

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

VAXCEL INTERNATIONAL CO., LTD.,

Plaintiff,

v.

HEATHCO LLC,

Defendant.

C.A. No. 20-224-LPS

Frederick L. Cottrell III and Katherine Lester Mowery, RICHARDS, LAYTON & FINGER,
P.A., Wilmington, DE

R. Mark Halligan, FISHERBROYLES, LLP, Chicago, IL

Richard M. Lehrer, FISHERBROYLES, LLP, Woodstock, GA

Attorneys for Plaintiff

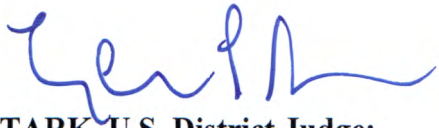
Stephen B. Brauerman and Ronald P. Golden III, BAYARD, P.A., Wilmington, DE

David C. Radulescu and Etai Lahav, RADULESCU LLP, New York, NY

Attorneys for Defendant

MEMORANDUM OPINION

November 22, 2021
Wilmington, Delaware



STARK, U.S. District Judge:

Plaintiff Vaxcel International Co., Ltd. (“Plaintiff” or “Vaxcel”) sued Defendant HeathCo LLC (“Defendant” or “HeathCo”) for the alleged infringement of various patents. (*See generally* D.I. 1, 30)¹ The patents generally relate to technology involving lighting apparatuses. Many of the patents have a common specification, and the patents with that shared specification describe and claim “a two-level security LED light with motion sensor.” (*See, e.g.*, ’362 patent at 1:15-16) The parties filed a joint claim construction brief and an appendix on July 19, 2021. (D.I. 69, 70) The Court conducted a claim construction hearing on August 2, 2021. (*See generally* D.I. 75) (“Tr.”)

I. LEGAL STANDARDS

A. Claim Construction

The ultimate question of the proper construction of a patent is a question of law. *See Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 321 (2015) (citing *Markman v. Westview Instruments, Inc.* (“*Markman II*”), 517 U.S. 370, 388-91 (1996)). “It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal quotation marks omitted). “[T]here is no magic formula or catechism for conducting claim construction.” *Id.* at 1324. The Court is free to attach the appropriate weight to appropriate sources “in light of the statutes and policies that inform patent law.” *Id.*

“[T]he words of a claim are generally given their ordinary and customary meaning,” which is “the meaning that the term would have to a person of ordinary skill in the art

¹ The asserted patents are U.S. Patent Nos. 9,326,362 (“’362 patent”), 9,560,719 (“’719 patent”), 10,136,503 (“’503 patent”), 10,154,564 (“’564 patent”), 10,187,947 (“’947 patent”), 10,225,902 (“’902 patent”), 10,491,032 (“’032 patent”), 10,516,292 (“’292 patent”), 10,667,367 (“’367 patent”), 10,763,691 (“’691 patent”), and 10,770,916 (“’916 patent”).

[("POSA")] in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1312-13 (internal quotation marks omitted). "[T]he ordinary meaning of a claim term is its meaning to the ordinary artisan after reading the entire patent." *Id.* at 1321 (internal quotation marks omitted). The patent "specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

While "the claims themselves provide substantial guidance as to the meaning of particular claim terms," the context of the surrounding words of the claim also must be considered. *Phillips*, 415 F.3d at 1314. Furthermore, "[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment" because "claim terms are normally used consistently throughout the patent." *Id.*

It is likewise true that "[d]ifferences among claims can also be a useful guide." *Id.* "For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." *Id.* at 1314-15. This presumption of claim differentiation is "especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim." *SunRace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003).

It is also possible that "the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor's lexicography governs." *Phillips*, 415 F.3d at 1316. It bears emphasis that, "[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope

using words or expressions of manifest exclusion or restriction.” *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014) (internal quotation marks omitted).

In addition to the specification, a court should “consider the patent’s prosecution history, if it is in evidence.” *Markman v. Westview Instruments, Inc.* (“*Markman I*”), 52 F.3d 967, 980 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996). The prosecution history, which is “intrinsic evidence,” “consists of the complete record of the proceedings before the [U.S. Patent and Trademark Office] and includes the prior art cited during the examination of the patent.” *Phillips*, 415 F.3d at 1317. “[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Id.*

Sometimes, “the district court will need to look beyond the patent’s intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period.” *Teva*, 574 U.S. at 331. “Extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Markman I*, 52 F.3d at 980. For instance, technical dictionaries can assist the court in determining the ordinary and customary meaning of a term because such dictionaries “endeavor to collect the accepted meanings of terms used in various fields of science and technology.” *Phillips*, 415 F.3d at 1318. In addition, expert testimony can be useful “to ensure that the court’s understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field.” *Id.* Nonetheless, courts must not lose sight of the fact that “expert reports and testimony [are]

generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence.” *Id.* Overall, while extrinsic evidence “may be useful to the court,” it is “less reliable” than intrinsic evidence, and its consideration “is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” *Id.* at 1318-19. Where the intrinsic record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308 (Fed. Cir. 1999) (citing *Vitronics*, 90 F.3d at 1583).

Finally, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Renishaw PLC v. Marposs SpA*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). It follows that “a claim interpretation that would exclude the inventor’s device is rarely the correct interpretation.” *Osram GmbH v. Int’l Trade Comm’n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007) (internal quotation marks omitted).

B. Indefiniteness

A patent claim is indefinite if, “viewed in light of the specification and prosecution history,” it fails to inform a POSA “about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014). A claim may be indefinite if the patent does not convey with reasonable certainty how to choose among multiple possible constructions for a particular limitation. *See, e.g., Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1341 (Fed. Cir. 2015). While definiteness is a legal question, any facts underlying an indefiniteness determination must be proved by clear and convincing evidence. *See BASF Corp. v. Johnson Matthey Inc.*, 875 F.3d 1360, 1365 (Fed. Cir. 2017).

III. DISPUTED TERMS²

A. “detection device”³

Plaintiff
“One or more touch and/or touchless devices such as but not limited to an infrared sensor, an electrostatic induction sensor, a conduction-based sensor, a pad, a button, voltage divider or power interruption switch or a conduction rate of a phase controller set by a user that serves as an interface between a human and the controller” ⁴
Defendant
Means-plus-function / Function: “detecting at least one external control signal and converting the at least one external control signal into at least one message carrying sensing signal” / Structure: Indefinite
Court
Means-plus-function / Function: “detecting at least one external control signal and converting the at least one external control signal into at least one message carrying sensing signal” / Structure: Infrared sensor

The parties first dispute whether “detection device” is a means-plus-function term.

Under 35 U.S.C. § 112(f), “[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or

² The Court will adopt the parties’ agreed-upon constructions of three other claim terms: “free-running setting” (claims 1 and 2 of the ’362 patent); “connected in series” (claims 20 and 24 of the ’947 patent, claim 23 of the ’902 patent, claim 2 of the ’032 patent, claim 1 of the ’362 patent, claims 15, 23, 36, and 79-81 of the ’292 patent, claims 1, 2, 59, and 77 of the ’691 patent, claims 1 and 2 of the ’916 patent, and claim 1 of the ’719 patent); and “wherein when the second set of M number LEDs is turned on upon detecting the motion intrusion, the loading and power control unit manages to turn off the first set of N number LEDs” (claim 17 of the ’902 patent and claim 17 of the ’292 patent). Although Vaxcel argues these terms need not be construed, the Court agrees with HeathCo that construing them will be helpful as this case proceeds. (See D.I. 69 at 8-9)

³ This term appears in claims 1, 8, 20, 40, and 53 of the ’503 patent. (D.I. 69 at 9)

⁴ Alternatively, if the Court determines that this term is a means-plus-function term, then Vaxcel agrees the relevant function is “detecting at least one external control signal and converting the at least one external control signal into at least one message carrying sensing signal.” (D.I. 69 at 16) According to Vaxcel, the corresponding structure includes “an infrared sensor, an electrostatic induction sensor, a conduction-based sensor, a pad, a button, voltage divider or power interruption switch.” (Tr. at 12)

acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” When the claim language does not use the word “means,” there is a rebuttable presumption that § 112(f) does not apply. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc in relevant part). Even when the claim language does not use the word “means,” however, “the presumption can be overcome and [§ 112(f)] will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *Id.* (internal quotation marks and brackets omitted). The “essential inquiry” is “whether the words of the claim are understood by [a POSA] to have a sufficiently definite meaning as the name for structure.” *Id.*

The Court concludes that “detection device” is a means-plus-function term subject to § 112(f). In the context of the ’503 patent, “device” is a “nonce word” that does not suggest anything about the claim element’s structure. *See id.* at 1350 (“Generic terms such as . . . ‘device,’ and other nonce words that reflect nothing more than verbal constructs may be used in a claim in a manner that is tantamount to using the word ‘means’ because they typically do not connote sufficiently definite structure and therefore may invoke [§ 112(f)].”) (internal quotation marks omitted). As HeathCo points out, this element is written in “classic means-plus function format” because it uses a generic term followed by its purpose. (*See* D.I. 69 at 11) Indeed, the claim language could have used the term “detection means” to convey precisely the same thing. *See Williamson*, 792 F.3d at 1350.

Because “detection device” is a means-plus-function term, the Court must first determine the claimed function. *See id.* at 1351. HeathCo proposes the function recited in the claim language: “detecting at least one external control signal and converting the at least one external

control signal into at least one message carrying sensing signal.” (*See, e.g.*, ’503 patent at 26:1-4) Vaxcel agrees with this articulation of the claimed function (*see* D.I. 69 at 16), and the Court will adopt it.

Next, the Court must determine whether the ’503 patent discloses sufficient structure that corresponds to the claimed function. *See Williamson*, 792 F.3d at 1351. Vaxcel points primarily to the specification’s discussion of the infrared ray sensor. (*See* D.I. 69 at 17-18) The specification contains a detailed explanation as to how the infrared ray sensor may be used both to detect the external control signal and to convert it into a message carrying sensing signal. (*See* ’503 patent at 7:41-44, 51-54; *id.* at 10:11-65; *id.* at 11:8-21; *id.* at Figs. 2 & 3A) Given the ’503 patent’s extensive teachings, the Court concludes that an infrared sensor is sufficient structure for a “detection device.” HeathCo has not shown that this means-plus-function term is indefinite.

Vaxcel argues, unpersuasively, that the specification discloses other sufficient structures. For example, Vaxcel cites a portion of the specification that suggests that pressing a touch pad or button results in the generation of message carrying sensing signals. (*See id.* at 21:67-22:15) While that portion of the specification indicates that the pad or button performs the claimed function, it does not offer any specific structure for either the pad or the button. It does not, for example, cite any figures in the ’503 patent that contain a pad or button. Vaxcel has not pointed to any other disclosure in the patent that teaches how a pad or button operates, nor is the Court able to locate such a disclosure. Moreover, Vaxcel has not offered any meaningful support for any other structures, which the patent mentions fleetingly. (*See id.* at 25:30-48) (referring to, among other things, voltage dividers and conduction rates)

B. “message carrying sensing signal”⁵

Plaintiff
No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “One or more formatted signals interpretable by a processor, microcontroller or an ASIC (e.g., a signal having a voltage aspect and a timing aspect)”
Defendant
“a signal having at least a first voltage with a first time length and a second voltage with a second time length”
Court
“One or more formatted signals interpretable by a processor, microcontroller or an ASIC (e.g., a signal having a voltage aspect and a timing aspect)”

The only significant difference between the parties’ proposed constructions is that Vaxcel’s construction permits the signal to have only one voltage aspect and one timing aspect, whereas HeathCo’s construction requires at least two voltages and two time lengths.

Vaxcel’s construction is grounded in the claim language. Claim 1 states that the message carrying sensing signal “is characterized with a signal format of a short voltage signal, a long voltage signal, a plurality of short voltage signals, a plurality of long voltage signals or a combination of said short voltage signal and said long voltage signal.” (’503 patent at 26:29-34) In this way, the claim language contemplates that the message carrying sensing signal may have only a single voltage signal: “*a* [i.e., one or more] short voltage signal” or “*a* long voltage signal” (though it may, alternatively, have more than one signal).

The specification does not undermine Vaxcel’s position. It repeatedly explains that the message carrying sensing signal may have “a first voltage with a time length” that corresponds to the time interval that an object is in the detecting zone. (’503 patent at 2:54-58, 2:64-3:1, 3:58-

⁵ This term appears in claims 1, 8, 11, 12, 16, 20, 26, 40, 41, 53, and 56 of the ’503 patent. (D.I. 69 at 20)

62) While those embodiments go on to say that the message carrying sensing signal also has a second voltage corresponding to the object leaving the detecting zone, the specification is clear that those embodiments are only exemplary. The exemplary embodiments are not limiting. *See Phillips*, 415 F.3d at 1320 (reading a limitation from the written description into the claims is “one of the cardinal sins of patent law”) (internal quotation marks omitted).

HeathCo points to one paragraph in the specification, which refers to the “present invention,” as support for its construction. (*See* D.I. 69 at 22) Its reliance on that paragraph is misplaced. The pertinent sentence states that “[t]here are quite a few detection methods . . . that can be applied to the present invention.” This sentence is most naturally read as listing the types of sensors that can be used for detection, not imposing any requirements on message carrying sensing signals. This one sentence does not amount to a clear and unmistakable disclaimer of claim scope. *See, e.g., Luminara Worldwide, LLC v. Liown Elecs. Co.*, 814 F.3d 1343, 1353 (Fed. Cir. 2016). Moreover, nothing in the cited paragraph of the specification purports to require every message carrying sensing signal to have more than one voltage and more than one time length. It says only that time lengths are part of the invention’s “core technology.” (’503 patent at 21:15-19) Vaxcel’s proposed construction incorporates this core technology by acknowledging that the signal may have a voltage aspect and a timing aspect. (*See also* Tr. at 35) (conceding that message carrying sensing signal requires at least first voltage)

C. “external control signal”⁶

Plaintiff
No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “A signal that is generated and processed by the detection device”
Defendant
Indefinite
Court
“A signal that is processed by the [detection device/external control unit]”

At this stage of the case, the Court has not been persuaded that “external control signal” is indefinite. HeathCo admits that its indefiniteness argument does not implicate the “classic” situation in which competing claim constructions may produce conflicting infringement findings yet a POSA has no way to choose between the proposed constructions. (*See* Tr. at 58) Rather, HeathCo argues that plugging in one possible construction for the claim term makes sense, but plugging in a different construction would not make sense. (*See id.*) Claims must be “read in light of the specification delineating the patent.” *Nautilus*, 572 U.S. at 901. HeathCo has provided the Court with no evidence – nor has it even given the Court any reason to think – that a POSA would have difficulty understanding the correct construction of this term.⁷ HeathCo has not demonstrated that “external control signal” is indefinite.⁸

⁶ This term appears in claims 1, 8, 17, 20, 40, and 53 of the ’503 patent, claims 27, 29, and 30 of the ’902 patent, claim 30 of the ’292 patent, claims 1, 7-10, 59, and 65-68 of the ’691 patent, claims 1 and 4 of the ’916 patent, and claim 12 of the ’367 patent. (D.I. 69 at 25)

⁷ HeathCo has not identified who qualifies as a POSA. (*See* Tr. at 60)

⁸ The Court’s ruling on this term today is without prejudice to HeathCo’s ability to press an indefiniteness argument as this case continues, should it believe that it can offer sufficient evidence to meet its burden. *See generally Otsuka Pharm. Co. v. Zenara Pharma Priv. Ltd.*, 2021 WL 3172017, at *3-5 (D. Del. July 27, 2021) (reserving ruling on definiteness until after bench trial).

Turning to Vaxcel’s proposed construction, HeathCo faults it for contemplating that the same detection device would, confusingly, both generate the external control signal and then process it. (D.I. 69 at 29) In response, Vaxcel agreed to drop the “generated” portion of its proposed construction (Tr. at 50), and the Court agrees this change is appropriate. HeathCo also points out that the asserted patents do not all use the term “detection device.” (D.I. 69 at 29) In fact, this term appears only in the ’503 patent, though the other patents use the term “external control unit” to convey essentially the same meaning. (Tr. at 60) Thus, the Court’s construction applies equally to “detection devices” and “external control units.”⁹

D. “loading and power control unit [‘LPCU’]”¹⁰

Plaintiff
No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “A circuit that includes at least a controller in electrical communication with switching circuitry”
Defendant
“a control unit that both controls the switches and controls the average current through the load”
Court
No construction is necessary.

The parties have failed to persuade the Court they have a dispute over claim scope that the Court can or must resolve. They have likewise failed to persuade the Court that either of their proposed constructions would resolve any such dispute. HeathCo’s proposal does not seem

⁹ Notwithstanding that the term may be used differently in claims 1 and 4 of the ’916 patent, the parties have not argued that the Court should construe this term differently for different claims.

¹⁰ This term appears in claims 20 and 21 of the ’947 patent, claims 15-17 of the ’902 patent, claim 1 of the ’032 patent, claims 15-17 and 79 of the ’292 patent, claims 1 and 2 of the ’362 patent, claims 1 and 5 of the ’719 patent, claim 9 of the ’564 patent, claim 12 of the ’367 patent, claims 1 and 59 of the ’691 patent, and claim 1 of the ’916 patent. (D.I. 69 at 32)

to align with HeathCo’s contentions that: (i) the LPCU must “directly” control the load and power (D.I. 69 at 34; Tr. at 69), and (ii) the LPCU must be physically separate from other “units” recited in the claims (D.I. 69 at 35).¹¹ Both parties also suggested modified constructions during the hearing, to which neither party had a full and fair opportunity to respond. (*See* Tr. at 64, 70)

Under the circumstances, the Court has determined that no construction is necessary. If at a later stage of the proceedings either or both parties determine, in good faith, that this term does require construction, they shall approach the Court with their proposed construction(s) and their proposal(s) for how and when the Court should construe the term.

E. “a voltage V across each LED complies with an operating constraint of $V_{th} < V < V_{max}$ featuring electrical characteristics of the LED”¹²

Plaintiff
No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “When an LED is operating, it operates within a voltage range between a minimum threshold voltage required to trigger an LED to start emitting light and a maximum voltage across an LED to avoid damaging the LED that allows each LED to operate adequately and safely”
Defendant
“A voltage V across each LED in the LED load does not fall below V_{th} and does not exceed V_{max} during operation” / V_{th} and V_{max} are indefinite
Court
“A voltage V across each LED in the LED load does not fall below V_{th} and does not exceed V_{max} during operation” / Defendant has not proved by clear and convincing evidence that V_{th} and V_{max} are indefinite.

¹¹ The failure of HeathCo’s proposed construction to fix what HeathCo contends needs to be clarified in the claim language is ultimately immaterial, as the Court is not persuaded that the claims require either the affirmative “direct control” limitation or the negative “physical separation” limitation requested by HeathCo.

¹² This term appears in claim 1 of the ’916 patent, claim 2 of the ’032 patent, claims 1 and 79 of the ’292 patent, claims 1 and 59 of the ’691 patent, claim 23 of the ’902 patent, and claim 20 of the ’947 patent. (D.I. 69 at 38)

Although the parties initially offered different constructions for this term, during the hearing Vaxcel agreed it does not have any problem with HeathCo's proposed construction. (Tr. at 86) The parties' remaining dispute is whether V_{th} and V_{max} are indefinite. (*See id.*) According to HeathCo, V_{th} and V_{max} cannot be reliably determined given the information about light emitting diodes ("LEDs") contained in the corresponding data sheets and given differences among LEDs in particular "bins." (*See, e.g.,* D.I. 69 at 40-42) While HeathCo has provided attorney argument that selecting the maximum V_{max} across an assortment of LEDs is impractical because each LED has its own V_{max} (*see* Tr. at 78-79), it has not provided any expert support, nor has it identified any other basis on which the Court could conclude, by clear and convincing evidence, that a POSA would fail to understand the claims' scope with reasonable certainty. The burden is on HeathCo to prove indefiniteness by clear and convincing evidence, *see BASF*, 875 F.3d at 1365, and at this point HeathCo has not met that burden.

F. "connected in parallel"¹³

Plaintiff
"connection of components within a circuit in a manner in which there are multiple paths between/among which the current is divided and wherein the voltages across each parallel component are equivalent" ¹⁴
Defendant
"connected to common points at each end; not in series"
Court
"connection of components within a circuit in a manner in which there are multiple paths between/among which the current is divided and wherein the voltages across each parallel component are equivalent"

¹³ This term appears in claim 20 of the '947 patent, claim 23 of the '902 patent, claims 1, 2, 59, and 77 of the '691 patent, claims 1 and 2 of the '916 patent, claims 15, 23, 36, 79, and 80 of the '292 patent, and claim 2 of the '032 patent. (D.I. 69 at 46)

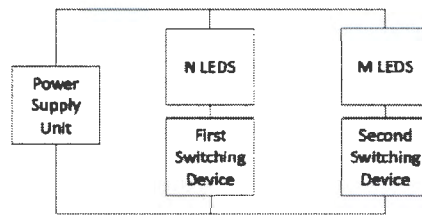
¹⁴ This is Vaxcel's revised construction. (*See* D.I. 69 at 46, 49-50; *see also* Tr. at 90)

The parties dispute whether components that are “connected in parallel” must be connected to common points at both ends. The Court agrees with Vaxcel that HeathCo’s effort to include such a requirement is overly restrictive.

Claim 10 of the ’902 patent contains the following limitation:

wherein the first set of N number LEDS and the second set of M number LEDS are connected in parallel, wherein the first switching device is electrically connected in series between the first set of N number LEDS and the power supply unit, wherein the second switching device is electrically connected in series between the second set of M number LEDS and the power supply unit.

(’902 patent at 16:63-17:3) Vaxcel offers the following simplified depiction of this claim limitation:



(D.I. 69 at 50)

HeathCo disagrees, pointing instead to its own annotated version of Figure 6 as a purported embodiment of claim 10:

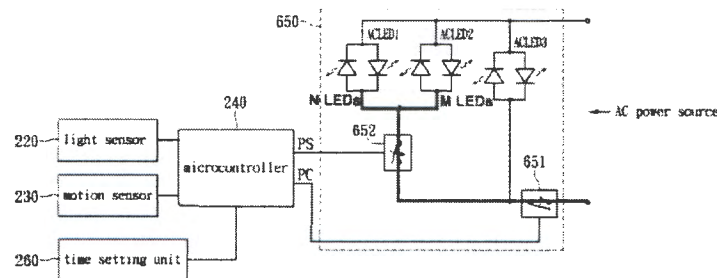


FIG. 6

(*Id.* at 51) Contrary to HeathCo’s view, the language of claim 10 does not appear to describe the arrangement in Figure 6.

Vaxcel finds further support for its construction in the invention's purpose, which is to use two sets of LEDs to create a "two-level security light" with two modes, in which the LEDs emit different color temperature lights. ('902 patent, Abstract) Vaxcel's construction permits the M number LEDs and the N number LEDs to be activated separately, allowing for the two claimed illumination modes. HeathCo's construction would require the M number LEDs and N number LEDs to be either both on or both off, which would defeat the invention's purpose. (*See* Tr. at 94-95)

Multiple dictionaries echo the key aspect of Vaxcel's proposed construction, i.e., that a parallel circuit's current is divided between more than one electrical component. (*E.g.*, D.I. 70-1 at JA-26 (defining "parallel connection" as one in which "there are multiple paths among which the current is divided"); D.I. 70-3 at JA-263 (defining "parallel circuit" as "electrical circuit in which current is split between two or more parallel paths"); *id.* at JA-268 (defining "parallel circuit" as "circuit in which current or flux divides into two or more paths before joining to complete the circuit")) HeathCo points to different dictionary definitions, but they provide little (and plainly insufficient) support for its proposal. (*See* D.I. 70-1 at JA-12 (technical dictionary defining "parallel circuit" as one in which elements, branches, or components are "connected between two points, with one of the two ends of each component connected to each point," where "branches" with "elements in series" may still be parallel); *id.* at JA-71 (computer network definition of "parallel" including connection "between the same pair of nodes"))

G. “wherein the first switching device and the second switching device are connected with the first set of N number LEDs and the second set of M number LEDs”¹⁵

Plaintiff

No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “The first switching device is connected to the first set of N number of LEDs and the second switching device is connected to the second set of LEDs”

Defendant

“The first and second switching devices are each connected with both the first set of N number LEDs and the second set M number LEDs”

Court

“The first switching device is connected to the first set of N number of LEDs and the second switching device is connected to the second set of LEDs”

The Court’s agreement with Vaxcel on this dispute largely follows from its agreement with Vaxcel on the preceding term. The same claim limitation excerpted above in connection with the preceding term also appears in claim 23 of the ’902 patent. Claim 23 depends from claim 15, where the disputed term that the Court is now construing also appears. Claim 23 further requires: (i) “the first set of N number LEDS and the second set of M number LEDs are connected in parallel,” (ii) “the first switching device is electrically connected in series between the first set of N number LEDs and the power supply unit,” and (iii) “the second switching device is electrically connected in series between the second set of M number LEDs and the power supply unit.” (’902 patent at 19:52-59) The Court’s agreement with Vaxcel on the “connected in parallel” term renders HeathCo’s proposal for the instant claim term implausible.

¹⁵ This term appears in claim 15 of the ’902 patent and claim 15 of the ’292 patent. (D.I. 69 at 52)

H. “creation of an aesthetic night scene”¹⁶ / “soft evening light to feature an aesthetic night view around the living area both for indoor and outdoor need”¹⁷ / “soft warm light to feature an aesthetic night view around the living area both for indoor and outdoor need”¹⁸

Plaintiff
No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “at dusk the LED security light is automatically turned on by the photo sensor to perform the low level illumination” ¹⁹
Defendant
Indefinite
Court
Indefinite

Vaxcel first argues that these terms do not require construction because they appear in a nonlimiting “wherein” or “whereby” clause. (Tr. at 112-13) Vaxcel did not raise this argument until the claim construction hearing. Even if it were timely, the contention lacks merit, as the claim language indicates to a POSA that the “creation of an aesthetic night scene” is an important feature of the claims; it is one of “two life-style innovations for performing a life-style lighting solution.” (’947 patent at 18:60-62) Additionally, the “wherein” clause containing the “aesthetic” term was added during prosecution to secure allowance of the terms. (*E.g.*, D.I. 70-2 at JA-191 to -192)

The Court further agrees with HeathCo that “aesthetic” is subjective and, accordingly, the

¹⁶ This term appears in claim 20 of the ’947 patent, claim 1 of the ’032 patent, and claim 79 of the ’292 patent. (D.I. 69 at 55)

¹⁷ This term appears in claim 15 of the ’902 patent. (D.I. 69 at 56)

¹⁸ This term appears in claim 15 of the ’292 patent. (*See* D.I. 69 at 56)

¹⁹ Vaxcel also proposed the following alternative construction: “an effect of the LED security light being automatically turned on at dusk by the photo sensor to perform the low level illumination.” (D.I. 69 at 56-57)

claim term is indefinite. Vaxcel insists “aesthetic” is not subjective because it relates to the “philosophy” or “science” of “beauty and ugliness,” not to whether something is pleasing or displeasing. (Tr. at 113-14; *see also* D.I. 69 at 59) This is unpersuasive, in part because of Vaxcel’s own reasoning elsewhere in its presentation. For instance, in the briefing, Vaxcel acknowledges that patents use “aesthetic” to “differentiate the artful aspect of the light versus the functional navigation.” (D.I. 69 at 59) The Court sees nothing in the patents, however, that would provide a POSA with reasonable certainty as to how to differentiate between artful and functional aspects of light. Accordingly, HeathCo has shown that these claim terms are indefinite. *See Nautilus*, 572 U.S. at 901; *see also Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342 (Fed. Cir. 2005) (holding “aesthetically pleasing” claim limitation was indefinite).

- I. “creation of a navigation capacity similar to a light house for guiding people to safely walk to a destination in an outdoor living area”²⁰ / “create a navigation capacity similar to a light house to help people move to a destination without getting lost or encountering an accident”²¹**

Plaintiff
No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “at dusk the LED security light is automatically turned on by the photo sensor to perform the low level illumination” ²²
Defendant
Indefinite
Court
Indefinite

²⁰ This term appears in claim 20 of the ’947 patent, claim 1 of the ’032 patent, and claim 79 of the ’292 patent. (*See* D.I. 69 at 61; *see also* Tr. at 132-33)

²¹ This term appears in claim 15 of the ’902 patent and claim 15 of the ’292 patent. (*See* D.I. 69 at 61; *see also* Tr. at 132-33)

²² Vaxcel also proposed the following alternative construction: “an effect of the LED security light being automatically turned on at dusk by the photo sensor to perform the low level illumination.” (D.I. 69 at 62)

The Court’s analysis for this term is essentially identical to that described above with respect to the “aesthetic” terms. The “similar to a light house” term is limiting because the claim language emphasizes the importance of this feature and because the patent applicant added it during prosecution to secure allowance of the claims. (*E.g.*, D.I. 70-2 at JA-191 to -192) Further, “similar to a light house,” just like “aesthetic,” is subjective. The patent specification does not explain how to determine whether navigation capacity is sufficiently “similar to a light house” to meet the claim limitation. Nor has Vaxcel offered any plausible method for making such a determination. The Court is persuaded that a POSA would not have reasonable certainty as to the scope of these claims. Accordingly, HeathCo has shown that these claim terms are indefinite. *See Nautilus*, 572 U.S. at 901; *see also ACQIS LLC v. Alcatel-Lucent USA Inc.*, 2015 WL 1737853, at *8-10 (E.D. Tex. Apr. 13, 2015) (holding term “similar in design” indefinite because patentee “was unable to articulate any point at which components . . . would cease to be ‘similar’”).²³

²³ Another problem is that Vaxcel asserts the “similar to a light house” limitation means the same thing as “aesthetic night scene” or “aesthetic night view.” (*Compare* D.I. 69 at 61 *with id.* at 55-56) This is contrary to the general understanding that different claim terms have different meanings. *See generally Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 93 F.3d 1572, 1579 (Fed. Cir. 1996). This further supports that both claim terms are indefinite.

J. “low [light] color temperature” / “high [light] color temperature”²⁴

Plaintiff
No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “LED having a color temperature at or near 2700K” / No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “LED having a color temperature at or near 5000K”
Defendant
Indefinite / Indefinite
Court
Indefinite / Indefinite

HeathCo has again persuaded the Court that a POSA would not have reasonable certainty as to the scope of these claim terms and they are, therefore, indefinite. Vaxcel’s originally proposed constructions (contained in the table above) support this conclusion. Those proposed constructions indicate a low color temperature is “at or near” 2700 K and that a high color temperature is “at or near” 5000 K. Vaxcel points to a single portion of the specification as purportedly providing a POSA reasonable certainty regarding whether an embodiment is sufficiently near these temperatures to meet the claim limitation. (D.I. 69 at 65) That portion of the specification, however, states that “high power lighting sources” may have a color temperature of 5000 K and “low power lighting source[s]” may have a color temperature of 2700 K. (’902 patent at 11:17-20) Those teachings do not necessarily mean that 2700 K and 5000 K are, respectively, considered low and high color temperatures, or provide any guidance as to how “near” those temperatures an embodiment must be to practice the claims.

In addition to its initial constructions, Vaxcel has offered temperature ranges for these terms. (*E.g.*, D.I. 69 at 68; Tr. at 137-38) These ranges are derived entirely from extrinsic

²⁴ Both terms appear in claims 15 and 29 of the ’902 patent, claim 15 of the ’292 patent, claims 1, 59, and 65 of the ’691 patent, and claim 1 of the ’916 patent. (D.I. 69 at 64)

evidence. (See Tr. at 139-40) Vaxcel points to non-patent references indicating a low color temperature could be between 2700 K and 3000 K, while a high color temperature could be between 4000 K and 6500 K. (D.I. 70-4 at JA-354; *id.* at JA-357) Vaxcel also relies on a website – www.lightbulbsdirect.com – which seems to indicate that low color temperatures are typically between 2700 K and 3000 K and high color temperatures are between 3600 K and 5500 K. (D.I. 69 at 64) As can be seen from this summary, Vaxcel’s extrinsic evidence is inconsistent. The Court is persuaded that these claim terms are indefinite. *See generally* *Nautilus*, 572 U.S. at 901; *see also* *Signal IP v. Am. Honda Motor Co.*, 2015 WL 5768344, at *56-58 (C.D. Cal. Apr. 17, 2015) (holding indefinite “relatively high and low efficiency” and similar terms).

K. “much brighter day light”²⁵

Plaintiff
No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “LED having a color temperature at or near 5000K”
Defendant
Indefinite
Court
Indefinite

Vaxcel’s proposed construction of “much brighter day light” is the same as the construction it initially proposed for “high color temperature.” (*Compare* D.I. 69 at 69 *with id.* at 64) This fact, in combination with the reasons the Court gave above in connection with the other “color temperature” terms, establishes that this claim term is also indefinite. A POSA would not know with reasonable certainty how much brighter light must be to be considered “much

²⁵ This term appears in claim 15 of the ’902 patent and claim 15 of the ’292 patent. (D.I. 69 at 69)

brighter.” *See Nautilus*, 572 U.S. at 901. For example, assuming a starting color temperature of 2700 K, it is unclear which temperature near 5000 K must be reached before the light would be considered “much brighter.” (*See Tr.* at 145-46) Vaxcel’s argument that “much brighter day light” is simply the effect of the M number LEDs emitting light with a high color temperature would effectively read this limitation out of the claims, which would be improper. *See Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1237 (Fed. Cir. 2016).

L. “dual effect of security alert by means of creating drastic changes in both light intensity from low to high and light color temperature from warm to cool upon detecting a motion intrusion”²⁶

Plaintiff
No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “Increasing the light intensity and changing the LED color temperature from at or near 2700K to at or near 5000K upon detecting motion”
Defendant
Indefinite
Court
Indefinite

Vaxcel’s proposed construction suffers from the same problem regarding “at or near” 2700 K and “at or near” 5000 K as already discussed. The claim term “drastic” only exacerbates the lack of reasonable certainty a POSA would have as to the scope of the claims. To the extent Vaxcel is contending that a drastic change is merely the consequence of switching from a low color temperature to a high one, such an interpretation risks reading a limitation out of the claims. *See Apple*, 842 F.3d at 1237.

²⁶ This term appears in claim 15 of the ’902 patent and claim 15 of the ’292 patent. (D.I. 69 at 72)

M. “preloaded in a mobile device”²⁷

Plaintiff
No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “Loaded in a mobile device prior to the APP being used for setting an operating parameter”
Defendant
“loaded in a mobile device before the mobile device is purchased or first used”
Court
“loaded in a mobile device before the mobile device is purchased or first used”

Vaxcel’s proposed construction effectively reads the prefix “pre” out the claim term “preloaded.” (*See, e.g.*, D.I. 69 at 78) (Vaxcel: “If a person loads an APP before purchasing the light[,] that can be considered preloaded.”) It is indisputable that an application must be loaded before it can be used on a mobile device. Therefore, the claim requirement that it be *preloaded* would tell a POSA that something other than just the necessary loading must occur. In fact, a POSA would understand that preloading relates to the time in which the application must be loaded, and would specifically tell the POSA the application must be loaded before the mobile device is purchased or first used. HeathCo’s multiple dictionary definitions provide additional support for its proposed construction. (*E.g.*, D.I. 70-3 at JA-275 (“to load . . . information or a program onto a computer before it is sold or used”); *id.* at JA-278 (“already installed on a personal computer at the time of purchase”))

²⁷ This term appears in claims 1 and 9 of the ’564 patent and claim 1 of the ’367 patent. (D.I. 69 at 76)

- N. “when a free setting motion of the free setting operator is ceased, the user interface APP manages to generate the [at least one] operating variable corresponding to [the selection of] the capacity operating rate [being determined] and accordingly operates to transmit a wireless instruction signal carrying a message of the [at least one] operating variable to the lighting device”²⁸

Plaintiff

No construction is necessary. However, if it is deemed that a construction is required then the construction should be: “As a result of the free setting motion of the free setting operator being ceased, for example, after a user removes their finger from a virtual button, the user interface app generates the operating variable corresponding to the selection of the capacity operating rate and transmits a wireless instruction signal carrying a message of the operating variable to the lighting device”

Defendant

“The moment when the free setting motion of the free setting operator is ceased, for example, the moment a user removes their finger from a virtual button, the user interface app generates the operating variable corresponding to the selection of the capacity operating rate and transmits a wireless instruction signal carrying a message of the operating variable to the lighting device”

Court

“As a result of the free setting motion of the free setting operator being ceased, for example, after a user removes their finger from a virtual button, the user interface app generates the operating variable corresponding to the selection of the capacity operating rate and transmits a wireless instruction signal carrying a message of the operating variable to the lighting device”

The primary dispute for this term relates to the first word, “when.” In Vaxcel’s view, “when” implies a cause-and-effect relationship for two events; to HeathCo, “when” means that a first and second event occur instantaneously. The Court agrees with Vaxcel.

The claim language includes the phrase “manages to generate” and the word “accordingly,” which, in context, suggest a cause-and-effect relationship. Moreover, in other parts of the patent, the patentee expressly referred to things happening instantaneously or simultaneously (*e.g.*, ’564 patent at 29:38-48), suggesting that the failure to do so clearly in the

²⁸ This term appears in claim 1 of the ’564 patent and claim 1 of the ’367 patent. (D.I. 69 at 80)

term the Court is now considering means the patentee did not intend that meaning here.

Relatedly, the parties dispute whether the “when” clause permits an intervening action between the ceasing of the free setting motion and the generation of an operating variable. (*See* D.I. 69 at 80-81) The Court concludes that it does not. Such an intervening action would be thought by a POSA to break the causal chain that the Court has agreed with Vaxcel is required (and as is reflected in Vaxcel’s proposal to include “as a result of” in the construction). (*See id.* at 83)

IV. CONCLUSION

The Court will construe the disputed terms as explained above. An appropriate order follows.

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

VAXCEL INTERNATIONAL CO., LTD., Plaintiff, v. HEATHCO LLC, Defendant.	C.A. No. 20-224-LPS
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ORDER

At Wilmington this **22nd** day of **November, 2021**:

For the reasons set forth in the Memorandum Opinion issued this date,

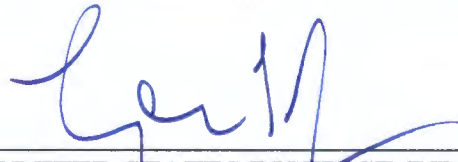
IT IS HEREBY ORDERED that the following claim terms of U.S. Patent Nos. 9,326,362 (“’362 patent”), 9,560,719 (“’719 patent”), 10,136,503 (“’503 patent”), 10,154,564 (“’564 patent”), 10,187,947 (“’947 patent”), 10,225,902 (“’902 patent”), 10,491,032 (“’032 patent”), 10,516,292 (“’292 patent”), 10,667,367 (“’367 patent”), 10,763,691 (“’691 patent”), 10,770,916 (“’916 patent”) are construed as follows:

Claim Term	Court’s Construction
“ free-running setting ” [claims 1 and 2 of the ’362 patent]	“A program that allows a user to set the illumination level as it cycles through a sequence of values within a preset range”
“ connected in series ” [claims 20 and 24 of the ’947 patent; claim 23 of the ’902 patent; claim 2 of the ’032 patent; claim 1 of the ’362 patent; claims 15, 23, 36, and 79-81 of the ’292 patent; claims 1, 2, 59, and 77 of the ’691 patent; claims 1 and 2 of the ’916 patent; claim 1 of the ’719 patent]	“Connected so that the same current passes through each element individually”

<p>“wherein when the second set of M number LEDs is turned on upon detecting the motion intrusion, the loading and power control unit manages to turn off the first set of N number LEDs”</p> <p>[claim 17 of the '902 patent; claim 17 of the '292 patent]</p>	<p>“When the second set of M number LEDs is turned on as a result of motion being detected, the loading and power control unit turns off the first set of N number LEDs”</p>
<p>“detection device”</p> <p>[claims 1, 8, 20, 40, and 53 of the '503 patent]</p>	<p>Means-plus-function / Function: “detecting at least one external control signal and converting the at least one external control signal into at least one message carrying sensing signal” / Structure: Infrared sensor</p>
<p>“message carrying sensing signal”</p> <p>[claims 1, 8, 11, 12, 16, 20, 26, 40, 41, 53, and 56 of the '503 patent]</p>	<p>“One or more formatted signals interpretable by a processor, microcontroller or an ASIC (e.g., a signal having a voltage aspect and a timing aspect)”</p>
<p>“external control signal”</p> <p>[claims 1, 8, 17, 20, 40, and 53 of the '503 patent; claims 27, 29, and 30 of the '902 patent; claim 30 of the '292 patent; claims 1, 7-10, 59, and 65-68 of the '691 patent; claims 1 and 4 of the '916 patent; claim 12 of the '367 patent]</p>	<p>“A signal that is processed by the [detection device/external control unit]”</p>
<p>“loading and power control unit”</p> <p>[claims 20 and 21 of the '947 patent; claims 15-17 of the '902 patent; claim 1 of the '032 patent; claims 15-17 and 79 of the '292 patent; claims 1 and 2 of the '362 patent; claims 1 and 5 of the '719 patent; claim 9 of the '564 patent; claim 12 of the '367 patent; claims 1 and 59 of the '691 patent; claim 1 of the '916 patent]</p>	<p>No construction is necessary.</p>
<p>“a voltage V across each LED complies with an operating constraint of $V_{th} < V < V_{max}$ featuring electrical characteristics of the LED”</p> <p>[claim 1 of the '916 patent; claim 2 of the '032 patent; claims 1 and 79 of the '292 patent; claims 1 and 59 of the '691 patent; claim 23 of the '902 patent; claim 20 of the '947 patent]</p>	<p>“A voltage V across each LED in the LED load does not fall below V_{th} and does not exceed V_{max} during operation” / Defendant has not proved by clear and convincing evidence that V_{th} and V_{max} are indefinite.</p>
<p>“connected in parallel”</p>	<p>“connection of components within a circuit in a manner in which there are multiple paths between/among which the</p>

<p>[claim 20 of the '947 patent; claim 23 of the '902 patent; claims 1, 2, 59, and 77 of the '691 patent; claims 1 and 2 of the '916 patent; claims 15, 23, 36, 79, and 80 of the '292 patent; claim 2 of the '032 patent]</p>	<p>current is divided and wherein the voltages across each parallel component are equivalent"</p>
<p>“wherein the first switching device and the second switching device are connected with the first set of N number LEDs and the second set of M number LEDs”</p> <p>[claim 15 of the '902 patent; claim 15 of the '292 patent]</p>	<p>“The first switching device is connected to the first set of N number of LEDs and the second switching device is connected to the second set of LEDs”</p>
<p>“creation of an aesthetic night scene” / “soft evening light to feature an aesthetic night view around the living area both for indoor and outdoor need” / “soft warm light to feature an aesthetic night view around the living area both for indoor and outdoor need”</p> <p>[claim 20 of the '947 patent; claim 1 of the '032 patent; claims 15 and 79 of the '292 patent; claim 15 of the '902 patent]</p>	<p>Indefinite</p>
<p>“creation of a navigation capacity similar to a light house for guiding people to safely walk to a destination in an outdoor living area” / “create a navigation capacity similar to a light house to help people move to a destination without getting lost or encountering an accident”</p> <p>[claim 20 of the '947 patent; claim 1 of the '032 patent; claims 15 and 79 of the '292 patent; claim 15 of the '902 patent]</p>	<p>Indefinite</p>
<p>“low [light] color temperature” / “high [light] color temperature”</p> <p>[claims 15 and 29 of the '902 patent; claim 15 of the '292 patent; claims 1, 59, and 65 of the '691 patent; claim 1 of the '916 patent]</p>	<p>Indefinite / Indefinite</p>
<p>“much brighter day light”</p> <p>[claim 15 of the '902 patent; claim 15 of the '292 patent]</p>	<p>Indefinite</p>
<p>“dual effect of security alert by means of creating drastic changes in both light intensity from low to high and light color temperature</p>	<p>Indefinite</p>

<p>from warm to cool upon detecting a motion intrusion”</p> <p>[claim 15 of the '902 patent; claim 15 of the '292 patent]</p>	
<p>“preloaded in a mobile device”</p> <p>[claims 1 and 9 of the '564 patent; claim 1 of the '367 patent]</p>	<p>“loaded in a mobile device before the mobile device is purchased or first used”</p>
<p>“when a free setting motion of the free setting operator is ceased, the user interface APP manages to generate the [at least one] operating variable corresponding to [the selection of] the capacity operating rate [being determined] and accordingly operates to transmit a wireless instruction signal carrying a message of the [at least one] operating variable to the lighting device”</p> <p>[claim 1 of the '564 patent; claim 1 of the '367 patent]</p>	<p>“As a result of the free setting motion of the free setting operator being ceased, for example, after a user removes their finger from a virtual button, the user interface app generates the operating variable corresponding to the selection of the capacity operating rate and transmits a wireless instruction signal carrying a message of the operating variable to the lighting device”</p>


 UNITED STATES DISTRICT JUDGE