

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

JIAXING SUPER LIGHTING ELECTRIC
APPLIANCE CO., LTD. AND OBERT,
INC.,

Plaintiffs,

v.

CH LIGHTING TECHNOLOGY CO.,
LTD., ELLIOTT ELECTRIC SUPPLY
INC., AND SHAOXING RUISING
LIGHTING CO., LTD.,

Defendants.

Case No. 6:20-CV-00018-ADA

**DEFENDANTS' OPPOSED MOTION FOR JUDGMENT AS A MATTER OF LAW
UNDER FEDERAL RULE OF CIVIL PROCEDURE 50(b)**

Jeffrey A. Lamken (*Pro Hac Vice*)
California Bar No. 154217
jlamken@mololamken.com
Caleb Hayes-Deats (*Pro Hac Vice*)
New York Bar No. 5029384
chayes-deats@mololamken.com
MOLOLAMKEN LLP
600 New Hampshire Ave. N.W., Suite 500
Washington, D.C. 20037
Tel.: (202) 556-2000
Fax: (202) 556-2001

Attorneys for Defendants

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Defendants CH Lighting, Elliott Electric Supply Inc., and Shaoxing Ruising Lighting Co., Ltd. (together, “CH”) respectfully move for judgment as a matter of law under Fed. R. Civ. P. 50(b). This case concerns LED tube lamps, a product that existed for years before any patent-in-suit issued. The patents purport to cover two putative differences from the prior art: gluing an LED strip or light-diffusion film directly to a lamp’s tube, or implementing a shock-protection system that (at best) reversed existing technologies’ order of operations. In each instance, however, preexisting devices already employed those developments or rendered them obvious.

Plaintiffs sought to distract the jury from that evidence and inflame it by attacking opposing counsel: They urged that CH’s decision to focus primarily on invalidity, rather than infringement, was unprecedented (even though it is commonplace). They argued that prior counsel’s consideration of challenges to the forum—which this Court later found “standard”—represented a “strategy” of delay and avoidance motivated by a lack of defenses. The resulting verdict was not supported by the evidence. The patents were upheld as valid despite lacking meaningful or inventive differences from preexisting technologies. The jury found two devices to infringe notwithstanding unrebutted evidence that they did not practice the patent, as interpreted by Plaintiffs’ own invalidity expert. And CH was deemed willful based on conduct that occurred years after infringement allegedly began, and which the Court, based on its experience with patent litigation, found Plaintiffs had overstated.

BACKGROUND

LED tube lamps have been available on the market since at least 2014. ECF No. 237 (“Day 1 Tr.”) at 194:23-25. Plaintiffs accused CH of infringing eight different patents, ECF No. 21, and CH disputed validity and infringement for each. ECF No. 67. Before trial, both sides agreed to narrow their contentions. Plaintiffs dropped all but three patents—U.S. Patent Nos. 9,939,140 (“the ’140 patent”), 10,295,125 (“the ’125 patent”), and 10,352,540 (“the ’540

patent”)—and CH agreed to focus on invalidity defenses for all products except those using Lumixess chips, for which they also challenged infringement. ECF No. 161-2 at 1.

Because LED tube lamps had existed for years, CH argued at trial that the asserted claims of the patents-in-suit were invalid as anticipated or obvious. Plaintiffs urged that each patent improved on prior technology. The ’140 patent, in their view, disclosed a new method of protecting against shocks during installation. Decl. of Caleb Hayes-Deats on August 26, 2022 (“Hayes-Deats Decl.”) Ex. 13 (“JX1”). But Plaintiffs did not dispute that prior tube lamps also offered shock protection, a feature required for UL certifications. Day 1 Tr. 194:23-195:18; ECF No. 238 (“Day 2 Tr.”) at 128:18-25. CH urged that three prior art disclosures protected against shocks using the same or a substantially similar method. Hayes-Deats Decl. Ex. 21 (“DX65”), *id.* Ex. 22 (“DX67”), *id.* Ex. 23 (“DX68”). For the ’125 patent, Plaintiffs argued that it departed from prior technology by affixing the LED light strip directly to the lamp’s tube. *Id.* Ex. 14 (“JX2”). The ’540 patent, in turn, glued a “diffusion film” to the tube and required parts contained in the lamp’s end cap to be “stacked sequentially in a radial direction.” *Id.* Ex. 15 (“JX3”) at 18:20-50. CH argued that prior technology had included these features as well. *Id.* Ex. 4 (“Lebby DX”); *id.* Ex. 24 (“DX56”); *id.* Ex. 25 (“DX60”); Day 2 Tr. 271:22-309:14.

Throughout trial, Plaintiffs’ counsel focused less on the merits than on CH’s counsel. ***Fifteen*** times he declared that CH had “admitted” infringement. Day 1 Tr. 23:25-24:4, 29:13-15, 36:4-11, 36:5-37:7, 40:25-41:4, 175:22-24; Day 2 Tr. 45:2-3, 136:1-5, 136:21-25, 145:11-15, 146:6-11, 250:20-22; ECF No. 240 (“Day 4 Tr.”) at 32:20-24, 41:10-18, 65:20-25. “In my almost 25 years of doing this,” he claimed, “I’ve never been in a case with those facts.” Day 1 Tr. 23:25-24:1. Plaintiffs’ counsel argued that CH tried to “avoid and delay the lawsuit” because “they have no legitimate defenses,” Day 4 Tr. 35:4-15, 43:17-20, invoking a privileged

document the Court later found to describe “conduct [that] is not far from standard operating procedure for foreign defendants in a patent infringement case,” ECF No. 286 at 28.

Defendants timely moved for judgment as a matter of law (“JMOL”), which the Court denied. ECF No. 239 (“Day 3 Tr.”) at 67:22-71:10. The jury subsequently awarded over \$13 million in damages and found willful infringement by two Defendants. ECF No. 230.

ARGUMENT

I. STANDARD

When a party has been “fully heard on an issue,” but failed to present a “legally sufficient evidentiary basis” for a reasonable jury to find in its favor, its opponent is entitled to JMOL. Fed. R. Civ. P. 50(a). JMOL should be granted when the movant’s evidence is “uncontradicted and unimpeached.” *Evans v. Ford Motor Co.*, 484 F.3d 329, 334 (5th Cir. 2007). “[C]onclusory, unsupported assertions,” even by an expert, cannot defeat JMOL. *Kampen v. Am. Isuzu Motors, Inc.*, 157 F.3d 306, 318 (5th Cir. 1998) (en banc).

II. THE ASSERTED CLAIMS OF THE ’125, ’140, AND ’540 PATENTS ARE INVALID

Defendants are entitled to JMOL on invalidity. A patent is invalid as “anticipated” if clear-and-convincing evidence shows that, at the time the patent application was filed, the “claimed invention” was already “available to the public” as “patented,” “described in a printed publication,” or available for “sale.” 35 U.S.C. § 102(a); *Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 974-75 (Fed. Cir. 2010). A prior disclosure anticipates when it shows “all elements of the claim,” as “‘arranged as in the claim.’” *NetMoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008).

A claim is also invalid if “differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious” to a skilled artisan. 35 U.S.C. § 103; *Endo Pharms. Inc. v. Actavis LLC*, 922 F.3d 1365, 1372-73 (Fed. Cir. 2019). A

claim is obvious when skilled artisans “‘would have been motivated to combine or modify the teachings in the prior art and would have had a reasonable expectation of success in doing so.’” *Id.* Courts also consider “secondary evidence of non-obviousness.” *Pressure Prods. Med. Supplies, Inc. v. Greatbatch Ltd.*, 599 F.3d 1308, 1319 (Fed. Cir. 2010).

A. The ’540 Patent Is Invalid

Plaintiffs asserted claims 13 and 14 of the ’540 patent. ECF No. 286 at 3. Claim 13 is an independent claim reciting an “LED tube lamp” with: (1) a “main body” and two “rear end regions”; (2) “two end caps respectively sleeving the two rear end regions” and having certain features; (3) “an LED light strip disposed on an inner circumferential surface of the main body”; (4) a “power supply” with a “circuit board” and other characteristics; (5) an “adhesive” attaching the end caps to the “rear end regions”; and (6) a “diffusion film disposed on the glass lamp tube” so that the light passes “through the inner surface of the glass lamp tube and then . . . through the diffusion film.” JX3 at 18:20-46. Dependent Claim 14 adds that “a portion of the circuit board, one of the rear end regions, the adhesive and one of the lateral wall [of the end cap] are stacked sequentially in a radial direction.” *Id.* at 18:47-50.

The prior art renders those claims obvious. Day 2 Tr. 293:14-306:11; Lebby DX at 42-69. Two separate sets of prior art references make that clear: (1) U.S. Patent Nos. 9,970,640 B2 (“Zhao”) and 8,360,599 B2 (“Ivey II”) ; and (2) the MaxLite G Series L18T8DF440-G.

1. Claim 13 Is Obvious. For claim 13, Plaintiffs identified only two putative departures from prior-art, conventional LEDs: (1) an LED strip disposed on the “inner circumferential surface” of the tube; and (2) a “diffusion film” “disposed on” the lamp tube. Day 3 Tr. 109:22-113:20. Both are obvious.

Zhao and Ivey II. Zhao and Ivey II, both concededly prior art, Day 2 Tr. 300:23-301:12, render claim 13 obvious. The Court did not construe what it means for the LED strip to be

“disposed on an inner circumferential surface of the main body.” ECF No. 57. But Plaintiffs’ invalidity expert, Dr. Phinney, testified that it means “you can put the adhesive on the bottom of the LED light strip and put that on the bottom of the – the tube.” Day 3 Tr. 109:22-110:25. Zhao discloses a “light source plate 210,” *i.e.*, an LED strip, “located inside the tube body 30,” as depicted below:

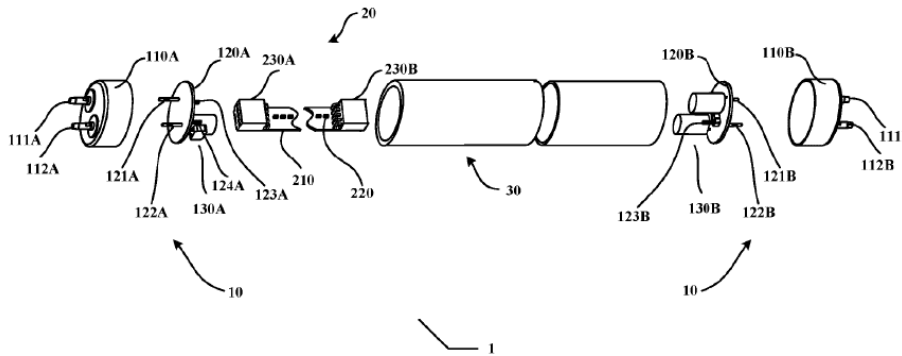


Fig.4

DX60 at 8:35-36 & Fig. 4. Zhao shows nothing between the LED strip and the tube’s “inner circumferential surface.” And “common sense” would inform skilled artisans that disposing the strip directly on the tube was one option. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006); Day 2 Tr. 303:3-9; Lebby DX at 62.

Plaintiffs’ only response came from Tao Jing, Super Lighting’s CEO, who testified that Super Lighting’s LED strips are “flexible and bendable,” so they could be “affix[ed] . . . into the inner circumferential -- the inner side of the lamp tube.” Day 1 Tr. 67:20-68:5.¹ But nothing in claim 13 requires the LED strip to be “flexible and bendable.” JX3 at 18:20-46. The ’540 patent explicitly covers not only bendable LED strips, but also a “hard circuit board . . . made of aluminum.” JX3 at 16:23-24.

¹ Plaintiffs did not invent flexible LED strips, which have existed since the early 2000s. U.S. Patent No. 6,914,194 B2 (granted July 5, 2005).

Zhao and Ivey II also disclosed diffusion film. Super Lighting did not invent diffusion film—a “decades-old” technology used in LED lamps since the early 2000s. Day 1 Tr. 196:3-16. For placement, Zhao advised that inside or outside the tube is fine: “[T]o avoid a dazzling effect, at least one of the inner and outer surfaces of the tube body made from glass can be subject to a grinding process” or coated with “light diffusing powder.” DX60 at 9:42-47. Ivey II disclosed that “light diffracting film can be applied to the exterior of the tube . . . or placed in the tube” as an “alternative to the light diffracting structures.” DX56 at 4:35-39. Ivey II thus teaches diffusion film as an alternative to Zhao’s diffusion mechanism, and both references say it can be placed on the inside or the outside of the tube. Day 2 Tr. 304:12-305:9. Skilled artisans would have every reason to do just that for this very simple technology. *Ruiz v. A.B. Chance Co.*, 357 F.3d 1270, 1276 (Fed. Cir. 2004). Zhao and Ivey II both address the “same problem,” Day 2 Tr. 305:10-14, and Ivey II specifically identifies diffusion film as an “alternative” to “light diffracting structures” taught by Zhao, DX56 at 4:35-36.

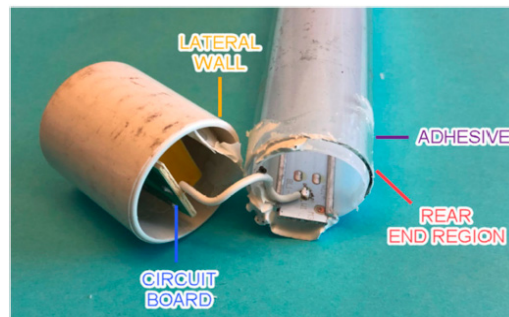
Plaintiffs’ expert offered no meaningful response. He asserted, in conclusory fashion, that combining Zhao and Ivey II’s diffusion disclosures relied on “hindsight.” Day 3 Tr. 113:5-20. But he never explained why applying a “decades-old” diffusion film technology to the inside of the light required hindsight, particularly when Ivey II explicitly identified that as an “alternative” to the diffusion technique in Zhao. Nor did he address secondary considerations for the ’540 patent. Day 3 Tr. 109:18-114:24. Zhao and Ivey II thus render claim 13 obvious.

MaxLite. The MaxLite device also renders both limitations obvious. CH’s expert, Dr. Lebby, testified that the MaxLite tube was on sale in 2014, and thus prior art. Day 2 Tr. 291:10-14. He testified that the MaxLite tube includes an LED strip disposed on the tube’s “inner circumferential surface,” and provided supporting pictures. Day 2 Tr. 296:7-19. Though the

Court expressed concern that Dr. Lebby “had no personal knowledge,” Day 3 Tr. 80:18-24, CH’s new trial motion explains that his un rebutted testimony was admissible and sufficient.

The MaxLite lamp also includes a “diffusion film.” Day 2 Tr. 297:25-298:14; Lebby DX at 53. Plaintiffs’ expert conceded that the “diffusion film” required by claim 13 can be on the *inside or the outside* of the tube. Day 1 Tr. 197:6-198:13. The MaxLite lamp’s disposition of diffusion film on the tube’s inside anticipates claim 13. Day 2 Tr. 297:25-298:14. Even if claim 13 required disposing the diffusion film on the outside, it would have been obvious to a skilled artisan to do so. *Id.* at 298:19-22; Lebby DX at 53. Electrical engineers with three years’ experience designing lighting fixtures, Day 3 Tr. 162:16-20, can apply a “decades-old” technology to a tube’s outside as easily as to its inside. Such “trivial improvements . . . would have been a matter of common sense,” and “no reasonable jury could find [them] to have been nonobvious.” *W. Union Co. v. MoneyGram Payment Sys., Inc.*, 626 F.3d 1361, 1372 (Fed. Cir. 2010). Claim 13 was thus obvious over MaxLite if not anticipated by it. *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019) (“[A]nticipation is the epitome of obviousness.’”).

2. Claim 14 Is Obvious. For Claim 14, the parties disputed whether the prior art disclosed stacking the circuit board, tube, adhesive, and lateral endcap “sequentially in a radial direction.” JX3 at 18:47-50. It is difficult to imagine any other order. The circuit board cannot go outside the tube. The endcap cannot go inside it. The MaxLite lamp transparently used that same order before the patent application was filed, as Dr. Lebby testified. Day 2 Tr. 299:2-24.



See Lebby DX at 54. The circuit board is inside the lamp tube, which is covered in adhesive and placed inside the end cap. Day 2 Tr. 299:2-24. Claim 14's sole additional limitation over claim 13 is thus satisfied, rendering claim 14 obvious as well.

Zhao discloses an almost identical arrangement: “[A]dhesives (e.g., light mud) can be used to adhere the *inner surface* of the end cap . . . and the *outer surface* of the tube body . . . together, and at the same time, the base plate,” *i.e.*, the circuit board, “is also fixed inside the end cap.” DX60 at 10:17-20 & Fig. 4 (emphasis added); Day 2 Tr. 305:24-306:6; Lebby DX at 68; p. 5, *supra*. Plaintiffs’ expert urged that Zhao’s circuit board in Figure 4 is “perpendicular” to the end cap and fits into it “like it’s at the bottom of a cup.” Day 3 Tr. 112:9-24. But stacking these elements “in a radial direction” requires only that the circuit board be *inside* the lamp tube, not that it be perpendicular, parallel, or at some other angle. JX3 at 18:47-50; Day 2 Tr. 292:22-293:12. On that issue, Plaintiffs’ expert offered nothing. Day 3 Tr. 112:9-24. Nor did he provide any reason to dispute that, whatever the exact disposition of the circuit board in Zhao, it would have been obvious to skilled artisans that the circuit board *could* be placed inside the lamp tube. *Id.* That conclusion is beyond dispute because the circuit board is “fixed together” with the “light source plate,” *i.e.*, the LED strip, which is necessarily inside the lamp tube. DX60 at 8:36-37, 10:4-9. Zhao thus renders claim 14 obvious.

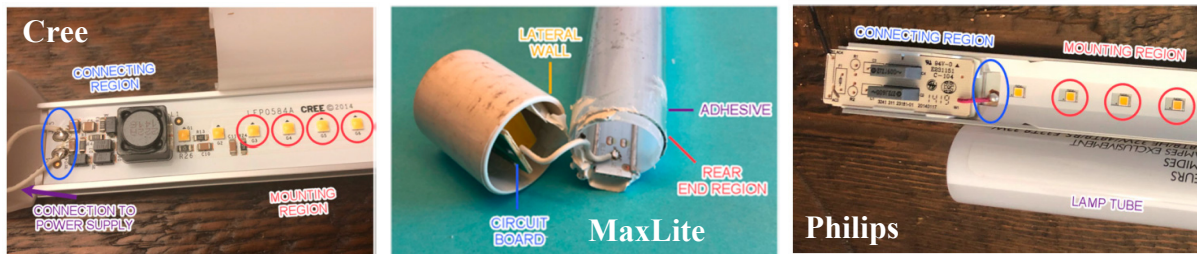
B. Claim 1 of the '125 Patent Is Invalid

Plaintiffs asserted only claim 1 of the '125 patent. ECF No. 286 at 2. That claim discloses an “LED tube lamp” with four features: (1) “two end caps”; (2) a “power supply” in one of the end caps; (3) an “LED light strip disposed on an inner circumferential surface of the lamp tube” with a “mounting region” for LED lights and a “connecting region” for soldering the light to the power source; and (4) a “protective layer disposed on a surface of the LED light strip.” JX2 at 99:7-24. Those features had long been common to *many* LED tube lamps.

Defendants identified three lamps—the Cree LED T84821L40K, the MaxLite tube, and the Philips InstantFit LED T816.5W/3500—on sale before the '125 patent's priority date, *i.e.*, February 12, 2015. Day 2 Tr. 274:13-291:18; Lebby DX at 5-31.

Although Dr. Lebby testified that the '125 patent was invalid, the Court granted JMOL in favor of Plaintiffs, finding Dr. Lebby's supporting evidence opinions was not "in the record." Day 3 Tr. 76:17-18, 80:18-24. That was error, as explained in CH's new trial motion. Instead Dr. Lebby's un rebutted testimony entitled CH to JMOL. *Evans*, 484 F.3d at 334.

The parties' sole dispute concerned whether the LED strip in the prior art was "disposed on an inner circumferential surface of the lamp tube." Day 2 Tr. 274:13-291:18. Dr. Lebby, testified that the Cree, MaxLite, and Philips tube lamps have an LED light strip affixed to the bottom of their tubes. Day 2 Tr. 280:19-281:2, 284:15-285:10, 287:5-17. And he supported his testimony with pictures showing LED strips on the bottom of each tube:



Lebby DX at 11, 19-20, 27. As with the '540 patent, nothing in claim 1 requires the LED strip to be "flexible and bendable." JX2 at 99:7-24; *see p. 5, supra*. The specification says that the "light strip 2 may be an elongated aluminum plate, FR 4 board, *or* a bendable circuit sheet." *Id.* at 29:10-11 (emphasis added); *see also id.* at 50:65-51:5. That the Cree, MaxLite, and Philips lights use an aluminum plate for their LED strip thus does not prevent them from anticipating.²

² Claim 1 requires disposition "on *an* inner circumferential surface"; prior art anticipates if any part of the LED strip touches any part of the tube. JX2 at 99:7-24 (emphasis added); *Warner-Lambert Co. v. Apotex Corp.*, 316 F.3d 1348, 1356 (Fed. Cir. 2003) ("a" is "generalizing").

C. The Asserted Claims of the '140 Patent Are Invalid

Plaintiffs asserted independent claims 1, 4, and 24, and dependent claims 4, 28, and 31 of the '140 patent. ECF No. 286 at 3; JX1 at 58:51-65:31. Claims 1 and 4 both recite a circuit that attempts to avoid unintended shocks by engaging the main circuit only when the LED lamp is properly installed. Both have four identical elements: (1) a “pulse generating circuit”; (2) a “switch circuit coupled to the pulse generating circuit, wherein the one or more pulse signals control turning the switch on and off”; (3) an “installation detection circuit” that conducts power to the tube lamp only when properly installed; and (4) a “sampling signal on the power loop” that informs the “installation detection circuit” whether the LED lamp is properly installed. JX1 at 58:61-59:32, 60:9-51. Claim 1 generates new “pulse signals independent of” whether it detects a “sampling signal.” *Id.* at 59:29-32. Claim 4 has an additional “latch” that receives and stores the last result from the “installation detection circuit.” *Id.* at 60:45-51; Day 2 Tr. 191:13-17. Claim 24 recites a method of “generating one or more pulse signals,” “detecting a sampling signal,” “comparing the sampling signal with a predefined signal,” and “controlling the switch circuit” based on the “predefined signal.” JX1 at 64:23-44.

1. Claim 1. Claim 1 was anticipated by International Patent Application WO 2012/066822 (“Ono”). DX67. The parties agreed Ono was prior art not considered by the examiner. Day 2 Tr. 193:17-24. There was no dispute that Ono disclosed a pulse generating circuit, a switch circuit, an installation detection circuit that generated power only during proper installation, and a sampling signal that identified whether the lamp was properly installed. *Compare* DX67 at 18, *with* JX1 at 58:61-59:32. Nor did the parties dispute that this configuration could “provide LED illumination which prevents electric shock” by detecting when one of a lamp’s ends “is in contact with a human body.” DX67 ¶63.

Plaintiffs contested only whether Ono disclosed a “pulse generating circuit” that turned

the “switch circuit” on or off. Day 3 Tr. 90:13-92:2. Ono clearly and convincingly does. Day 2 Tr. 196:19-204:25; DX67. It recites a “signal output circuit” that “outputs a voltage signal” consisting of, *e.g.*, “a rectangular **pulse** or a sine wave AC signal.” DX67 ¶47 (emphasis added). That pulse signal can be used to “determine[] whether there is an open state or a shorted state” between the terminals. *Id.* ¶51. Ono explained how the “signal output circuit” would turn the switch on or off: The “signal output circuit” is part of a larger “control circuit.” *Id.* ¶44. That “control circuit” can be “configured to switch the switch . . . from the ON state to the OFF state” when the “output voltage signal” determines “there is an open state between” the terminals. *Id.* ¶42; Day 2 Tr. 202:12-203:4; Hayes-Deats Ex. 26 (“Zane DX”) at 19-21.

Plaintiffs’ expert conceded that Ono uses pulses to detect whether installation is proper and, if it is, to turn on the light. Day 3 Tr. 90:23-91:2. But he argued that claim 1 requires the *opposite* order of operations: It “goes right ahead and turns on the light **first** and **then** determines if there’s a proper installation.” *Id.* at 91:1-5 (emphasis added). He cited no language in the ’140 patent for that conclusion. Claim 1 imposes no such requirement. Its “pulse signals control turning **on and off** the switch.” JX1 at 59:6-7 (emphasis added). When improper installation is detected, the pulse controls “the switch circuit to **remain in an off state**.” *Id.* at 59:13-14 (emphasis added). Conversely, if installation is proper, then it controls “the switch circuit to remain in a conducting state.” *Id.* at 59:18-19. Nothing in the claim requires turning the lamp on **before** detecting proper installation—which would make no sense for technology designed to **prevent** shocks. Plaintiffs thus relied on a non-existent requirement.

Claim 1 is also obvious in light of U.S. patent application No. 2014/0015345 A1 (“Ivey I”) together with international patent application No. WO 2015/066566 (“Sadwick”), both concededly prior art, Day 2 Tr. 210:8-9, 225:7-15. The examiner considered Sadwick, but not

Ivey I. *Id.* But Ivey I discloses a system for “protecting a person from electrical shock when interacting with an electrical device,” including an “LED-based light.” DX65 ¶¶2, 37. Plaintiffs disputed that Ivey I disclosed (a) LED tube lamps and (b) pulse signals controlling a switch circuit. Day 3 Tr. 92:21-103:17. But Ivey I unmistakably discloses both: It describes an “LED-based light” with a “first connection point” and a “second connection point.” DX65 ¶37. Plaintiffs’ expert urged “there are other types of lights that have a double-ended connection” but never disputed that skilled artisans would understand Ivey I’s description to *include* tube lamps. Day 3 Tr. 93:14-20. Nor did he contend that any double-ended LED light other than a tube lamp presented the relevant shock risk. Day 2 Tr. 213:13-15.

Ivey I also discloses using pulses to control a switch. It describes an “oscillator” that generates electrical pulses. DX65 ¶19. That “oscillator” is connected to a “detector,” which can detect, “due to the oscillating change,” “variations in a frequency response” when “for example a person, is represented as present in the circuit.” *Id.* ¶24. The detector’s output is then passed through a “comparator,” which compares it to a “detection threshold signal source” and determines whether “the load switch . . . is turned off.” *Id.* ¶¶29, 36; Day 2 Tr. 214:9-216:8.

Plaintiffs’ expert disputed that the oscillator controlled the switch. Day 3 Tr. 94:22-96:2. First, he contended that the ’140 patent requires activation of the switch *before* detection of proper installation. *Id.* at 94:22-95:12. But claim 1 imposes no such requirement. JX1 at 58:61-59:32; *see* p. 11, *supra*. Second, he argued that there is “just so much intervening structure and function” between the oscillator and the load switch. Day 3 Tr. 95:13-21. But inclusion of additional matter does not change that Ivey I discloses the claimed structure. *Orion*, 605 F.3d at 977. The oscillator permits detection of proper installation, which in turn governs whether the switch is turned on. DX65 ¶¶24, 29, 36. Finally, Plaintiffs’ expert claimed that “what actually

determines whether or not that switch turns off is a detection result, not a pulse.” Day 3 Tr. 95:22-96:2. But the detection result is “due to the oscillating change,” *i.e.*, the pulse, DX65 ¶24; the oscillator’s pulse thus causes the result that turns off the switch, *id.* ¶¶29, 36. “Without the pulse signals, the switch does not turn on or off.” Day 2 Tr. 216:7-8. Claim 1, moreover, *also* turns off the switch based on a “detection result,” rather than the pulse alone. When the “installation detection circuit” detects “during one of the one or more pulse signals that the LED tube lamp is not properly installed,” it controls “the switch circuit to remain in an off state.” JX1 at 59:8-15.

If Ivey I were not alone sufficient—and it is—Sadwick cures any conceivable gap. Sadwick discloses a “shock hazard protection circuit.” DX68. It describes using a “short turn-on (hiccup mode)” to “periodically send[] a pulse . . . to allow the transistor 1430 in Fig. 14 to be turned on.” *Id.* ¶83. Transistor 1430 is a load switch. *Id.* ¶80. Sadwick thus connects the pulse generating circuit *directly* to the load switch, exactly as in claim 1 of the ’140 patent. Skilled artisans would be motivated to combine that teaching with Ivey I because both are “oriented to” the same problem. Day 2 Tr. 225:20-229:4; *see ABT Sys., LLC v. Emerson Elec. Co.*, 797 F.3d 1350, 1361 (Fed. Cir. 2015). By teaching that the pulse generating circuit is directly connected to the switch, it demonstrated success as well. Day 2 Tr. 229:2-4.

2. Claim 4. Claim 4 is also obvious over Ivey I. Ivey I discloses claim 4’s tube lamp and pulse-controlled switch. *See* pp. 11-12, *supra*. It also renders the “latch” described in claim 4 obvious. Ivey I describes a “main load shut-off latch” that can be “configured to prevent the activation of the load switch . . . once the current limiting circuit . . . detects a subject, for example a person, is electrically connected to the circuit.” DX65 ¶41. It further discloses that the latch “may be connected to the oscillator.” *Id.* ¶43. A skilled artisan would thus have found

it obvious to use the latch to store the detection results produced by the oscillator to prevent activation of the switch. Day 2 Tr. 219:13-222:18. Plaintiffs' expert did not dispute that the oscillator and the latch "have to be synchronized at certain times," but denied that the oscillator "control[ed]" the latch between those times. Day 3 Tr. 99:10-15. But the '140 patent also disclosed a "time period between the pulses." JX1 at 45:41-42. And since the oscillator (with the detector) and the latch both seek to avoid shocks, DX65 ¶¶24, 41, synchronizing them as much as possible was a matter of "common sense," *DyStar*, 464 F.3d at 1367.

Sadwick, moreover, discloses "diverse possible responses to the detection of the fault hazard condition including, but certainly not limited to, a complete turn-off (i.e., latch off) until power is cycled . . . or, as another example, periodically turn[ing] back on for a brief moment to see if the hazard fault condition had cleared." DX68 ¶82. Because Sadwick discloses using a pulse to turn on the load switch, *id.* ¶83, skilled artisans would have understood pulses were one method for ensuring that the latch circuit turned power back on when "the hazard fault condition had cleared," Day 2 Tr. 229:5-230:12. Ivey I and Sadwick thus render claim 4 obvious.

3. Claim 24. Plaintiffs' expert did not dispute that claim 24—a method claim reciting the process implemented by the structures described in claim 4, JX1 at 64:23-44—rises or falls with claim 4, Day 3 Tr. 103:6-10. Claim 24's only additional element is "comparing the sampling signal with a predefined signal" to determine whether to turn the switch circuit to an "off state," JX1 at 64:39-44; Day 2 Tr. 217:19-218:7, which is met by Ivey I's "comparator" that "compares the output of the detector . . . to the output of the detection threshold signal" to determine whether to turn the load switch off. DX65 ¶¶30, 36. Claim 24 is thus obvious over Ivey I, either alone or in combination with Sadwick.

4. Dependent Claims. Dependent claims 5, 28, and 31 fail as well. CH's expert

explained that Ivey I and Sadwick rendered each of their additional limitations obvious. Day 2 Tr. 230:22-232:4. Plaintiffs' expert did not dispute that. He relied on the "reasons [he'd] stated" for claim 4. Day 3 Tr. 103:6-10. The dependent claims thus fall together with claim 4.

5. Secondary Considerations. Secondary considerations cannot avoid obviousness here. CH's expert testified there were "no secondary considerations of significance." Day 2 Tr. 245:2-14; Zane DX at 90. LED tube lamps that complied with UL certifications regarding shock protection had existed since 2014, Day 1 Tr. 194:23-195:18, before the '140 patent's priority date, Day 2 Tr. 225:4-10. Plaintiffs' expert never said otherwise. Plaintiffs attempted to show that infringing products enjoyed commercial success, Day 2 Tr. 262:1-266:18, but that effort "is undermined as a matter of law by [their] failure to introduce evidence related to the nexus between" such success and the invention, *ABT Sys.*, 797 F.3d at 1361; *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311-12 (Fed. Cir. 2006). This Court found a **lack** of nexus between "customer demand" and "the '140 patent's claimed circuit." ECF No. 286 at 37-38.

At bottom, Plaintiffs provided no evidence of a significant improvement in the technology in LED tube lamps from before the patents' priority dates. Day 1 Tr. 194:23-25. That the '125 patent disposed the LED strip directly on the tube, or that the '540 patent glued light diffusion film on the tube's outside, reflects at most only "trivial" changes that "would have been a matter of common sense" for electrical engineers. *W. Union*, 626 F.3d at 1372. The '140 patent is no different. Ono, Ivey I, and Sadwick disclosed identical (or nearly identical) methods of shock protection. *See* pp. 10-14, *supra*. That is why Plaintiffs worried internally, in evidence the Court excluded, [REDACTED] DX98.

III. THE EVIDENCE DID NOT SHOW INFRINGEMENT OF THE '140 PATENT

Plaintiffs failed to prove that devices using the LT2600 and the LT2600G chips infringe the '140 patent. *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1535 (Fed. Cir. 1991). Each

claim of the '140 patent requires “pulse signals” to detect whether an LED tube lamp is properly installed and turn the switch circuit on and off. *See* pp. 10-15, *supra*; JX1 at 58:61-65:31. The LT2600 and LT2600G chips use a different system, which detects “change of grid impedance,” rather than pulses in voltage. Hayes-Deats Ex. 27 (“DX107”); Day 2 Tr. 233:3-241:13.

The parties agreed that the LT2600 and LT2600G chips were identical for purposes of infringement. Day 1 Tr. 177:7-11. Plaintiffs “inappropriately assumed” those chips would “operate similar to the other chips” in the case, Day 2 Tr. 235:16-19, but the evidence showed otherwise. The structure of the LT2600 chip causes its “pulse generator” to “short out” when the switch is on. *Id.* at 235:5-13; Zane DX at 77. Plaintiffs’ own experimental measurements confirmed the difference between the LT2600 and the patented invention. For the patented invention, voltage measurements showed “relatively large spikes and smaller spikes,” “somewhat random in their nature.” Day 2 Tr. 239:20-22; Zane DX at 80. For the LT2600 chip, however, measurements did not show “any of those spikes,” reflecting a “dramatic difference” in operation. Day 2 Tr. 240:7-9; Zane DX at 80.

The LT2600 chips do not need to generate the claimed pulses because they detect proper installation based on grid impedance, rather than voltage alone. DX107; Day 2 Tr. 236:1-238:10. Lumixess, the manufacturer, uses its own “patented grid impedance measured algorithm” in the chips. DX107 at 1. The chips process “two signals, voltage and current.” Day 2 Tr. 238:2. They then use the “combination” of those two signals to create a “grid impedance measurement,” which they compare to a “threshold” impedance measurement. *Id.* at 238:5-7. It is Lumixess’s patented algorithm, *not* the '140 patent’s invention, that controls the on/off switch.

Plaintiffs did not dispute that evidence. Their infringement expert testified that the '140 patent’s pulses are “quick changes in *voltage*,” *not* in current or impedance, “that turn on and off

a semiconductor switch.” Day 1 Tr. 180:25-181:3 (emphasis added); *see id.* at 184:23-24 (“pulse is just a quick voltage on and off”). Plaintiffs’ invalidity expert agreed. He distinguished prior art systems that controlled the switch circuit by “detect[ing] the impedance.” Day 3 Tr. 91:9-19. The measure of impedance was, in his view, a “detection result,” not a pulse signal. *Id.* He urged that the prior art thus did not practice the ’140 patent because the pulse signal did not determine “whether or not the switch turns on.” *Id.* Plaintiffs cannot have it both ways, arguing that a system that controls the switch based on impedance is different for invalidity, but practices the invention for infringement. The Federal Circuit has “repeatedly rejected efforts to twist claims, like a nose of wax, in one way to avoid [invalidity] and another to find infringement.” *Data Engine Techs. LLC v. Google LLC*, 10 F.4th 1375, 1381 (Fed. Cir. 2021) (quotation marks omitted). Plaintiffs own validity evidence, if accepted, compels a finding of non-infringement for the LT2600 chips.³

IV. THE EVIDENCE WAS INSUFFICIENT TO SUPPORT WILLFULNESS

“To establish willfulness, the patentee must show the accused infringer had a specific intent to infringe at the time of the challenged conduct.” *Bayer Healthcare LLC v. Baxalta Inc.*, 989 F.3d 964, 987 (Fed. Cir. 2021) (citing *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 579 U.S. 93, 104 (2016)). “The sort of conduct warranting enhanced damages has been variously described in [Supreme Court] cases as willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, flagrant, or—indeed—characteristic of a pirate.” *Halo*, 579 U.S. at 103-04. “Knowledge of the asserted patent and evidence of infringement is necessary, but not sufficient.” *Bayer*, 989 F.3d at 988. This Court having granted enhanced damages, CH recognizes JMOL on willfulness is

³ In rebuttal closing, Plaintiffs argued for the first time that PX128.11 shows “pulses” from Lumixess chips. Day 4 Tr. 66:14-20. No expert supported that assertion. And it does not rebut the proof that impedance measurements, not pulse signals, control the switch. *See* p. 16, *supra*.

unlikely. ECF No. 286 at 4-20. They hereby preserve their arguments for appeal.

In closing, Plaintiffs based their willfulness case on arguments that CH ignored emails alleging infringement, copied Plaintiffs' products, raised no infringement defenses, never redesigned products, and were advised by a subsequently terminated attorney to avoid and delay merits litigation. Day 4 Tr. 43:3-22.

First, Plaintiffs urged that CH Lighting's president, Caiying Gan, was "just not polite" because she failed to respond to "three emails." Day 4 Tr. 43:5-10; Hayes-Deats Decl. Exs. 29-31. Unrebutted evidence at trial showed that Ms. Gan rarely paid attention to emails, had never seen the emails from Super Lighting, and "would not be able to read them and understand them" because they were in English. Day 1 Tr. 211:5-8, 213:13-215:25.

Plaintiffs alleged copying, invoking PX43, PX45, PX46, and PX47. Day 4 Tr. 43:11-16. But this Court was "not persuaded that Plaintiffs have shown any copying." ECF No. 286 at 7. The exhibits are "not persuasive evidence of copying" because "Plaintiffs do not tie [them] to the design and development of the accused products," witnesses testified no copying occurred, and "review[ing] competitor products" is "common practice" in the industry. *Id.* at 7-8.

Plaintiffs insistence that CH "admitted" infringement is incorrect at best and highly misleading. Day 4 Tr. 43:13-14. "[I]nvalidity operates as a complete defense to infringement for any product, forever.'" *TypeRight Keyboard Corp. v. Microsoft Corp.*, 374 F.3d 1151, 1157 (Fed. Cir. 2004). The agreement that led CH to drop non-infringement in part, moreover, was not admissible. Fed. R. Evid. 408; *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 875 n.3 (Fed. Cir. 2010). Nor was it probative: CH's strategic agreement to focus on invalidity defenses no more admitted infringement than Plaintiffs' simultaneous agreement to drop five patents admitted their non-infringement or invalidity. *See Barnett v. Midland Credit Mgmt., Inc.*, No. 19

Civ. 1839, 2019 WL 3825487, at *3 (N.D. Ill. Aug. 15, 2019). Plaintiffs know that: They insisted that the pretrial order state that their “withdrawal of the five additional patents” was not an “admission.” ECF No. 173 at 16. But Plaintiffs’ counsel nonetheless made CH’s supposed “admission” a centerpiece of their willfulness case, raising it no fewer than **15** times—without explaining that they had simultaneously *dropped all claims relating to five of the eight patents they had asserted*. See pp. 1-2, *supra*.

The argument that CH never redesigned its products fails for similar reasons. Day 4 Tr. 43:14-16. Defendants believed—and continue to believe—that their invalidity defenses obviate the need for redesign. See pp. 3-15, *supra*. Nor is lack of redesign evidence of “malicious” or “bad-faith” conduct. *Bayer*, 989 F.3d at 987-88. **Any** defendant who infringes despite “[k]nowledge of the asserted patent” can be accused of failing to redesign. *Id.* Such facts, standing alone, are “not sufficient” to prove willfulness. *Id.* Indeed, the Federal Circuit has vacated a willfulness determination despite evidence that the defendant “continued to use the [infringing product] throughout [its] redesign effort.” *Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337, 1346 (Fed. Cir. 2004).

Finally, Plaintiffs’ arguments about an email from counsel that CH terminated, Day 4 Tr. 43:17-20; Hayes-Deats Decl. Ex. 17 (“PX326”), cannot support a willfulness finding. As an attorney-client communication, it should never have been admitted. “The attorney-client privilege ranks among the oldest and most established evidentiary privileges known to our law.” *United States v. Jicarilla Apache Nation*, 564 U.S. 162, 165 (2011).⁴ Second, the email had no probative value. Willfulness concerns infringement, not litigation conduct. Alleged efforts to

⁴ The Court determined that Jack Jiang opened the door to its admission by testifying that it took Defendants several months to find counsel. Day 2 Tr. 151:18. But the Court later recognized that the email has limited impeachment value. ECF No. 286 at 28-30. And that rationale at most supported admitting the **date** of the communication, not its substance.

avoid litigation have no bearing on whether CH engaged in “deliberate or intentional *infringement*.” *Bayer*, 989 F.3d at 988 (emphasis added). The email states that CH believed they did not “infringe”; their “products are not in the scope [of Super’s] patent.” PX326 at 2. Third, the email does not even show avoidance, as the Court later determined. It conveyed prior counsel’s “initial thoughts (early in the morning).” PX326. It is not evidence of prior counsel’s “ultimate recommendation,” let alone that CH “adopted” it. ECF No. 286 at 29-30. Regardless, prior counsel’s thoughts were “not far from standard operating procedure for foreign defendants in a patent infringement case.” *Id.* at 28. Moreover, obtaining and following advice from counsel is precisely what courts should encourage. *Sunoco Partners Mktg. & Terminals, LP v. U.S. Venture, Inc.*, No. 4:19-CV-1145, 2021 WL 4242368, at *3 (S.D. Tex. Jan. 15, 2021).

Willfulness here was supported not by evidence but irrelevant and inflammatory argument based on litigation conduct, not product design. None of Plaintiffs’ arguments support a finding of “deliberate or intentional infringement,” much less at the time of the earliest infringing sales. *Bayer*, 989 F.3d at 987-88.

CONCLUSION

For the reasons set forth above, the Court should enter JMOL in favor of Defendants. If the Court grants JMOL on invalidity or infringement on fewer than all claims, it should order a new trial on damages. When a jury renders a “single verdict on damages, without breaking down the damages attributable to each patent, the normal rule” is that reversal on liability for any patent included in the verdict will “require a new trial as to damages.” *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1310 (Fed. Cir. 2007); ECF No. 230.

Dated: August 26, 2022

Respectfully submitted,

By: /s/ Jeffrey A. Lamken

Jeffrey A. Lamken (*Pro Hac Vice*)

California State Bar No. 154217

jlamken@mololamken.com

Caleb Hayes-Deats (*Pro Hac Vice*)

New York State Bar No. 5029384

chayes-deats@mololamken.com

MOLOLAMKEN LLP

The Watergate, Suite 500

600 New Hampshire Avenue, N.W.

Washington, D.C. 20037

Tel.: (202) 556-2000

Fax: (202) 556-2001

CERTIFICATE OF SERVICE

A true and correct copy of the foregoing instrument was served via electronic mail to all counsel of record on August 26, 2022.

/s/ Jeffrey A. Lamken

Jeffrey A. Lamken