. But the Court does not read Defendant’s construction to limit the function of the “reinforcing portion” to structural support. Accordingly, the Court finds that the “reinforcing portion” at least provides structural support.

The Court also finds that the “reinforcing portion” does not need to be separate from the “LED light strip.” The recitation of separate limitations does not necessarily mean that the same structure cannot satisfy both limitations; rather, whether the limitations are required to be separate must be determined in light of the intrinsic evidence. *See Powell v. Home Depot U.S.A., Inc.*, 663 F.3d 1221, 1231–32 (Fed. Cir. 2011). Defendant states without support that because Claim 1 recites “a separate ‘LED light strip’ which is ‘thermally connected’ to the ‘reinforcing portion,’” the two components must be separate. *See Def.’s Opening Br.* at 18:11–15. The specification states that “[i]n general, components which are heat-conductive and **directly connected** to other heat-conductive or heat-generating components ... will be described as thermally connected to those components.” ’265 Patent at 14:6–12 (emphasis added). The specification also states that “[s]imply because two components **are part of the same device or package** does not make them thermally connected,” implying that they may

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also be thermally connected. *Id.* at 14:4–6 (emphasis added). Thus, specification discloses that two things may be part of the same structure and still be “thermally connected.”

Further, as Plaintiff highlights, the ’265 Patent discloses that the “LED light strip” may form the “platform” that is part of the “reinforcing portion” recited in the claims. *See Pl.’s Opening Br.* at 18:25–19:9 (citing ’265 Patent at 4:27–29, Fig. 2, Claim 1).

Accordingly, the Court construes the term “a reinforcing portion . . . [that] includes a platform and a bracing structure; the bracing structure is fixedly connected to the platform and holds the platform in place” to mean “a structure that provides structural support to the lamp tube and that includes a platform and a bracing structure; the bracing structure is fixedly connected to the platform and holds the platform in place.”

vi. “fixedly connected to the reinforcing portion” (’265 Patent)

Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
“fixedly connected to the reinforcing portion” (’265 Patent, Claims 5, 6.)	“fastened in place on the reinforcing portion”	Plain and Ordinary Meaning

Plaintiff argues that the term “fixedly connected” means “fastened in place.” *See Pl.’s Opening Br.* at 19:20–23. The Court does not see how the phrase “fastened in place” provides any more clarity than “fixedly connected.” The issue with this phrase is clear from the parties’ dispute. Defendant argues that “two pieces glued together” and “two pieces being one integral structure” are not “fastened in place,” while Plaintiff argues that they are. *See id.* at 20:5–9; *Def.’s Opening Br.* at 20:5–7. As Defendant notes, the phrase “fastened in place” is not used once in the specification. *See Def.’s Resp. Br.* at 10:10–11. Although the Court agrees with Plaintiff that the term “connected” is broader than the qualified “fixedly connected,” the Court does not find that Plaintiff’s construction “would be helpful to the jury in understanding the meaning of the term and the relationship between the reinforcing portion and light transmissive portion of the claimed LED tube lamp.” *See Pl.’s Opening Br.* at 20:18–21. Plaintiff is free to provide real-world analogies to explain the difference between “connected” and “fixedly connected” to support its infringement theories at the relevant time, but on the current record the parties’ claim construction dispute is premature.

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Accordingly, the Court finds that no construction is necessary for the term “fixedly connected to the reinforcing portion.”

vii. “disposed on the LED light strip” (’265 Patent)

Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
“disposed on the LED light strip” (’265 Patent, Claims 5, 6.)	“fixedly attached to a surface of the LED light strip and/or embedded as a part of the LED light strip”	“attached to the structure that supports the LED light source”

The parties have two disputes concerning the term “disposed on the LED light strip.” *First*, Plaintiff argues that the “LED light strip” does not have to support the “LED light source.” *See Pl. ’s Opening Br.* at 21:7–12; *Pl. ’s Resp. Br.* at 11:4–7. *Second*, the parties dispute whether the term “disposed on” means “attached” or “fixedly attached ... and/or embedded.” *See Pl. ’s Opening Br.* at 21:7–12; *Def. ’s Opening Br.* at 20:18–19:6.

Regarding the first issue, the Court finds that there is no reason to include the phrase “structure that supports the LED light source.” Claim 1 recites that “the LED light source is thermally and electrically connected to the LED light strip.” ’265 Patent, Claim 1. Plaintiff argues that “while the light strip provides thermal and electrical connections, it does not necessarily provide ‘structural support.’” *See Pl. ’s Opening Br.* at 21:16–19. Plaintiff further explains that the LED light strip’s “primary function is not to provide support because it can be made from ‘flexible’ or ‘bendable’ substrates or sheets.” *See Pl. ’s Resp. Br.* at 11:8–10.

Plaintiff interprets Defendant’s use of the phrase “structure that supports” too narrowly. Unlike Defendant’s construction of the term “reinforcing portion,” which includes the phrase “structural support,” here Defendant appears to use the term “support” to mean that the “LED light source” is connected to the “LED light strip.” *See Def. ’s Resp. Br.* at 10:28–11:3 (“That the claim requires the LED light strip to be thermally and electrically connected to the LED light source is not inconsistent with defining what the LED light strip is: it is a structure that supports the LED light source.”). Given that Claim 1 already recites that “the LED light source is thermally and electrically connected to the LED light strip,” however, the Court finds that the term “supports” is unnecessarily broad and confusing.

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Regarding the second issue, the Court finds that there is no reason to construe the term “disposed on” either. As Defendant argues, Plaintiff’s construction comes from a non-limiting example provided in the specification. *See Def.’s Opening Br.* at 20:18–21:6. Specifically, Plaintiff’s construction comes from the following disclosure in the specification: “When the entire set of electronic components is disposed on the LED light strip (e.g., fixedly attached to a surface of the LED light strip, and/or embedded as part of the LED light strip)” ’265 Patent at 27:32–35. As Plaintiff acknowledges, the use of the term “e.g.” means “for example” and is not intended to be definitional. *See Pl.’s Opening Br.* at 22:1–14. Plaintiff is free to address these examples at the relevant time to support its infringement theories, but the Court sees no reason to include these in the construction of the term. Further, Defendant offers no explanation at all for why the phrase “disposed on” should be replaced with the word “attached.”

Accordingly, the Court finds no construction necessary for the term “disposed on the LED light strip.”

viii. *“configured to limit a current from the filament-simulating circuit”; “for limiting a current from the first terminal” (’662 Patent)*

Terms	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
“configured to limit a current from the filament-simulating circuit” (’662 Patent, Claim 1)	Plain and Ordinary Meaning	“configured to limit a current from the filament-simulating circuit to the first rectifier to be in a suitable range for driving the at least one LED”
“for limiting a current from the first terminal” (’662 Patent, Claims 23, 42)	Plain and Ordinary Meaning	“configured to limit a current from the first terminal to the first rectifier to be in a suitable range for driving the at least one LED”

The main dispute the parties have is whether the current should be limited to “a suitable range for driving the at least one LED” or to any value. *See Def.’s Opening Br.* at 22:3–7.

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Defendant argues that “each disclosed embodiment of the ’662 Patent, as well as the Summary of the Invention, requires that the current limiting circuit be configured to limit the current to be in a suitable range for driving the at least one LED.” *See id.* at 23:5–8. Specifically, the Summary of the Invention states that “[a]nother object of the present invention” is to provide a “current limiting circuit to protect the LED lamp.” ’662 Patent at 2:33–35; *see Def.’s Opening Br.* at 22:14–17. In describing Figure 1, the specification states that “[t]he current limiting circuit 12 is ... used for limiting the current ... to be in a suitable range for driving the LED module 2.” ’662 Patent at 3:41–45; *see Def.’s Opening Br.* at 22:20–24.

In describing the preferred embodiments, the specification states that “the current limiting circuit 32,” as depicted in Figure 2, includes “capacitances C5 and C6” which “can be matched to limit the value [of] the current in a reasonable range when the ballast provides a high voltage to the LED module 2.” ’662 Patent at 4:50–62; *see Def.’s Opening Br.* at 22:26–23:1. The specification defines this range as “the current range which drives the LED module 2 to operate normally, so that the reasonable range would vary with different types of LED or LED array.” ’662 Patent at 4:62–65; *see Def.’s Opening Br.* at 23:1–3. Finally, the patent states that the “current limiting circuit 32,” as depicted in Figure 3, differs from the “current limiting circuit 32” in Figure 2 because it includes a “third capacitance C7 ... so as to ensure the value of the current in the reasonable range even if one of the capacitances C5 and C6 is damaged.” ’662 Patent at 5:5–11; *see Def.’s Opening Br.* at 23:1–3. To Defendant, these statements show that the current must be limited to a suitable range to drive the LED.

The Court is not persuaded. In describing the problems with using LED lamps on a traditional fluorescent lamp base, the specification states that the starter and electrical ballast of certain fluorescent lamp bases would cause the LED lamp to “burn away.” ’662 Patent at 1:59. The only portion of the specification that expressly describes the “current limiting circuit” of the “present invention” states that it must “protect the LED lamp.” *Id.* at 2:33–35. Thus, the specification only requires that the current does not exceed a value that would cause damage to the LED lamp.

The rest of Defendant’s citations only refer to preferred embodiments. Even assuming all the described embodiments limit current to a suitable range for driving an LED module, limitations should not be imported from the specification into the claims absent a clear intent to disavow the scope of the limitation. *See Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1370 (Fed. Cir. 2008) (refusing to import a limitation from the specification into the claims,

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despite all of the described embodiments including the limitation, where the supposedly limiting language consisted of “sparse but broad statements”). For instance, as Plaintiff emphasizes, the description of Figure 2 says the capacitances “*can* be matched to limit the value [of] the current in a reasonable range.” ’662 Patent at 4:50–62; *see Pl. ’s Resp. Br.* at 12:4–8. This optional language coupled with the other two general statements do not show a clear intent to limit the claims. Further, Defendant’s proposed definition introduces unnecessary ambiguity into what qualifies as “suitable.”

Given that the Court declines to limit the scope of these terms according to Defendant’s proposed construction, the Court does not address the rest of Plaintiff’s arguments. Accordingly, the Court finds no construction necessary for these terms.

ix. “detection result latching circuit” (’174 Patent)

Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
“detection result latching circuit” (’174 patent, Claims 17, 27)	“circuit that maintains a signal level based on a detected result”	“circuit that reverses its signal level when the detected result is applied and maintains its signal level based on the detected result”

The parties agree that the term “detection result latching circuit” means a “circuit that maintains signal level based on a detected result.” *See Pl. ’s Opening Br.* at 2:7–8; *Def. ’s Opening Br.* at 23:25–26. Defendant argues that the circuit also “reverses its signal level when the detected result is applied,” *e.g.*, goes from a logic-state zero to a logic-state one or visa versa when it receives the “detected result.” *See Pl. ’s Opening Br.* at 2:9–10; *Def. ’s Opening Br.* at 23:27–28. Defendant further clarifies its construction, explaining that the circuit reverses its signal level only “when the detected result *for a proper installation* is applied.” *See Def. ’s Resp. Br.* at 12:12–20. Defendant explains that the circuit outputs a constant ‘0’ until proper installation. *See id.* at 12:14–17.

Both parties address the “detection result latching circuit” of Figure 15E. *See Pl. ’s Resp. Br.* at 1:22–25; *Def. ’s Opening Br.* at 25:6; *see also* ’174 Patent at 43:38–44:14, Fig. 15E (reproduced below).

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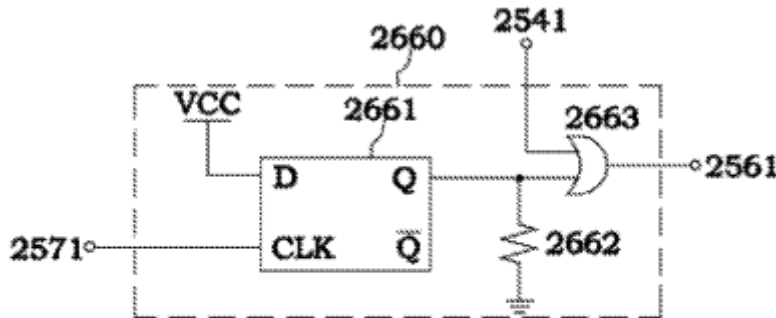


Fig. 15E

In describing the “detection result latching circuit” shown in Figure 15E, the specification states the following:

Accordingly, when the detection result terminal 2571 has no high logic level detection result signal, the D flip-flop 2661 keeps a low logic level signal at the Q output terminal to make the detection result latching terminal 2561 also keep a low logic level detection result latching signal in the detection stage. On the contrary, once the detection result terminal 2571 has a high logic level detection result signal, the D flip-flop 2661 outputs and keeps a high logic level signal (e.g., based on VCC) at the Q output terminal. In this way, the detection result latching terminal 2561 keeps a high logic level detection result latching signal in the operating stage as well.

’174 Patent at 44:2–14. As Plaintiff’s expert explains, “the Q output terminal of the D flip-flop only changes value from 0 to 1 at the time when the lamp tube is properly powered on.” See Dkt. No. 82-2 (“Hobb’s Decl.”), ¶ 49; see also *id.* at ¶ 47 (“The D flip-flop’s state changes only on the first rising edge of the clock, indicating that enough current is flowing for safe operation, then remains steady as long as the power remains on.”). Thus, it appears that both parties agree that the D flip-flop’s state is reversed when the detection result is applied.

Plaintiff’s expert further explains that the signal level of the overall “detection result latching circuit” does not necessarily reverse when the circuit receives the detection result because the signal level may also reverse due to the “pulse signal output terminal 2541.” See

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Hobb's Decl., ¶ 50; *see also* '174 Patent at 43:56–62 (“When the OR gate 2663 receives the first or second pulse signals from the pulse signal output terminal 2541 or receives a high logic level signal from the Q output terminal of the D flip-flop 2661, the OR gate 2663 outputs a high logic level detection result latching signal at a detection result latching terminal 2561.”). The specification explains that the “detection pulse generating module” will send two pulse signals during the “detection stage” to drive the output of the “OR gate 2663” high, but otherwise the “detection result latching signal” from the D flip–flip sets the signal level. '174 Patent at 43:62–44:1.

In light of the above, the Court is not persuaded that the “detection result latching circuit” necessarily reverses the signal level when it receives a “detected result for a proper installation.” The Court finds Plaintiff’s construction to be overly broad, however. According to Plaintiff’s construction, the circuit could always output a logic-level one so long as it maintained that state when the detection result was applied. This would eliminate the need for a latch altogether.

As explained, the only exception to Defendant’s revised construction is that the pulse signals may also cause the signal levels to reverse. Both Claims 17 and 27 of the '174 Patent recite that the “detection result latching circuit” is “coupled to ... the detection pulse generating module,” which produces the above pulse signals. '174 Patent, Claims 17, 24. Accordingly, the Court construes the term “detection result latching circuit” to mean a “circuit that reverses its signal level when the detected result or pulse signal from the detection pulse generating module is applied and maintains its signal level based on the detected result.”

IV. Conclusion

The Court **CONSTRUES** the disputed claim terms as follows:

Term (Patent No, Claim No(s).)	Court’s Construction
“ballast by-pass light-emitting diode (LED) tube lamp” ('174 Patent, Claims 13, 17)	“LED tube lamp which is not compatible with a ballast”
“ballast bypass LED tube lamp” ('897 Patent, Claims 2, 7, 33, 34, 36, 37)	

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

CIVIL MINUTES – GENERAL

Case No.	LACV 19-4047 PSG (MAAx)	Date	May 27, 2021
Title	Jiaxing Super Lighting Electric Appliance Co., Ltd. et al v. MaxLite, Inc.		

Term (Patent No, Claim No(s).)	Court's Construction
“[limits/limiting] a current on the power loop [to] less than 5 MIU” (’174 Patent, Claims 13, 17, 18, 20, 26-31) “limit a current on [the power loop / a current path of the power supply module] to less than a predefined value” (’897 Patent, Claims 2, 7, 33, 34, 36, 37)	“not allow[ing] the current on the [power loop / current path of the power supply module] to exceed [5 MIU / a value defined in advance]”
“installation detection module” (’897, Claims 2, 16, 17, 18, 31, 33, 36)	No construction
“causes a current to be conducted in a detection path for detecting [an installation state between the LED tube lamp and the lamp socket / whether a risk of electric shock exists]” (’897 patent, Claims 2, 7, 33, 34, 36, 37)	“applies a pulse signal in order to detect [an installation state between the LED tube lamp and the lamp socket / whether a risk of electric shock exists]”
“a reinforcing portion . . . [that] includes a platform and a bracing structure; the bracing structure is fixedly connected to the platform and holds the platform in place” (’265 Patent, Claims 5, 6.)	“a structure that provides structural support to the lamp tube and that includes a platform and a bracing structure; the bracing structure is fixedly connected to the platform and holds the platform in place”
“fixedly connected to the reinforcing portion” (’265 Patent, Claims 5, 6.)	No construction
“disposed on the LED light strip” (’265 Patent, Claims 5, 6.)	No construction
“configured to limit a current from the filament-simulating circuit” (’662 Patent, Claim 1) “for limiting a current from the first terminal” (’662 Patent, Claims 23, 42)	No construction
“detection result latching circuit” (’174 patent, Claims 17, 27)	“circuit that reverses its signal level when the detected result or pulse signal from the detection pulse generating module is applied

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Term (Patent No, Claim No(s).)	Court’s Construction
	and maintains its signal level based on the detected result”

IT IS SO ORDERED.