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6 **IN THE UNITED STATES DISTRICT COURT**
7 **FOR THE DISTRICT OF ARIZONA**
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9 Ultra-Lit Tree Company,
10 Plaintiff,

11 v.

12 Simple Living Solutions LLC,
13 Defendant.
14

No. CV-19-05340-PHX-DJH

ORDER

15 Pending before the Court in this patent case is the matter of claim construction. The
16 parties filed a Joint Claim Construction Chart (Doc. 72), after which Plaintiff Ultra-Lit Tree
17 Co. (“Ultra-Lit”) filed its Opening Brief (Doc. 73). Defendant Simple Living Solutions
18 LLC (“Simple Living”) filed a Response Brief (Doc. 74), and Ultra-Lit filed a Reply Brief
19 (Doc. 75). On March 30, 2021, the Court conducted a *Markman* hearing (Doc. 81). *See*
20 *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996). This Order sets forth the
21 Court’s constructions of the disputed terms and phrases.

22 **I. Background**

23 This case is about light testers. Specifically, it is about devices that test the strings
24 of lights commonly seen during the holiday season. Individual lights on those strings may
25 malfunction, and Ultra-Lit sells devices that identify where in the string the bad bulb lies.
26 (Doc. 1 at ¶ 9). Not all light strings work in the same way, and so they require different
27 testing devices.

28 One of Ultra-Lit’s devices, the “LED Keeper,” is designed to identify malfunctions

1 in strings of light emitting diodes, LEDs for short. (*Id.* at ¶ 13). Ultra-Lit’s customers call
2 this product the “Yellow Gun.” (*Id.* at ¶ 15). As that name implies, it is a yellow, handheld
3 device, activated with a trigger. Ultra-Lit owns the Patent that the Yellow Gun practices,
4 LED Light String Diagnostic and Repair System, U.S. Patent No. 9,500,719 (filed Nov. 1,
5 2012) (the “’719 Patent”). (*Id.* at ¶¶ 23, 26). Ultra-Lit alleges that Simple Living, which
6 sells a green, gun-shaped device capable of testing LED light strings, has infringed on the
7 ‘719 Patent. (*Id.* at ¶¶ 61–89).

8 The Yellow Gun works by connecting to the light string and applying power to see
9 which bulbs illuminate and which do not. Beyond this general description, the Court need
10 not dive into the particulars of how the ‘719 Patent operates, except to say something about
11 electrical power. The ‘719 Patent discusses how the device would use both alternating
12 current and direct current, AC and DC. *See, e.g.*, ‘719 Patent, col. 23 ll. 37–44. In addition,
13 the Patent delves into how the device may use more nuanced types of electrical current
14 such as “full-wave rectified waveform” and “half-wave cycle” power. *See id.* at figs. 4a;
15 5b.

16 Based on the parties’ remarks at the *Markman* hearing, there is no dispute that full-
17 wave rectified waveform is a form of AC power. However, the parties do seem to dispute
18 whether half-wave cycles are properly construed as AC or DC power. At the *Markman*
19 hearing, counsel for Simple Living referred to this type of current as DC power, while
20 counsel for Ultra-Lit characterized it as AC power. The parties do not explicitly ask the
21 Court to interpret what AC or half-wave cycles mean, but it is useful to note this
22 disagreement at the outset. With that being said, the Court will proceed to interpret the
23 contested terms and phrases.

24 **II. Legal Standard**

25 The meaning and scope of a patent’s claims are determined as a matter of law.
26 *Markman*, 517 U.S. at 372. Courts normally interpret terms according to their “ordinary
27 and customary” meaning as a person with ordinary skill in the craft would understand them
28 at the time of invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (*en*

1 *banc*). Courts assume the skilled person reads claims in the context of the particular claim
2 and in context of the entire patent. *Id.* Every term is not necessarily technical. Sometimes
3 the skilled person and “lay judges” find a term’s meaning “readily apparent” and apply the
4 “widely accepted meaning of commonly understood words.” *Id.* at 1314.

5 The “ordinary and customary” meaning rule has only two exceptions: “1) when a
6 patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee
7 disavows the full scope of a claim term either in the specification or during prosecution.”
8 *Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). To act
9 as a lexicographer, the patentee must clearly express an intent to redefine the term and
10 provide a definition that differs from the plain and ordinary meaning. *Id.* (citing *CCS*
11 *Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002); *Helmsderfer v.*
12 *Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1381 (Fed. Cir. 2008)). To limit a term’s
13 meaning, the patentee must include “expressions of manifest exclusion or restriction,
14 representing a clear disavowal of claim scope.” *Id.* at 1366 (quoting *Teleflex, Inc. v. Ficosa*
15 *N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002)). The standard to satisfy both of these
16 exceptions is “exacting.” *Id.*

17 A court interpreting claims starts with “the words of the claims themselves”
18 *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed.
19 Cir. 2004). If a term in a claim contains an express limitation regarding the term, then the
20 term itself should not be interpreted to include that limitation. *Phillips*, 415 F.3d at 1315.
21 For example, the term “‘steel baffles’ . . . strongly implies that the term ‘baffles’ does not
22 inherently mean objects made of steel.” *Id.*

23 When looking at several claims, the doctrine of claim differentiation presumes
24 “different words used in different claims result in a difference in meaning and scope for
25 each of the claims.” *Clearstream Wastewater Sys., Inc. v. Hydro-Action, Inc.*, 206 F.3d
26 1440, 1446 (Fed. Cir. 2000). This presumption is “at its strongest” when a limitation
27 sought to be construed into an independent claim is already in a dependent claim.
28 *InterDigital Commc’ns, LLC v. Int’l Trade Comm’n*, 690 F.3d 1318, 1324 (Fed. Cir. 2012)

1 (citing *Liebel–Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004)). For
2 example, if an independent claim uses the term “code” and the subsequent dependent claim
3 uses the term “spreading code,” there is a “powerful argument *against* construing the term
4 ‘code’ restrictively, to mean ‘spreading code.’” *Id.* (emphasis added). This argument may
5 be overcome by “strong contrary evidence such as definitional language in the patent or a
6 clear disavowal of claim scope” *Id.*

7 Courts also turn to the patent specifications and descriptions when deciding how to
8 construe claims. *Innova/Pure Water, Inc.*, 381 F.3d at 1116; *see also Slimfold Mfg. Co.,*
9 *Inc. v. Kinkead Indus., Inc.*, 810 F.2d 1113, 1116 (Fed. Cir. 1987) (“Claims are not
10 interpreted in a vacuum, but are part of and are read in light of the specification.”). While
11 specifications can help understand what a claim means, a court cannot “read a limitation
12 into a claim from the specification.” *Innova*, 381 F.3d at 1117. In other words, “the written
13 description will not be used to limit claim language that has broader effect.” *Id.* Again,
14 this is unless the two exceptions mentioned above, definitional language or disavowal of
15 scope, are present in the specification. *Id.*

16 Ultimately, “[t]he construction that stays true to the claim language and most
17 naturally aligns with the patent’s description of the invention will be, in the end, the correct
18 construction.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed.
19 Cir. 1998).

20 **III. Construction of Disputed Terms**

21 **a. Power Conversion Module**

22 The term “power conversion module” appears in Claims 1 and 19. ‘719 Patent col.
23 23 l. 37; col. 26 l. 23. In Claim 1, the term appears as follows:

24 [A] *power conversion module* electrically coupled to the power source, the
25 power conversion module being configured to receive the DC electrical
26 power, convert the DC electrical power to an AC electrical power, and
27 provide the AC electrical power to a first output and a second output, the AC
28 electrical power being configured to illuminate one or more of the plurality
of light emitting diodes

Id. at col 23 ll. 37–44 (emphasis added). Claim 19 describes “a power conversion module

1 for providing an electrical power configured to illuminate one or more of the plurality of
2 light emitting diodes via the probe” *Id.* at col. 26 ll. 22–24.

3 For both Claims 1 and 19, Ultra-Lit argues that the term should be construed with its
4 plain and ordinary meaning or as “a module that converts power.” (Doc. 72 at 2). Simple
5 Living argues it should be construed as “electronic circuitry for processing the electrical
6 power received from the electrical power source so as to provide AC power for use by the
7 diagnostic device.” (*Id.*)

8 Ultra-Lit argues that two problems arise from Simple Living’s proposed
9 construction. First, it argues Simple Living’s definition implies the power conversion
10 module *must* “provide AC power for use by the diagnostic device.” (Doc. 73 at 6). The
11 second problem Ultra-Lit identifies in Simple Living’s definition is that nothing in the claim
12 requires the AC power be “for use by the diagnostic device.” (*Id.*)

13 The term’s context in Claim 1 says the power conversion module is “configured to
14 receive [and] convert the DC electrical power to an AC electrical power.” ‘719 Patent col.
15 23 ll. 39–40. This implies that the term “power conversion module” does not inherently
16 mean a device that converts DC electrical power to AC electrical power. *See Phillips*, 415
17 F.3d at 1315 (noting that the term “‘steel baffles’ . . . strongly implies that the term ‘baffles’
18 does not inherently mean objects made of steel”).

19 This implication finds support in the way Claim 19’s uses “power conversion
20 module.” *See id.* (noting that terms normally are used consistently throughout a patent).
21 Claim 19, an Independent Claim, says nothing about the module’s configuration—which
22 kind of power is being converted to which. In Dependent Claim 20, however, the ‘719
23 Patent states Independent Claim 19’s power conversion module is configured to turn DC
24 into AC. ‘719 Patent col. 26 ll. 43–48. By narrowing the term in Claim 20, the natural
25 implication is that Claim 19’s use of “power conversion module” is *not* limited to a module
26 that converts DC to AC. *See InterDigital Commc’ns*, 690 F.3d at 1324 (“The doctrine of
27 claim differentiation is at its strongest in this type of case, ‘where the limitation that is
28 sought to be ‘read into’ an independent claim already appears in a dependent claim.’”)

1 (citation omitted)).

2 Simple Living’s definition also urges the Court to construe the term as “electronic
3 circuitry for processing the electrical power received from the electrical power source.”
4 (Doc. 72 at 2). This language appears to be lifted from one of the ‘719 Patent’s
5 descriptions, which says the “power conversion module *includes* electronic circuitry for
6 processing the electrical power received from the electrical power source” ‘719 Patent
7 col. 5 ll. 63–67 (emphasis added). By the Patent’s own description, the power conversion
8 module is more than “electronic circuitry for processing the electrical power received from
9 the electrical power source.” The Court declines to commit one of the “cardinal sins of
10 patent law—reading a limitation from the written description into the claims.” *SciMed Life*
11 *Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1340 (Fed. Cir. 2001); *see*
12 *also Innova*, 381 F.3d at 1117. In addition, Simple Living does not explain in its briefing
13 why the court should include “for use by the diagnostic device,” or what this descriptor
14 means. It would appear from the claim’s context that the LED lights are using the AC
15 power, not the device. *See* ‘719 Patent col. 23 ll. 42–44 (stating that “. . . the AC electrical
16 power being configured to illuminate one or more of the plurality of light emitting diodes”).
17 Finally, Simple Living does not point to anything that would warrant deviating from the
18 term’s ordinary and customary meaning. *See Thorner*, 669 F.3d at 1365.

19 The Court construes “power conversion module” in Claims 1 and 19 to mean “a
20 module that converts power.”

21 **b. First/Second Output**

22 The terms “first output” and “second output” appear in Claims 1 and 20. ‘719 Patent
23 col. 23 ll. 41–42; col. 26 ll. 46–47. Ultra-Lit argues these terms should be construed with
24 their plain and ordinary meanings or “an output that is distinct from the probe and the
25 socket.” (Doc. 72 at 2). Simple Living argues output be construed as the “end point of the
26 power conversion module where the electrical power suitable for use by the diagnostic
27 device is provided,” or the “first/second connections from the power conversion module to
28 the distinct probe/socket, wherein the electrical power suitable for use by the diagnostic

1 device is provided.” (Doc. 74 at 9).

2 Both parties agree that “output” cannot include “probe” or “socket.” (*Id.*; Doc. 74
3 at 8). Indeed, the Claims 1 and 20 contemplate that the probe and sockets themselves are
4 connected to the first and second outputs, indicating that the outputs are distinct elements.
5 *See, e.g.*, ‘719 Patent col. 23 ll. 45–48 (noting “a probe electrically coupled to the first
6 output . . . an electrical socket electrically coupled to the second output” and “an electrical
7 socket coupled to the second output”). The Court agrees, and it finds that the skilled person
8 would also understand “output,” as used in Claims 1 and 20, to not include the probe or
9 socket.

10 Simple Living’s proposed constructions include “where the electrical power
11 suitable for use by the diagnostic device is provided” or some variation thereof. But it is
12 not clear to the Court why this added language is necessary to define what an *output* is. It
13 may be that an output fulfills this role in the context of the Patent, but it is not inherent to
14 the nature of outputs to provide power for use by diagnostic devices. *See Phillips*, 415
15 F.3d at 1315.

16 Simple Living also suggests that the outputs function as “‘connections’ between the
17 power conversion module and the probe or socket.” (Doc. 74 at 8). During the *Markman*
18 hearing, counsel for Ultra-Lit argued that equating the output to a line connecting the power
19 conversion module to the probe, for example, would be too broad because the claim
20 language contemplates a separate connection between the outputs and the probes or
21 sockets. As stated in its brief, Ultra-Lit argued against equating an output to a connection
22 “[t]o the extent Simple Living is attempting to read in a requirement that the outputs are
23 anything more than ‘electrically coupled’ to the probe or socket” (Doc. 75 at 7). Ultra-
24 Lit’s counsel also argued that the output could not mean a single “end point” on the power
25 conversion module because that would be too narrow of a definition. As stated in its
26 briefing, Ultra-Lit concedes that an “‘output’ *could* be a point or even an end point of the
27 power conversion module,” but it argues that some embodiments show the output could be
28 more than a single point. (Doc. 73 at 12) (emphasis in original). In short, the ‘719 Patent

1 presents a riddle: an output is not necessarily a point or a line between points, but something
2 in between.

3 To resolve this apparent paradox, the court will construe “output” as “the place
4 where electrical power leaves that is distinct from the probe or socket.”

5 **c. In response to the AC electrical power provided to the LED light string**

6 The phrase, “in response to the AC electrical power provided to the LED light
7 string,” appears in Claim 1.

8 A diagnostic device for identifying a defect in a light emitting diode (LED)
9 light string, the LED light string including a conductor disposed within an
10 insulation layer and a plurality of light emitting diodes, the diagnostic device
11 comprising: . . . a probe electrically coupled to the first output of the power
12 conversion module . . . *wherein* the probe is configured to electrically couple
13 to the conductor of the LED light string and the electrical socket is configured
14 to electrically couple to a plug of the LED light string *such that* a first portion
15 of the LED light string is illuminated and a second portion of the LED light
16 string is not illuminated *in response to the AC electrical power provided to*
17 *the LED light string* when the probe is electrically coupled to the conductor
18 of the LED light string and the electrical socket is electrically coupled to the
19 plug of the LED light string

20 ‘719 Patent col. 23 ll. 30–58 (emphasis added). Ultra-Lit argues that this phrase needs no
21 construction because it is not limiting. (Doc. 72 at 2). Simple Living disagrees and argues
22 it should be construed as “AC electrical power flowing through the LED light string
23 causing the LEDs to illuminate.” (*Id.*)

24 The central dispute for this claim is whether the phrase describes the device’s result
25 or a process therein. If a claim only expresses the invention’s “intended result,” then that
26 part of the claim is not limiting. *Tex. Instruments Inc. v. U.S. Int’l Trade Comm’n*, 988
27 F.2d 1165, 1172 (Fed. Cir. 1993). Such expressions are sometimes called “whereby
28 clauses,” which state the result of what an invention does, and this is not limiting because
a result is not patentable. *Israel v. Cresswell*, 166 F.2d 153, 156 (C.C.P.A. 1948). Courts
have applied the underlying principle expressed in *Israel* to other clauses, including “such
that” clauses. *See C & C Jewelry MFG., Inc. v. West*, 2010 WL 2681921, at *4 (N.D. Cal.
July 6, 2010); *Ideal Instruments, Inc. v. Rivard Instruments, Inc.*, 498 F. Supp. 2d 1131,

1 1196–97 (N.D. Iowa 2007); *Del. Display Grp. LLC v. Lenovo Grp. Ltd*, 2015 WL 6870031,
2 at *4 (D. Del. Nov. 6, 2015).

3 The question is what “in response to the AC electrical power provided to the LED
4 light string” adds to Claim 1. If nothing, then it simply describes a result and is not limiting;
5 if something, then it is limiting. *See Tex. Instruments Inc.*, 988 F.2d at 1172. Ultra-Lit
6 argues that the phrase at issue is not a limitation, but “merely . . . a result of the invention.”
7 (Doc. 73 at 14). It points to the “such that” preceding the phrase and argues that this type
8 of clause is meant illustrate the ‘719 Patent’s result. (*Id.*) Simple Living argues that phrase
9 “is the process that the device performs. . . .” and argues that the phrase is properly read
10 as part of the “wherein” clause. (Doc. 74 at 5). Nowhere in Simple Living’s briefing does
11 it address the “such that” clause, which Ultra-Lit originally identified in its Opening Claim
12 Construction Brief. (*See* Doc. 73 at 13).

13 Upon reading the claim, the Court finds that the phrase “in response to the AC
14 electrical power provided to the LED light string” is properly construed as part of the “such
15 that” clause. Well before reaching the “such that” clause, Claim 1 notes “AC electrical
16 power being configured to illuminate one or more” lights. Therefore, the “such that” clause
17 adds nothing to the claim except to clarify why certain portions of the LED strand are
18 illuminated, which is the intended result. Because this phrase is not limiting, it needs no
19 construction.

20 **d. In response to the providing the electrical power**

21 Finally, Claim 19 contains the phrase “in response to the providing the electrical
22 power” ‘719 Patent col. 26 l. 36. Ultra-Lit argues this term should be afforded its plain
23 and ordinary meaning. (Doc. 72 at 2). Simple Living argues it should be construed as “AC
24 electrical power flowing through the LED light string causing the LEDs to illuminate.”
25 (*Id.*)

26 As the Court noted when discussing “power conversion module,” Claim 19 does not
27 specify that the electrical power sent to the light string needs to be AC power. That
28 specification comes in Dependent Claim 20, which implies that the electrical power

1 mentioned in Claim 19 has a broader meaning. *See InterDigital Commc 'ns, LLC*, 690 F.3d
2 at 1324.

3 Simple Living argues that the power in question here must be AC power, not DC
4 power, because Claim 1 specifies that AC power is provided to the LED light string and
5 that DC power would fail to illuminate any of the bulbs. (Doc. 74 at 6). Ultra-Lit contests
6 this binary view of AC and DC power. It argues the '719 Patent's disclosed embodiments
7 are not limited to "full-wave rectified waveform," which is the most common example of
8 AC electrical power. (Doc. 75 at 12). Ultra-Lit notes that Figure 4B in the '719 Patent
9 illustrates the device only supplying "half-wave cycles" to the LED light strands. (*Id.*)
10 This half-wave cycle current, according to Ultra-Lit's expert, lies in sort of middle-ground
11 between AC or DC and could be characterized as either form of power. (Doc. 75-1 at ¶ 6).
12 And, as noted above, the parties do characterize this power differently. In any event, the
13 Court finds that to the extent Simple Living argues the electrical power here must
14 necessarily be construed as full rectified waveform AC power, such a construction is too
15 narrow and belied by the '719 Patent's examples. *See Slimfold*, 810 F.2d at 1116 (noting
16 the importance of a patent's examples in interpreting its claims).

17 Therefore, the Court shall construe "in response to the providing the electrical
18 power" with its plain and ordinary meaning. *See Phillips*, 415 F.3d at 1314.

19 Accordingly,

20 **IT IS HEREBY ORDERED** that the parties shall adopt the constructions of the
21 contested terms and phrases as described in this Order.

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IT IS FURTHER ORDERED that the parties shall jointly file a proposed schedule to govern the remainder of this action within fourteen (14) days of this Order. The proposal shall include: the last day to serve final infringement contentions, completion of fact discovery on liability, last day to serve opening expert reports, last day to serve rebuttal expert reports, close of expert discovery, and the dispositive motion deadline.

Dated this 3rd day of June, 2021.



Honorable Diane J. Humetewa
United States District Judge